ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION
REGULATIONS COMMITTEE MEETING
Friday, June 27, 2008
8:30 a.m.

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY
5301 NORTHSHORE DRIVE
NORTH LITTLE ROCK, ARKANSAS 72118

AGENDA

(Item #01)

I. Call Meeting to Order – 8:30 a.m.

II. Roll Call

III. Approval of May 22, 2008 Committee Minutes ***(Item #02)***

IV. Regulation No. 18, Sierra Club, Audubon, and Environmental Integrity Project Third-Party Rulemaking **APPENDIX I (Items #05-11)**
- **Docket No. 08-005-R**
- **Ilan Levin for Sierra Club, Audubon, and Environmental Integrity Project**
- **Minute Order (Initiate)**

V. Regulation No. 26, Sierra Club, Audubon, and Environmental Integrity Project Third-Party Rulemaking **APPENDIX II (Items #12-19**
- **Docket No. 08-006-R**
- **Ilan Levin for Sierra Club, Audubon, and Environmental Integrity Project**
- **Minute Order (Initiate)**

VI. Regulation No. 18, Arkansas Air Pollution Control Code **APPENDIX III *(Items #20-27)***
- **Docket No. 08-007-R**
- **Mike Bates for Arkansas Department of Environmental Quality**
- **Minute Order (Initiate)**

VII. Regulation No. 19, Regulations of the Arkansas Plan of Implementation for Air Pollution Control **APPENDIX IV (Items #28-35)**
- **Docket No. 08-008-R**
- **Mike Bates for Arkansas Department of Environmental Quality**
- **Minute Order (Initiate)**

VIII. Regulation No. 26, Regulations of the Arkansas Operating Air Permit Program — **APPENDIX V (Items #36-43)**

- **Docket No. 08-009-R**
- **Mike Bates for Arkansas Department of Environmental Quality**
- **Minute Order (Initiate)**

IX. Regulation No. 33, Motor Vehicle Racing Facility Regulations — **APPENDIX VI (Items #44-51)**

- **Docket No. 08-010-R**
- **Mike Bates for Arkansas Department of Environmental Quality**
- **Minute Order (Initiate)**

X. Regulation No. 11, Regulations for Solid Waste Disposal Fees, Landfill Post-Closure Trust Fund; and Recycling Grants Program — **APPENDIX VII (Items #52-58)**

- **Docket No. 08-011-R**
- **Anne Weinstein for Arkansas Department of Environmental Quality**
- **Minute Order (Initiate)**

XI. Adjourn

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

REGULATIONS COMMITTEE MEETING
8:30 a.m., Thursday, May 22, 2008

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas

Committee Members Attending: D. Hendrix, T. Schueck, L. Sickel, J. Simpson, B. White, and R. Young.

Members Absent: S. Henderson

Call to Order
Commissioner Young called the meeting to order at approximately 8:30 a.m.

Quorum
Commission Secretary called roll and a quorum was declared.

Approval of Minutes
Commissioner Young asked for a motion to approve the minutes of the April meeting. Commissioner Sickel moved to approve the minutes and Commissioner Schueck seconded the motion. The minutes were approved.

Regulation No. 19, Regulations of the Arkansas Plan of Implementation for Air Pollution Control; Docket No. 08-004-R.
Commissioner Young called on Mr. Mike Bates and he explained that the proposed changes are necessary to correct one typographical error and to incorporate changes made by Act 864 of 2007 and Act 143 of 2007. In addition, changes due to federal revisions include a definition of biomass, modification of the definitions of cogeneration unit, total energy input, and the clarification of the definitions of permitting authority. He stated that a public hearing was held. He asked the committee to recommend adoption of the minute order initiating the rulemaking process.

Commissioners asked questions and discussion followed.

Commissioner Sickel moved to recommend to the commission the adoption of the proposed minute order initiating the rulemaking process. Commissioner White seconded the motion. The motion carried.

Adjourn
There was no other business to come before the committee. Commissioner Young adjourned the meeting.

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION
REGULAR COMMISSION MEETING
Friday, June 27, 2008
9:00 a.m. (or immediately following the Regulations Committee Meeting)

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY
5301 NORTHSHORE DRIVE
NORTH LITTLE ROCK, ARKANSAS 72118

AGENDA

(Item #03)

I. Call Meeting to Order - 9:00 a.m.

II. Roll Call

III. Approval of May 22, 2008, Commission Meeting Minutes ***(Item #04)***

IV. Department Reports
A. Director's Report

B. Division Permit Reports **(*Items #74-79)***

V. Public Comments

VI. Commission Reports
A. Chair Thomas Schueck's Report
1. Nominations Committee Report due July 2008
- Nominations for Chair and Vice Chair

B. Regulations Committee – Randy Young
1. Regulation No. 18, Sierra Club, Audubon, and EIP Third-Party Rulemaking **APPENDIX I (Items #05-11)**
- Docket No. 08-005-R
- Ilan Levin for Sierra Club, Audubon, and Environmental Integrity Project
- Minute Order (Initiate)

2. Regulation No. 26, Sierra Club, Audubon, and EIP Third-Party Rulemaking **APPENDIX II (Items #12-19)**
- Docket No. 08-006-R
- Ilan Levin for Sierra Club, Audubon, and Environmental Integrity Project
- Minute Order (Initiate)

3. Regulation No. 18, Arkansas Air Pollution Control Code — **APPENDIX III** ***(Items #20-27)***

- **Docket No. 08-007-R**
- **Mike Bates for Arkansas Department of Environmental Quality**
- **Minute Order (Initiate)**

4. Regulation No. 19, Regulations of the Pollution Arkansas Plan of Implementation for Air Control — **APPENDIX IV** **(Items #28-35)**

- **Docket No. 08-008-R**
- **Mike Bates for Arkansas Department of Environmental Quality**
- **Minute Order (Initiate)**

5. Regulation No. 26, Regulations of the Arkansas Operating Air Permit Program — **APPENDIX V** **(Items #36-43)**

- **Docket No. 08-009-R**
- **Mike Bates for Arkansas Department of Environmental Quality**
- **Minute Order (Initiate)**

6. Regulation No. 33, Motor Vehicle Racing Facility Regulations — **APPENDIX VI** **(Items #44-51)**

- **Docket No. 08-010-R**
- **Mike Bates for Arkansas Department of Environmental Quality**
- **Minute Order (Initiate)**

7. Regulation No. 11, Regulations for Solid Waste Disposal Fees; Landfill Post-Closure Trust Fund; and Recycling Grants Program — **APPENDIX VII** **(Items #52-58)**

- **Docket No. 08-011-R**
- **Anne Weinstein for Arkansas Department Of Environmental Quality**
- **Minute Order (Initiate)**

VII. Wastewater Licensing Committee — **APPENDIX VIII** **(Items #59-61)**

- **Cindy Garner for Arkansas Department of Environmental Quality**
- **Minute Order (Adopt)**

VIII. El Dorado Joint Pipeline Group Permits — **APPENDIX IX** **(Items #62-69)**

- **Docket No. 07-006-P**
- **Recommended Decision (Order No. 9)**
- **Request for Oral Argument by the State of Louisiana**
  - **Richard H. Mays for State of Louisiana**
  - **Proposed Minute Order (Reverse)**
- **Request for Oral Argument by Louisiana Environmental Action Network**

- Jill M. Witkowski for Louisiana Environmental Action Network
- Proposed Minute Order (Reverse)

- Request for Oral Argument for STO and Kent Stegall
- T. David Carruth for STO and Kent Stegal

- El Dorado's Response to Requests for Oral Argument
- Charles R. Nestrud for El Dorado Joint Pipeline Group

- ADEQ's Response to Request for Oral Argument
- Dara Hall for Arkansas Department of Environmental Quality

- AHO's Proposed Minute Order (Adopt)

IX. Administrative Hearing Officer – Michael O'Malley

A. Settled Cases per Regulation No. 8

1. In the Matter of Co-Bar Contracting Inc. – Elderidge Ranch Project
- Docket No. 08-001-NOV
APPENDIX X (Items #70-71)

2. In the Matter of B & J Coal Company
- Docket No. 07-005-NOV
APPENDIX XI (Items #72-73)

X. Adjourn

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

REGULAR COMMISSION MEETING
9:00 a.m., Thursday, May 22, 2008

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas

Commissioners Attending: D. Hendrix, D. Samples, T. Schueck, L. Sickel, J. Simpson, W. Thompson, E. Valdez, B. White, and R. Young.

Commissioners Absent: L. Bengal, S. Henderson, C. McGrew, and J. Shannon.

Visitors: Terry Horton, FTN; Craig Noble, City Corporation; Vince Blubaugh, GBMc & Associates; Peggy Daven, Malvern; Richard McCarville, Malvern; David Jurgens & Duyen Tran, City of Fayetteville; Al Thomas, Southland Septic Service; Bob Blanz, & Becky Keogh, CH2M Hill; Steve Weaver, AEF; Charles Moulton, Attorney General's Office; and Andrew Parker, Governor's Office.

Director's Report
Since there was not a quorum at the beginning of the meeting, the Chair asked to Director to give her report.

Director Teresa Marks reported on a meeting with the Environmental Protection Agency ("EPA") Region VI Division in Dallas.

Director Marks discussed the Global Warming Commission meetings and reported on a tour of the Brownfields sites in Camden that are being redeveloped and reclaimed.

She stated that she had toured the new wastewater treatment plant that will be opening in Fayetteville.

Commissioners asked questions and discussion followed.

Commissioner Schueck asked questions regarding the Freedom of Information Act. Ms. Ellen Carpenter and Mr. Dara Hall of ADEQ and Mr. Charles Moulton of the Attorney General's Office answered questions. Discussion followed.

Commissioner Schueck asked questions about the land application and reserve pit permit appeals. Director Marks explained that

there were two appeals in regard to the general permits on the oil and gas land application and reserve pit permits. One was an administrative appeal to the Commission that was filed by Natural Gas Operators in the Arkoma Basin which has been resolved and the other is a lawsuit that was filed challenging the department's authority to issue the permits which is in Circuit Court in Union County in El Dorado. She stated that a motion to dismiss was filed by the Attorney General's office and called on Mr. Charles Moulton to give a report. Mr. Moulton stated that the Motion to Dismiss was denied and that a Motion for Stay was also filed by the plaintiffs in the case which is a request for adjunctive relief suspending the equability of both the pit and the land application permits. That motion was also denied. The plaintiff argues that the Oil and Gas Commission has complete jurisdiction over anything associated with production of oil and gas and the department and Commission are usurping their authority. Commissioners asked questions and discussion followed.

Commissioner Schueck asked questions regarding the Southwestern Electric Power Company ("SWEPCO"). Director Marks stated that a permit has not been issued yet. EPA and the Federal Land Managers both filed comments on the draft permit. The district court vacated the Clean Air Mercury rule and SWEPCO will have to submit a MAC analysis for mercury.

A lawsuit was filed against SWEPCO concerning activities at its proposed site that had begun prior to the issuance of an air permit. The department determined some activities were allowable. A full evidencary hearing in federal court is set for the first week in June. Discussion followed.

Commissioner Schueck asked questions regarding the Ellis Power Phase II in Osceola. Director Marks stated that the department had received a permit application on the second plant (Plum Point) and they have requested additional information and it is still being reviewed. Discussion followed.

Call to Order
Chair Schueck called the meeting to order at 9:40 a.m.

Quorum
Commission Secretary called roll and announced that a quorum was present.

Approval of Minutes
Chair Schueck asked for a motion approving the April 2008 meeting minutes. Commissioner Thompson made a motion to approve the minutes. Commissioner Sickel seconded the motion. The motion passed.

Public Comments
Chair Schueck stated that there was one public comment and called upon Ms. Peggy Daven to speak.

Peggy Daven
Ms. Daven thanked the Commission, Director Teresa Marks, and her staff for always being available to answer her questions regarding the Southland Septic Service permit. She suggested updating the Commission's regulations.

Commissioners asked questions. Discussion followed.

Commission Reports
A. Regulations Committee - Randy Young
1. Regulation No. 19, Regulations of the Arkansas Plan of Implementation for Air Pollution Control; Docket No. 08-004-R
Commissioner Young reported that the Regulations Committee met and heard a presentation from the department to initiate rulemaking for Regulation No. 19 (Regulations of the Arkansas Plan of Implementation for Air Pollution Control). The proposed changes are necessary to correct one typographical error and to incorporate changes made by Act 864 of 2007 and Act 143 of 2007. In addition, changes due to federal revisions include a definition of biomass, modification of the definitions of cogeneration unit, total energy input, and the clarification of the definitions of permitting authority.

The committee voted to recommend adoption of the minute order to initiate the rulemaking process. Commissioner Young made a motion to initiate the rulemaking and Commissioner Thompson seconded the motion. The motion passed. **(Minute Order No. 08-13).**

In The Matter of Co-Bar Contracting, Inc. ("Co-Bar"), Elderidge Ranch Project; Docket No. 08-001-P
Judge O'Malley reported that ADEQ and Co-Bar had agreed to a settlement and therefore the oral argument was being cancelled.

Commissioners asked questions and discussion followed.

A. Recommended Decision

1. In the Matter of Co-Bar Contracting, Inc. – Faulkner Crossing Project; Docket No. 07-008-NOV

Judge O'Malley reported that a Recommended Decision (Order No. 4) had been filed and asked the Commission to adopt the minute order approving Order No. 4 (Recommended Decision).

Commissioner Young moved to adopt the minute order and Commissioner White seconded the motion. Commissioner Schueck recused from voting. The motion passed. **(Minute Order No. 08-14).**

B. Settled Cases per Regulation No. 8.

1. In the Matter of General Permit No. 00000-WG-P; Docket No. 07-014-P.

Judge O'Malley reported that the parties had met and resolved the issues and filed a Permit Appeal Resolution. The case is settled.

Adjourn

There being no further business the meeting was adjourned.

THE NEXT COMMISSION MEETING IS SCHEDULED FOR 9:00 a.m., Friday, June 27, 2008.

APPROVED MINUTE ORDERS
REGULAR COMMISSION MEETING

08-13 The Commission adopted a Minute Order initiating the rulemaking process to Regulation No. 19 (Regulations of the Arkansas Plan of Implementation for Air Pollution Control); Docket No. 08-004-R.

08-14 The Commission adopted a Minute Order regarding the Recommended Decision (Order No. 4) In the Matter of Co-Bar Contracting, Inc. – Faulkner Crossing Project; Docket No. 07-008-NOV.

BEFORE THE ARKANSAS COMMISSION ON POLLUTION CONTROL AND ECOLOGY

IN RE: REQUEST OF THE SIERRA CLUB, AUDUBON, ENVIRONMENTAL INTEGRITY PROJECT, TO INITIATE RULEMAKING TO AMEND REGULATION NO. 18	§ § § § § § § § §	**DOCKET NO. _____**

PETITION TO INITIATE THIRD PARTY RULEMAKING TO AMEND REGULATION NO. 18

COME NOW, Sierra Club, Audubon, and Environmental Integrity Project (hereinafter, "Petitioners"), and, for their request to initiate third party rulemaking, state as follows:

1. This Petition is submitted pursuant to Section 3.4 of Regulation 8 of the Arkansas Pollution Control and Ecology Commission ("APCEC"). As more fully explained below, Petitioners are requesting an amendment to the definition of the term "Air contaminant" in Regulation 18. Specifically, Petitioners are requesting the deletion of the term *carbon dioxide* from the definition.

2. Regulation 18, Chapter 2 (Definitions) contains the following definition:

> **"Air contaminant"** means any solid, liquid, gas, or vapor or any combination thereof. The following shall not be considered air contaminants: water vapor, oxygen, carbon dioxide, nitrogen, hydrogen, and inert gases.

3. Petitioners request that the term "carbon dioxide" be deleted from the definition in Regulation 18, as follows:

> **"Air contaminant"** means any solid, liquid, gas, or vapor or any combination thereof. The following shall not be considered air

contaminants: water vapor, oxygen, ~~carbon dioxide,~~ nitrogen, hydrogen, and inert gases.

A mark-up version of the proposed changes is included as Exhibit A to this Petition.

4. The change is necessary in order to update the definitions to reflect federal law and mainstream scientific consensus.

5. The United States Supreme Court, in addressing the issue of whether greenhouse gases, including CO_2, are considered pollutants within the meaning of the federal Clean Air Act, stated:

> The Clean Air Act's sweeping definition of air pollutant includes *any* air pollution agent or combination of such agents, including *any* physical, chemical . . . substance or matter which is emitted into or otherwise enters the ambient air . . . .. §7602(g) (emphasis added). On its face, the definition embraces all airborne compounds of whatever stripe, and underscores that intent through the repeated use of the word "any." Carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons are without a doubt physical [and] chemical . . . substance[s] which [are] emitted into . . . the ambient air. The statute is unambiguous.

Massachusetts v. EPA, 127 S.Ct. 1438, 1460; 167 L.Ed.2d 248 (2007).

6. Carbon dioxide is a greenhouse gas pollutant that contributes to climate change. See, Massachusetts v. EPA, 127 S.Ct. 1438, 1447-49, 1455; 167 L.Ed.2d 248 (2007) (describing how "the scientific understanding of climate change [has] progressed" since the 1970s and discussing the evidence showing that "[t]he harms associated with climate change are serious and well recognized."). The international scientific consensus is that the earth's climate is changing and that human activity is a major factor. Accelerating global climate change poses a danger to humans and the environment.[1]

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[1] See generally, Albritton, D.L., et al., Technical Summary, Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) (2001); Epstein, P.R. and E. Mills (eds.), Climate Change Futures: Health, Ecological and Economic Dimensions (2005); Intergovernmental Panel on Climate Change (IPCC),

7. The International Panel on Climate Change identified the following impacts as either "likely" or "very likely" to occur as CO_2 concentrations in the atmosphere increase:

- Higher maximum temperatures over most land areas;
- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures and fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- More intense precipitation events over many areas; and
- Increased summer dry conditions and associated risk of drought over most mid-latitude continents.

8. In 2000, the U.S. Global Change Research Program, a federal advisory committee created under the Global Change Research Act of 1990, released its report predicting the effects of climate change on each region of the U.S.[2] According to the report, effects of climate change on Arkansas are expected to be significant. Increased average temperatures, modest to fairly large increases in precipitation, and more intense rainfalls and droughts associated with El Niño and La Niña weather patterns are expected. *Id.* at 47. The Southeastern United States is prone to frequent natural weather disasters that affect human life and property. These types of weather conditions, which

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Climate Change 2001: Synthesis Report (Summary for Policymakers) (2001); Overpeck, J.T., et al., "Arctic System on Trajectory to New, Seasonally Ice-free State," EOS (2005); Parmesan, C. and H. Galbraith, Pew Center on Global Climate Change, Observed Impacts of Global Climate Change in the U.S. (Sept. 2004); Thomas, C.D., et al., "Extinction Risk from Climate Change," 427 Nature 145 (Jan. 8, 2004); World Health Organization, The World Health Report 2002 (2002); Thomas E. Downing, et al., Social Cost of Carbon: A Closer Look at Uncertainty (July 2005); Paul Watkiss, et al., The Social Cost of Carbon (SCC) Review-Methodological Approaches for Using SCC Estimates in Policy Assessment, Final Report (Nov.2005); International Panel on Climate Change, Climate Change 2007: The Physical Science Basis, Summary for Policy Makers (See, IPCC 2007 - Summary for Policy Makers, Exhibit B).

[2] National Assessment Synthesis Team, *Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change,* U.S. Global Change Research Program, Washington DC, 2000. (See, Climate Change Impacts on the United States: Assessment Overview, Exhibit C.)

will increase as global climate change worsens, have already caused serious health, welfare, and economic problems in the region. For example, "[t]he southern heat wave and drought of 1998 resulted in damages in excess of $6 billion and at least 200 deaths." *Id.* at 48.

9. Simply put, the more CO_2 humans release into the atmosphere, the more serious the impacts on public health and the environment.

10. While Petitioners do assert that unless releases of greenhouse gas pollution, including CO_2, are curbed and significantly decreased, greenhouse gas pollution will pose significant threats to the health, welfare, and economy of Arkansas, it is important to note that this petition for third party rulemaking does *not* seek any additional new regulation of greenhouse gases.

11. With this request, Petitioners are not seeking any proposed regulation that is more stringent than federal requirements. In fact, Petitioners do not seek *any* regulatory standard, effluent limit, procedure or other requirement within the meaning of APCEC Regulation 8, Section 3.5.3.

12. The requested amendment to the definition in Regulation 18 would simply update these definitions to reflect current mainstream scientific consensus, and would make the definitions consistent with federal law.

13. The Questionnaire for Filing Proposed Rules and regulations with the Arkansas Legislative Council and Joint Interim Committee is attached hereto as Exhibit D and is incorporated herein.

14. The Financial Impact Statement is attached hereto as Exhibit E and is incorporated herein.

15. Petitioners have reviewed Act 143 of 2007 (formerly Executive Order 05-04) and have determined that the request herein does not affect small business because the proposed change simply deletes a term from the current definition, and does not propose *any* regulatory standard, effluent limit, procedure or other requirement.

16. The Economic Impact/Environmental Benefit Analysis is attached hereto as Exhibit F and is incorporated herein.

17. The Minute Order to initiate rulemaking is attached hereto as Exhibit G and is incorporated herein.

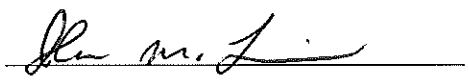
WHEREFORE, Petitioners request that the Commission initiate a rulemaking to amend Regulation 18 in the manner requested in paragraph 3 above.

Respectfully Submitted,

Glen Hooks
Regional Representative
Sierra Club
1308 West 2nd Street
Little Rock, AR 72201

Kenneth L. Smith
Executive Director
Audubon Arkansas
Suite 450, 201 East Markham Street
Little Rock, AR 72201

Ilan Levin
Senior Attorney
Environmental Integrity Project
1002 West Ave., Suite 300
Austin, Texas 78701
Tel. (512) 619-7287
Fax. (512) 479-8302

By: 

CERTIFICATE OF SERVICE

I, Ilan Levin, state that I have, on this 16th day of May, 2008, served a copy of the foregoing document to Ms. Teresa Marks, Director, ADEQ, 5301 Northshore Drive North Little Rock, AR 72118-5317, via FedEx overnight (next business morning).

Ilan M. Levin

Exhibit A

Mark-up Version of Proposed Change

014.00-018

DRAFT SUBMITTED MAY 2008

Arkansas Pollution Control and Ecology Commission

Regulation 18

Arkansas Air Pollution Control Code

Effective Date: February 15, 1999

Reg 18 - Mark-P

CHAPTER 2: DEFINITIONS

When used in this Code:

"12 month period" means a period of 12 consecutive months determined on a rolling basis with a new 12-month period beginning on the first day of each calendar month.

"Actual emissions" means the quantity of air contaminants emitted from a stationary source considering emissions control equipment and actual hours of source operation or amount of material processed.

"Air contaminant" means any solid, liquid, gas, or vapor or any combination thereof. The following shall not be considered air contaminants: water vapor, oxygen, ~~carbon dioxide,~~ nitrogen, hydrogen, and inert gases.

"Air contamination" means the presence in the outdoor atmosphere of one (1) or more air contaminants which contribute to a condition of air pollution.

"Air pollution" means the presence in the outdoor atmosphere of one (1) or more air contaminants in quantities, or characteristics, and or a duration which are materially injurious, or can be reasonably expected to become materially injurious, to human, plant, animal life or property, or which unreasonably interfere with enjoyment of life or use of property throughout the state or throughout the area of the state as shall be affected thereby.

"Commission" means the Commission on Pollution Control and Ecology of the State of Arkansas.

"Conditions of air pollution" as distinguished from **"air pollution"** in a given area shall be deemed to exist when the Director finds that the National Ambient Air Quality Standards, as established from time to time by the United States Environmental Protection Agency, have been exceeded in such area, or when the Director finds that extraordinary measures are necessary to prevent their being exceeded.

"Conditions of episodic air pollution" in a given area shall be deemed to exist when the Director finds that meteorological conditions are such as to minimize the normal dispersion of air contaminants and that the following levels are determined to exist in a given area and that such levels can be reasonably expected to persist for twelve (12) or more hours or increase unless control actions are taken:

> Sulfur dioxide (SO_2) of a concentration equal to or greater than 800 $\mu g/m^3$ (1.3 ppm) for any 24 hour average (where $\mu g/m^3$ means micrograms per cubic meter and where ppm means parts per million), or where particulate matter (PM) of a concentration equal to or greater than 375 $\mu g/m^3$ for any 24 hour average or where the coefficient of haze (COH) is

Exhibit B

IPCC 2007 - Summary for Policy Makers

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

Climate Change 2007: The Physical Science Basis

Summary for Policymakers

Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change

This Summary for Policymakers was formally approved at the 10th Session of Working Group I of the IPCC, Paris, February 2007.

Note:
Text, tables and figures given here are final but subject to copy-editing.

Corrections made as of February 5th, 2007

Drafting Authors:
Richard Alley, Terje Berntsen, Nathaniel L. Bindoff, Zhenlin Chen, Amnat Chidthaisong, Pierre Friedlingstein, Jonathan Gregory, Gabriele Hegerl, Martin Heimann, Bruce Hewitson, Brian Hoskins, Fortunat Joos, Jean Jouzel, Vladimir Kattsov, Ulrike Lohmann, Martin Manning, Taroh Matsuno, Mario Molina, Neville Nicholls, Jonathan Overpeck, Dahe Qin, Graciela Raga, Venkatachalam Ramaswamy, Jiawen Ren, Matilde Rusticucci, Susan Solomon, Richard Somerville, Thomas F. Stocker, Peter Stott, Ronald J. Stouffer, Penny Whetton, Richard A. Wood, David Wratt

Draft Contributing Authors:
Julie Arblaster, Guy Brasseur, Jens Hesselbjerg Christensen, Kenneth Denman, David W. Fahey, Piers Forster, Eystein Jansen, Philip D. Jones, Reto Knutti, Hervé Le Treut, Peter Lemke, Gerald Meehl, Philip Mote, David Randall, Dáithí A. Stone, Kevin E. Trenberth, Jürgen Willebrand, Francis Zwiers

IPCC Secretariat, c/o WMO, 7bis, Avenue de la Paix, C.P. N° 2300, 1211 Geneva 2, SWITZERLAND
Phone: +41 22 730 8208/8254/8284 Fax: +41 22 730 8025/8013
E-mail: IPCC-Sec@wmo.int Website: http://www.ipcc.ch

INTRODUCTION

The Working Group I contribution to the IPCC Fourth Assessment Report describes progress in understanding of the human and natural drivers of climate change[1], observed climate change, climate processes and attribution, and estimates of projected future climate change. It builds upon past IPCC assessments and incorporates new findings from the past six years of research. Scientific progress since the TAR is based upon large amounts of new and more comprehensive data, more sophisticated analyses of data, improvements in understanding of processes and their simulation in models, and more extensive exploration of uncertainty ranges.

The basis for substantive paragraphs in this Summary for Policymakers can be found in the chapter sections specified in curly brackets.

HUMAN AND NATURAL DRIVERS OF CLIMATE CHANGE

Changes in the atmospheric abundance of greenhouse gases and aerosols, in solar radiation and in land surface properties alter the energy balance of the climate system. These changes are expressed in terms of radiative forcing[2], which is used to compare how a range of human and natural factors drive warming or cooling influences on global climate. Since the Third Assessment Report (TAR), new observations and related modelling of greenhouse gases, solar activity, land surface properties and some aspects of aerosols have led to improvements in the quantitative estimates of radiative forcing.

Global atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years (see Figure SPM-1). The global increases in carbon dioxide concentration are due primarily to fossil fuel use and land-use change, while those of methane and nitrous oxide are primarily due to agriculture. {2.3, 6.4, 7.3}

- Carbon dioxide is the most important anthropogenic greenhouse gas (see Figure SPM-2). The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280 ppm to 379 ppm[3] in 2005. The atmospheric concentration of carbon dioxide in 2005 exceeds by far the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores. The annual carbon dioxide concentration growth-rate was larger during the last 10 years (1995 – 2005 average: 1.9 ppm per year), than it has been since the beginning of continuous direct atmospheric measurements (1960 – 2005 average: 1.4 ppm per year) although there is year-to-year variability in growth rates. {2.3, 7.3}
- The primary source of the increased atmospheric concentration of carbon dioxide since the pre-industrial period results from fossil fuel use, with land use change providing another significant but smaller contribution. Annual fossil carbon dioxide emissions[4] increased from an average of 6.4 [6.0 to 6.8] [5] GtC

[1] *Climate change* in IPCC usage refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in the Framework Convention on Climate Change, where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.

[2] *Radiative forcing* is a measure of the influence that a factor has in altering the balance of incoming and outgoing energy in the Earth-atmosphere system and is an index of the importance of the factor as a potential climate change mechanism. Positive forcing tends to warm the surface while negative forcing tends to cool it. In this report radiative forcing values are for 2005 relative to pre-industrial conditions defined at 1750 and are expressed in watts per square metre ($W\ m^{-2}$). See Glossary and Section 2.2 for further details.

[3] ppm (parts per million) or ppb (parts per billion, 1 billion = 1,000 million) is the ratio of the number of greenhouse gas molecules to the total number of molecules of dry air. For example: 300 ppm means 300 molecules of a greenhouse gas per million molecules of dry air.

[4] Fossil carbon dioxide emissions include those from the production, distribution and consumption of fossil fuels and as a by-product from cement production. An emission of 1 GtC corresponds to 3.67 $GtCO_2$.

[5] In general, uncertainty ranges for results given in this Summary for Policymakers are 90% uncertainty intervals unless stated otherwise, i.e., there is an estimated 5% likelihood that the value could be above the range given in square brackets and 5% likelihood that the value could be below that range. Best estimates are given where available. Assessed uncertainty intervals are not always symmetric about the corresponding best estimate. Note that a number of uncertainty ranges in the Working Group I TAR corresponded to 2-sigma (95%), often using expert judgement.

(23.5 [22.0 to 25.0] $GtCO_2$) per year in the 1990s, to 7.2 [6.9 to 7.5] GtC (26.4 [25.3 to 27.5] $GtCO_2$) per year in 2000–2005 (2004 and 2005 data are interim estimates). Carbon dioxide emissions associated with land-use change are estimated to be 1.6 [0.5 to 2.7] GtC (5.9 [1.8 to 9.9] $GtCO_2$) per year over the 1990s, although these estimates have a large uncertainty. {7.3}

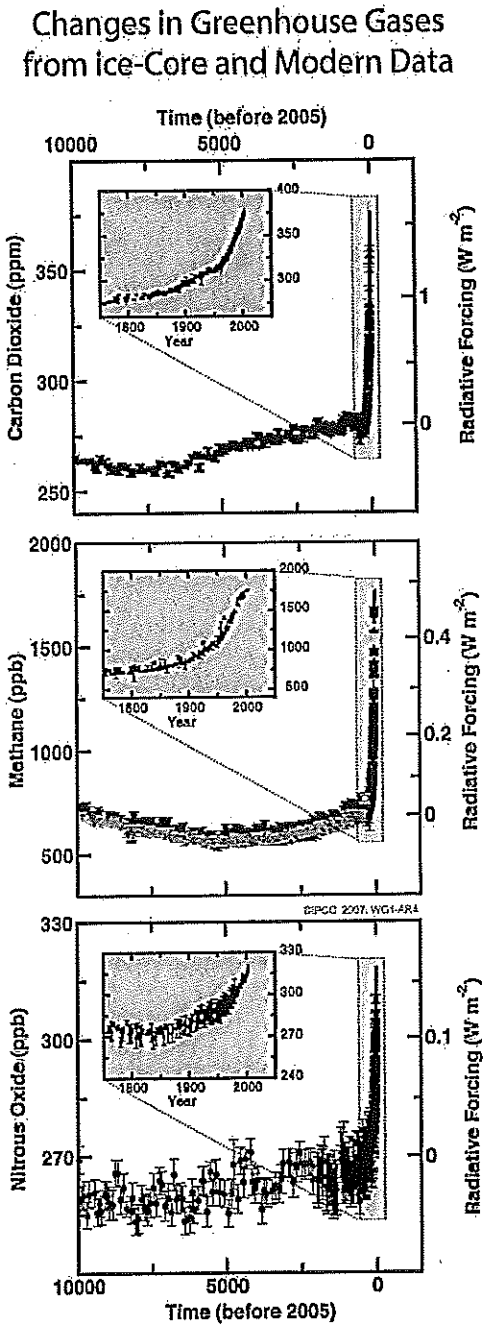


FIGURE SPM-1. Atmospheric concentrations of carbon dioxide, methane and nitrous oxide over the last 10,000 years (large panels) and since 1750 (inset panels). Measurements are shown from ice cores (symbols with different colours for different studies) and atmospheric samples (red lines). The corresponding radiative forcings are shown on the right hand axes of the large panels. {Figure 6.4}

- The global atmospheric concentration of methane has increased from a pre-industrial value of about 715 ppb to 1732 ppb in the early 1990s, and is 1774 ppb in 2005. The atmospheric concentration of methane in 2005 exceeds by far the natural range of the last 650,000 years (320 to 790 ppb) as determined from ice cores. Growth rates have declined since the early 1990s, consistent with total emissions (sum of anthropogenic and natural sources) being nearly constant during this period. It is *very likely*[6] that the observed increase in methane concentration is due to anthropogenic activities, predominantly agriculture and fossil fuel use, but relative contributions from different source types are not well determined. {2.3, 7.4}
- The global atmospheric nitrous oxide concentration increased from a pre-industrial value of about 270 ppb to 319 ppb in 2005. The growth rate has been approximately constant since 1980. More than a third of all nitrous oxide emissions are anthropogenic and are primarily due to agriculture. {2.3, 7.4}

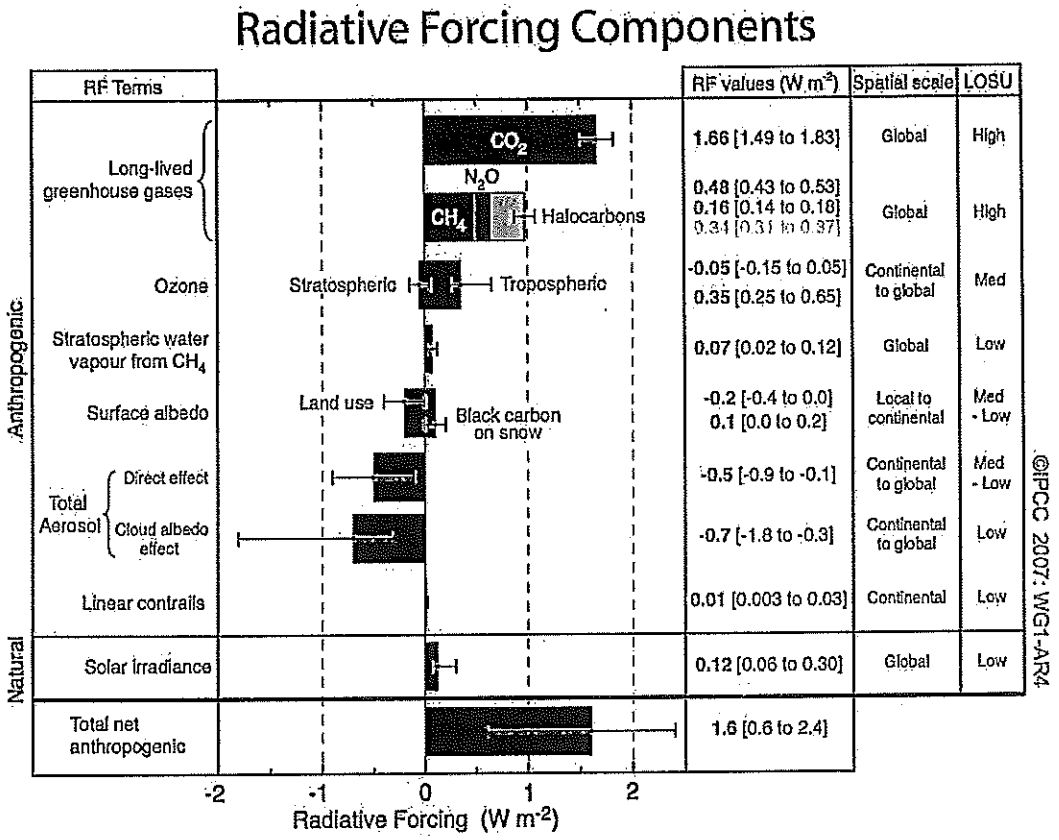


FIGURE SPM-2. Global-average radiative forcing (RF) estimates and ranges in 2005 for anthropogenic carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and other important agents and mechanisms, together with the typical geographical extent (spatial scale) of the forcing and the assessed level of scientific understanding (LOSU). The net anthropogenic radiative forcing and its range are also shown. These require summing asymmetric uncertainty estimates from the component terms, and cannot be obtained by simple addition. Additional forcing factors not included here are considered to have a very low LOSU. Volcanic aerosols contribute an additional natural forcing but are not included in this figure due to their episodic nature. Range for linear contrails does not include other possible effects of aviation on cloudiness. {2.9, Figure 2.20}

[6] In this Summary for Policymakers, the following terms have been used to indicate the assessed likelihood, using expert judgement, of an outcome or a result: *Virtually certain* > 99% probability of occurrence, *Extremely likely* > 95%, *Very likely* > 90%, *Likely* > 66%, *More likely than not* > 50%, *Unlikely* < 33%, *Very unlikely* < 10%, *Extremely unlikely* < 5%. (See Box TS.1.1 for more details).

The understanding of anthropogenic warming and cooling influences on climate has improved since the Third Assessment Report (TAR), leading to *very high confidence*[7] that the globally averaged net effect of human activities since 1750 has been one of warming, with a radiative forcing of +1.6 [+0.6 to +2.4] W m^{-2}. (see Figure SPM-2). {2.3. 6.5, 2.9}

- The combined radiative forcing due to increases in carbon dioxide, methane, and nitrous oxide is +2.30 [+2.07 to +2.53] W m^{-2}, and its rate of increase during the industrial era is *very likely* to have been unprecedented in more than 10,000 years (see Figures SPM-1 and SPM-2). The carbon dioxide radiative forcing increased by 20% from 1995 to 2005, the largest change for any decade in at least the last 200 years. {2.3, 6.4}
- Anthropogenic contributions to aerosols (primarily sulphate, organic carbon, black carbon, nitrate and dust) together produce a cooling effect, with a total direct radiative forcing of -0.5 [-0.9 to -0.1] W m^{-2} and an indirect cloud albedo forcing of -0.7 [-1.8 to -0.3] W m^{-2}. These forcings are now better understood than at the time of the TAR due to improved *in situ*, satellite and ground-based measurements and more comprehensive modelling, but remain the dominant uncertainty in radiative forcing. Aerosols also influence cloud lifetime and precipitation. {2.4, 2.9, 7.5}
- Significant anthropogenic contributions to radiative forcing come from several other sources. Tropospheric ozone changes due to emissions of ozone-forming chemicals (nitrogen oxides, carbon monoxide, and hydrocarbons) contribute +0.35 [+0.25 to +0.65] W m^{-2}. The direct radiative forcing due to changes in halocarbons[8] is +0.34 [+0.31 to +0.37] W m^{-2}. Changes in surface albedo, due to land-cover changes and deposition of black carbon aerosols on snow, exert respective forcings of -0.2 [-0.4 to 0.0] and +0.1 [0.0 to +0.2] W m^{-2}. Additional terms smaller than ±0.1 W m^{-2} are shown in Figure SPM-2. {2.3, 2.5, 7.2}
- Changes in solar irradiance since 1750 are estimated to cause a radiative forcing of +0.12 [+0.06 to +0.30] W m^{-2}, which is less than half the estimate given in the TAR. {2.7}

Direct Observations of Recent Climate Change

Since the TAR, progress in understanding how climate is changing in space and in time has been gained through improvements and extensions of numerous datasets and data analyses, broader geographical coverage, better understanding of uncertainties, and a wider variety of measurements. Increasingly comprehensive observations are available for glaciers and snow cover since the 1960s, and for sea level and ice sheets since about the past decade. However, data coverage remains limited in some regions.

Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level (see Figure SPM-3). {3.2, 4.2, 5.5}

- Eleven of the last twelve years (1995 -2006) rank among the 12 warmest years in the instrumental record of global surface temperature[9] (since 1850). The updated 100-year linear trend (1906–2005) of 0.74 [0.56 to 0.92]°C is therefore larger than the corresponding trend for 1901-2000 given in the TAR of 0.6 [0.4 to 0.8]°C. The linear warming trend over the last 50 years (0.13 [0.10 to 0.16]°C per decade) is nearly twice that for the last 100 years. The total temperature increase from 1850 – 1899 to 2001 – 2005 is 0.76 [0.57 to 0.95]°C. Urban heat island effects are real but local, and have a negligible influence (less than 0.006°C per decade over land and zero over the oceans) on these values. {3.2}

[7] In this Summary for Policymakers the following levels of confidence have been used to express expert judgments on the correctness of the underlying science: *very high confidence* at least a 9 out of 10 chance of being correct; *high confidence* about an 8 out of 10 chance of being correct. (See Box TS.1.1)

[8] Halocarbon radiative forcing has been recently assessed in detail in IPCC's Special Report on Safeguarding the Ozone Layer and the Global Climate System (2005).

[9] The average of near surface air temperature over land, and sea surface temperature.

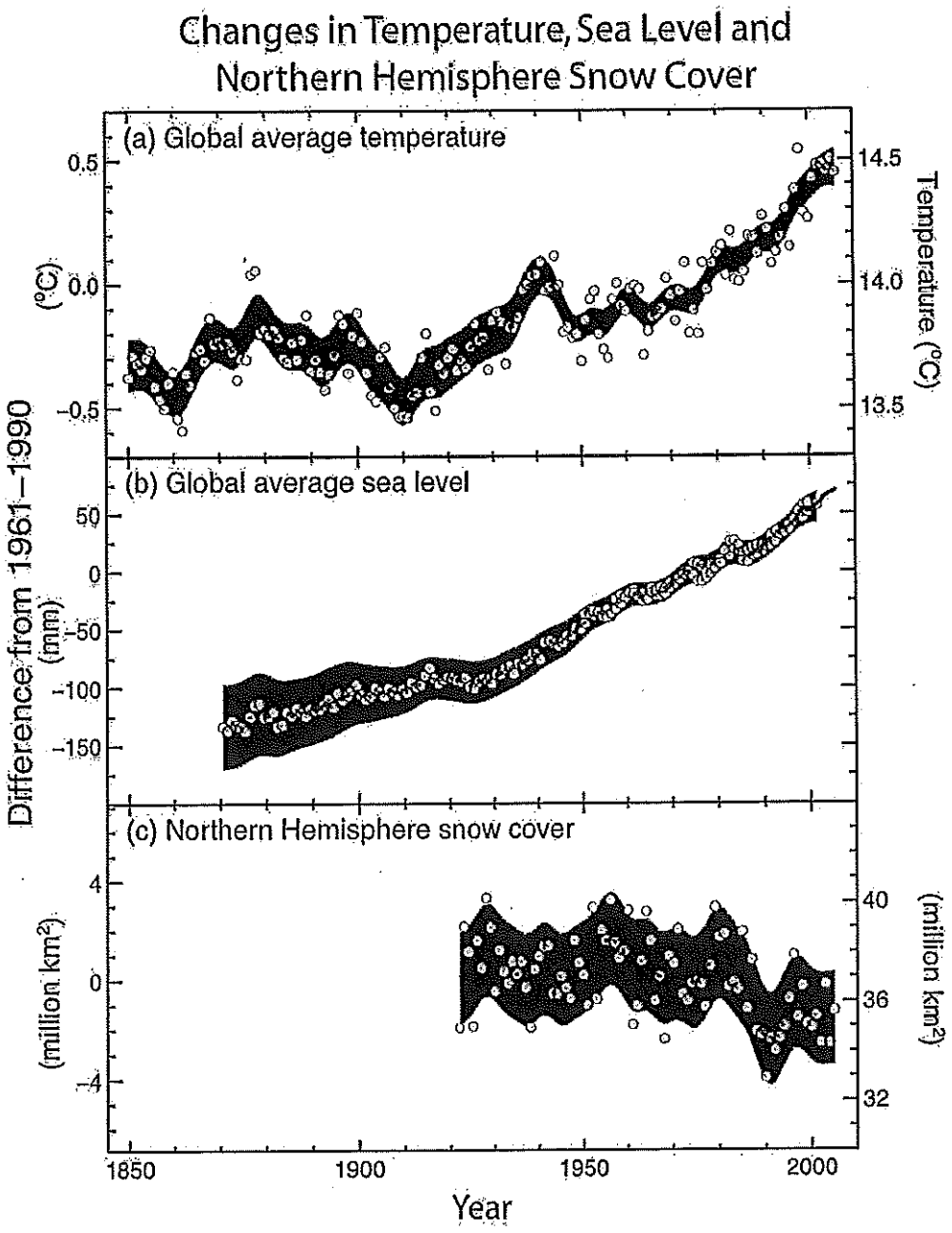


FIGURE SPM-3. Observed changes in (a) global average surface temperature; (b) global average sea level rise from tide gauge (blue) and satellite (red) data and (c) Northern Hemisphere snow cover for March-April. All changes are relative to corresponding averages for the period 1961-1990. Smoothed curves represent decadal averaged values while circles show yearly values. The shaded areas are the uncertainty intervals estimated from a comprehensive analysis of known uncertainties (a and b) and from the time series (c). {FAQ 3.1, Figure 1, Figure 4.2 and Figure 5.13}

- New analyses of balloon-borne and satellite measurements of lower- and mid-tropospheric temperature show warming rates that are similar to those of the surface temperature record and are consistent within their respective uncertainties, largely reconciling a discrepancy noted in the TAR. {3.2, 3.4}

- The average atmospheric water vapour content has increased since at least the 1980s over land and ocean as well as in the upper troposphere. The increase is broadly consistent with the extra water vapour that warmer air can hold. {3.4}
- Observations since 1961 show that the average temperature of the global ocean has increased to depths of at least 3000 m and that the ocean has been absorbing more than 80% of the heat added to the climate system. Such warming causes seawater to expand, contributing to sea level rise (see Table SPM-1). {5.2, 5.5}

Table SPM-1. Observed rate of sea level rise and estimated contributions from different sources. {5.5, Table 5.3}

	Rate of sea level rise (mm per year)	
Source of sea level rise	**1961 – 2003**	**1993 – 2003**
Thermal expansion	0.42 ± 0.12	1.6 ± 0.5
Glaciers and ice caps	0.50 ± 0.18	0.77 ± 0.22
Greenland ice sheet	0.05 ± 0.12	0.21 ± 0.07
Antarctic ice sheet	0.14 ± 0.41	0.21 ± 0.35
Sum of individual climate contributions to sea level rise	1.1 ± 0.5	2.8 ± 0.7
Observed total sea level rise	1.8 ± 0.5[a]	3.1 ± 0.7[a]
Difference (Observed minus sum of estimated climate contributions)	0.7 ± 0.7	0.3 ± 1.0

Table note:
[a] Data prior to 1993 are from tide gauges and after 1993 are from satellite altimetry.

- Mountain glaciers and snow cover have declined on average in both hemispheres. Widespread decreases in glaciers and ice caps have contributed to sea level rise (ice caps do not include contributions from the Greenland and Antarctic ice sheets). (See Table SPM-1.) {4.6, 4.7, 4.8, 5.5}
- New data since the TAR now show that losses from the ice sheets of Greenland and Antarctica have *very likely* contributed to sea level rise over 1993 to 2003 (see Table SPM-1). Flow speed has increased for some Greenland and Antarctic outlet glaciers, which drain ice from the interior of the ice sheets. The corresponding increased ice sheet mass loss has often followed thinning, reduction or loss of ice shelves or loss of floating glacier tongues. Such dynamical ice loss is sufficient to explain most of the Antarctic net mass loss and approximately half of the Greenland net mass loss. The remainder of the ice loss from Greenland has occurred because losses due to melting have exceeded accumulation due to snowfall. {4.6, 4.8, 5.5}
- Global average sea level rose at an average rate of 1.8 [1.3 to 2.3] mm per year over 1961 to 2003. The rate was faster over 1993 to 2003, about 3.1 [2.4 to 3.8] mm per year. Whether the faster rate for 1993 to 2003 reflects decadal variability or an increase in the longer-term trend is unclear. There is *high confidence* that the rate of observed sea level rise increased from the 19th to the 20th century. The total 20th century rise is estimated to be 0.17 [0.12 to 0.22] m. {5.5}
- For 1993-2003, the sum of the climate contributions is consistent within uncertainties with the total sea level rise that is directly observed (see Table SPM-1). These estimates are based on improved satellite and *in-situ* data now available. For the period of 1961 to 2003, the sum of climate contributions is estimated to be smaller than the observed sea level rise. The TAR reported a similar discrepancy for 1910 to 1990. {5.5}

At continental, regional, and ocean basin scales, numerous long-term changes in climate have been observed. These include changes in Arctic temperatures and ice, widespread changes in precipitation amounts, ocean salinity, wind patterns and aspects of extreme weather including droughts, heavy precipitation, heat waves and the intensity of tropical cyclones[10]. {3.2, 3.3, 3.4, 3.5, 3.6, 5.2}

- Average Arctic temperatures increased at almost twice the global average rate in the past 100 years. Arctic temperatures have high decadal variability, and a warm period was also observed from 1925 to 1945. {3.2}
- Satellite data since 1978 show that annual average Arctic sea ice extent has shrunk by 2.7 [2.1 to 3.3]% per decade, with larger decreases in summer of 7.4 [5.0 to 9.8]% per decade. These values are consistent with those reported in the TAR. {4.4}
- Temperatures at the top of the permafrost layer have generally increased since the 1980s in the Arctic (by up to 3°C). The maximum area covered by seasonally frozen ground has decreased by about 7% in the Northern Hemisphere since 1900, with a decrease in spring of up to 15%. {4.7}
- Long-term trends from 1900 to 2005 have been observed in precipitation amount over many large regions[11]. Significantly increased precipitation has been observed in eastern parts of North and South America, northern Europe and northern and central Asia. Drying has been observed in the Sahel, the Mediterranean, southern Africa and parts of southern Asia. Precipitation is highly variable spatially and temporally, and data are limited in some regions. Long-term trends have not been observed for the other large regions assessed[11]. {3.3, 3.9}
- Changes in precipitation and evaporation over the oceans are suggested by freshening of mid and high latitude waters together with increased salinity in low latitude waters. {5.2}
- Mid-latitude westerly winds have strengthened in both hemispheres since the 1960s. {3.5}
- More intense and longer droughts have been observed over wider areas since the 1970s, particularly in the tropics and subtropics. Increased drying linked with higher temperatures and decreased precipitation have contributed to changes in drought. Changes in sea surface temperatures (SST), wind patterns, and decreased snowpack and snow cover have also been linked to droughts. {3.3}
- The frequency of heavy precipitation events has increased over most land areas, consistent with warming and observed increases of atmospheric water vapour. {3.8, 3.9}
- Widespread changes in extreme temperatures have been observed over the last 50 years. Cold days, cold nights and frost have become less frequent, while hot days, hot nights, and heat waves have become more frequent (see Table SPM-2). {3.8}
- There is observational evidence for an increase of intense tropical cyclone activity in the North Atlantic since about 1970, correlated with increases of tropical sea surface temperatures. There are also suggestions of increased intense tropical cyclone activity in some other regions where concerns over data quality are greater. Multi-decadal variability and the quality of the tropical cyclone records prior to routine satellite observations in about 1970 complicate the detection of long-term trends in tropical cyclone activity. There is no clear trend in the annual numbers of tropical cyclones. {3.8}

[10] Tropical cyclones include hurricanes and typhoons.

[11] The assessed regions are those considered in the regional projections Chapter of the TAR and in Chapter 11 of this Report.

Table SPM-2. Recent trends, assessment of human influence on the trend, and projections for extreme weather events for which there is an observed late 20th century trend. {Tables 3.7, 3.8, 9.4, Sections 3.8, 5.5, 9.7, 11.2-11.9}

Phenomenon[a] and direction of trend	Likelihood that trend occurred in late 20th century (typically post 1960)	Likelihood of a human contribution to observed trend [b]	Likelihood of future trends based on projections for 21st century using SRES scenarios
Warmer and fewer cold days and nights over most land areas	*Very likely*[c]	*Likely*[d]	*Virtually certain*[d]
Warmer and more frequent hot days and nights over most land areas	*Very likely*[e]	*Likely (nights)*[d]	*Virtually certain*[d]
Warm spells / heat waves. Frequency increases over most land areas	*Likely*	*More likely than not*[f]	*Very likely*
Heavy precipitation events. Frequency (or proportion of total rainfall from heavy falls) increases over most areas	*Likely*	*More likely than not*[f]	*Very likely*
Area affected by droughts increases	*Likely* in many regions since 1970s	*More likely than not*	*Likely*
Intense tropical cyclone activity increases	*Likely* in some regions since 1970	*More likely than not*[f]	*Likely*
Increased incidence of extreme high sea level (excludes tsunamis) [g]	*Likely*	*More likely than not*[f,h]	*Likely*[i]

Table notes:

[a] See Table 3.7 for further details regarding definitions.

[b] See Table TS-4, Box TS.3.4 and Table 9.4.

[c] Decreased frequency of cold days and nights (coldest 10%).

[d] Warming of the most extreme days and nights each year.

[e] Increased frequency of hot days and nights (hottest 10%).

[f] Magnitude of anthropogenic contributions not assessed. Attribution for these phenomena based on expert judgement rather than formal attribution studies.

[g] Extreme high sea level depends on average sea level and on regional weather systems. It is defined here as the highest 1% of hourly values of observed sea level at a station for a given reference period.

[h] Changes in observed extreme high sea level closely follow the changes in average sea level {5.5.2.6}. It is *very likely* that anthropogenic activity contributed to a rise in average sea level. {9.5.2}

[i] In all scenarios, the projected global average sea level at 2100 is higher than in the reference period {10.6}. The effect of changes in regional weather systems on sea level extremes has not been assessed.

Some aspects of climate have not been observed to change. {3.2, 3.8, 4.4, 5.3}

- A decrease in diurnal temperature range (DTR) was reported in the TAR, but the data available then extended only from 1950 to 1993. Updated observations reveal that DTR has not changed from 1979 to 2004 as both day- and night-time temperature have risen at about the same rate. The trends are highly variable from one region to another. {3.2}
- Antarctic sea ice extent continues to show inter-annual variability and localized changes but no statistically significant average trends, consistent with the lack of warming reflected in atmospheric temperatures averaged across the region. {3.2, 4.4}

- There is insufficient evidence to determine whether trends exist in the meridional overturning circulation of the global ocean or in small scale phenomena such as tornadoes, hail, lightning and dust-storms. {3.8, 5.3}

A PALEOCLIMATIC PERSPECTIVE

Paleoclimatic studies use changes in climatically sensitive indicators to infer past changes in global climate on time scales ranging from decades to millions of years. Such proxy data (e.g., tree ring width) may be influenced by both local temperature and other factors such as precipitation, and are often representative of particular seasons rather than full years. Studies since the TAR draw increased confidence from additional data showing coherent behaviour across multiple indicators in different parts of the world. However, uncertainties generally increase with time into the past due to increasingly limited spatial coverage.

Paleoclimate information supports the interpretation that the warmth of the last half century is unusual in at least the previous 1300 years. The last time the polar regions were significantly warmer than present for an extended period (about 125,000 years ago), reductions in polar ice volume led to 4 to 6 metres of sea level rise. {6.4, 6.6}

- Average Northern Hemisphere temperatures during the second half of the 20th century were *very likely* higher than during any other 50-year period in the last 500 years and *likely* the highest in at least the past 1300 years. Some recent studies indicate greater variability in Northern Hemisphere temperatures than suggested in the TAR, particularly finding that cooler periods existed in the 12 to 14th, 17th, and 19th centuries. Warmer periods prior to the 20th century are within the uncertainty range given in the TAR. {6.6}
- Global average sea level in the last interglacial period (about 125,000 years ago) was *likely* 4 to 6 m higher than during the 20th century, mainly due to the retreat of polar ice. Ice core data indicate that average polar temperatures at that time were 3 to 5°C higher than present, because of differences in the Earth's orbit. The Greenland ice sheet and other Arctic ice fields *likely* contributed no more than 4 m of the observed sea level rise. There may also have been a contribution from Antarctica. {6.4}

UNDERSTANDING AND ATTRIBUTING CLIMATE CHANGE

This Assessment considers longer and improved records, an expanded range of observations, and improvements in the simulation of many aspects of climate and its variability based on studies since the TAR. It also considers the results of new attribution studies that have evaluated whether observed changes are quantitatively consistent with the expected response to external forcings and inconsistent with alternative physically plausible explanations.

Most of the observed increase in globally averaged temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations[12]. This is an advance since the TAR's conclusion that "most of the observed warming over the last 50 years is *likely* to have been due to the increase in greenhouse gas concentrations". Discernible human influences now extend to other aspects of climate, including ocean warming, continental-average temperatures, temperature extremes and wind patterns (see Figure SPM-4 and Table SPM-2). {9.4, 9.5}

- It is *likely* that increases in greenhouse gas concentrations alone would have caused more warming than observed because volcanic and anthropogenic aerosols have offset some warming that would otherwise have taken place. {2.9, 7.5, 9.4}
- The observed widespread warming of the atmosphere and ocean, together with ice mass loss, support the conclusion that it is *extremely unlikely* that global climate change of the past fifty years can be explained without external forcing, and *very likely* that it is not due to known natural causes alone. {4.8, 5.2, 9.4, 9.5, 9.7}

[12] Consideration of remaining uncertainty is based on current methodologies.

- Warming of the climate system has been detected in changes of surface and atmospheric temperatures, temperatures in the upper several hundred metres of the ocean and in contributions to sea level rise. Attribution studies have established anthropogenic contributions to all of these changes. The observed pattern of tropospheric warming and stratospheric cooling is *very likely* due to the combined influences of greenhouse gas increases and stratospheric ozone depletion. {3.2, 3.4, 9.4, 9.5}
- It is *likely* that there has been significant anthropogenic warming over the past 50 years averaged over each continent except Antarctica (see Figure SPM-4). The observed patterns of warming, including greater warming over land than over the ocean, and their changes over time, are only simulated by models that include anthropogenic forcing. The ability of coupled climate models to simulate the observed temperature evolution on each of six continents provides stronger evidence of human influence on climate than was available in the TAR. {3.2, 9.4}

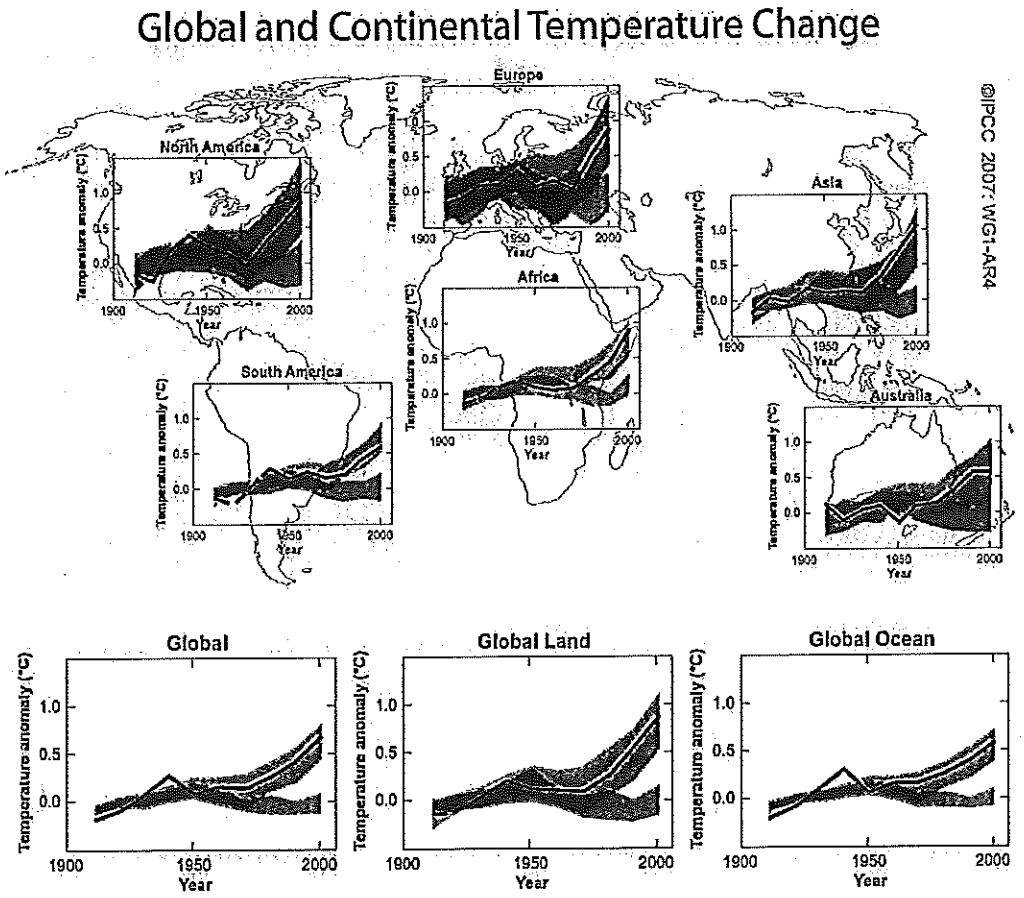


FIGURE SPM-4. Comparison of observed continental- and global-scale changes in surface temperature with results simulated by climate models using natural and anthropogenic forcings. Decadal averages of observations are shown for the period 1906–2005 (black line) plotted against the centre of the decade and relative to the corresponding average for 1901–1950. Lines are dashed where spatial coverage is less than 50%. Blue shaded bands show the 5–95% range for 19 simulations from 5 climate models using only the natural forcings due to solar activity and volcanoes. Red shaded bands show the 5–95% range for 58 simulations from 14 climate models using both natural and anthropogenic forcings. {FAQ 9.2, Figure 1}

- Difficulties remain in reliably simulating and attributing observed temperature changes at smaller scales. On these scales, natural climate variability is relatively larger making it harder to distinguish changes expected due to external forcings. Uncertainties in local forcings and feedbacks also make it difficult to estimate the contribution of greenhouse gas increases to observed small-scale temperature changes. {8.3, 9.4}
- Anthropogenic forcing is *likely* to have contributed to changes in wind patterns[13], affecting extra-tropical storm tracks and temperature patterns in both hemispheres. However, the observed changes in the Northern Hemisphere circulation are larger than simulated in response to 20th century forcing change. {3.5, 3.6, 9.5, 10.3}
- Temperatures of the most extreme hot nights, cold nights and cold days are *likely* to have increased due to anthropogenic forcing. It is *more likely than not* that anthropogenic forcing has increased the risk of heat waves (see Table SPM-2). {9.4}

Analysis of climate models together with constraints from observations enables an assessed *likely* range to be given for climate sensitivity for the first time and provides increased confidence in the understanding of the climate system response to radiative forcing. {6.6, 8.6, 9.6, Box 10.2}

- The equilibrium climate sensitivity is a measure of the climate system response to sustained radiative forcing. It is not a projection but is defined as the global average surface warming following a doubling of carbon dioxide concentrations. It is *likely* to be in the range 2 to 4.5°C with a best estimate of about 3°C, and is *very unlikely* to be less than 1.5°C. Values substantially higher than 4.5°C cannot be excluded, but agreement of models with observations is not as good for those values. Water vapour changes represent the largest feedback affecting climate sensitivity and are now better understood than in the TAR. Cloud feedbacks remain the largest source of uncertainty. {8.6, 9.6, Box 10.2}
- It is *very unlikely* that climate changes of at least the seven centuries prior to 1950 were due to variability generated within the climate system alone. A significant fraction of the reconstructed Northern Hemisphere interdecadal temperature variability over those centuries is *very likely* attributable to volcanic eruptions and changes in solar irradiance, and it is *likely* that anthropogenic forcing contributed to the early 20th century warming evident in these records. {2.7, 2.8, 6.6, 9.3}

PROJECTIONS OF FUTURE CHANGES IN CLIMATE

A major advance of this assessment of climate change projections compared with the TAR is the large number of simulations available from a broader range of models. Taken together with additional information from observations, these provide a quantitative basis for estimating likelihoods for many aspects of future climate change. Model simulations cover a range of possible futures including idealised emission or concentration assumptions. These include SRES[14] illustrative marker scenarios for the 2000–2100 period and model experiments with greenhouse gases and aerosol concentrations held constant after year 2000 or 2100.

For the next two decades a warming of about 0.2°C per decade is projected for a range of SRES emission scenarios. Even if the concentrations of all greenhouse gases and aerosols had been kept constant at year 2000 levels, a further warming of about 0.1°C per decade would be expected. {10.3, 10.7}

[13] In particular, the Southern and Northern Annular Modes and related changes in the North Atlantic Oscillation. {3.6, 9.5, Box TS.3.1}

[14] SRES refers to the IPCC Special Report on Emission Scenarios (2000). The SRES scenario families and illustrative cases, which did not include additional climate initiatives, are summarized in a box at the end of this Summary for Policymakers. Approximate CO_2 equivalent concentrations corresponding to the computed radiative forcing due to anthropogenic greenhouse gases and aerosols in 2100 (see p. 823 of the TAR) for the SRES B1, A1T, B2, A1B, A2 and A1FI illustrative marker scenarios are about 600, 700, 800, 850, 1250 and 1550 ppm respectively. Scenarios B1, A1B, and A2 have been the focus of model inter-comparison studies and many of those results are assessed in this report.

- Since IPCC's first report in 1990, assessed projections have suggested global averaged temperature increases between about 0.15 and 0.3°C per decade for 1990 to 2005. This can now be compared with observed values of about 0.2°C per decade, strengthening confidence in near-term projections. {1.2, 3.2}
- Model experiments show that even if all radiative forcing agents are held constant at year 2000 levels, a further warming trend would occur in the next two decades at a rate of about 0.1°C per decade, due mainly to the slow response of the oceans. About twice as much warming (0.2°C per decade) would be expected if emissions are within the range of the SRES scenarios. Best-estimate projections from models indicate that decadal-average warming over each inhabited continent by 2030 is insensitive to the choice among SRES scenarios and is *very likely* to be at least twice as large as the corresponding model-estimated natural variability during the 20th century. {9.4, 10.3, 10.5, 11.2–11.7, Figure TS-29}

Continued greenhouse gas emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would *very likely* be larger than those observed during the 20th century. {10.3}

- Advances in climate change modelling now enable best estimates and *likely* assessed uncertainty ranges to be given for projected warming for different emission scenarios. Results for different emission scenarios are provided explicitly in this report to avoid loss of this policy-relevant information. Projected globally-averaged surface warmings for the end of the 21st century (2090–2099) relative to 1980–1999 are shown in Table SPM-3. These illustrate the differences between lower to higher SRES emission scenarios and the projected warming uncertainty associated with these scenarios. {10.5}
- Best estimates and *likely* ranges for globally average surface air warming for six SRES emissions marker scenarios are given in this assessment and are shown in Table SPM-3. For example, the best estimate for the low scenario (B1) is 1.8°C (*likely* range is 1.1°C to 2.9°C), and the best estimate for the high scenario (A1FI) is 4.0°C (*likely* range is 2.4°C to 6.4°C). Although these projections are broadly consistent with the span quoted in the TAR (1.4 to 5.8°C), they are not directly comparable (see Figure SPM-5). The AR4 is more advanced as it provides best estimates and an assessed likelihood range for each of the marker scenarios. The new assessment of the *likely* ranges now relies on a larger number of climate models of increasing complexity and realism, as well as new information regarding the nature of feedbacks from the carbon cycle and constraints on climate response from observations. {10.5}

Table SPM-3. Projected globally averaged surface warming and sea level rise at the end of the 21st century. {10.5, 10.6, Table 10.7}

	Temperature Change (°C at 2090-2099 relative to 1980-1999) [a]		Sea Level Rise (m at 2090-2099 relative to 1980-1999)
Case	Best estimate	*Likely* range	Model-based range excluding future rapid dynamical changes in ice flow
Constant Year 2000 concentrations [b]	0.6	0.3 – 0.9	NA
B1 scenario	1.8	1.1 – 2.9	0.18 – 0.38
A1T scenario	2.4	1.4 – 3.8	0.20 – 0.45
B2 scenario	2.4	1.4 – 3.8	0.20 – 0.43
A1B scenario	2.8	1.7 – 4.4	0.21 – 0.48
A2 scenario	3.4	2.0 – 5.4	0.23 – 0.51
A1FI scenario	4.0	2.4 – 6.4	0.26 – 0.59

Table notes:

[a] These estimates are assessed from a hierarchy of models that encompass a simple climate model, several Earth Models of Intermediate Complexity (EMICs), and a large number of Atmosphere-Ocean Global Circulaion Models (AOGCMs).

[b] Year 2000 constant composition is derived from AOGCMs only.

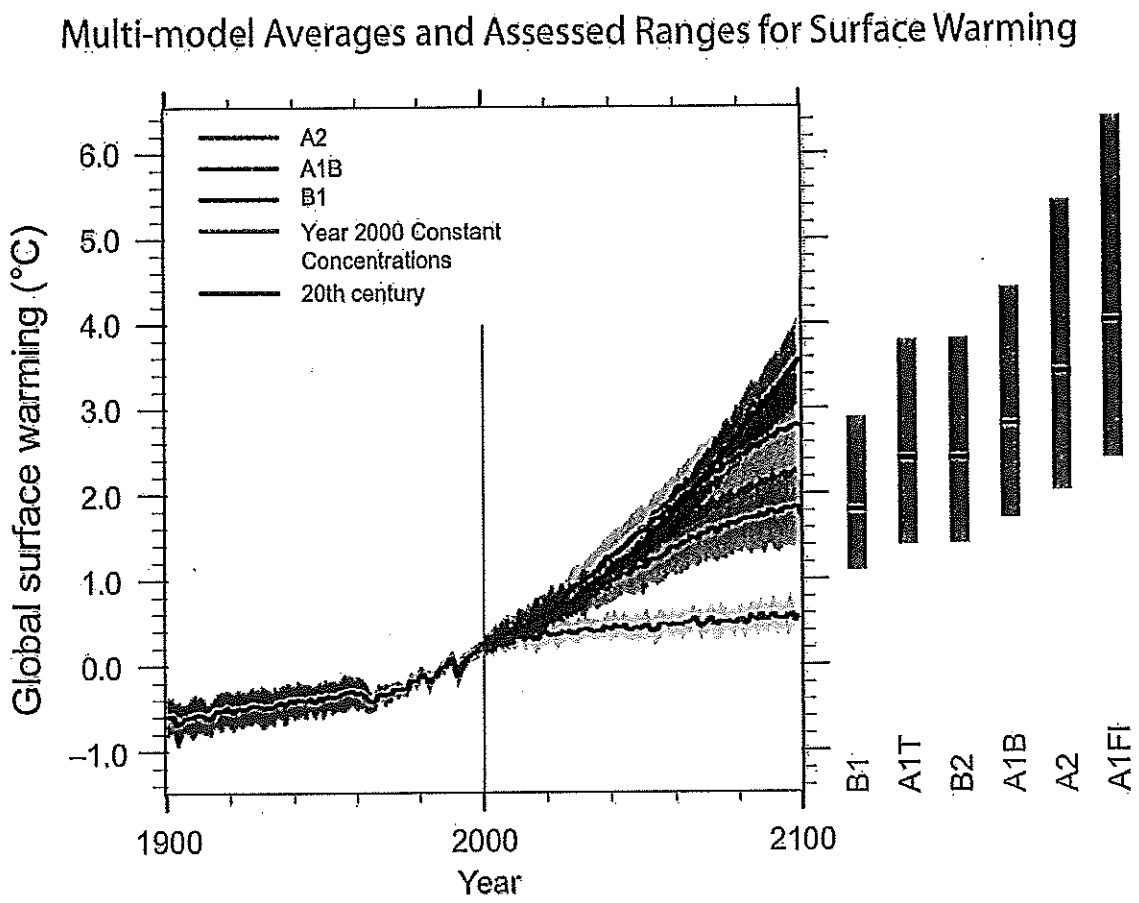


FIGURE SPM-5. Solid lines are multi-model global averages of surface warming (relative to 1980-99) for the scenarios A2, A1B and B1, shown as continuations of the 20th century simulations. Shading denotes the plus/minus one standard deviation range of individual model annual averages. The orange line is for the experiment where concentrations were held constant at year 2000 values. The gray bars at right indicate the best estimate (solid line within each bar) and the *likely* range assessed for the six SRES marker scenarios. The assessment of the best estimate and *likely* ranges in the gray bars includes the AOGCMs in the left part of the figure, as well as results from a hierarchy of independent models and observational constraints. {Figures 10.4 and 10.29}

- Warming tends to reduce land and ocean uptake of atmospheric carbon dioxide, increasing the fraction of anthropogenic emissions that remains in the atmosphere. For the A2 scenario, for example, the climate-carbon cycle feedback increases the corresponding global average warming at 2100 by more than 1°C. Assessed upper ranges for temperature projections are larger than in the TAR (see Table SPM-3) mainly because the broader range of models now available suggests stronger climate-carbon cycle feedbacks. {7.3, 10.5}

- Model-based projections of global average sea level rise at the end of the 21st century (2090-2099) are shown in Table SPM-3. For each scenario, the midpoint of the range in Table SPM-3 is within 10% of the TAR model average for 2090-2099. The ranges are narrower than in the TAR mainly because of improved information about some uncertainties in the projected contributions[15]. {10.6}

- Models used to date do not include uncertainties in climate-carbon cycle feedback nor do they include the full effects of changes in ice sheet flow, because a basis in published literature is lacking. The projections include a contribution due to increased ice flow from Greenland and Antarctica at the rates observed for 1993-2003, but these flow rates could increase or decrease in the future. For example, if this contribution were to grow

[15] TAR projections were made for 2100, whereas projections in this Report are for 2090-2099. The TAR would have had similar ranges to those in Table SPM-2 if it had treated the uncertainties in the same way.

linearly with global average temperature change, the upper ranges of sea level rise for SRES scenarios shown in Table SPM-3 would increase by 0.1 m to 0.2 m. Larger values cannot be excluded, but understanding of these effects is too limited to assess their likelihood or provide a best estimate or an upper bound for sea level rise. {10.6}

- Increasing atmospheric carbon dioxide concentrations leads to increasing acidification of the ocean. Projections based on SRES scenarios give reductions in average global surface ocean pH[16] of between 0.14 and 0.35 units over the 21st century, adding to the present decrease of 0.1 units since pre-industrial times. {5.4, Box 7.3, 10.4}

There is now higher confidence in projected patterns of warming and other regional-scale features, including changes in wind patterns, precipitation, and some aspects of extremes and of ice. {8.2, 8.3, 8.4, 8.5, 9.4, 9.5, 10.3, 11.1}

- Projected warming in the 21st century shows scenario-independent geographical patterns similar to those observed over the past several decades. Warming is expected to be greatest over land and at most high northern latitudes, and least over the Southern Ocean and parts of the North Atlantic ocean (see Figure SPM-6). {10.3}

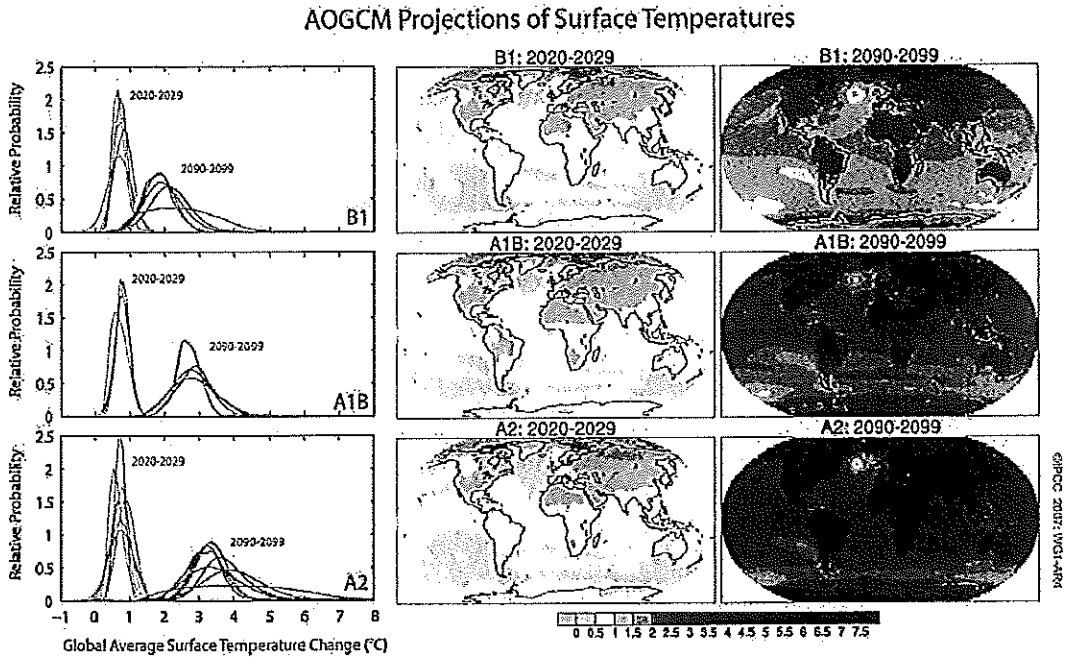


FIGURE SPM-6. Projected surface temperature changes for the early and late 21st century relative to the period 1980–1999. The central and right panels show the Atmosphere-Ocean General Circulation multi-Model average projections for the B1 (top), A1B (middle) and A2 (bottom) SRES scenarios averaged over decades 2020–2029 (center) and 2090–2099 (right). The left panel shows corresponding uncertainties as the relative probabilities of estimated global average warming from several different AOGCM and EMICs studies for the same periods. Some studies present results only for a subset of the SRES scenarios, or for various model versions. Therefore the difference in the number of curves, shown in the left-hand panels, is due only to differences in the availability of results. {Figures 10.8 and 10.28}

[16] Decreases in pH correspond to increases in acidity of a solution. See Glossary for further details.

- Snow cover is projected to contract. Widespread increases in thaw depth are projected over most permafrost regions. {10.3, 10.6}
- Sea ice is projected to shrink in both the Arctic and Antarctic under all SRES scenarios. In some projections, Arctic late-summer sea ice disappears almost entirely by the latter part of the 21st century. {10.3}
- It is *very likely* that hot extremes, heat waves, and heavy precipitation events will continue to become more frequent. {10.3}
- Based on a range of models, it is *likely* that future tropical cyclones (typhoons and hurricanes) will become more intense, with larger peak wind speeds and more heavy precipitation associated with ongoing increases of tropical SSTs. There is less confidence in projections of a global decrease in numbers of tropical cyclones. The apparent increase in the proportion of very intense storms since 1970 in some regions is much larger than simulated by current models for that period. {9.5, 10.3, 3.8}
- Extra-tropical storm tracks are projected to move poleward, with consequent changes in wind, precipitation, and temperature patterns, continuing the broad pattern of observed trends over the last half-century. {3.6, 10.3}
- Since the TAR there is an improving understanding of projected patterns of precipitation. Increases in the amount of precipitation are *very likely* in high-latitudes, while decreases are *likely* in most subtropical land regions (by as much as about 20% in the A1B scenario in 2100, see Figure SPM-7), continuing observed patterns in recent trends. {3.3, 8.3, 9.5, 10.3, 11.2 to 11.9}
- Based on current model simulations, it is *very likely* that the meridional overturning circulation (MOC) of the Atlantic Ocean will slow down during the 21st century. The multi-model average reduction by 2100 is 25% (range from zero to about 50%) for SRES emission scenario A1B. Temperatures in the Atlantic region are projected to increase despite such changes due to the much larger warming associated with projected increases of greenhouse gases. It is *very unlikely* that the MOC will undergo a large abrupt transition during the 21st century. Longer-term changes in the MOC cannot be assessed with confidence. {10.3, 10.7}

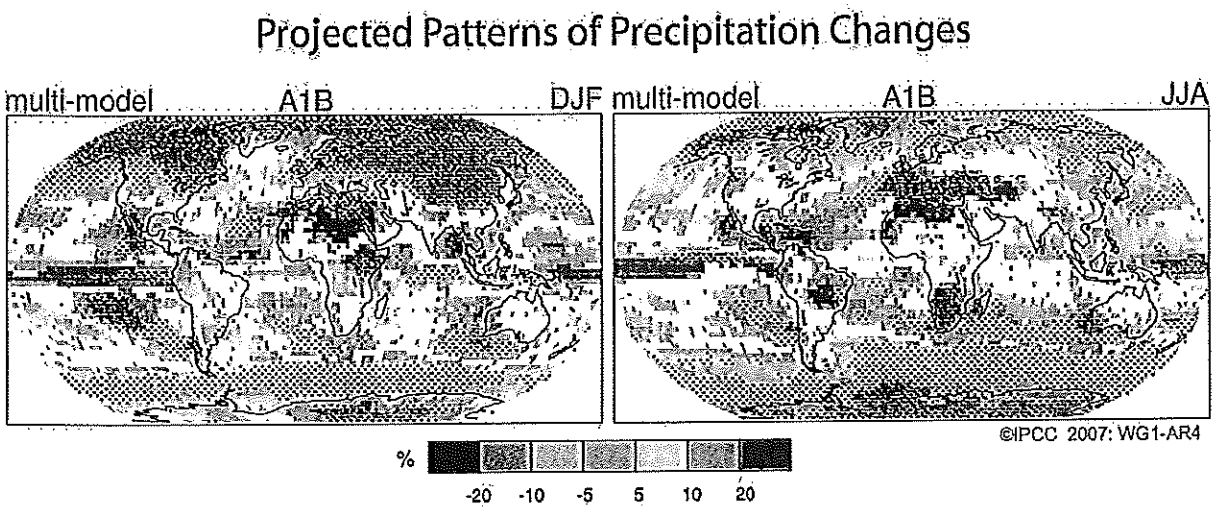


FIGURE SPM-7. Relative changes in precipitation (in percent) for the period 2090–2099, relative to 1980–1999. Values are multi-model averages based on the SRES A1B scenario for December to February (left) and June to August (right). White areas are where less than 66% of the models agree in the sign of the change and stippled areas are where more than 90% of the models agree in the sign of the change. {Figure 10.9}

Anthropogenic warming and sea level rise would continue for centuries due to the timescales associated with climate processes and feedbacks, even if greenhouse gas concentrations were to be stabilized. {10.4, 10.5, 10.7}

- Climate carbon cycle coupling is expected to add carbon dioxide to the atmosphere as the climate system warms, but the magnitude of this feedback is uncertain. This increases the uncertainty in the trajectory of carbon dioxide emissions required to achieve a particular stabilisation level of atmospheric carbon dioxide concentration. Based on current understanding of climate carbon cycle feedback, model studies suggest that to stabilise at 450 ppm carbon dioxide, could require that cumulative emissions over the 21st century be reduced from an average of approximately 670 [630 to 710] GtC (2460 [2310 to 2600] $GtCO_2$) to approximately 490 [375 to 600] GtC (1800 [1370 to 2200] $GtCO_2$). Similarly, to stabilise at 1000 ppm this feedback could require that cumulative emissions be reduced from a model average of approximately 1415 [1340 to 1490] GtC (5190 [4910 to 5460] $GtCO_2$) to approximately 1100 [980 to 1250] GtC (4030 [3590 to 4580] $GtCO_2$). {7.3, 10.4}
- If radiative forcing were to be stabilized in 2100 at B1 or A1B levels[11] a further increase in global average temperature of about 0.5°C would still be expected, mostly by 2200. {10.7}
- If radiative forcing were to be stabilized in 2100 at A1B levels[11], thermal expansion alone would lead to 0.3 to 0.8 m of sea level rise by 2300 (relative to 1980–1999). Thermal expansion would continue for many centuries, due to the time required to transport heat into the deep ocean. {10.7}
- Contraction of the Greenland ice sheet is projected to continue to contribute to sea level rise after 2100. Current models suggest ice mass losses increase with temperature more rapidly than gains due to precipitation and that the surface mass balance becomes negative at a global average warming (relative to pre-industrial values) in excess of 1.9 to 4.6°C. If a negative surface mass balance were sustained for millennia, that would lead to virtually complete elimination of the Greenland ice sheet and a resulting contribution to sea level rise of about 7 m. The corresponding future temperatures in Greenland are comparable to those inferred for the last interglacial period 125,000 years ago, when paleoclimatic information suggests reductions of polar land ice extent and 4 to 6 m of sea level rise. {6.4, 10.7}
- Dynamical processes related to ice flow not included in current models but suggested by recent observations could increase the vulnerability of the ice sheets to warming, increasing future sea level rise. Understanding of these processes is limited and there is no consensus on their magnitude. {4.6, 10.7}
- Current global model studies project that the Antarctic ice sheet will remain too cold for widespread surface melting and is expected to gain in mass due to increased snowfall. However, net loss of ice mass could occur if dynamical ice discharge dominates the ice sheet mass balance. {10.7}
- Both past and future anthropogenic carbon dioxide emissions will continue to contribute to warming and sea level rise for more than a millennium, due to the timescales required for removal of this gas from the atmosphere. {7.3, 10.3}

The Emission Scenarios of the IPCC Special Report on Emission Scenarios (SRES)[17]

A1. The A1 storyline and scenario family describes a future world of very rapid economic growth, global population that peaks in mid-century and declines thereafter, and the rapid introduction of new and more efficient technologies. Major underlying themes are convergence among regions, capacity building and increased cultural and social interactions, with a substantial reduction in regional differences in per capita income. The A1 scenario family develops into three groups that describe alternative directions of technological change in the energy system. The three A1 groups are distinguished by their technological emphasis: fossil intensive (A1FI), non-fossil energy sources (A1T), or a balance across all sources (A1B) (where balanced is defined as not relying too heavily on one particular energy source, on the assumption that similar improvement rates apply to all energy supply and end use technologies).

A2. The A2 storyline and scenario family describes a very heterogeneous world. The underlying theme is self reliance and preservation of local identities. Fertility patterns across regions converge very slowly, which results in continuously increasing population. Economic development is primarily regionally oriented and per capita economic growth and technological change more fragmented and slower than other storylines.

B1. The B1 storyline and scenario family describes a convergent world with the same global population, that peaks in mid-century and declines thereafter, as in the A1 storyline, but with rapid change in economic structures toward a service and information economy, with reductions in material intensity and the introduction of clean and resource efficient technologies. The emphasis is on global solutions to economic, social and environmental sustainability, including improved equity, but without additional climate initiatives.

B2. The B2 storyline and scenario family describes a world in which the emphasis is on local solutions to economic, social and environmental sustainability. It is a world with continuously increasing global population, at a rate lower than A2, intermediate levels of economic development, and less rapid and more diverse technological change than in the B1 and A1 storylines. While the scenario is also oriented towards environmental protection and social equity, it focuses on local and regional levels.

An illustrative scenario was chosen for each of the six scenario groups A1B, A1FI, A1T, A2, B1 and B2. All should be considered equally sound.

The SRES scenarios do not include additional climate initiatives, which means that no scenarios are included that explicitly assume implementation of the United Nations Framework Convention on Climate Change or the emissions targets of the Kyoto Protocol.

[17] Emission scenarios are not assessed in this Working Group One report of the IPCC. This box summarizing the SRES scenarios is taken from the TAR and has been subject to prior line by line approval by the Panel.

Exhibit C

Climate Change Impacts on the United States: Assessment Overview

CLIMATE CHANGE IMPACTS ON THE UNITED STATES

The Potential Consequences of Climate Variability and Change

Overview

Humanity's influence on the global climate will grow in the coming century. Increasingly, there will be significant climate-related changes that will affect each one of us.

We must begin now to consider our responses, as the actions taken today will affect the quality of life for us and future generations.

A Report of the
National Assessment
Synthesis Team

US Global Change
Research Program

This report was produced by the National Assessment Synthesis Team, an advisory committee chartered under the Federal Advisory Committee Act to help the US Global Change Research Program fulfill its mandate under the Global Change Research Act of 1990. The National Science and Technology Council has forwarded this report to the President and Congress for their consideration as required by the Global Change Research Act.

Administrative support for the US Global Change Research Program is provided by the University Corporation for Atmospheric Research, which is sponsored by the National Science Foundation. Any opinions, findings and conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the views of the National Science Foundation or the University Corporation for Atmospheric Research.

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The recommended citation of this report is as follows:

National Assessment Synthesis Team,
Climate Change Impacts on the United States:
The Potential Consequences of Climate Variability and Change,
US Global Change Research Program, Washington DC, 2000

About this Document

What is this Assessment?

The National Assessment of the Potential Consequences of Climate Variability and Change is a landmark in the major ongoing effort to understand what climate change means for the US. Climate science is developing rapidly and scientists are increasingly able to project some changes at the regional scale, identifying regional vulnerabilities, and assessing potential regional impacts. Science increasingly indicates that the Earth's climate has changed in the past and continues to change, and that even greater climate change is very likely in the 21st century. This Assessment has begun a national process of research, analysis, and dialogue about the coming changes in climate, their impacts, and what Americans can do to adapt to an uncertain and continuously changing climate. This Assessment is built on a solid foundation of science conducted as part of the United States Global Change Research Program (USGCRP).

What is this document and who is the NAST?

This document is the Assessment Overview, written by the National Assessment Synthesis Team (NAST). The NAST is a committee of experts drawn from governments, universities, industry, and non-governmental organizations. It has been responsible for broad oversight of the Assessment, with the Federal agencies of the USGCRP. This Overview is based on a longer, referenced "Foundation" report, written by the NAST in cooperation with independent regional and sector assessment teams. These two national-level, peer-reviewed documents synthesize results from studies conducted by regional and sector teams, and from the broader scientific literature.

Why was this Assessment undertaken?

The Assessment was called for by a 1990 law, and has been conducted under the USGCRP in response to a request from the President's Science Advisor. The NAST developed the Assessment's plan, which was then approved by the National Science and Technology Council, the cabinet-level body of agencies responsible for scientific research, including global change research, in the US government.

National Assessment Synthesis Team Members

Jerry M.Melillo,Co-chair
Ecosystems Center
Marine Biological Laboratory

Anthony C. Janetos,Co-chair
World Resources Institute

Thomas R.Karl,Co-chair
NOAA National Climatic Data Center

Robert Corell (from January 2000)
American Meteorological Society and
Harvard University

Eric J. Barron
Pennsylvania State University

Virginia Burkett
USGS National Wetlands Research Center

Thomas F. Cecich
Glaxo Wellcome Inc.

Katharine Jacobs
Arizona Department of Water Resources

Linda Joyce
USDA Forest Service

Barbara Miller
World Bank

M.Granger Morgan
Carnegie Mellon University

Edward A. Parson (until January 2000)
Harvard University

Richard G. Richels
EPRI

David S.Schimel
National Center for Atmospheric Research

Additional Lead Authors

Lynne Carter (National Assessment Coordination Office)
David Easterling (NOAA National Climatic Data Center)
Benjamin Felzer (National Center for Atmospheric Research)
John Field (University of Washington)
Paul Grabhorn (Grabhorn Studio)
Susan Joy Hassol (Aspen Global Change Institute)
Michael MacCracken (National Assessment Coordination Office)
Joel Smith (Stratus Consulting)
Melissa Taylor (National Assessment Coordination Office)
Thomas Wilbanks (Oak Ridge National Laboratory)

Independent Review Board of the President's Committee of Advisers on Science and Technology (PCAST)

Peter Raven,Co-chair
Missouri Botanical Garden and PCAST

Mario Molina,Co-chair
MIT and PCAST

Burton Richter
Stanford University

Linda Fisher
Monsanto

Kathryn Fuller
World Wildlife Fund

John Gibbons
National Academy of Engineering

Marcia McNutt
Monterey Bay Aquarium Research Institute

Sally Ride
University of California San Diego and PCAST

William Schlesinger
Duke University

James Gustave Speth
Yale University

Robert White
University Corporation for Atmospheric Research,and Washington Advisory Group

Other Contributors

This report is also based on the work of hundreds of individuals and organizations participating in regional and sector activities across the country without whose input,support, and expertise,it would not have been possible.In addition,many reviewers provided comments on drafts of the report.Additional credits and acknowledgements can be found in the appendix.

TABLE OF CONTENTS

Summary 6 .....

Our Changing Climate 12 .....

Tools for Assessing Climate Change Impacts 14 .....

Looking at America's Climate 20 .....

Ecosystems in the Future 24 .....

Our Changing Nation 30 .....

Regions 38 .....

- Northeast 40 .....
- Southeast 46 .....
- Midwest 52 .....
- Great Plains 58 .....
- West 64 .....
- Pacific Northwest 68 .....
- Alaska 74 .....
- Islands 80 .....
- Native Peoples and Homelands 84 .....

Sectors 88 .....

- Agriculture 90 .....
- Water 96 .....
- Human Health 102 .....
- Coastal Areas and Marine Resources 108 .....
- Forests 114 .....

Conclusions 120 .....

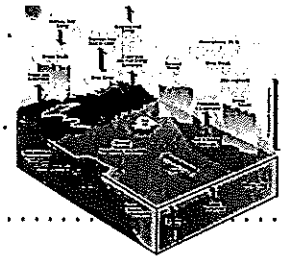
Research Pathways 124 .....

Appendix I: Biographical Sketches of NAST Members 136 .....

Appendix II: Acknowledgements 142 .....

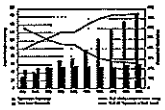
Glossary 154 .....

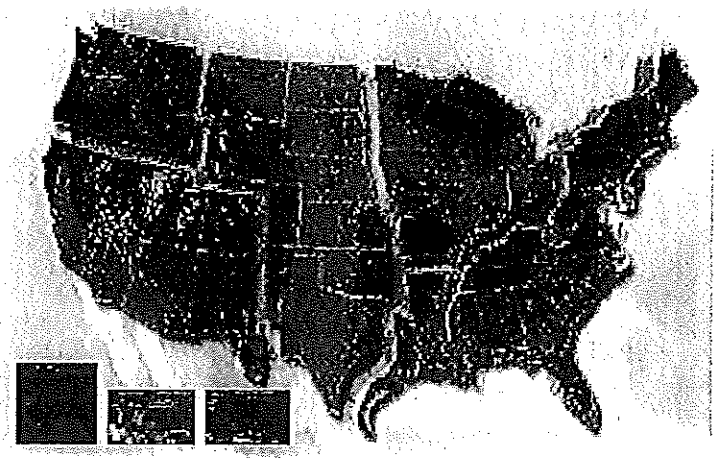


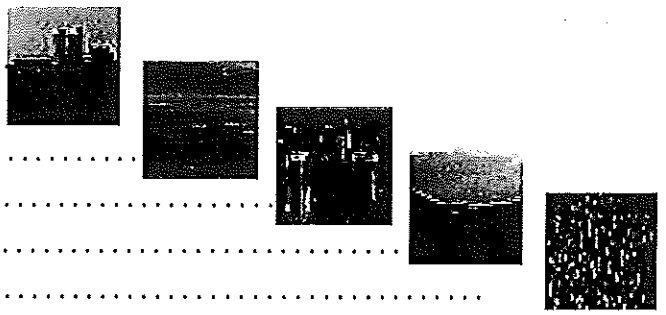














ABOUT THE ASSESSMENT PROCESS

The Assessment's purpose is to synthesize, evaluate, and report on what we presently know about the potential consequences of climate variability and change for the US in the 21st century. It has sought to identify key climatic vulnerabilities of particular regions and sectors, in the context of other changes in the nation's environment, resources, and economy. It has also sought to identify potential measures to adapt to climate variability and change. Finally, because present knowledge is limited, the Assessment has sought to identify the highest priority uncertainties about which we must know more to understand climate impacts, vulnerabilities, and our ability to adapt.

How did the process involve both stakeholders and scientists in this Assessment?

This first National Assessment involved both stakeholders and scientific experts. Stakeholders included, for example, public and private decision-makers, resource and environmental managers, and the general public. The stakeholders from different regions and sectors began the Assessment by articulating their concerns in a series of workshops about climate change impacts in the context of the other major issues they face. In the workshops and subsequent consultations, stakeholders identified priority regional and sector concerns, mobilized specialized expertise, identified potential adaptation options, and provided useful information for decision-makers. The Assessment also involved many scientific experts using advanced methods, models, and results. Further, it has stimulated new scientific research in many areas and identified priority needs for further research.

What is the scope of this Assessment?

Although global change embraces many interrelated issues, this first National Assessment has examined only climate change and variability, with a primary focus on specific regions and sectors. In some cases, regional and sector analyses intersect and complement each other. For example, the Forest sector and the Pacific Northwest have both provided insights into climate impacts on Northwest forests.

The regions cover the nation. Impacts outside the US are considered only briefly, with particular emphasis on potential linkages to the US. Sector teams examined Water, Agriculture, Human Health, Forests, and Coastal Areas and Marine Resources. This first Assessment could not attempt to be comprehensive: the choice of these five sectors reflected an expectation that they were likely to be both important and particularly informative, and that relevant data and analytic tools were available – not a conclusion that they are the only important domains of climate impact. Among the sectors considered, there was a continuum in the amount of information available to support the Assessment, with some being at far earlier stages of development. Future assessments should consider other potentially important issues, such as Energy, Transportation, Urban Areas, and Wildlife.

Each regional and sector team is publishing a separate report of its own analyses, some of which are still continuing. The Overview and Foundation reports consequently represent a snapshot of our understanding at the present time.

What kinds of responses to climate change are considered?

Responses to climate change can be of two broad types. One type involves adaptation measures to reduce the harms and risks, and maximize the benefits and opportunities, of climate change, whatever its cause. The other type involves mitigation measures to reduce human contributions to climate change. After identifying potential impacts, this Assessment sought to identify potential adaptation measures for each region and sector studied. While this was an important first step, it was not possible at this stage to evaluate the practicality, effectiveness, or costs of the potential adaptation measures. Both mitigation and adaptation measures are necessary elements of a coherent and integrated response to climate change. Mitigation measures were not included in this Assessment, but are being assessed in other bodies such as the United Nations Intergovernmental Panel on Climate Change (IPCC).

No. An integrated climate policy will combine mitigation and adaptation measures as appropriate. If future world emissions of greenhouse gases are lower than currently projected, for whatever reason, including intentional mitigation, then the rate of climate change, the associated impacts, and the cost and difficulty of adapting will all be reduced. If emissions are higher than expected, then the rate of change, the impacts, and the difficulty of adapting will be increased. But no matter how aggressively emissions are reduced, the world will still experience at least a century of climate change. This will happen because the elevated concentrations of greenhouse gases already in the atmosphere will remain for many decades, and because the climate system responds to changes in human inputs only very slowly. Consequently, even if the world takes mitigation measures, we must still adapt to a changing climate. Similarly, even if we take adaptation measures, future emissions will have to be curbed to stabilize climate. Neither type of response can completely supplant the other.

[illegible]

State-of-the-science climate models have been used to generate climate change scenarios. Computer models of ecological systems, hydrological systems, and various socioeconomic systems have also been used in the Assessment, to study responses of these systems to the scenarios generated by climate models.

What additional tools, besides models, were used to evaluate potential climate change impacts?

In addition to models, the Assessment has used two other ways to think about potential future climate. First, the Assessment has used historical climate records to evaluate sensitivities of regions and sectors to climate variability and extremes that have occurred in the 20th century. Looking at real historical climate events, their impacts, and how people have adapted, gives valuable insights into potential future impacts that complement those provided by model projections. In addition, the Assessment has used sensitivity analyses, which ask how, and how much, the climate would have to change to bring major impacts on particular regions or sectors. For example, how much would temperature have to increase in the South before agricultural crops such as soybeans would be negatively affected? What would be the result for forest productivity of continued increases in temperature and leveling off of the CO_2 fertilization effect?

[illegible]

This Overview and the underlying Foundation document have been extensively reviewed. More than 300 scientific and technical experts have provided detailed comments on part or all of the report in two separate technical reviews. The report was reviewed at each stage for technical accuracy by the agencies of the US Global Change Research Program. The public also provided hundreds of helpful suggestions for clarification and modification during a 60-day public comment period. A panel of distinguished experts convened by the President's Committee of Advisors on Science and Technology has provided broad oversight, and monitored the authors response to all reviews.

ABOUT SCENARIOS AND UNCERTAINTY

What are scenarios and why are they useful?

Scenarios are plausible alternative futures – each an example of what might happen under particular assumptions. Scenarios are not specific predictions or forecasts. Rather, scenarios provide a starting point for examining questions about an uncertain future and can help us visualize alternative futures in concrete and human terms. The military and industry frequently use these powerful tools for future planning in high-stakes situations. Using scenarios helps to identify vulnerabilities and plan for contingencies.

Many of the maps in this document are derived from the two primary climate model scenarios. In most cases, there are three maps: one shows average conditions based on actual observations from 1961-1990; the other two are generated by the Hadley and Canadian model scenarios and reflect the model's projection of change from those average conditions.

Why are climate scenarios used in this Assessment and how were they developed?

Because we cannot predict many aspects of our nation's future climate, we have used scenarios to help explore US vulnerability to climate change. Results from state-of-the-science climate models and data from historical observations have been used to generate a variety of such scenarios. Projections of changes in climate from the Hadley Centre in the United Kingdom and the Canadian Centre for Climate Modeling and Analysis served as the primary resources for this Assessment. Results were also drawn from models developed at the National Center for Atmospheric Research, NOAA's Geophysical Fluid Dynamics Laboratory, and NASA's Goddard Institute for Space Studies.

For some aspects of climate, virtually all models, as well as other lines of evidence, agree on the types of changes to be expected. For example, all climate models suggest that the climate is going to get warmer, the heat index is going to rise, and precipitation is more likely to come in heavy and extreme events. This consistency lends confidence to these results.

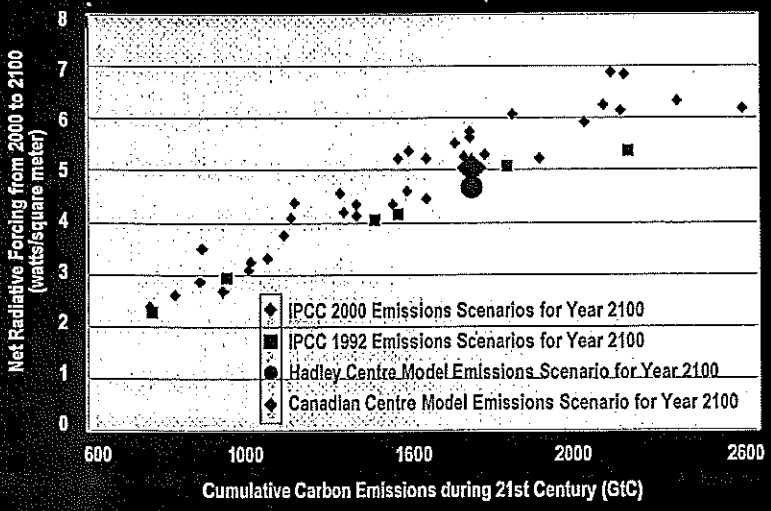
For some other aspects of climate, however, the model results differ. For example, some models, including the Canadian model, project more extensive and frequent drought in the US, while others, including the Hadley model, do not. The Canadian model suggests a drier Southeast in the 21st century while the Hadley model suggests a wetter one. In such cases, the scenarios provide two plausible but different alternatives. Such differences can help identify areas in which the models need improvement.

Many of the maps in this document are derived from the two primary climate model scenarios. In most cases, there are three maps: one shows average conditions based on actual observations from 1961-1990; the other two are generated by the Hadley and Canadian model scenarios and reflect the model's projection of change from those average conditions.

What assumptions about emissions are in these two climate scenarios?

Because future trends in fossil fuel use and other human activities are uncertain, the Intergovernmental Panel on Climate Change (IPCC) has developed a set of scenarios for how the 21st century may evolve. These scenarios consider a wide range of possibilities for changes in population, economic growth, technological development, improvements in energy efficiency, and the like. The two primary climate scenarios used in this Assessment are based on one mid-range emissions scenario for the future that assumes no major changes in policies to limit greenhouse gas emissions. Some other important assumptions in this scenario are that by the year 2100:

- world population will nearly double to about 11 billion people;
- the global economy will continue to grow at about the average rate it has been growing, reaching more than ten times its present size;
- increased use of fossil fuels will triple CO_2 emissions and raise sulfur dioxide emissions, resulting in an atmospheric CO_2 concentration of just over 700 parts per million; and
- total energy produced each year from non-fossil sources such as wind, solar, biomass, hydroelectric, and nuclear will increase to more than ten times its current amount, providing more than 40% of the world's energy, rather than the current 10%.



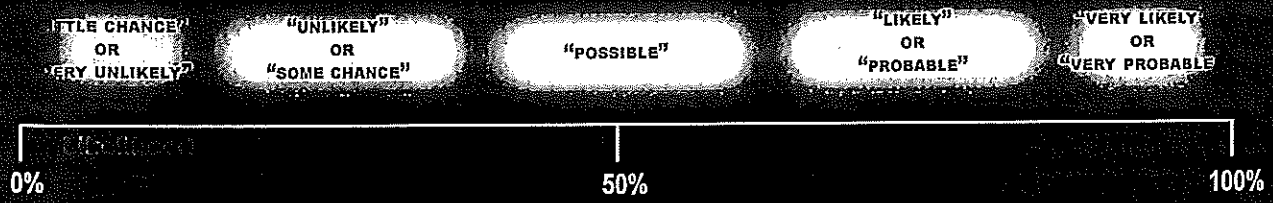
The graph shows a comparison of the projections of total carbon dioxide emissions (in billions of metric tons of carbon, GtC) and the human-induced warming influence due to all the greenhouse gases and sulfate aerosols for the emissions scenarios prepared by the IPCC in 1992 and 2000. As is apparent from the graph, both the emissions scenario and the human-induced warming influence assumed in this Assessment lie near the mid-range of the set of IPCC scenarios. Further detail can be found in the Climate chapter in the Foundation report.

Both the emissions scenario and the human-induced warming influence assumed in this Assessment lie near the mid-range of the set of IPCC scenarios.

How is the likelihood of various impacts expressed?

To integrate a wide variety of information and differentiate more likely from less likely outcomes, the NAST developed a common language to express the team's considered judgement about the likelihood of results. The NAST developed its collective judgements through discussion and consideration of the supporting information. Historical data, model projections, published scientific literature, and other available information all provided input to these deliberations, except where specifically stated that the result comes from a particular model scenario. In developing these judgements, there were often several lines of supporting evidence (e.g., drawn from observed trends, analytic studies, model simulations). Many of these judgements were based on broad scientific consensus as stated by well-recognized authorities including the IPCC and the National Research Council. In many cases, groups outside the NAST reviewed the use of terms to provide input from a broader set of experts in a particular field.

Ranges Used to Express Considered Judgement



SUMMARY

CLIMATE CHANGE AND OUR NATION

The findings in this report are based on a synthesis of historical data, model projections, published scientific research, and other available information, except where specifically noted.

Long-term observations confirm that our climate is now changing at a rapid rate. Over the 20th century, the average annual US temperature has risen by almost 1°F (0.6°C) and precipitation has increased nationally by 5 to 10%,mostly due to increases in heavy downpours. These trends are most apparent over the past few decades. The science indicates that the warming in the 21st century will be significantly larger than in the 20th century. Scenarios examined in this Assessment, which assume no major interventions to reduce continued growth of world greenhouse gas emissions,indicate that temperatures in the US will rise by about 5-9°F (3-5°C) on average in the next 100 years,which is more than the projected *global* increase. This rise is very likely to be associated with more extreme precipitation and faster evaporation of water, leading to greater frequency of both very wet and very dry conditions.

This Assessment reveals a number of national-level impacts of climate variability and change including impacts to natural ecosystems and water resources. Natural ecosystems appear to be the most vulnerable to the harmful effects of climate change,as there is often little that can be done to help them adapt to the projected speed and amount of change. Some ecosystems that are already constrained by climate,such as alpine meadows in the Rocky Mountains,are likely to face extreme stress,and disappear entirely in some places. It is likely that other more widespread ecosystems will also be vulnerable to climate change. One of the climate scenarios used in this Assessment suggests the potential for the forests of the Southeast to break up into a mosaic of forests,savannas, and grasslands. Climate scenarios suggest likely changes in the species composition of the Northeast forests,including the loss of sugar maples. Major alterations to natural ecosystems due to climate change could possibly have negative consequences for our economy, which depends in part on the sustained bounty of our nation's lands, waters,and native plant and animal communities.

A unique contribution of this first US Assessment is that it combines national-scale analysis with an examination of the potential impacts of climate change on different regions of the US. For example,sea-level rise will very likely cause further loss of coastal wetlands (ecosystems that provide vital nurseries and habitats for many fish species) and put coastal communities at greater risk of storm surges,especially in the Southeast. Reduction in snowpack will very likely alter the timing and amount of water supplies,potentially exacerbating water shortages and conflicts,particularly throughout the western US. The melting of glaciers in the high-elevation West and in Alaska represents the loss or diminishment of unique national treasures of the American landscape. Large increases in the heat index (which combines temperature and humidity) and increases in the frequency of heat waves are very likely. These changes will,at minimum,increase discomfort,particularly in cities. It is very probable that continued thawing of permafrost and melting of sea ice in Alaska will further damage forests,buildings, roads,and coastlines,and harm subsistence livelihoods. In various parts of the nation,cold-weather recreation such as skiing will very likely be reduced,and air conditioning usage will very likely increase.

Highly managed ecosystems appear more robust, and some potential benefits have been identified. Crop and forest productivity is likely to increase in some areas for the next few decades due to increased carbon dioxide in the atmosphere and an extended growing season. It is possible that some US food exports could increase,depending on impacts in other food-growing regions around the world. It is also possible that a rise in crop production in fertile areas could cause prices to fall,benefiting consumers. Other benefits that are possible include extended seasons for construction and warm weather recreation, reduced heating requirements,and reduced cold-weather mortality.

Climate variability and change will interact with other environmental stresses and socioeconomic changes. Air and water pollution,habitat fragmentation, wetland loss,coastal erosion,and reductions in fisheries are likely to be compounded by climate-related stresses. An aging populace nationally, and rapidly growing populations in cities,coastal areas,and across the South and West are social factors that interact with and alter sensitivity to climate variability and change.

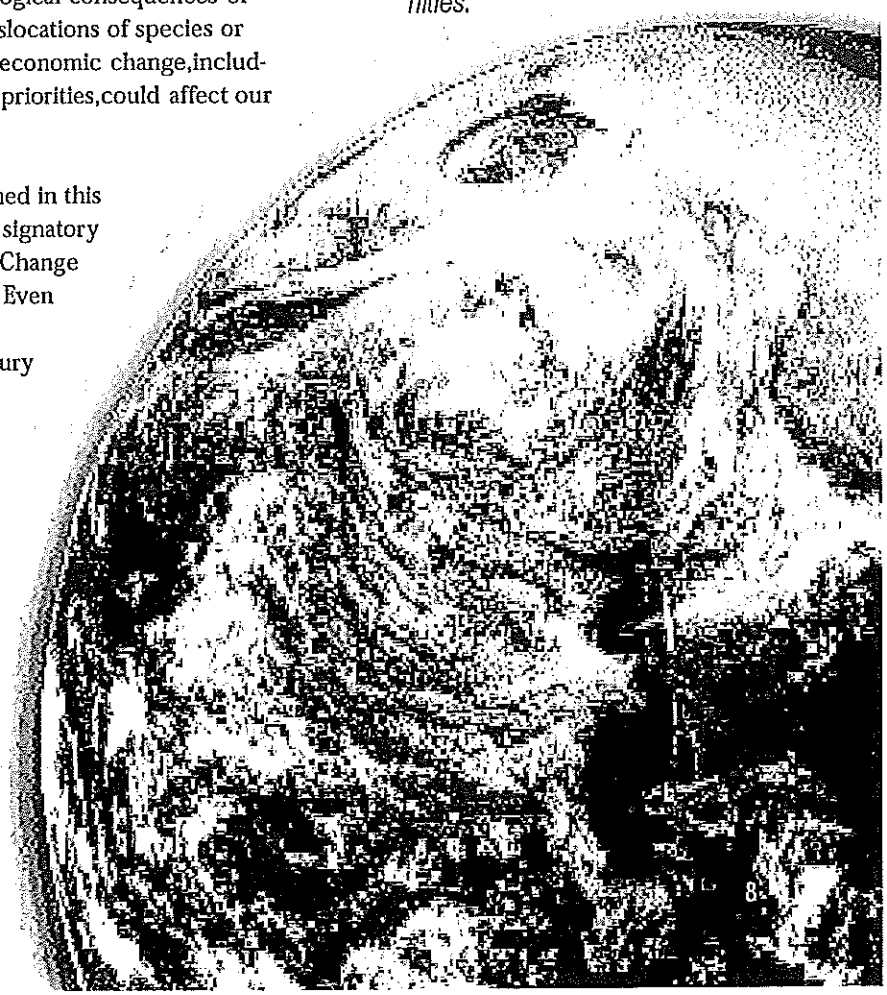
There are also very likely to be unanticipated impacts of climate change during the next century. Such "surprises" may stem from unforeseen changes in the physical climate system,such as major alterations in ocean circulation, cloud distribution,or storms;and unpredicted biological consequences of these physical climate changes,such as massive dislocations of species or pest outbreaks. In addition,unexpected social or economic change,including major shifts in wealth,technology, or political priorities,could affect our ability to respond to climate change.

Greenhouse gas emissions lower than those assumed in this Assessment would result in reduced impacts. The signatory nations of the Framework Convention on Climate Change are negotiating the path they will ultimately take. Even with such reductions,however, the planet and the nation are certain to experience more than a century of climate change,due to the long lifetimes of greenhouse gases already in the atmosphere and the momentum of the climate system. Adapting to a changed climate is consequently a necessary component of our response strategy.

The warming in the 21st century will be significantly larger than in the 20th century.

Natural ecosystems, which are our life support system in many important ways, appear to be the most vulnerable to the harmful effects of climate change...

Major alterations to natural ecosystems due to climate change could possibly have negative consequences for our economy, which depends in part on the sustained bounty of our nation's lands, waters, and native plant and animal communities.



SUMMARY

CLIMATE CHANGE AND OUR NATION

The magnitude of climate change impacts depends on time period and geographic scale. Short-term impacts differ from long-term impacts, and regional and local level impacts are much more pronounced than those at the national level.

For the nation as a whole, direct economic impacts are likely to be modest, while in some places, economic losses or gains are likely to be large. For example, while crop yields are likely to increase at the national scale over the next few decades, large increases or decreases in yields of specific crops in particular places are likely.

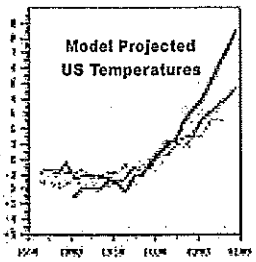
Through time, climate change will possibly affect the same resource in opposite ways. For example, forest productivity is likely to increase in the short term, while over the longer term, changes in processes such as fire, insects, drought, and disease will possibly decrease forest productivity.

Adaptation measures can,in many cases, reduce the magnitude of harmful impacts,or take advantage of beneficial impacts. For example,in agriculture, many farmers will probably be able to alter cropping and management practices. Roads,bridges,buildings,and other long-lived infrastructure can be designed taking projected climate change into account. Adaptations,however, can involve trade-offs, and do involve costs. For example,the benefits of building sea walls to prevent sea-level rise from disrupting human coastal communities will need to be weighed against the economic and ecological costs of seawall construction. The ecological costs could be high as seawalls prevent the inland shifting of coastal wetlands in response to sea-level rise, resulting in the loss of vital fish and bird habitat and other wetland functions,such as protecting shorelines from damage due to storm surges. Protecting against any increased risk of water-borne and insect-borne diseases will require diligent maintenance of our public health system. Many adaptations, notably those that seek to reduce other environmental stresses such as pollution and habitat fragmentation,will have beneficial effects beyond those related to climate change.

Vulnerability in the US is linked to the fates of other nations,and we cannot evaluate national consequences due to climate variability and change without also considering the consequences of changes elswhere in the world. The US is linked to other nations in many ways,and both our vulnerabilities and our potential responses will likely depend in part on impacts and responses in other nations. For example,conflicts or mass migrations resulting from resource limits,health,and environmental stresses in more vulnerable nations could possibly pose challenges for global security and US policy. Effects of climate variability and change on US agriculture will depend critically on changes in agricultural productivity elsewhere,which can shift international patterns of food supply and demand. Climate-induced changes in water resources available for power generation,transportation,cities,and agriculture are likely to raise potentially delicate diplomatic issues with both Canada and Mexico.

This Assessment has identified many remaining uncertainties that limit our ability to fully understand the spectrum of potential consequences of climate change for our nation. To address these uncertainties,additional research is needed to improve understanding of ecological and social processes that are sensitive to climate,application of climate scenarios and reconstructions of past climates to impacts studies, and assessment strategies and methods. Results from these research efforts will inform future assessments that will continue the process of building our understanding of humanity's impacts on climate,and climate's impacts on us.

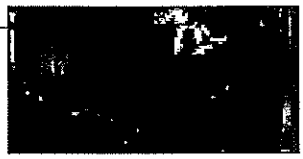
KEY FINDINGS



1. Increased warming

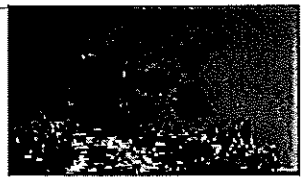
Assuming continued growth in world greenhouse gas emissions, the primary climate models used in this Assessment project that temperatures in the US will rise 5-9°F (3-5°C) on average in the next 100 years. A wider range of outcomes is possible.

2. Differing regional impacts



Climate change will vary widely across the US. Temperature increases will vary somewhat from one region to the next. Heavy and extreme precipitation events are likely to become more frequent, yet some regions will get drier. The potential impacts of climate change will also vary widely across the nation.

3. Vulnerable ecosystems



Many ecosystems are highly vulnerable to the projected rate and magnitude of climate change. A few, such as alpine meadows in the Rocky Mountains and some barrier islands, are likely to disappear entirely in some areas. Others, such as forests of the Southeast, are likely to experience major species shifts or break up into a mosaic of grasslands, woodlands, and forests. The goods and services lost through the disappearance or fragmentation of certain ecosystems are likely to be costly or impossible to replace.

4. Widespread water concerns



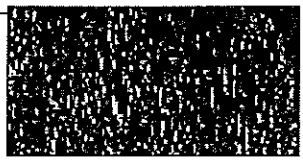
Water is an issue in every region, but the nature of the vulnerabilities varies. Drought is an important concern in every region. Floods and water quality are concerns in many regions. Snowpack changes are especially important in the West, Pacific Northwest, and Alaska.

5. Secure food supply



At the national level, the agriculture sector is likely to be able to adapt to climate change. Overall, US crop productivity is very likely to increase over the next few decades, but the gains will not be uniform across the nation. Falling prices and competitive pressures are very likely to stress some farmers, while benefiting consumers.

6. Near-term increase in forest growth



Forest productivity is likely to increase over the next several decades in some areas as trees respond to higher carbon dioxide levels. Over the longer term, changes in larger-scale processes such as fire, insects, droughts, and disease will possibly decrease forest productivity. In addition, climate change is likely to cause long-term shifts in forest species, such as sugar maples moving north out of the US.

7. Increased damage in coastal and permafrost areas



Climate change and the resulting rise in sea level are likely to exacerbate threats to buildings, roads, powerlines, and other infrastructure in climatically sensitive places. For example, infrastructure damage is related to permafrost melting in Alaska, and to sea-level rise and storm surge in low-lying coastal areas.

8. Adaptation determines health outcomes



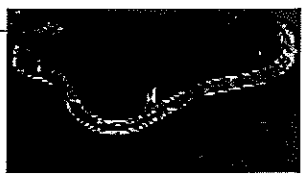
A range of negative health impacts is possible from climate change, but adaptation is likely to help protect much of the US population. Maintaining our nation's public health and community infrastructure, from water treatment systems to emergency shelters, will be important for minimizing the impacts of water-borne diseases, heat stress, air pollution, extreme weather events, and diseases transmitted by insects, ticks, and rodents.

9. Other stresses magnified by climate change



Climate change will very likely magnify the cumulative impacts of other stresses, such as air and water pollution and habitat destruction due to human development patterns. For some systems, such as coral reefs, the combined effects of climate change and other stresses are very likely to exceed a critical threshold, bringing large, possibly irreversible impacts.

10. Uncertainties remain and surprises are expected



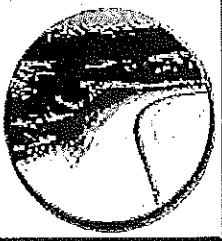
Significant uncertainties remain in the science underlying regional climate changes and their impacts. Further research would improve understanding and our ability to project societal and ecosystem impacts, and provide the public with additional useful information about options for adaptation. However, it is likely that some aspects and impacts of climate change will be totally unanticipated as complex systems respond to ongoing climate change in unforeseeable ways.

IMPACTS OF CLIMATE CHANGE

It is very likely that the US will get substantially warmer. Temperatures are projected to rise more rapidly in the next one hundred years than in the last 10,000 years. It is also very likely that there will be more precipitation overall, with more of it coming in heavy downpours. In spite of this, some areas are likely to get drier as increased evaporation due to higher temperatures outpaces increased precipitation. Droughts and flash floods are likely to become more frequent and intense.

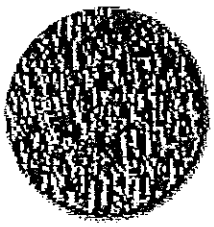
PERMAFROST AREAS

It is very probable that rising temperatures will cause further permafrost thawing, damaging roads, buildings, and forests in Alaska.



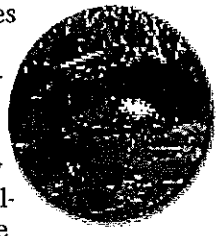
FORESTRY

Timber inventories are likely to increase over the 21st century. Hardwood productivity is likely to increase more than softwood productivity in some regions, including the Southeast.



SPECIES DIVERSITY

While it is possible that some species will adapt to changes in climate by shifting their ranges, human and geographic barriers, and the presence of invasive non-native species will limit the degree of adaptation that can occur. Losses in local biodiversity are likely to accelerate towards the end of the 21st century.



WATER SUPPLY



Reduced summer runoff, increased winter runoff, and increased demands are likely to compound current stresses on water supplies and flood management,especially in the western US.

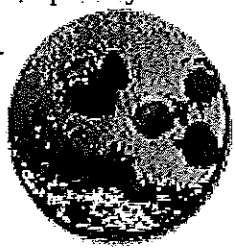
ISLANDS

Sea-level rise and storm surges will very likely threaten public health and safety and possibly reduce the availability of fresh water.



CORAL REEFS

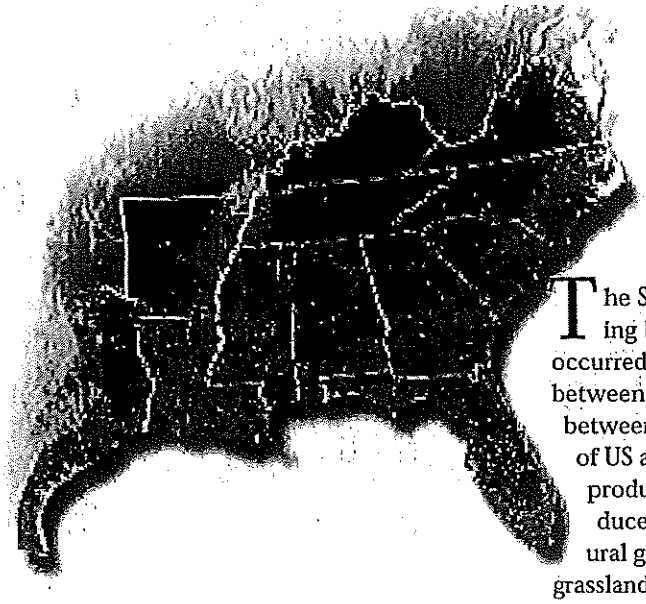
Increased CO_2 and ocean temperatures,especially combined with other stresses,will possibly exacerbate coral reef bleaching and die-off.



FRESHWATER ECOSYSTEMS

Increases in water temperature and changes in seasonal patterns of runoff will very likely disturb fish habitat and affect recreational uses of lakes,streams, and wetlands.





SOUTHEAST

The Southeast "sunbelt" is a rapidly growing region with population increasing by more than 30% between 1970 and 1990. Much of this growth occurred in coastal counties,which are projected to grow another 40% between 2000 and 2025. The number of farms in the region decreased 80% between 1930 and 1997,but the Southeast still produces roughly one quarter of US agricultural crops. The Southeast has become America's "woodbasket," producing about half of America's timber supplies. The region also produces a large portion of the nation's fish,poultry, tobacco,oil,coal,and natural gas. Prior to European settlement,the landscape was primarily forests, grasslands,and wetlands,but most of the native forests were converted to managed forests and agricultural lands by 1920. Roughly half of the remaining wetlands in the lower 48 states are located in the Southeast,and more than three-quarters of the Nation's annual wetland losses over the past 50 years occurred in this region. Although much of the landscape has been altered,a wide range of ecosystem types exists and overall species diversity is high.

KEY ISSUES

- Weather-related Stresses on Human Populations
- Agricultural Crop Yields and Economic Impacts
- Forest Productivity Shifts
- Water Quality Stresses
- Threats to Coastal Areas

Observed Climate Trends

Temperature trends in the Southeast vary between decades,with a warm period during the 1920s-1940s followed by a cooling trend through the 1960s. Since the 1970s,temperatures have been increasing,with the 1990's temperatures as warm as the peaks in the 1920s and 30s. Annual rainfall trends show very strong increases of 20-30% or more over the past 100 years across Mississippi,Arkansas,South Carolina,Tennessee,Alabama,and parts of Louisiana, with mixed changes across most of the remaining area. There has been a strong tendency for more wet spells in the Gulf Coast states,and a moderate tendency in most other areas. The percentage of the Southeast landscape experiencing severe wetness increased approximately 10% between 1910 and 1997. There are strong El Niño and La Niña effects in the Southeast that can result in dramatic seasonal and year-to-year variations in temperature and precipitation. El Niño events also tend to create atmospheric conditions that inhibit Atlantic tropical storm development, resulting in fewer hurricanes. La Niña events have the opposite effect, resulting in more hurricanes.

Ghost Forests

Vast stands of coastal forest are dying along the Gulf of Mexico shoreline. Sea-level rise resulting in saltwater intrusion is the suspected cause, and the sun-bleached remnants of dead stems have given rise to the common term "ghost forest" in parts of

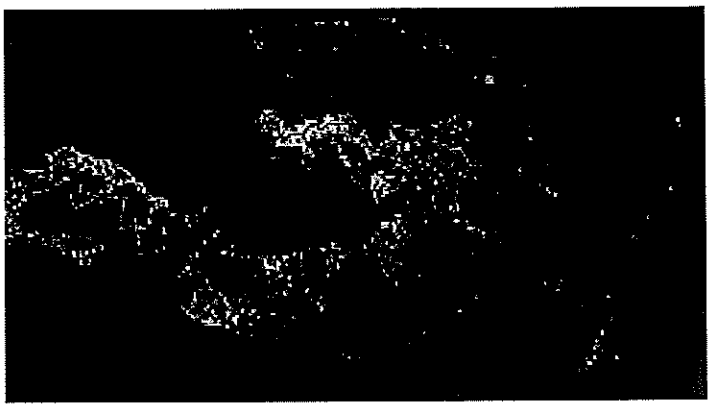


South Florida and Louisiana. Over the past 30 years, hundreds of acres of southern baldcypress trees have died in Louisiana coastal parishes, with losses most acute in areas where subsidence and navigation channels have accelerated the rate of saltwater encroachment due to rising sea level. Baldcypress and live oak mortality have occurred as far as 30 miles inland. In

Scenarios of Future Climate

Climate model projections exhibit a wide range of plausible scenarios for both temperature and precipitation over the next century. Both of the principal climate models used in the National Assessment project warming in the Southeast by the 2090s,but at different rates. The Canadian model scenario shows the Southeast experiencing a high degree of warming, which translates into lower soil moisture as higher temperatures increase evaporation. The Hadley model scenario simulates less warming and a significant increase in precipitation (about 20%). Some climate models suggest that rainfall associated with El Niño and the intensity of droughts during La Niña phases will be intensified as atmospheric CO_2 increases.

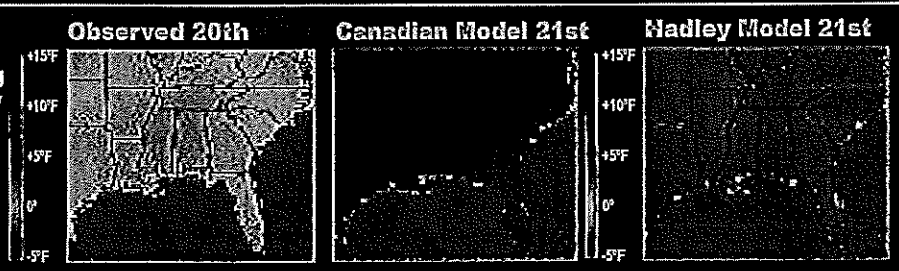
Louisiana's Coastal Land loss
Between 1956 and 1990 (Shown in Red)



Rising sea level is one of several factors that have caused the loss of about one million acres of Louisiana wetland since 1900. Natural and human-induced processes contributing to these losses include subsidence due to groundwater withdrawal and natural sediment compaction, wetland drainage, and levee construction. The white line designates the coastal zone and red designates land that has been converted to open water.

Temperature Change - 20th & 21st Centuries

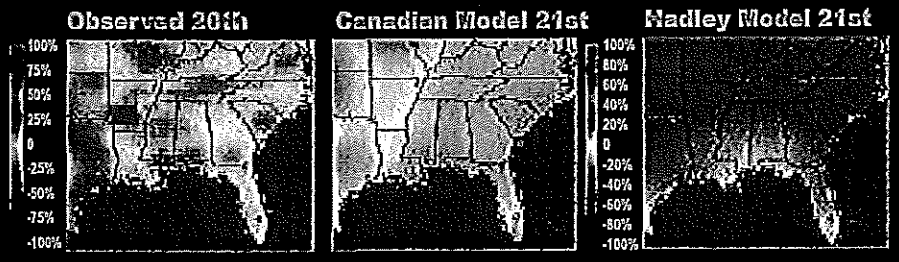
The largest warming during the last century has occurred along the coastal region (as much as 4°F), with some inland cooling.



Model scenarios project relatively uniform increases in annually averaged temperatures. However, the Canadian model projects increases that are twice as large as the Hadley model.

Precipitation Change - 20th & 21st Centuries

Observed precipitation changes during the last century are a patchwork of moderate increases and decreases.

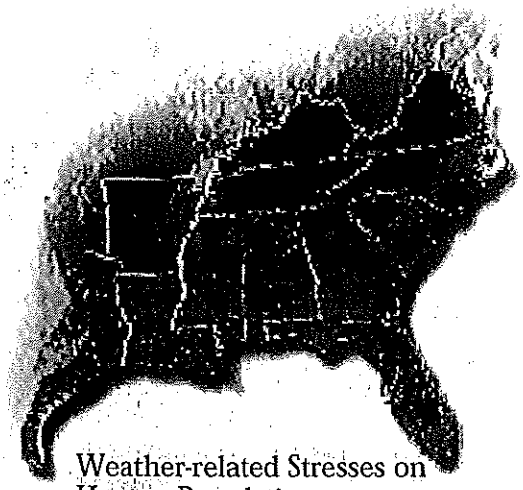


The Canadian model scenario for the 21st century indicates near neutral trends or modest increases, while the Hadley model projects increases of near 25% for the region.

Florida, chronic saltwater contamination of forest soils occurs nearer the shoreline.

Since 1991 landowners and public land managers in Florida have observed massive die-offs of sabal palm along a 40-mile stretch of coast between Cedar Key and Homosassa Springs. Ed Barnard, a forest pathologist with Florida's Forestry Division, compares what he has seen with the aftermath of Hurricane Hugo in South Carolina, and he attributes the Florida problem to saltwater.

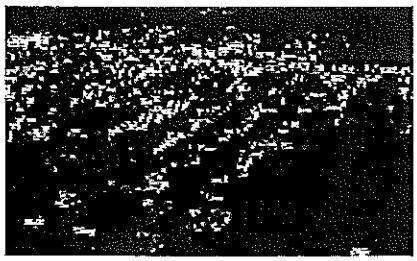
Analyses also attribute the forest decline to salt water intrusion associated with sea-level rise. Since 1852, when the first topographic charts of this region were prepared, high tidal flood elevations have increased approximately 12 inches. Coastal forest losses will be even more severe if sea-level rise accelerates as is expected as a result of global warming.



SOUTHEAST KEY ISSUES

Weather-related Stresses on Human Populations

The Southeast is prone to frequent natural weather disasters that affect human life and property. Over half of the nation's costliest weather-related disasters of the past 20 years have occurred in the Southeast,costing the region over $85 billion in damages,mostly associated with floods and hurricanes. Across the region,intense precipitation has increased over the past 100 years,and this trend is projected to continue.

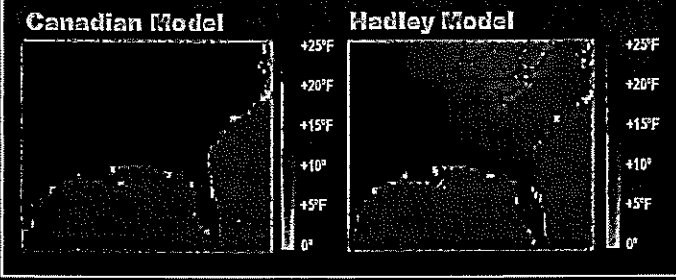


Flooded community along Bayou Lafourche in South Louisiana after landfall of Hurricane Juan in 1985.

The southern heat wave and drought of 1998 resulted in damages in excess of $6 billion and at least 200 deaths. Human health concerns arise from the projected increases in maximum temperatures and heat index in the region. These concerns are particularly great for lower income households that lack sufficient resources to improve insulation and install and operate air conditioning systems. Air quality degradation in urban areas is also a concern associated with elevated air temperatures and increased emissions from power generation, which can increase ground-level ozone. Increased flooding in low-lying coastal counties from the Carolinas to Texas is also likely to adversely impact human health; floods are the leading cause of death from natural disasters in the region and nationwide.

Adaptations: Traditional approaches such as flood levees,elevated structures,and building codes are no longer adequate by themselves,particularly in the coastal zone,as sea-level rise alone continues to increase the propensity for storm-surge flooding in virtually all southeastern coastal areas. Improvements in risk assessment,coastal and floodplain management,linking insurance to policies for mitigating flood damage, and local mitigation planning are strategies that are likely to decrease potential costs. Changes in climate and sea-level rise should be an integral consideration as coastal communities develop strategies for hazard preparedness and mitigation.

July Heat Index Change - 21st Century



The changes in the simulated heat index for the Southeast are the most dramatic in the nation with the Hadley model suggesting increases of 8 to 15°F for the southern-most states, while the Canadian model projects increases above 20°F for much of the region.

Summer Soil Moisture Change - 20th & 21st Centuries

The observed record of soil moisture illustrates mixed changes across the region.



The Hadley model projects soil moisture will increase substantially in most of the region. In contrast, the Canadian model, with larger projected warming and little change in rainfall, suggests large decreases in soil moisture.

Agricultural Crop Yields and Economic Impacts

Crop yield and economic impact estimates vary by climate scenario,area,and crop. The Hadley scenario simulates decreases in the yield of most dryland (non-irrigated) crops in the Gulf Coast area but increases elsewhere in the region through both the 2030s and 2090s. Average yields of irrigated soybean,wheat,and rice increase under the Hadley scenario by 10% in 2030 and by more than 20% in 2090. Under the hotter and drier Canadian climate scenario,dryland soybean yields decrease 10-30% in some key locations by 2030 and decrease by 80% by 2090. Economic impact simulations follow patterns similar to the yield maps below.

Of the major crop growing areas of the Southeast,the lower Mississippi Valley and Gulf Coast areas are likely to be more negatively affected,while the northern Atlantic Coastal Plain is likely to be more positively affected.

Adaptations:Expected impacts on agricultural productivity and profitability will very likely stimulate adjustments in management strategies. Producers can switch crops or vary planting dates,patterns of water usage,crop rotations,and the amounts,timing,and application methods for fertilizers and pesticides. Analyses indicate that farmers, except those in the southern Mississippi Delta and Gulf Coast areas,will likely be able to mitigate most of the negative effects and possibly benefit from changes in CO_2 and moisture that enhance crop growth. Improvements in understanding climate and forecasting weather would enhance the ability of agricultural resource managers to deal effectively with future changes. In addition,plant breeders could respond by developing new and improved varieties to accommodate the changed climate conditions.

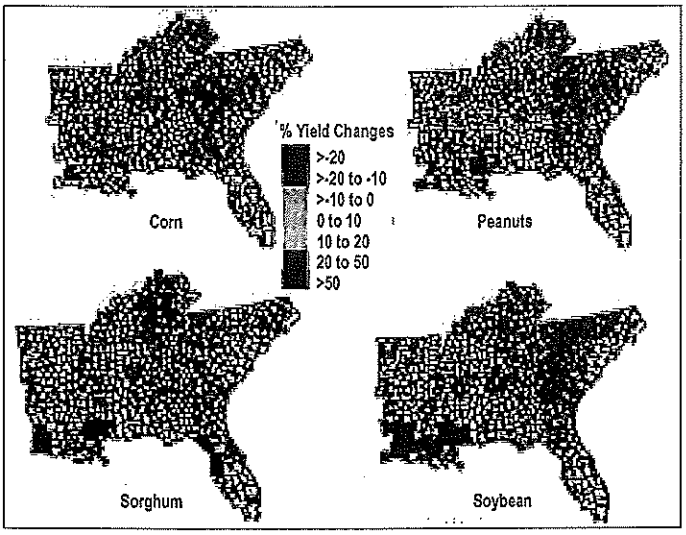
The southern heat wave and drought of 1998 resulted in damages in excess of $6 billion and at least 200 deaths.

Human health concerns arise from the projected increases in maximum temperatures and heat index in the region.

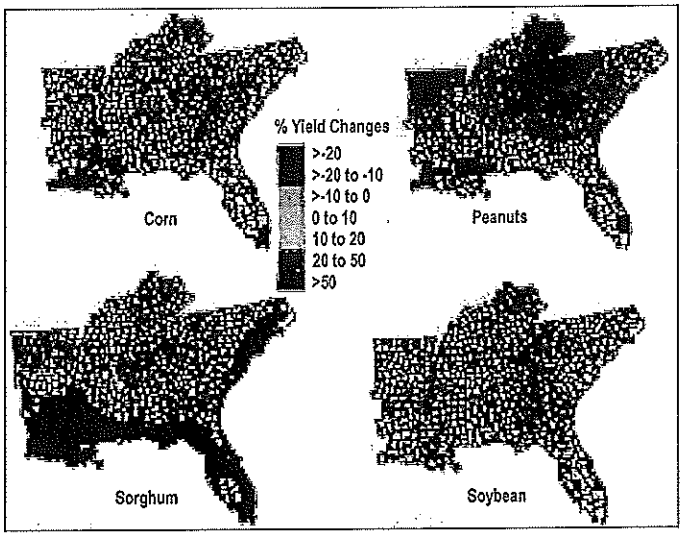
Improvements in risk assessment, coastal and floodplain management, linking insurance to policies for mitigating flood damage, and local mitigation planning are strategies that are likely to decrease potential costs.

Changes in Yields of Rainfed Crops
30 year Average

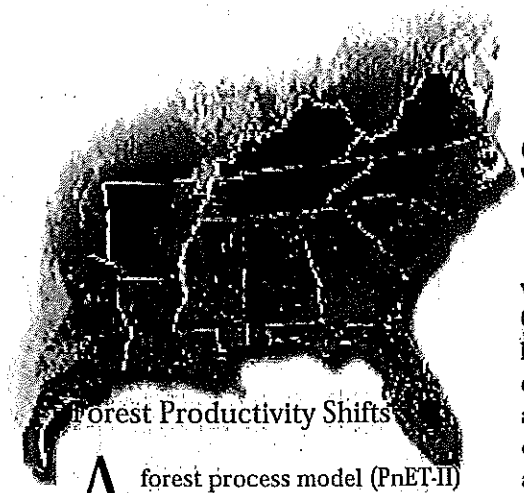
Hadley Model 2030



Hadley Model 2090



Projected changes in 30-year average rainfed yields of four major crops in the Southeast by the years 2030 and 2090 using the Hadley model scenario.



SOUTHEAST KEY ISSUES

Forest Productivity Shifts

A forest process model (PnET-II) was used to evaluate the impact of the Hadley climate scenario and increasing atmospheric CO_2 on southeastern forest productivity. The model simulates an increase in the productivity of southern loblolly pine plantations of approximately 11% by 2040 and 8% by 2100;the productivity of hardwood and mixed pine hardwood forest (which represent 64% of the total forest area) would increase 22% by 2040 and 25% by 2100,compared to 1990. The model indicates that the greatest increases in productivity of both pines and hardwoods would occur in the northern half of the region.

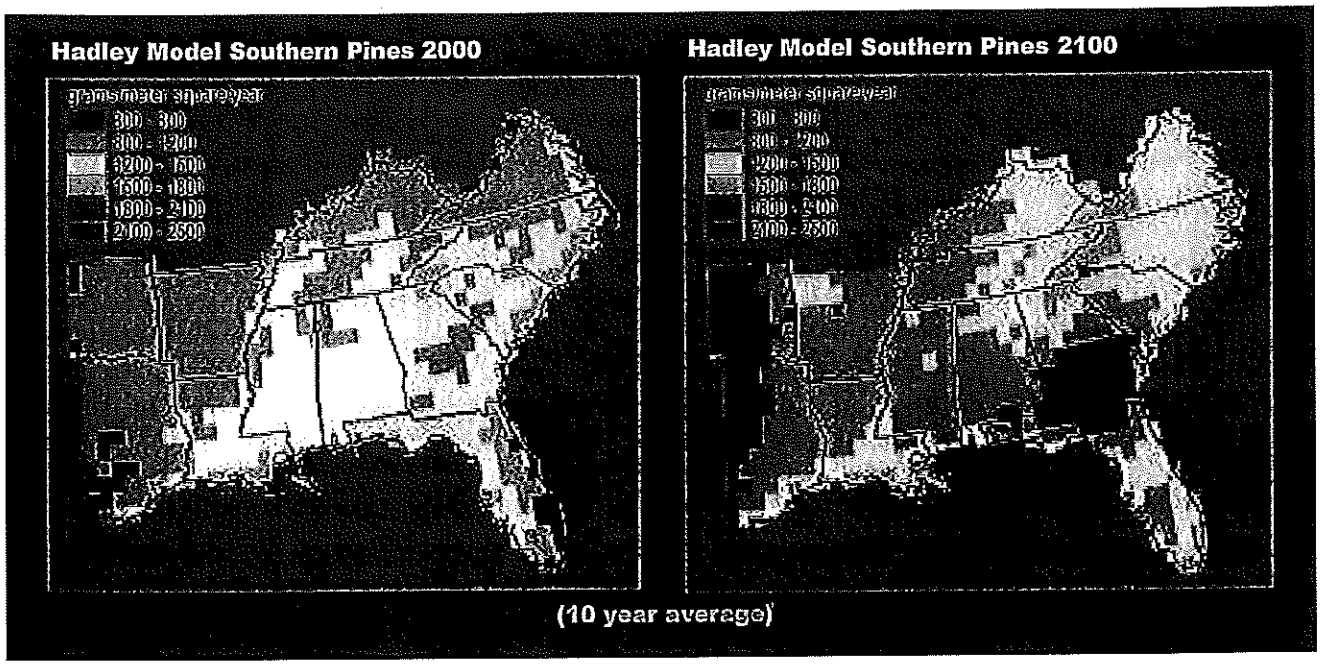
Other VEMAP ecosystem models used with the Hadley Scenario also project increases in productivity across southern forests by 2100. However, when these models are run with the Canadian climate scenario,they simulate decreases in productivity in parts of the Southeast. Furthermore,several models that are designed to project changes in vegetation distribution as a consequence of climate change simulate a breakup of the pine-dominated forests in parts of the Southeast by the end of the 21st century under the Canadian scenario. These simulations suggest that part of the forest will possibly be replaced by savannas and grasslands due to decreased soil moisture and fire (see Ecosystems).

Adaptations: As the northern parts of the region become relatively more productive as a result of climate change and the southern parts are more negatively affected,timber harvesting could be shifted northward. Other adaptation strategies include the use of more drought-hardy strains of pine and other silvicultural and genetic improvements that could increase water use efficiency or water availability. Improved knowledge of the role of hurricanes, droughts, fire,El Niño-related changes in seasonal weather patterns,and other natural disturbances will be important in developing forest management regimes and increases in productivity that are sustainable over the long term. Under a hotter, drier climate,an aggressive fire management strategy could prove to be very important in this region.

Water Quality Stresses

Surface water resources in the Southeast are intensively managed with dams and channels,and almost all are affected by human activities. In some streams and lakes, water quality is either below recommended levels or nearly so. Stresses on water quality are associated with intensive agricultural practices,urban development,coastal processes,and mining activities. The impacts of these stresses are likely to be exacerbated by climate change. For example,higher temperatures reduce dis-

Potential Southern Pines and Hardwoods Net Primary Productivity (NPP)



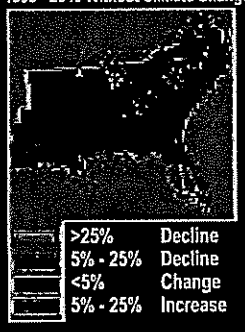
solved oxygen levels in water. The 1999 flooding of eastern North Carolina offers a graphic example of how water quality can also be affected by extreme precipitation events, the frequency of which are likely to continue to increase; flood waters fouled with sewage, rotting farm animal carcasses,fuel,and chemicals swamped water treatment plants and contaminated public water supplies.

Threats to Coastal Areas

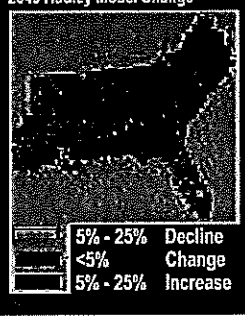
Sea-level rise is one of the more certain consequences of climate change. It has already had significant impacts on coastal areas and these impacts are very likely to increase. Between 1985 and 1995,southeastern states lost more than 32,000 acres of coastal salt marsh due to a combination of human development activities,sea-level rise,natural subsidence,and erosion. About 35 square miles of coastal land were lost each year in Louisiana alone from 1978 to 1990. Flood and erosion damage stemming from sea-level rise coupled with storm surges are very likely to increase in coastal communities. Coastal ecosystems and the services they provide to human society are likely to be negatively affected. Projected impacts are likely to include the loss of barrier islands and wetlands that protect coastal communities and ecosystems from storm surges, reduced fisheries productivity as coastal marshes and submerged grass beds are displaced or eliminated,and saltwater intrusion into surface and ground water supplies. The extent of the ecological impacts of sea-level rise is largely dependent upon the rate of rise and the development that has occurred along the shoreline. Other threats to these ecosystems come from changes in rainfall in coastal watersheds which are likely to alter fresh water inflows into estuaries,altering salinity patterns that determine the type and distribution of coastal plant and animal communities. There are few practical options for protecting natural ecosystems as a whole from increasing temperature, changes in precipitation,or rapidly rising sea level. As noted for other coastal regions, one possibility is the acquisition of lands contiguous to coastal wetlands to allow for their inland migration as sea level rises.

Timberland Acreage Shifts

1993 - 2040 Without Climate Change



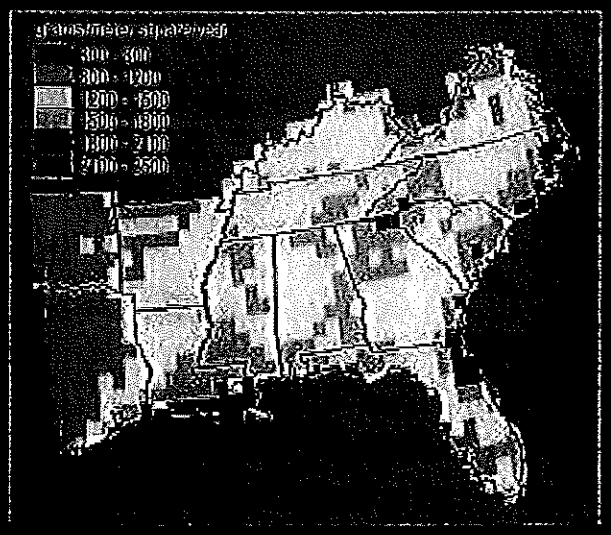
2040 Hadley Model Change



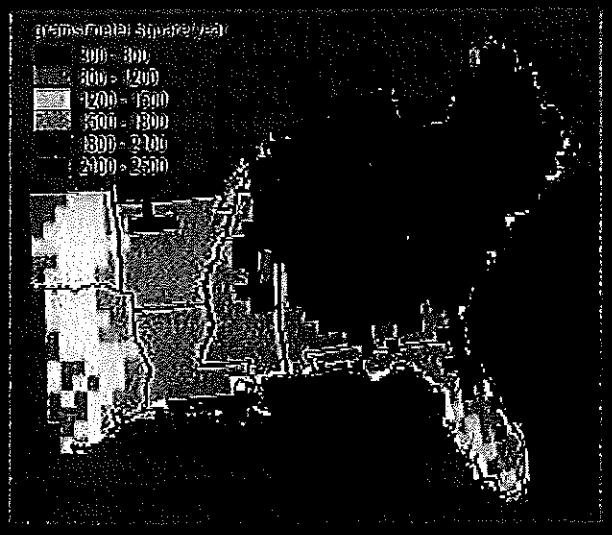
The change in forest productivity under the Hadley-based scenario is expected to cause slightly higher softwood timber prices and lower hardwood prices than would be the case without climate change. Harvests and inventory would also shift northward, reflecting the northward productivity shifts.

Simulations of Net Primary Productivity (the net amount of carbon fixed by green plants over the course of a year) of southern pines and hardwoods as projected by one ecological model, PnET, using the Hadley model scenario. By 2100, PnET projects that southern hardwoods will be much more productive than pines under the climate projected by the Hadley model.

Hadley Model Southern Hardwoods 2000



Hadley Model Southern Hardwoods 2100



(10 year average)

Exhibit D

Questionnaire for Filing Proposed Rules and Regulations with the Arkansas Legislative Council and Joint Interim Committee

APPENDIX 6

QUESTIONNAIRE FOR FILING PROPOSED RULES AND REGULATIONS WITH THE ARKANSAS LEGISLATIVE COUNCIL AND JOINT INTERIM COMMITTEE

DEPARTMENT/AGENCY ADEQ
DIVISION Air
DIVISION DIRECTOR Mike Bates
CONTACT PERSON Mike Porta
ADDRESS 5301 Northshore Dr.
PHONE NO. 501-682-0730 **FAX NO.** 501-682-0753 **E-MAIL** Baks@adeq.state.ar.us
NAME OF PRESENTER AT COMMITTEE MEETING _____
PRESENTER E-MAIL _____

INSTRUCTIONS

A. **Please make copies of this form for future use.**
B. **Please answer each question completely using layman terms. You may use additional sheets, if necessary.**
C. **If you have a method of indexing your rules, please give the proposed citation after "Short Title of this Rule" below.**
D. **Submit two (2) copies of this questionnaire and financial impact statement attached to the front of two (2) copies of the proposed rule and required documents. Mail or deliver to:**

Donna K. Davis
Administrative Rules Review Section
Arkansas Legislative Council
Bureau of Legislative Research
Room 315, State Capitol
Little Rock, AR 72201

****

1. What is the short title of this rule? Regulation 18

2. What is the subject of the proposed rule? n/a

3. Is this rule required to comply with a federal statute, rule, or regulation? Yes_____ No ✓

   If yes, please provide the federal rule, regulation, and/or statute citation.

4. Was this rule filed under the emergency provisions of the Administrative Procedure Act? Yes_____ No ✓

If yes, what is the effective date of the emergency rule? _____

When does the emergency rule expire? _____

Will this emergency rule be promulgated under the permanent provisions of the Administrative Procedure Act? Yes_____ No_____

5. Is this a new rule? Yes____ No ✓ If yes, please provide a brief summary explaining the regulation.

Does this repeal an existing rule? Yes_____ No ✓ If yes, a copy of the repealed rule is to be included with your completed questionnaire. If it is being replaced with a new rule, please provide a summary of the rule giving an explanation of what the rule does.

Is this an amendment to an existing rule? Yes ✓ No___ If yes, please attach a mark-up showing the changes in the existing rule and a summary of the substantive changes. **Note: The summary should explain what the amendment does, and the mark-up copy should be clearly labeled "mark-up."**

6. Cite the state law that grants the authority for this proposed rule? If codified, please give Arkansas Code citation.

Water and Air Pollution Control Act (Ark. Code 8-4)

7. What is the purpose of this proposed rule? Why is it necessary?

Update definition

8. Please provide the address where this rule is publicly accessible in electronic form via the Internet as required by Arkansas Code § 25-19-108(b).

www.adeq.state.ar.us/regs/default.htm

9. Will a public hearing be held on this proposed rule? Yes ✓ No_____
If yes, please complete the following:
Date: TBD
Time: _____
Place: _____

10. When does the public comment period expire for permanent promulgation? (Must provide a date.) TBD

11. What is the proposed effective date of this proposed rule? (Must provide a date.)
TBD

12. Do you expect this rule to be controversial? Yes_____ No ✓ If yes, please explain.

13. Please give the names of persons, groups, or organizations that you expect to comment on these rules? Please provide their position (for or against) if known.

Ken Smith, Audubon (for)
Glen Hooks, Sierra Club (for)

Exhibit E

Financial Impact Statement

APPENDIX 7

FINANCIAL IMPACT STATEMENT

PLEASE ANSWER ALL QUESTIONS COMPLETELY

DEPARTMENT N/A
DIVISION N/A
PERSON COMPLETING THIS STATEMENT Ilan Levin
TELEPHONE NO. 512-619-7287 **FAX NO.** 512-479-8302 **EMAIL:** ilevin@environmentalintegrity.org

To comply with Act 1104 of 1995, please complete the following Financial Impact Statement and file two copies with the questionnaire and proposed rules.

SHORT TITLE OF THIS RULE

---

1. Does this proposed, amended, or repealed rule have a financial impact?
   Yes _____ No ✓

2. Does this proposed, amended, or repealed rule affect small businesses?
   Yes _____ No ✓

   If yes, please attach a copy of the economic impact statement required to be filed with the Arkansas Economic Development Commission under Arkansas Code § 25-15-301 et seq.

3. If you believe that the development of a financial impact statement is so speculative as to be cost prohibited, please explain.

4. If the purpose of this rule is to implement a federal rule or regulation, please give the incremental cost for implementing the rule. Please indicate if the cost provided is the cost of the program.

Current Fiscal Year		Next Fiscal Year	
General Revenue	N/A	General Revenue	N/A
Federal Funds	N/A	Federal Funds	N/A

Cash Funds_____ Cash Funds_____ Special Revenue_____
Special Revenue_____
Other (Identify)_____ Other(Identify) _____

Total n/A Total n/A

5. What is the total estimated cost by fiscal year to any party subject to the proposed, amended, or repealed rule? Identify the party subject to the proposed rule and explain how they are affected.

Current Fiscal Year **Next Fiscal Year**

$ n/A $ n/A

6. What is the total estimated cost by fiscal year to the agency to implement this rule? Is this the cost of the program or grant? Please explain.

Current Fiscal Year **Next Fiscal Year**

$ n/A $ n/A

APPENDIX 7

FINANCIAL IMPACT STATEMENT

PLEASE ANSWER ALL QUESTIONS COMPLETELY

DEPARTMENT N/A
DIVISION N/A
PERSON COMPLETING THIS STATEMENT Ilan Levin
TELEPHONE NO. 512-619-7287 **FAX NO.** 512-479-8302 **EMAIL:** ilevin@environmentalintegrity.org

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   If yes, please attach a copy of the economic impact statement required to be filed with the Arkansas Economic Development Commission under Arkansas Code § 25-15-301 et seq.

3. If you believe that the development of a financial impact statement is so speculative as to be cost prohibited, please explain.

4. If the purpose of this rule is to implement a federal rule or regulation, please give the incremental cost for implementing the rule. Please indicate if the cost provided is the cost of the program.

Current Fiscal Year		Next Fiscal Year	
General Revenue	N/A	General Revenue	N/A
Federal Funds	N/A	Federal Funds	N/A

Cash Funds_____ Cash Funds_____ Special Revenue_____

Special Revenue_____

Other (Identify)_____ Other(Identify) _____

Total n/A Total n/A

5. What is the total estimated cost by fiscal year to any party subject to the proposed, amended, or repealed rule? Identify the party subject to the proposed rule and explain how they are affected.

Current Fiscal Year **Next Fiscal Year**

$ n/A $ n/A

6. What is the total estimated cost by fiscal year to the agency to implement this rule? Is this the cost of the program or grant? Please explain.

Current Fiscal Year **Next Fiscal Year**

$ n/A $ n/A

Exhibit G

Minute Order to Initiate Rulemaking

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

SUBJECT Regulation No. 18

Third-Party Rulemaking Audubon, Sierra Club & Environmental Integrity Project
DOCKET NO. 08- __-R

MINUTE ORDER NO. 08-_____

On May 16, 2008, Audubon, Sierra Club, and Environmental Integrity Project ("Petitioners) filed a Petition to Initiate Third-Party Rulemaking to Amend Regulation No. 18. Pursuant to Ark. Code Ann. 8-4-202(c), the Arkansas Pollution Control and Ecology Commission has sixty (60) days in which to either institute rulemaking proceedings or to give written notice denying the petition for rulemaking. The Petition has been designated as Docket No. 08-___-R.

The Commission's Regulations Committee met on _____to review the Petition and it recommends that the Commission institute a rulemaking proceeding to consider adopting the proposed amendment to Regulation No. 18. The Regulations Committee also recommends adoption of the following procedures and schedule.

1. Petitioners and the Arkansas Department of Environmental Quality ("ADEQ") shall file an original and one (1) copy and a computer disk in Word of all materials required under this Minute Order. This requirement does not apply to transcripts.

2. Persons submitting written public comments shall submit them to ADEQ and ADEQ will deliver the originals of all comments to the Commission Secretary at the conclusion of the proceeding.

3. Petitioners will submit to the ADEQ's Public Outreach and Assistance Division ("POA), the following:

a. A proposed public notice to be used in mailing notice to interested persons, for publishing in an appropriate publication as the Commission may select. The proposed public notice may, in the ADEQ's discretion, be approved for use or ADEQ may choose to prepare its own public notice. The public notice shall conform to the requirements of Regulation No. 8, Section 3.1.3. The public notice shall be published not later than 45 days prior to the first public hearing. By agreement, Petitioners shall pay the costs of the newspaper publications and the costs of the appropriate industry, trade or professional publications chosen by the Commission and shall file only the original proof of publication with the Commission. ADEQ shall be responsible for mailing the public notice to all persons who have requested advance notice of rulemaking proceedings and the cost of the mailing.

b. Fifty (50) copies of the executive summary of the proposed rulemaking.

c. Bound copies of the Petition and all supporting documentation, the number of which is to be determined by POA.

4. A public hearing shall be conducted the week of _____ in Little Rock, at the offices of ADEQ. The exact date, time, and location for each hearing will be determined by ADEQ's Public Outreach and Assistance Division.

5. The period for receiving all written comments from Petitioners, the public, and ADEQ shall conclude ten (10) business days after the date of the public hearing, unless an extension of time is granted.

6. Petitioners and ADEQ shall each file, not later than 14 days before the Commission meets to consider adoption of the proposed regulation, a Statement of Basis and Purpose and Responsive Summary as required by Regulation No. 8, Part 3, Section 3.6.2(1), (2) and (3). In addition, Petitioners and ADEQ shall file a proposed Minute Order deciding this matter.

7. ADEQ shall seek review of the proposed rule from the Joint Interim Committee on Public Health and Welfare and/or from the Joint Interim Committee on Administrative Rules and Regulations.

8. The Regulations Committee and the Commission may consider this matter at their _____, 2008 meeting. In the event the appropriate legislative committees do not complete review of the proposed rule by the above date, the Regulations Committee and the Commission will consider the proposed amendments to the regulation after review by the appropriate legislative committees. Members of the Regulations Committee may ask questions of any persons that made oral or written comments and it will make a recommendation to the Commission.

9. At the Commission meeting, the presentation of oral statements and legal arguments will be regulated as follows:

a. The Chair of the Commission will permit members of the public to make a statement to the Commission. No more than three (3) minutes will be allowed for each statement. The period for statements will close at the end of one (1) hour, or sooner if all interested persons have completed their statements. At the discretion of the Chair, the one (1) hour oral statement period may be extended.

b. At the discretion of the Chair, an attorney representing one or more individuals, a corporation or other legal entity may be permitted five (5) minutes in which to address the Commission.

c. Legal counsel or other designated persons representing Petitioners and ADEQ shall be permitted ten (10) minutes in which to address the Commission.

d. At the conclusion of all statements, the Chair will call on each Commissioner for the purpose of asking the attorneys or persons sponsoring statements who are present, any questions they may have. Attorneys will not be permitted to respond or ask follow-up questions of any person questioned by a Commissioner. After each Commissioner has had an opportunity to ask questions, the Chair will entertain a motion on the matter, allow discussion, and call for a vote of the Commission members.

10. If Petitioners desire a transcript of the public hearing, Regulations Committee meeting, and Commission meetings, or if required by the Commission, Petitioners agree to pay all costs for the preparation of a transcript of the public hearings, Regulations Committee meetings and Commission meetings that concern this docket and occur after the adoption of the Minute Order. If a transcript is required, Petitioners will employ the court reporter and the court reporter shall deliver the original transcript to the Commission Secretary.

11. The Commission finds the proposed regulation is exempt from Act 143 of 2007, because the proposed rule codifies existing federal law. Further, the proposed rule does not impose any new or additional regulation, standard, or limitation.

The Commission accepts the recommendation of the Regulations Committee and initiates the rulemaking proceeding in this docket. The Commission adopts, without modification, the procedural schedule set forth above.

COMMISSIONERS:

_____ **B. Ackerman**
_____ **L. Bengal**
_____ **S. Henderson**
_____ **C. McGrew**
_____ **R. Quillin**
_____ **D. Samples**
_____ **T. Schueck**
_____ **J. Shannon**
_____ **L. Sickel**
_____ **W. Thompson**
_____ **E. Valdez**
_____ **B. White**
_____ **R. Young**

_____ Submitted by: _____ DATE PASSED: _____
Chair

BEFORE THE ARKANSAS COMMISSION ON POLLUTION CONTROL AND ECOLOGY

IN RE: REQUEST OF THE SIERRA CLUB, AUDUBON, ENVIRONMENTAL INTEGRITY PROJECT, TO INITIATE RULEMAKING TO AMEND REGULATION NOS. 18 AND 26	§ § § § § § § §	**DOCKET NO. _____**

PETITION TO INITIATE THIRD PARTY RULEMAKING TO AMEND REGULATION NO. 26

COME NOW, Sierra Club, Audubon, and Environmental Integrity Project (hereinafter, "Petitioners"), and, for their request to initiate third party rulemaking, state as follows:

1. This Petition is submitted pursuant to Section 3.4 of Regulation 8 of the Arkansas Pollution Control and Ecology Commission ("APCEC"). As more fully explained below, Petitioners are requesting an amendment to the definition of the term "Air contaminant" in Regulation 26. Specifically, Petitioners are requesting the deletion of the term *carbon dioxide* ("CO_2") from the definition.

2. Regulation No. 26, Chapter 2 (Definitions) contains the following definition:

> **"Air contaminant"** means any solid, liquid, gas, or combination thereof other than water vapor, nitrogen (N_2), carbon dioxide (CO_2), and oxygen (O_2).

3. Petitioners request that the term "carbon dioxide (CO_2)" be deleted from the definition in Regulation No. 26, as follows:

> **"Air contaminant"** means any solid, liquid, gas, or combination thereof other than water vapor, nitrogen (N_2), ~~carbon dioxide (CO_2),~~ and oxygen (O_2).

A mark-up version of the proposed change is included as Exhibit A to this Petition.

4. The change is necessary in order to update the definition to reflect federal law and mainstream scientific consensus.

5. The United States Supreme Court, in addressing the issue of whether greenhouse gases, including CO_2, are considered pollutants within the meaning of the federal Clean Air Act, stated:

> The Clean Air Act's sweeping definition of air pollutant includes *any* air pollution agent or combination of such agents, including *any* physical, chemical . . . substance or matter which is emitted into or otherwise enters the ambient air . . . .. §7602(g) (emphasis added). On its face, the definition embraces all airborne compounds of whatever stripe, and underscores that intent through the repeated use of the word "any." Carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons are without a doubt physical [and] chemical . . . substance[s] which [are] emitted into . . . the ambient air. The statute is unambiguous.

Massachusetts v. EPA, 127 S.Ct. 1438, 1460; 167 L.Ed.2d 248 (2007).

6. Carbon dioxide is a greenhouse gas pollutant that contributes to climate change. See, Massachusetts v. EPA, 127 S.Ct. 1438, 1447-49, 1455; 167 L.Ed.2d 248 (2007) (describing how "the scientific understanding of climate change [has] progressed" since the 1970s and discussing the evidence showing that "[t]he harms associated with climate change are serious and well recognized."). The international scientific consensus is that the earth's climate is changing and that human activity is a major factor. Accelerating global climate change poses a danger to humans and the environment.[1]

---

[1] See generally, Albritton, D.L., et al., Technical Summary, Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) (2001); Epstein, P.R. and E. Mills (eds.), Climate Change Futures: Health,

7. The International Panel on Climate Change identified the following impacts as either "likely" or "very likely" to occur as CO_2 concentrations in the atmosphere increase:

- Higher maximum temperatures over most land areas;
- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures and fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- More intense precipitation events over many areas; and
- Increased summer dry conditions and associated risk of drought over most mid-latitude continents.

8. In 2000, the U.S. Global Change Research Program, a federal advisory committee created under the Global Change Research Act of 1990, released its report predicting the effects of climate change on each region of the U.S.[2] According to the report, effects of climate change on Arkansas are expected to be significant. Increased average temperatures, modest to fairly large increases in precipitation, and more intense rainfalls and droughts associated with El Niño and La Niña weather patterns are expected. *Id.* at 47. The Southeastern United States is prone to frequent natural weather

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Ecological and Economic Dimensions (2005); Intergovernmental Panel on Climate Change (IPCC), Climate Change 2001: Synthesis Report (Summary for Policymakers) (2001); Overpeck, J.T., et al., "Arctic System on Trajectory to New, Seasonally Ice-free State," EOS (2005); Parmesan, C. and H. Galbraith, Pew Center on Global Climate Change, Observed Impacts of Global Climate Change in the U.S. (Sept. 2004); Thomas, C.D., et al., "Extinction Risk from Climate Change," 427 Nature 145 (Jan. 8, 2004); World Health Organization, The World Health Report 2002 (2002); Thomas E. Downing, et al., Social Cost of Carbon: A Closer Look at Uncertainty (July 2005); Paul Watkiss, et al., The Social Cost of Carbon (SCC) Review-Methodological Approaches for Using SCC Estimates in Policy Assessment, Final Report (Nov.2005); International Panel on Climate Change, Climate Change 2007: The Physical Science Basis, Summary for Policy Makers (See, IPCC 2007 - Summary for Policy Makers, Exhibit B).

[2] National Assessment Synthesis Team, *Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change*, U.S. Global Change Research Program, Washington DC, 2000. (See, Climate Change Impacts on the United States: Assessment Overview, Attachment C.)

disasters that affect human life and property. These types of weather conditions, which will increase as global climate change worsens, have already caused serious health, welfare, and economic problems in the region. For example, "[t]he southern heat wave and drought of 1998 resulted in damages in excess of $6 billion and at least 200 deaths." *Id.* at 48.

9. Simply put, the more CO_2 humans release into the atmosphere, the more serious the impacts on public health and the environment.

10. While Petitioners do assert that unless releases of greenhouse gas pollution, including CO_2, are curbed and significantly decreased, greenhouse gas pollution will pose significant threats to the health, welfare, and economy of Arkansas, it is important to note that this petition for third party rulemaking does *not* seek any additional new regulation of greenhouse gases.

11. With this request, Petitioners are not seeking any proposed regulation that is more stringent than federal requirements. In fact, Petitioners do not seek *any* regulatory standard, effluent limit, procedure or other requirement within the meaning of APCEC Regulation 8, Section 3.5.3.

12. The requested amendment to the definition in Regulation No. 26 would simply update the definition to reflect current mainstream scientific consensus, and would make the definition consistent with federal law.

13. The Questionnaire for Filing Proposed Rules and regulations with the Arkansas Legislative Council and Joint Interim Committee is attached hereto as Exhibit D and is incorporated herein.

14. The Financial Impact Statement is attached hereto as Exhibit E and is incorporated herein.

15. Petitioners have reviewed Act 143 of 2007 (formerly Executive Order 05-04) and have determined that the request herein does not affect small business because the proposed change simply deletes a term from the current definition, and does not propose *any* regulatory standard, effluent limit, procedure or other requirement.

16. The Economic Impact/Environmental Benefit Analysis is attached hereto as Exhibit F and is incorporated herein.

17. The Minute Order to initiate rulemaking is attached hereto as Exhibit G and is incorporated herein.

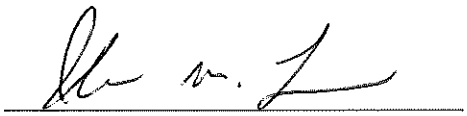
WHEREFORE, Petitioners request that the Commission initiate a rulemaking to amend Regulation 18 and 26 in the manner requested in paragraph 3 above.

Respectfully Submitted,

Glen Hooks
Regional Representative
Sierra Club
1308 West 2nd Street
Little Rock, AR 72201

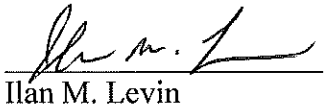
Kenneth L. Smith
Executive Director
Audubon Arkansas
Suite 450, 201 East Markham Street
Little Rock, AR 72201

Ilan Levin
Senior Attorney
Environmental Integrity Project
1002 West Ave., Suite 300
Austin, Texas 78701
Tel. (512) 619-7287
Fax. (512) 479-8302

By: 

CERTIFICATE OF SERVICE

I, Ilan Levin, state that I have, on this 16th day of May, 2008, served a copy of the foregoing document to Ms. Teresa Marks, Director, ADEQ, 5301 Northshore Drive North Little Rock, AR 72118-5317, via FedEx overnight (next business morning).



Ilan M. Levin

Exhibit A

Mark-up Version of Proposed Change

014.00-026

DRAFT SUBMITTED MAY 2008

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

REGULATION NO. 26

REGULATIONS OF THE ARKANSAS OPERATING AIR PERMIT PROGRAM

Approved by the Pollution Control and Ecology Commission
On August 23, 2002
Effective Date September 26, 2002

Revised August 23, 2002

Reg.26 - mark-up

CHAPTER 2: DEFINITIONS

The following definitions apply to these regulations. Except as specifically provided in this section, terms used in this regulation retain the meaning accorded them under the applicable requirements of the federal Clean Air Act or the Arkansas Pollution Control & Ecology Commission Regulation No. 19 (SIP).

"Acid rain source" shall have the meaning of "affected source" as defined in title IV of the Act.

"Act" means the Clean Air Act, as amended, 42 U.S.C. 7401, et seq.

"Administrator" or **"EPA"** means the Administrator of the EPA or his/her designee.

"Affected States" are all States:

(A) Whose air quality may be affected and that are contiguous to the State in which a part 70 permit, permit modification or permit renewal is being proposed; or

(B) That are within 50 miles of the permitted source.

"Air contaminant" means any solid, liquid, gas, or combination thereof, other than water vapor, nitrogen (N_2), ~~carbon dioxide (CO_2),~~ and oxygen (O_2).

"Applicable requirement" means all of the following as they apply to emissions units in a part 70 source (including requirements that have been promulgated or approved by EPA through rulemaking at the time of issuance but have future-effective compliance dates):

(A) Any standard or other requirement provided for in the applicable implementation plan approved or promulgated by EPA through rulemaking under title I of the Act that implements the relevant requirements of the Act, including any revisions to that plan promulgated in 40 CFR part 52;

(B) Any term or condition of any preconstruction permits issued pursuant to regulations approved or promulgated through rulemaking under title I, including parts C or D, of the Act;

(C) Any standard or other requirement under section 111 of the Act, including section 111(d);

(D) Any standard or other requirement under section 112 of the Act, including any requirement concerning accident prevention under section 112(r)(7) of the Act;

(E) Any standard or other requirement of the acid rain program under title IV of the Act or the regulations promulgated thereunder;

(F) Any requirements established pursuant to section 504(b) or section 114(a)(3) of the Act;

Exhibit B

IPCC 2007 - Summary for Policy Makers

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

Climate Change 2007: The Physical Science Basis

Summary for Policymakers

Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change

This Summary for Policymakers was formally approved at the 10th Session of Working Group I of the IPCC, Paris, February 2007.

Note:
Text, tables and figures given here are final but subject to copy-editing.

Corrections made as of February 5th, 2007

Drafting Authors:
Richard Alley, Terje Berntsen, Nathaniel L. Bindoff, Zhenlin Chen, Amnat Chidthaisong, Pierre Friedlingstein, Jonathan Gregory, Gabriele Hegerl, Martin Heimann, Bruce Hewitson, Brian Hoskins, Fortunat Joos, Jean Jouzel, Vladimir Kattsov, Ulrike Lohmann, Martin Manning, Taroh Matsuno, Mario Molina, Neville Nicholls, Jonathan Overpeck, Dahe Qin, Graciela Raga, Venkatachalam Ramaswamy, Jiawen Ren, Matilde Rusticucci, Susan Solomon, Richard Somerville, Thomas F. Stocker, Peter Stott, Ronald J. Stouffer, Penny Whetton, Richard A. Wood, David Wratt

Draft Contributing Authors:
Julie Arblaster, Guy Brasseur, Jens Hesselbjerg Christensen, Kenneth Denman, David W. Fahey, Piers Forster, Eystein Jansen, Philip D. Jones, Reto Knutti, Hervé Le Treut, Peter Lemke, Gerald Meehl, Philip Mote, David Randall, Dáithí A. Stone, Kevin E. Trenberth, Jürgen Willebrand, Francis Zwiers

IPCC Secretariat, c/o WMO, 7bis, Avenue de la Paix, C.P. N° 2300, 1211 Geneva 2, SWITZERLAND
Phone: +41 22 730 8208/8254/8284 Fax: +41 22 730 8025/8013
E-mail: IPCC-Sec@wmo.int Website: http://www.ipcc.ch

INTRODUCTION

The Working Group I contribution to the IPCC Fourth Assessment Report describes progress in understanding of the human and natural drivers of climate change[1], observed climate change, climate processes and attribution, and estimates of projected future climate change. It builds upon past IPCC assessments and incorporates new findings from the past six years of research. Scientific progress since the TAR is based upon large amounts of new and more comprehensive data, more sophisticated analyses of data, improvements in understanding of processes and their simulation in models, and more extensive exploration of uncertainty ranges.

The basis for substantive paragraphs in this Summary for Policymakers can be found in the chapter sections specified in curly brackets.

HUMAN AND NATURAL DRIVERS OF CLIMATE CHANGE

Changes in the atmospheric abundance of greenhouse gases and aerosols, in solar radiation and in land surface properties alter the energy balance of the climate system. These changes are expressed in terms of radiative forcing[2], which is used to compare how a range of human and natural factors drive warming or cooling influences on global climate. Since the Third Assessment Report (TAR), new observations and related modelling of greenhouse gases, solar activity, land surface properties and some aspects of aerosols have led to improvements in the quantitative estimates of radiative forcing.

Global atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years (see Figure SPM-1). The global increases in carbon dioxide concentration are due primarily to fossil fuel use and land-use change, while those of methane and nitrous oxide are primarily due to agriculture. {2.3, 6.4, 7.3}

- Carbon dioxide is the most important anthropogenic greenhouse gas (see Figure SPM-2). The global atmospheric concentration of carbon dioxide has increased from a pre-industrial value of about 280 ppm to 379 ppm[3] in 2005. The atmospheric concentration of carbon dioxide in 2005 exceeds by far the natural range over the last 650,000 years (180 to 300 ppm) as determined from ice cores. The annual carbon dioxide concentration growth-rate was larger during the last 10 years (1995 – 2005 average: 1.9 ppm per year), than it has been since the beginning of continuous direct atmospheric measurements (1960 – 2005 average: 1.4 ppm per year) although there is year-to-year variability in growth rates. {2.3, 7.3}
- The primary source of the increased atmospheric concentration of carbon dioxide since the pre-industrial period results from fossil fuel use, with land use change providing another significant but smaller contribution. Annual fossil carbon dioxide emissions[4] increased from an average of 6.4 [6.0 to 6.8][5] GtC

[1] *Climate change* in IPCC usage refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in the Framework Convention on Climate Change, where climate change refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.

[2] *Radiative forcing* is a measure of the influence that a factor has in altering the balance of incoming and outgoing energy in the Earth-atmosphere system and is an index of the importance of the factor as a potential climate change mechanism. Positive forcing tends to warm the surface while negative forcing tends to cool it. In this report radiative forcing values are for 2005 relative to pre-industrial conditions defined at 1750 and are expressed in watts per square metre ($W\ m^{-2}$). See Glossary and Section 2.2 for further details.

[3] ppm (parts per million) or ppb (parts per billion, 1 billion = 1,000 million) is the ratio of the number of greenhouse gas molecules to the total number of molecules of dry air. For example: 300 ppm means 300 molecules of a greenhouse gas per million molecules of dry air.

[4] Fossil carbon dioxide emissions include those from the production, distribution and consumption of fossil fuels and as a by-product from cement production. An emission of 1 GtC corresponds to 3.67 $GtCO_2$.

[5] In general, uncertainty ranges for results given in this Summary for Policymakers are 90% uncertainty intervals unless stated otherwise, i.e., there is an estimated 5% likelihood that the value could be above the range given in square brackets and 5% likelihood that the value could be below that range. Best estimates are given where available. Assessed uncertainty intervals are not always symmetric about the corresponding best estimate. Note that a number of uncertainty ranges in the Working Group I TAR corresponded to 2-sigma (95%), often using expert judgement.

(23.5 [22.0 to 25.0] $GtCO_2$) per year in the 1990s, to 7.2 [6.9 to 7.5] GtC (26.4 [25.3 to 27.5] $GtCO_2$) per year in 2000–2005 (2004 and 2005 data are interim estimates). Carbon dioxide emissions associated with land-use change are estimated to be 1.6 [0.5 to 2.7] GtC (5.9 [1.8 to 9.9] $GtCO_2$) per year over the 1990s, although these estimates have a large uncertainty. {7.3}

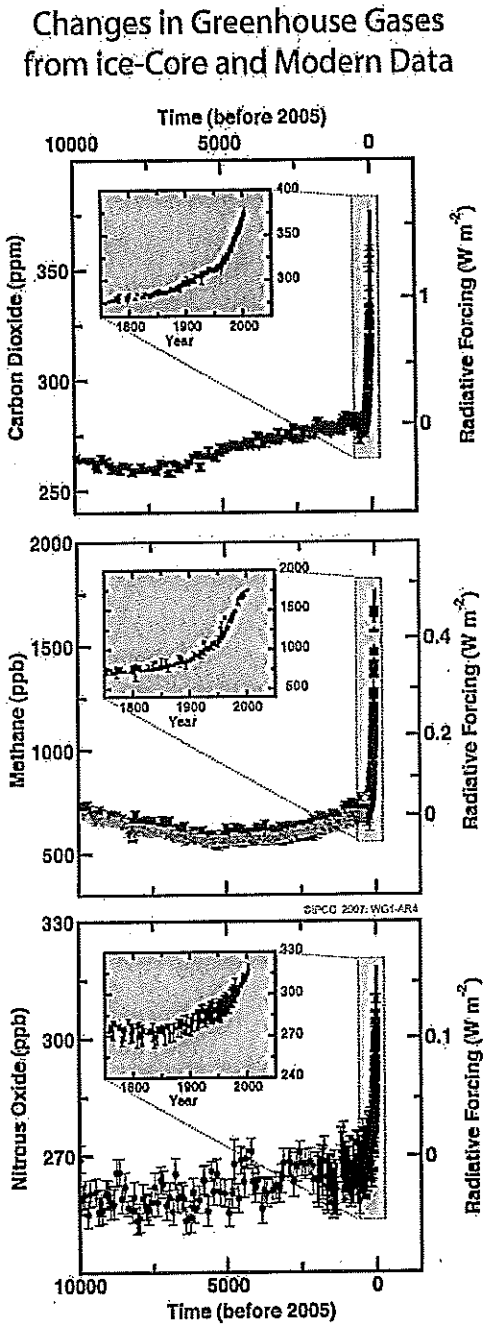


FIGURE SPM-1. Atmospheric concentrations of carbon dioxide, methane and nitrous oxide over the last 10,000 years (large panels) and since 1750 (inset panels). Measurements are shown from ice cores (symbols with different colours for different studies) and atmospheric samples (red lines). The corresponding radiative forcings are shown on the right hand axes of the large panels. {Figure 6.4}

- The global atmospheric concentration of methane has increased from a pre-industrial value of about 715 ppb to 1732 ppb in the early 1990s, and is 1774 ppb in 2005. The atmospheric concentration of methane in 2005 exceeds by far the natural range of the last 650,000 years (320 to 790 ppb) as determined from ice cores. Growth rates have declined since the early 1990s, consistent with total emissions (sum of anthropogenic and natural sources) being nearly constant during this period. It is *very likely*[6] that the observed increase in methane concentration is due to anthropogenic activities, predominantly agriculture and fossil fuel use, but relative contributions from different source types are not well determined. {2.3, 7.4}
- The global atmospheric nitrous oxide concentration increased from a pre-industrial value of about 270 ppb to 319 ppb in 2005. The growth rate has been approximately constant since 1980. More than a third of all nitrous oxide emissions are anthropogenic and are primarily due to agriculture. {2.3, 7.4}

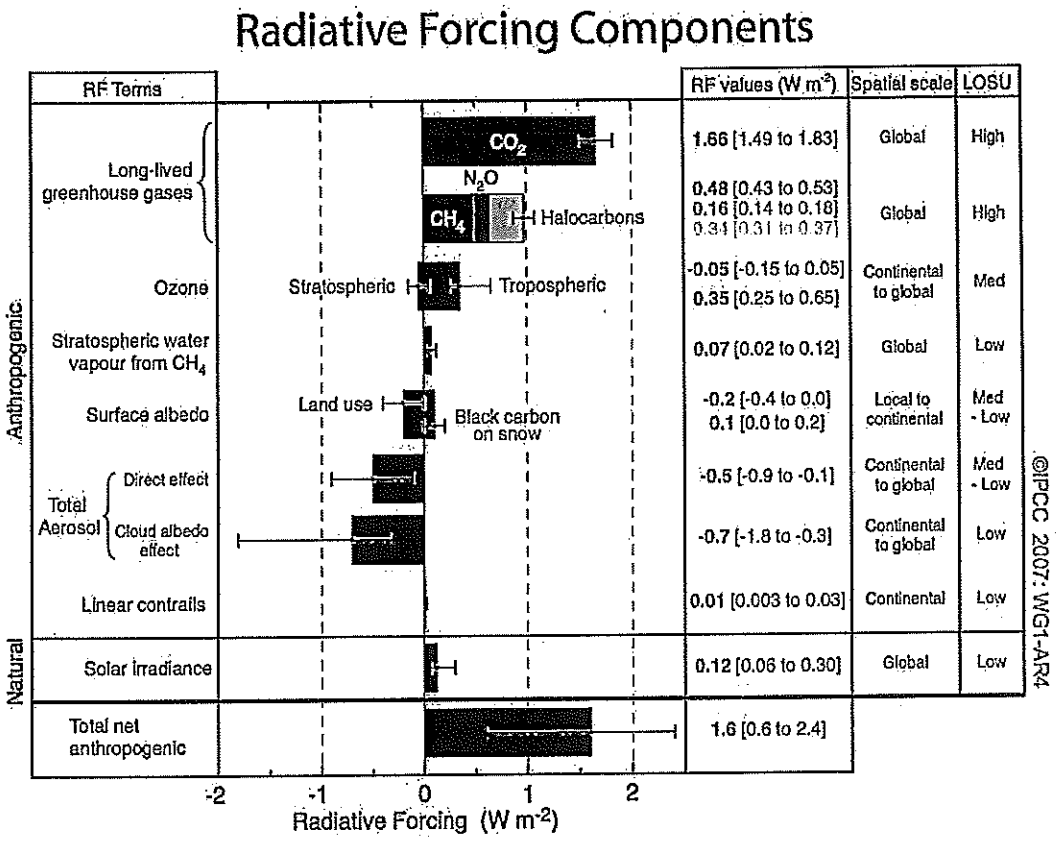


FIGURE SPM-2. Global-average radiative forcing (RF) estimates and ranges in 2005 for anthropogenic carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and other important agents and mechanisms, together with the typical geographical extent (spatial scale) of the forcing and the assessed level of scientific understanding (LOSU). The net anthropogenic radiative forcing and its range are also shown. These require summing asymmetric uncertainty estimates from the component terms, and cannot be obtained by simple addition. Additional forcing factors not included here are considered to have a very low LOSU. Volcanic aerosols contribute an additional natural forcing but are not included in this figure due to their episodic nature. Range for linear contrails does not include other possible effects of aviation on cloudiness. {2.9, Figure 2.20}

[6] In this Summary for Policymakers, the following terms have been used to indicate the assessed likelihood, using expert judgement, of an outcome or a result: *Virtually certain* > 99% probability of occurrence, *Extremely likely* > 95%, *Very likely* > 90%, *Likely* > 66%, *More likely than not* > 50%, *Unlikely* < 33%, *Very unlikely* < 10%, *Extremely unlikely* < 5%. (See Box TS.1.1 for more details).

The understanding of anthropogenic warming and cooling influences on climate has improved since the Third Assessment Report (TAR), leading to *very high confidence*[7] that the globally averaged net effect of human activities since 1750 has been one of warming, with a radiative forcing of +1.6 [+0.6 to +2.4] W m^{-2}. (see Figure SPM-2). {2.3. 6.5, 2.9}

- The combined radiative forcing due to increases in carbon dioxide, methane, and nitrous oxide is +2.30 [+2.07 to +2.53] W m^{-2}, and its rate of increase during the industrial era is *very likely* to have been unprecedented in more than 10,000 years (see Figures SPM-1 and SPM-2). The carbon dioxide radiative forcing increased by 20% from 1995 to 2005, the largest change for any decade in at least the last 200 years. {2.3, 6.4}
- Anthropogenic contributions to aerosols (primarily sulphate, organic carbon, black carbon, nitrate and dust) together produce a cooling effect, with a total direct radiative forcing of -0.5 [-0.9 to -0.1] W m^{-2} and an indirect cloud albedo forcing of -0.7 [-1.8 to -0.3] W m^{-2}. These forcings are now better understood than at the time of the TAR due to improved *in situ*, satellite and ground-based measurements and more comprehensive modelling, but remain the dominant uncertainty in radiative forcing. Aerosols also influence cloud lifetime and precipitation. {2.4, 2.9, 7.5}
- Significant anthropogenic contributions to radiative forcing come from several other sources. Tropospheric ozone changes due to emissions of ozone-forming chemicals (nitrogen oxides, carbon monoxide, and hydrocarbons) contribute +0.35 [+0.25 to +0.65] W m^{-2}. The direct radiative forcing due to changes in halocarbons[8] is +0.34 [+0.31 to +0.37] W m^{-2}. Changes in surface albedo, due to land-cover changes and deposition of black carbon aerosols on snow, exert respective forcings of -0.2 [-0.4 to 0.0] and +0.1 [0.0 to +0.2] W m^{-2}. Additional terms smaller than ±0.1 W m^{-2} are shown in Figure SPM-2. {2.3, 2.5, 7.2}
- Changes in solar irradiance since 1750 are estimated to cause a radiative forcing of +0.12 [+0.06 to +0.30] W m^{-2}, which is less than half the estimate given in the TAR. {2.7}

Direct Observations of Recent Climate Change

Since the TAR, progress in understanding how climate is changing in space and in time has been gained through improvements and extensions of numerous datasets and data analyses, broader geographical coverage, better understanding of uncertainties, and a wider variety of measurements. Increasingly comprehensive observations are available for glaciers and snow cover since the 1960s, and for sea level and ice sheets since about the past decade. However, data coverage remains limited in some regions.

Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level (see Figure SPM-3). {3.2, 4.2, 5.5}

- Eleven of the last twelve years (1995 -2006) rank among the 12 warmest years in the instrumental record of global surface temperature[9] (since 1850). The updated 100-year linear trend (1906–2005) of 0.74 [0.56 to 0.92]°C is therefore larger than the corresponding trend for 1901-2000 given in the TAR of 0.6 [0.4 to 0.8]°C. The linear warming trend over the last 50 years (0.13 [0.10 to 0.16]°C per decade) is nearly twice that for the last 100 years. The total temperature increase from 1850 – 1899 to 2001 – 2005 is 0.76 [0.57 to 0.95]°C. Urban heat island effects are real but local, and have a negligible influence (less than 0.006°C per decade over land and zero over the oceans) on these values. {3.2}

[7] In this Summary for Policymakers the following levels of confidence have been used to express expert judgments on the correctness of the underlying science: *very high confidence* at least a 9 out of 10 chance of being correct; *high confidence* about an 8 out of 10 chance of being correct. (See Box TS.1.1)

[8] Halocarbon radiative forcing has been recently assessed in detail in IPCC's Special Report on Safeguarding the Ozone Layer and the Global Climate System (2005).

[9] The average of near surface air temperature over land, and sea surface temperature.

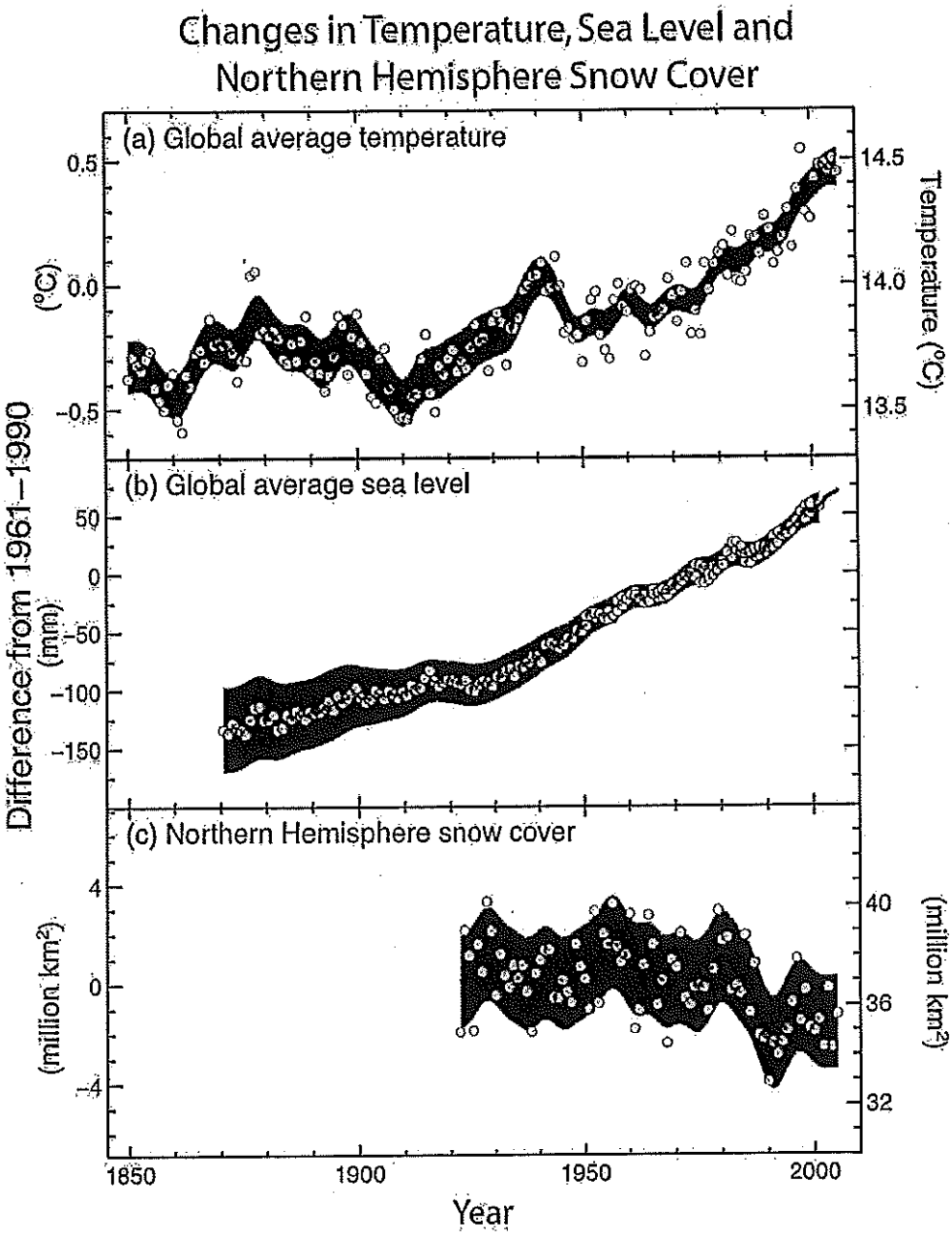


FIGURE SPM-3. Observed changes in (a) global average surface temperature; (b) global average sea level rise from tide gauge (blue) and satellite (red) data and (c) Northern Hemisphere snow cover for March-April. All changes are relative to corresponding averages for the period 1961-1990. Smoothed curves represent decadal averaged values while circles show yearly values. The shaded areas are the uncertainty intervals estimated from a comprehensive analysis of known uncertainties (a and b) and from the time series (c). {FAQ 3.1, Figure 1, Figure 4.2 and Figure 5.13}

- New analyses of balloon-borne and satellite measurements of lower- and mid-tropospheric temperature show warming rates that are similar to those of the surface temperature record and are consistent within their respective uncertainties, largely reconciling a discrepancy noted in the TAR. {3.2, 3.4}

- The average atmospheric water vapour content has increased since at least the 1980s over land and ocean as well as in the upper troposphere. The increase is broadly consistent with the extra water vapour that warmer air can hold. {3.4}
- Observations since 1961 show that the average temperature of the global ocean has increased to depths of at least 3000 m and that the ocean has been absorbing more than 80% of the heat added to the climate system. Such warming causes seawater to expand, contributing to sea level rise (see Table SPM-1). {5.2, 5.5}

Table SPM-1. Observed rate of sea level rise and estimated contributions from different sources. {5.5, Table 5.3}

	Rate of sea level rise (mm per year)	
Source of sea level rise	**1961 – 2003**	**1993 – 2003**
Thermal expansion	0.42 ± 0.12	1.6 ± 0.5
Glaciers and ice caps	0.50 ± 0.18	0.77 ± 0.22
Greenland ice sheet	0.05 ± 0.12	0.21 ± 0.07
Antarctic ice sheet	0.14 ± 0.41	0.21 ± 0.35
Sum of individual climate contributions to sea level rise	1.1 ± 0.5	2.8 ± 0.7
Observed total sea level rise	1.8 ± 0.5[a]	3.1 ± 0.7[a]
Difference (Observed minus sum of estimated climate contributions)	0.7 ± 0.7	0.3 ± 1.0

Table note:
[a] Data prior to 1993 are from tide gauges and after 1993 are from satellite altimetry.

- Mountain glaciers and snow cover have declined on average in both hemispheres. Widespread decreases in glaciers and ice caps have contributed to sea level rise (ice caps do not include contributions from the Greenland and Antarctic ice sheets). (See Table SPM-1.) {4.6, 4.7, 4.8, 5.5}
- New data since the TAR now show that losses from the ice sheets of Greenland and Antarctica have *very likely* contributed to sea level rise over 1993 to 2003 (see Table SPM-1). Flow speed has increased for some Greenland and Antarctic outlet glaciers, which drain ice from the interior of the ice sheets. The corresponding increased ice sheet mass loss has often followed thinning, reduction or loss of ice shelves or loss of floating glacier tongues. Such dynamical ice loss is sufficient to explain most of the Antarctic net mass loss and approximately half of the Greenland net mass loss. The remainder of the ice loss from Greenland has occurred because losses due to melting have exceeded accumulation due to snowfall. {4.6, 4.8, 5.5}
- Global average sea level rose at an average rate of 1.8 [1.3 to 2.3] mm per year over 1961 to 2003. The rate was faster over 1993 to 2003, about 3.1 [2.4 to 3.8] mm per year. Whether the faster rate for 1993 to 2003 reflects decadal variability or an increase in the longer-term trend is unclear. There is *high confidence* that the rate of observed sea level rise increased from the 19th to the 20th century. The total 20th century rise is estimated to be 0.17 [0.12 to 0.22] m. {5.5}
- For 1993-2003, the sum of the climate contributions is consistent within uncertainties with the total sea level rise that is directly observed (see Table SPM-1). These estimates are based on improved satellite and *in-situ* data now available. For the period of 1961 to 2003, the sum of climate contributions is estimated to be smaller than the observed sea level rise. The TAR reported a similar discrepancy for 1910 to 1990. {5.5}

At continental, regional, and ocean basin scales, numerous long-term changes in climate have been observed. These include changes in Arctic temperatures and ice, widespread changes in precipitation amounts, ocean salinity, wind patterns and aspects of extreme weather including droughts, heavy precipitation, heat waves and the intensity of tropical cyclones[10]. {3.2, 3.3, 3.4, 3.5, 3.6, 5.2}

- Average Arctic temperatures increased at almost twice the global average rate in the past 100 years. Arctic temperatures have high decadal variability, and a warm period was also observed from 1925 to 1945. {3.2}
- Satellite data since 1978 show that annual average Arctic sea ice extent has shrunk by 2.7 [2.1 to 3.3]% per decade, with larger decreases in summer of 7.4 [5.0 to 9.8]% per decade. These values are consistent with those reported in the TAR. {4.4}
- Temperatures at the top of the permafrost layer have generally increased since the 1980s in the Arctic (by up to 3°C). The maximum area covered by seasonally frozen ground has decreased by about 7% in the Northern Hemisphere since 1900, with a decrease in spring of up to 15%. {4.7}
- Long-term trends from 1900 to 2005 have been observed in precipitation amount over many large regions[11]. Significantly increased precipitation has been observed in eastern parts of North and South America, northern Europe and northern and central Asia. Drying has been observed in the Sahel, the Mediterranean, southern Africa and parts of southern Asia. Precipitation is highly variable spatially and temporally, and data are limited in some regions. Long-term trends have not been observed for the other large regions assessed[11]. {3.3, 3.9}
- Changes in precipitation and evaporation over the oceans are suggested by freshening of mid and high latitude waters together with increased salinity in low latitude waters. {5.2}
- Mid-latitude westerly winds have strengthened in both hemispheres since the 1960s. {3.5}
- More intense and longer droughts have been observed over wider areas since the 1970s, particularly in the tropics and subtropics. Increased drying linked with higher temperatures and decreased precipitation have contributed to changes in drought. Changes in sea surface temperatures (SST), wind patterns, and decreased snowpack and snow cover have also been linked to droughts. {3.3}
- The frequency of heavy precipitation events has increased over most land areas, consistent with warming and observed increases of atmospheric water vapour. {3.8, 3.9}
- Widespread changes in extreme temperatures have been observed over the last 50 years. Cold days, cold nights and frost have become less frequent, while hot days, hot nights, and heat waves have become more frequent (see Table SPM-2). {3.8}
- There is observational evidence for an increase of intense tropical cyclone activity in the North Atlantic since about 1970, correlated with increases of tropical sea surface temperatures. There are also suggestions of increased intense tropical cyclone activity in some other regions where concerns over data quality are greater. Multi-decadal variability and the quality of the tropical cyclone records prior to routine satellite observations in about 1970 complicate the detection of long-term trends in tropical cyclone activity. There is no clear trend in the annual numbers of tropical cyclones. {3.8}

[10] Tropical cyclones include hurricanes and typhoons.

[11] The assessed regions are those considered in the regional projections Chapter of the TAR and in Chapter 11 of this Report.

Table SPM-2. Recent trends, assessment of human influence on the trend, and projections for extreme weather events for which there is an observed late 20th century trend. {Tables 3.7, 3.8, 9.4, Sections 3.8, 5.5, 9.7, 11.2-11.9}

Phenomenon[a] and direction of trend	Likelihood that trend occurred in late 20th century (typically post 1960)	Likelihood of a human contribution to observed trend[b]	Likelihood of future trends based on projections for 21st century using SRES scenarios
Warmer and fewer cold days and nights over most land areas	*Very likely*[c]	*Likely*[d]	*Virtually certain*[d]
Warmer and more frequent hot days and nights over most land areas	*Very likely*[e]	*Likely (nights)*[d]	*Virtually certain*[d]
Warm spells / heat waves. Frequency increases over most land areas	*Likely*	*More likely than not*[f]	*Very likely*
Heavy precipitation events. Frequency (or proportion of total rainfall from heavy falls) increases over most areas	*Likely*	*More likely than not*[f]	*Very likely*
Area affected by droughts increases	*Likely* in many regions since 1970s	*More likely than not*	*Likely*
Intense tropical cyclone activity increases	*Likely* in some regions since 1970	*More likely than not*[f]	*Likely*
Increased incidence of extreme high sea level (excludes tsunamis)[g]	*Likely*	*More likely than not*[f,h]	*Likely*[i]

Table notes:

[a] See Table 3.7 for further details regarding definitions.

[b] See Table TS-4, Box TS.3.4 and Table 9.4.

[c] Decreased frequency of cold days and nights (coldest 10%).

[d] Warming of the most extreme days and nights each year.

[e] Increased frequency of hot days and nights (hottest 10%).

[f] Magnitude of anthropogenic contributions not assessed. Attribution for these phenomena based on expert judgement rather than formal attribution studies.

[g] Extreme high sea level depends on average sea level and on regional weather systems. It is defined here as the highest 1% of hourly values of observed sea level at a station for a given reference period.

[h] Changes in observed extreme high sea level closely follow the changes in average sea level {5.5.2.6}. It is *very likely* that anthropogenic activity contributed to a rise in average sea level. {9.5.2}

[i] In all scenarios, the projected global average sea level at 2100 is higher than in the reference period {10.6}. The effect of changes in regional weather systems on sea level extremes has not been assessed.

Some aspects of climate have not been observed to change. {3.2, 3.8, 4.4, 5.3}

- A decrease in diurnal temperature range (DTR) was reported in the TAR, but the data available then extended only from 1950 to 1993. Updated observations reveal that DTR has not changed from 1979 to 2004 as both day- and night-time temperature have risen at about the same rate. The trends are highly variable from one region to another. {3.2}
- Antarctic sea ice extent continues to show inter-annual variability and localized changes but no statistically significant average trends, consistent with the lack of warming reflected in atmospheric temperatures averaged across the region. {3.2, 4.4}

- There is insufficient evidence to determine whether trends exist in the meridional overturning circulation of the global ocean or in small scale phenomena such as tornadoes, hail, lightning and dust-storms. {3.8, 5.3}

A PALEOCLIMATIC PERSPECTIVE

Paleoclimatic studies use changes in climatically sensitive indicators to infer past changes in global climate on time scales ranging from decades to millions of years. Such proxy data (e.g., tree ring width) may be influenced by both local temperature and other factors such as precipitation, and are often representative of particular seasons rather than full years. Studies since the TAR draw increased confidence from additional data showing coherent behaviour across multiple indicators in different parts of the world. However, uncertainties generally increase with time into the past due to increasingly limited spatial coverage.

Paleoclimate information supports the interpretation that the warmth of the last half century is unusual in at least the previous 1300 years. The last time the polar regions were significantly warmer than present for an extended period (about 125,000 years ago), reductions in polar ice volume led to 4 to 6 metres of sea level rise. {6.4, 6.6}

- Average Northern Hemisphere temperatures during the second half of the 20th century were *very likely* higher than during any other 50-year period in the last 500 years and *likely* the highest in at least the past 1300 years. Some recent studies indicate greater variability in Northern Hemisphere temperatures than suggested in the TAR, particularly finding that cooler periods existed in the 12 to 14th, 17th, and 19th centuries. Warmer periods prior to the 20th century are within the uncertainty range given in the TAR. {6.6}
- Global average sea level in the last interglacial period (about 125,000 years ago) was *likely* 4 to 6 m higher than during the 20th century, mainly due to the retreat of polar ice. Ice core data indicate that average polar temperatures at that time were 3 to 5°C higher than present, because of differences in the Earth's orbit. The Greenland ice sheet and other Arctic ice fields *likely* contributed no more than 4 m of the observed sea level rise. There may also have been a contribution from Antarctica. {6.4}

UNDERSTANDING AND ATTRIBUTING CLIMATE CHANGE

This Assessment considers longer and improved records, an expanded range of observations, and improvements in the simulation of many aspects of climate and its variability based on studies since the TAR. It also considers the results of new attribution studies that have evaluated whether observed changes are quantitatively consistent with the expected response to external forcings and inconsistent with alternative physically plausible explanations.

Most of the observed increase in globally averaged temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations[12]. This is an advance since the TAR's conclusion that "most of the observed warming over the last 50 years is *likely* to have been due to the increase in greenhouse gas concentrations". Discernible human influences now extend to other aspects of climate, including ocean warming, continental-average temperatures, temperature extremes and wind patterns (see Figure SPM-4 and Table SPM-2). {9.4, 9.5}

- It is *likely* that increases in greenhouse gas concentrations alone would have caused more warming than observed because volcanic and anthropogenic aerosols have offset some warming that would otherwise have taken place. {2.9, 7.5, 9.4}
- The observed widespread warming of the atmosphere and ocean, together with ice mass loss, support the conclusion that it is *extremely unlikely* that global climate change of the past fifty years can be explained without external forcing, and *very likely* that it is not due to known natural causes alone. {4.8, 5.2, 9.4, 9.5, 9.7}

[12] Consideration of remaining uncertainty is based on current methodologies.

- Warming of the climate system has been detected in changes of surface and atmospheric temperatures, temperatures in the upper several hundred metres of the ocean and in contributions to sea level rise. Attribution studies have established anthropogenic contributions to all of these changes. The observed pattern of tropospheric warming and stratospheric cooling is *very likely* due to the combined influences of greenhouse gas increases and stratospheric ozone depletion. {3.2, 3.4, 9.4, 9.5}
- It is *likely* that there has been significant anthropogenic warming over the past 50 years averaged over each continent except Antarctica (see Figure SPM-4). The observed patterns of warming, including greater warming over land than over the ocean, and their changes over time, are only simulated by models that include anthropogenic forcing. The ability of coupled climate models to simulate the observed temperature evolution on each of six continents provides stronger evidence of human influence on climate than was available in the TAR. {3.2, 9.4}

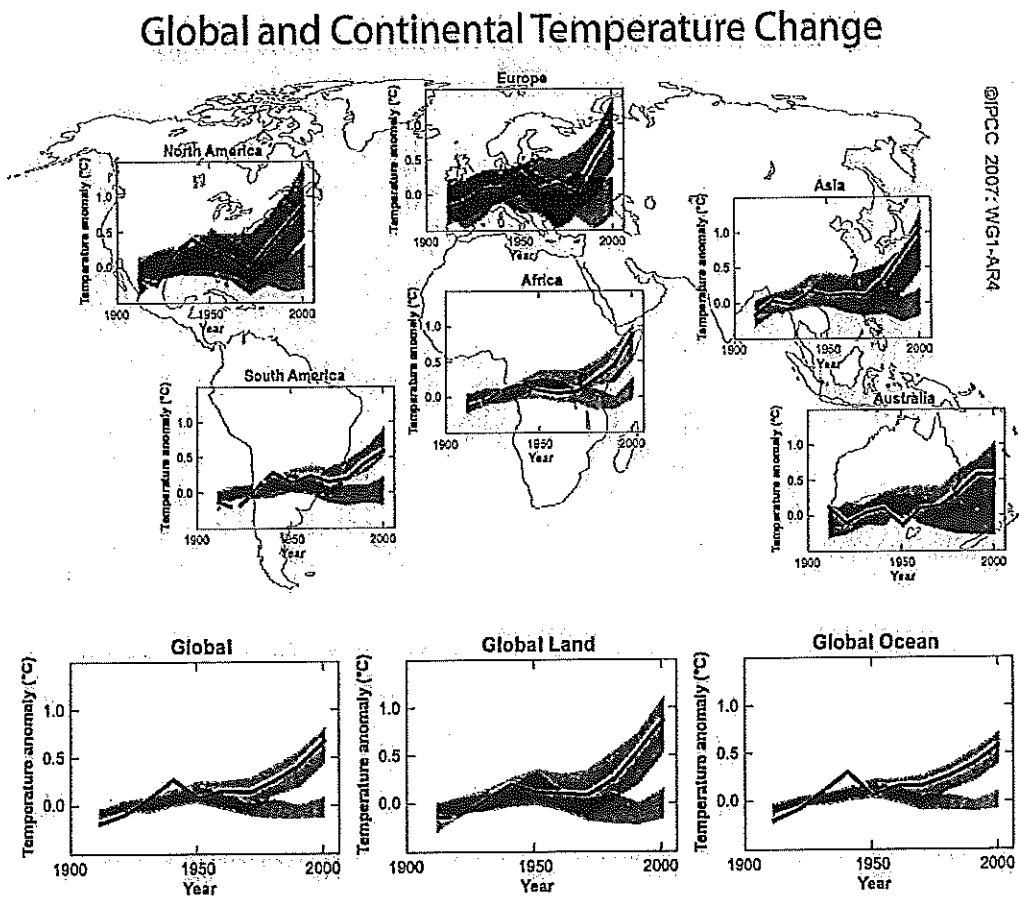


FIGURE SPM-4. Comparison of observed continental- and global-scale changes in surface temperature with results simulated by climate models using natural and anthropogenic forcings. Decadal averages of observations are shown for the period 1906–2005 (black line) plotted against the centre of the decade and relative to the corresponding average for 1901–1950. Lines are dashed where spatial coverage is less than 50%. Blue shaded bands show the 5–95% range for 19 simulations from 5 climate models using only the natural forcings due to solar activity and volcanoes. Red shaded bands show the 5–95% range for 58 simulations from 14 climate models using both natural and anthropogenic forcings. {FAQ 9.2, Figure 1}

- Difficulties remain in reliably simulating and attributing observed temperature changes at smaller scales. On these scales, natural climate variability is relatively larger making it harder to distinguish changes expected due to external forcings. Uncertainties in local forcings and feedbacks also make it difficult to estimate the contribution of greenhouse gas increases to observed small-scale temperature changes. {8.3, 9.4}
- Anthropogenic forcing is *likely* to have contributed to changes in wind patterns[13], affecting extra-tropical storm tracks and temperature patterns in both hemispheres. However, the observed changes in the Northern Hemisphere circulation are larger than simulated in response to 20th century forcing change. {3.5, 3.6, 9.5, 10.3}
- Temperatures of the most extreme hot nights, cold nights and cold days are *likely* to have increased due to anthropogenic forcing. It is *more likely than not* that anthropogenic forcing has increased the risk of heat waves (see Table SPM-2). {9.4}

Analysis of climate models together with constraints from observations enables an assessed *likely* range to be given for climate sensitivity for the first time and provides increased confidence in the understanding of the climate system response to radiative forcing. {6.6, 8.6, 9.6, Box 10.2}

- The equilibrium climate sensitivity is a measure of the climate system response to sustained radiative forcing. It is not a projection but is defined as the global average surface warming following a doubling of carbon dioxide concentrations. It is *likely* to be in the range 2 to 4.5°C with a best estimate of about 3°C, and is *very unlikely* to be less than 1.5°C. Values substantially higher than 4.5°C cannot be excluded, but agreement of models with observations is not as good for those values. Water vapour changes represent the largest feedback affecting climate sensitivity and are now better understood than in the TAR. Cloud feedbacks remain the largest source of uncertainty. {8.6, 9.6, Box 10.2}
- It is *very unlikely* that climate changes of at least the seven centuries prior to 1950 were due to variability generated within the climate system alone. A significant fraction of the reconstructed Northern Hemisphere interdecadal temperature variability over those centuries is *very likely* attributable to volcanic eruptions and changes in solar irradiance, and it is *likely* that anthropogenic forcing contributed to the early 20th century warming evident in these records. {2.7, 2.8, 6.6, 9.3}

PROJECTIONS OF FUTURE CHANGES IN CLIMATE

A major advance of this assessment of climate change projections compared with the TAR is the large number of simulations available from a broader range of models. Taken together with additional information from observations, these provide a quantitative basis for estimating likelihoods for many aspects of future climate change. Model simulations cover a range of possible futures including idealised emission or concentration assumptions. These include SRES[14] illustrative marker scenarios for the 2000–2100 period and model experiments with greenhouse gases and aerosol concentrations held constant after year 2000 or 2100.

For the next two decades a warming of about 0.2°C per decade is projected for a range of SRES emission scenarios. Even if the concentrations of all greenhouse gases and aerosols had been kept constant at year 2000 levels, a further warming of about 0.1°C per decade would be expected. {10.3, 10.7}

[13] In particular, the Southern and Northern Annular Modes and related changes in the North Atlantic Oscillation. {3.6, 9.5, Box TS.3.1}

[14] SRES refers to the IPCC Special Report on Emission Scenarios (2000). The SRES scenario families and illustrative cases, which did not include additional climate initiatives, are summarized in a box at the end of this Summary for Policymakers. Approximate CO_2 equivalent concentrations corresponding to the computed radiative forcing due to anthropogenic greenhouse gases and aerosols in 2100 (see p. 823 of the TAR) for the SRES B1, AIT, B2, AIB, A2 and AIFI illustrative marker scenarios are about 600, 700, 800, 850, 1250 and 1550 ppm respectively. Scenarios B1, AIB, and A2 have been the focus of model inter-comparison studies and many of those results are assessed in this report.

- Since IPCC's first report in 1990, assessed projections have suggested global averaged temperature increases between about 0.15 and 0.3°C per decade for 1990 to 2005. This can now be compared with observed values of about 0.2°C per decade, strengthening confidence in near-term projections. {1.2, 3.2}
- Model experiments show that even if all radiative forcing agents are held constant at year 2000 levels, a further warming trend would occur in the next two decades at a rate of about 0.1°C per decade, due mainly to the slow response of the oceans. About twice as much warming (0.2°C per decade) would be expected if emissions are within the range of the SRES scenarios. Best-estimate projections from models indicate that decadal-average warming over each inhabited continent by 2030 is insensitive to the choice among SRES scenarios and is *very likely* to be at least twice as large as the corresponding model-estimated natural variability during the 20th century. {9.4, 10.3, 10.5, 11.2–11.7, Figure TS-29}

Continued greenhouse gas emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would *very likely* be larger than those observed during the 20th century. {10.3}

- Advances in climate change modelling now enable best estimates and *likely* assessed uncertainty ranges to be given for projected warming for different emission scenarios. Results for different emission scenarios are provided explicitly in this report to avoid loss of this policy-relevant information. Projected globally-averaged surface warmings for the end of the 21st century (2090–2099) relative to 1980–1999 are shown in Table SPM-3. These illustrate the differences between lower to higher SRES emission scenarios and the projected warming uncertainty associated with these scenarios. {10.5}
- Best estimates and *likely* ranges for globally average surface air warming for six SRES emissions marker scenarios are given in this assessment and are shown in Table SPM-3. For example, the best estimate for the low scenario (B1) is 1.8°C (*likely* range is 1.1°C to 2.9°C), and the best estimate for the high scenario (A1FI) is 4.0°C (*likely* range is 2.4°C to 6.4°C). Although these projections are broadly consistent with the span quoted in the TAR (1.4 to 5.8°C), they are not directly comparable (see Figure SPM-5). The AR4 is more advanced as it provides best estimates and an assessed likelihood range for each of the marker scenarios. The new assessment of the *likely* ranges now relies on a larger number of climate models of increasing complexity and realism, as well as new information regarding the nature of feedbacks from the carbon cycle and constraints on climate response from observations. {10.5}

Table SPM-3. Projected globally averaged surface warming and sea level rise at the end of the 21st century. {10.5, 10.6, Table 10.7}

	Temperature Change (°C at 2090-2099 relative to 1980-1999) [a]		Sea Level Rise (m at 2090-2099 relative to 1980-1999)
Case	Best estimate	*Likely* range	Model-based range excluding future rapid dynamical changes in ice flow
Constant Year 2000 concentrations [b]	0.6	0.3 – 0.9	NA
B1 scenario	1.8	1.1 – 2.9	0.18 – 0.38
A1T scenario	2.4	1.4 – 3.8	0.20 – 0.45
B2 scenario	2.4	1.4 – 3.8	0.20 – 0.43
A1B scenario	2.8	1.7 – 4.4	0.21 – 0.48
A2 scenario	3.4	2.0 – 5.4	0.23 – 0.51
A1FI scenario	4.0	2.4 – 6.4	0.26 – 0.59

Table notes:

[a] These estimates are assessed from a hierarchy of models that encompass a simple climate model, several Earth Models of Intermediate Complexity (EMICs), and a large number of Atmosphere-Ocean Global Circulaion Models (AOGCMs).

[b] Year 2000 constant composition is derived from AOGCMs only.

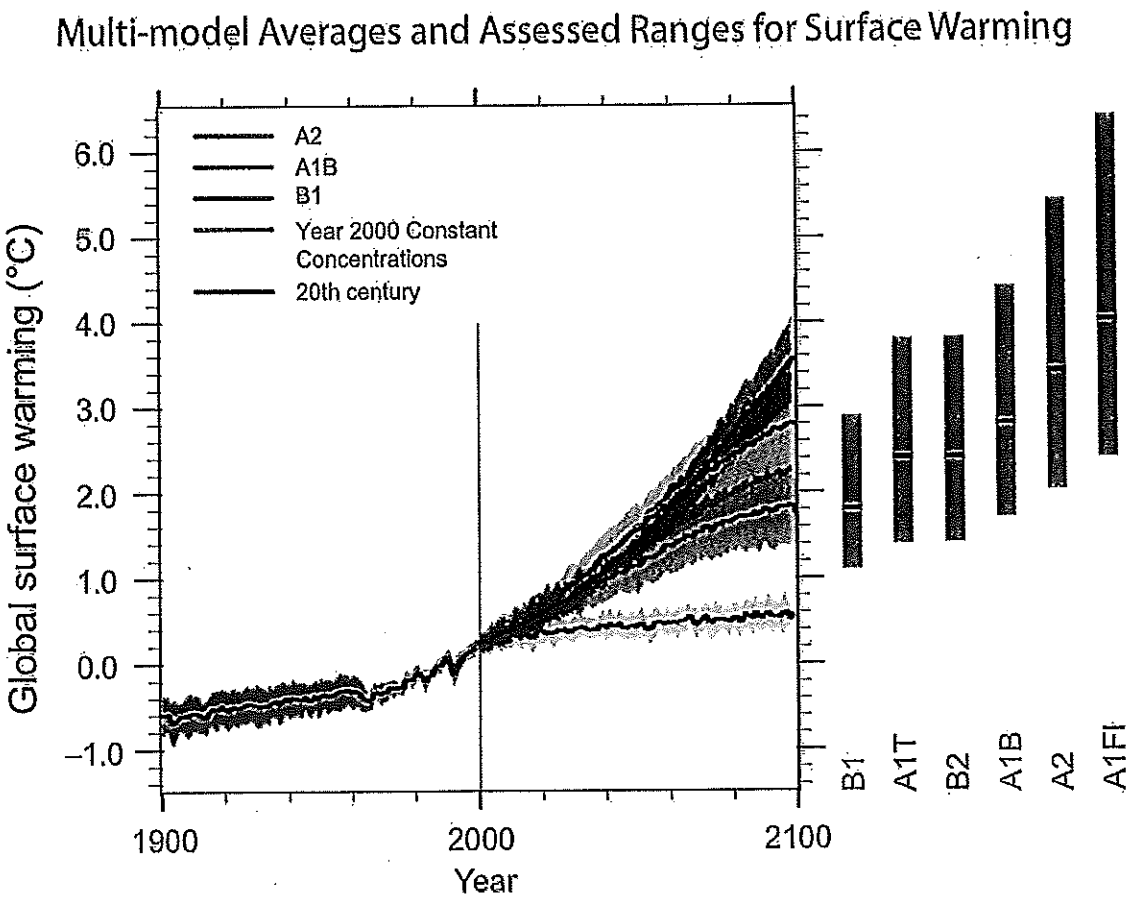


FIGURE SPM-5. Solid lines are multi-model global averages of surface warming (relative to 1980-99) for the scenarios A2, A1B and B1, shown as continuations of the 20th century simulations. Shading denotes the plus/minus one standard deviation range of individual model annual averages. The orange line is for the experiment where concentrations were held constant at year 2000 values. The gray bars at right indicate the best estimate (solid line within each bar) and the *likely* range assessed for the six SRES marker scenarios. The assessment of the best estimate and *likely* ranges in the gray bars includes the AOGCMs in the left part of the figure, as well as results from a hierarchy of independent models and observational constraints. {Figures 10.4 and 10.29}

- Warming tends to reduce land and ocean uptake of atmospheric carbon dioxide, increasing the fraction of anthropogenic emissions that remains in the atmosphere. For the A2 scenario, for example, the climate-carbon cycle feedback increases the corresponding global average warming at 2100 by more than 1°C. Assessed upper ranges for temperature projections are larger than in the TAR (see Table SPM-3) mainly because the broader range of models now available suggests stronger climate-carbon cycle feedbacks. {7.3, 10.5}

- Model-based projections of global average sea level rise at the end of the 21st century (2090-2099) are shown in Table SPM-3. For each scenario, the midpoint of the range in Table SPM-3 is within 10% of the TAR model average for 2090-2099. The ranges are narrower than in the TAR mainly because of improved information about some uncertainties in the projected contributions[15]. {10.6}

- Models used to date do not include uncertainties in climate-carbon cycle feedback nor do they include the full effects of changes in ice sheet flow, because a basis in published literature is lacking. The projections include a contribution due to increased ice flow from Greenland and Antarctica at the rates observed for 1993-2003, but these flow rates could increase or decrease in the future. For example, if this contribution were to grow

[15] TAR projections were made for 2100, whereas projections in this Report are for 2090-2099. The TAR would have had similar ranges to those in Table SPM-2 if it had treated the uncertainties in the same way.

linearly with global average temperature change, the upper ranges of sea level rise for SRES scenarios shown in Table SPM-3 would increase by 0.1 m to 0.2 m. Larger values cannot be excluded, but understanding of these effects is too limited to assess their likelihood or provide a best estimate or an upper bound for sea level rise. {10.6}

- Increasing atmospheric carbon dioxide concentrations leads to increasing acidification of the ocean. Projections based on SRES scenarios give reductions in average global surface ocean pH[16] of between 0.14 and 0.35 units over the 21st century, adding to the present decrease of 0.1 units since pre-industrial times. {5.4, Box 7.3, 10.4}

There is now higher confidence in projected patterns of warming and other regional-scale features, including changes in wind patterns, precipitation, and some aspects of extremes and of ice. {8.2, 8.3, 8.4, 8.5, 9.4, 9.5, 10.3, 11.1}

- Projected warming in the 21st century shows scenario-independent geographical patterns similar to those observed over the past several decades. Warming is expected to be greatest over land and at most high northern latitudes, and least over the Southern Ocean and parts of the North Atlantic ocean (see Figure SPM-6). {10.3}

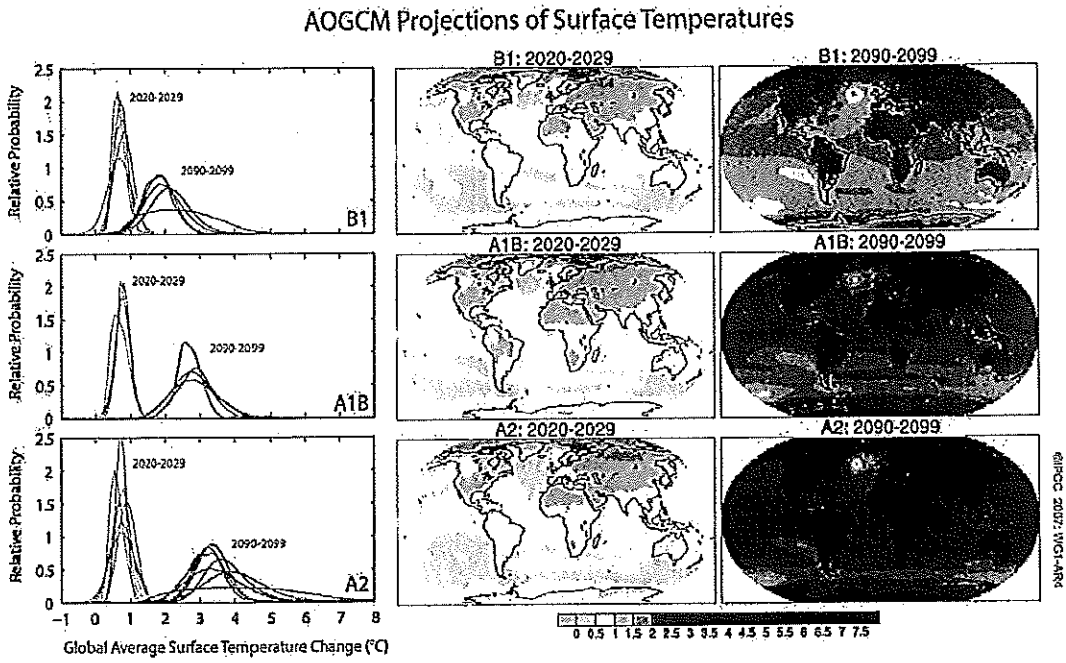


FIGURE SPM-6. Projected surface temperature changes for the early and late 21st century relative to the period 1980–1999. The central and right panels show the Atmosphere-Ocean General Circulation multi-Model average projections for the B1 (top), A1B (middle) and A2 (bottom) SRES scenarios averaged over decades 2020–2029 (center) and 2090–2099 (right). The left panel shows corresponding uncertainties as the relative probabilities of estimated global average warming from several different AOGCM and EMICs studies for the same periods. Some studies present results only for a subset of the SRES scenarios, or for various model versions. Therefore the difference in the number of curves, shown in the left-hand panels, is due only to differences in the availability of results. {Figures 10.8 and 10.28}

[16] Decreases in pH correspond to increases in acidity of a solution. See Glossary for further details.

- Snow cover is projected to contract. Widespread increases in thaw depth are projected over most permafrost regions. {10.3, 10.6}
- Sea ice is projected to shrink in both the Arctic and Antarctic under all SRES scenarios. In some projections, Arctic late-summer sea ice disappears almost entirely by the latter part of the 21st century. {10.3}
- It is *very likely* that hot extremes, heat waves, and heavy precipitation events will continue to become more frequent. {10.3}
- Based on a range of models, it is *likely* that future tropical cyclones (typhoons and hurricanes) will become more intense, with larger peak wind speeds and more heavy precipitation associated with ongoing increases of tropical SSTs. There is less confidence in projections of a global decrease in numbers of tropical cyclones. The apparent increase in the proportion of very intense storms since 1970 in some regions is much larger than simulated by current models for that period. {9.5, 10.3, 3.8}
- Extra-tropical storm tracks are projected to move poleward, with consequent changes in wind, precipitation, and temperature patterns, continuing the broad pattern of observed trends over the last half-century. {3.6, 10.3}
- Since the TAR there is an improving understanding of projected patterns of precipitation. Increases in the amount of precipitation are *very likely* in high-latitudes, while decreases are *likely* in most subtropical land regions (by as much as about 20% in the A1B scenario in 2100, see Figure SPM-7), continuing observed patterns in recent trends. {3.3, 8.3, 9.5, 10.3, 11.2 to 11.9}
- Based on current model simulations, it is *very likely* that the meridional overturning circulation (MOC) of the Atlantic Ocean will slow down during the 21st century. The multi-model average reduction by 2100 is 25% (range from zero to about 50%) for SRES emission scenario A1B. Temperatures in the Atlantic region are projected to increase despite such changes due to the much larger warming associated with projected increases of greenhouse gases. It is *very unlikely* that the MOC will undergo a large abrupt transition during the 21st century. Longer-term changes in the MOC cannot be assessed with confidence. {10.3, 10.7}

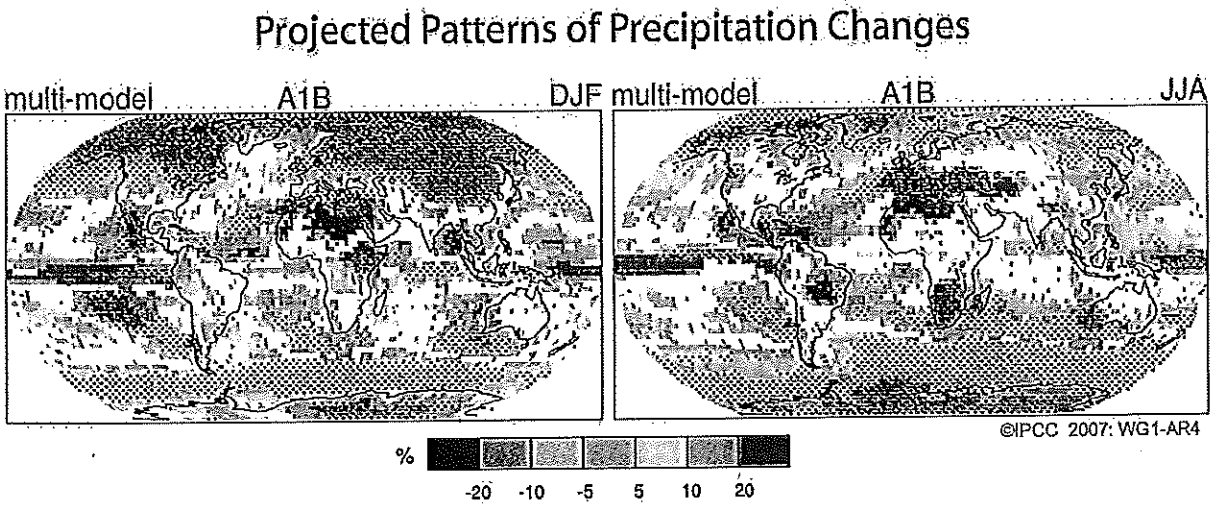


FIGURE SPM-7. Relative changes in precipitation (in percent) for the period 2090–2099, relative to 1980–1999. Values are multi-model averages based on the SRES A1B scenario for December to February (left) and June to August (right). White areas are where less than 66% of the models agree in the sign of the change and stippled areas are where more than 90% of the models agree in the sign of the change. {Figure 10.9}

Anthropogenic warming and sea level rise would continue for centuries due to the timescales associated with climate processes and feedbacks, even if greenhouse gas concentrations were to be stabilized. {10.4, 10.5, 10.7}

- Climate carbon cycle coupling is expected to add carbon dioxide to the atmosphere as the climate system warms, but the magnitude of this feedback is uncertain. This increases the uncertainty in the trajectory of carbon dioxide emissions required to achieve a particular stabilisation level of atmospheric carbon dioxide concentration. Based on current understanding of climate carbon cycle feedback, model studies suggest that to stabilise at 450 ppm carbon dioxide, could require that cumulative emissions over the 21st century be reduced from an average of approximately 670 [630 to 710] GtC (2460 [2310 to 2600] $GtCO_2$) to approximately 490 [375 to 600] GtC (1800 [1370 to 2200] $GtCO_2$). Similarly, to stabilise at 1000 ppm this feedback could require that cumulative emissions be reduced from a model average of approximately 1415 [1340 to 1490] GtC (5190 [4910 to 5460] $GtCO_2$) to approximately 1100 [980 to 1250] GtC (4030 [3590 to 4580] $GtCO_2$). {7.3, 10.4}
- If radiative forcing were to be stabilized in 2100 at B1 or A1B levels[11] a further increase in global average temperature of about 0.5°C would still be expected, mostly by 2200. {10.7}
- If radiative forcing were to be stabilized in 2100 at A1B levels[11], thermal expansion alone would lead to 0.3 to 0.8 m of sea level rise by 2300 (relative to 1980–1999). Thermal expansion would continue for many centuries, due to the time required to transport heat into the deep ocean. {10.7}
- Contraction of the Greenland ice sheet is projected to continue to contribute to sea level rise after 2100. Current models suggest ice mass losses increase with temperature more rapidly than gains due to precipitation and that the surface mass balance becomes negative at a global average warming (relative to pre-industrial values) in excess of 1.9 to 4.6°C. If a negative surface mass balance were sustained for millennia, that would lead to virtually complete elimination of the Greenland ice sheet and a resulting contribution to sea level rise of about 7 m. The corresponding future temperatures in Greenland are comparable to those inferred for the last interglacial period 125,000 years ago, when paleoclimatic information suggests reductions of polar land ice extent and 4 to 6 m of sea level rise. {6.4, 10.7}
- Dynamical processes related to ice flow not included in current models but suggested by recent observations could increase the vulnerability of the ice sheets to warming, increasing future sea level rise. Understanding of these processes is limited and there is no consensus on their magnitude. {4.6, 10.7}
- Current global model studies project that the Antarctic ice sheet will remain too cold for widespread surface melting and is expected to gain in mass due to increased snowfall. However, net loss of ice mass could occur if dynamical ice discharge dominates the ice sheet mass balance. {10.7}
- Both past and future anthropogenic carbon dioxide emissions will continue to contribute to warming and sea level rise for more than a millennium, due to the timescales required for removal of this gas from the atmosphere. {7.3, 10.3}

The Emission Scenarios of the IPCC Special Report on Emission Scenarios (SRES)[17]

A1. The A1 storyline and scenario family describes a future world of very rapid economic growth, global population that peaks in mid-century and declines thereafter, and the rapid introduction of new and more efficient technologies. Major underlying themes are convergence among regions, capacity building and increased cultural and social interactions, with a substantial reduction in regional differences in per capita income. The A1 scenario family develops into three groups that describe alternative directions of technological change in the energy system. The three A1 groups are distinguished by their technological emphasis: fossil intensive (A1FI), non-fossil energy sources (A1T), or a balance across all sources (A1B) (where balanced is defined as not relying too heavily on one particular energy source, on the assumption that similar improvement rates apply to all energy supply and end use technologies).

A2. The A2 storyline and scenario family describes a very heterogeneous world. The underlying theme is self reliance and preservation of local identities. Fertility patterns across regions converge very slowly, which results in continuously increasing population. Economic development is primarily regionally oriented and per capita economic growth and technological change more fragmented and slower than other storylines.

B1. The B1 storyline and scenario family describes a convergent world with the same global population, that peaks in mid-century and declines thereafter, as in the A1 storyline, but with rapid change in economic structures toward a service and information economy, with reductions in material intensity and the introduction of clean and resource efficient technologies. The emphasis is on global solutions to economic, social and environmental sustainability, including improved equity, but without additional climate initiatives.

B2. The B2 storyline and scenario family describes a world in which the emphasis is on local solutions to economic, social and environmental sustainability. It is a world with continuously increasing global population, at a rate lower than A2, intermediate levels of economic development, and less rapid and more diverse technological change than in the B1 and A1 storylines. While the scenario is also oriented towards environmental protection and social equity, it focuses on local and regional levels.

An illustrative scenario was chosen for each of the six scenario groups A1B, A1FI, A1T, A2, B1 and B2. All should be considered equally sound.

The SRES scenarios do not include additional climate initiatives, which means that no scenarios are included that explicitly assume implementation of the United Nations Framework Convention on Climate Change or the emissions targets of the Kyoto Protocol.

[17] Emission scenarios are not assessed in this Working Group One report of the IPCC. This box summarizing the SRES scenarios is taken from the TAR and has been subject to prior line by line approval by the Panel.

Exhibit C

Climate Change Impacts on the United States: Assessment Overview

CLIMATE CHANGE IMPACTS ON THE UNITED STATES

The Potential Consequences of Climate Variability and Change

Overview

Humanity's influence on the global climate will grow in the coming century. Increasingly, there will be significant climate-related changes that will affect each one of us.

We must begin now to consider our responses, as the actions taken today will affect the quality of life for us and future generations.

A Report of the National Assessment Synthesis Team

US Global Change Research Program

This report was produced by the National Assessment Synthesis Team,an advisory committee chartered under the Federal Advisory Committee Act to help the US Global Change Research Program fulfill its mandate under the Global Change Research Act of 1990. The National Science and Technology Council has forwarded this report to the President and Congress for their consideration as required by the Global Change Research Act.

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About this Document

What is this Assessment?

The National Assessment of the Potential Consequences of Climate Variability and Change is a landmark in the major ongoing effort to understand what climate change means for the US. Climate science is developing rapidly and scientists are increasingly able to project some changes at the regional scale, identifying regional vulnerabilities, and assessing potential regional impacts. Science increasingly indicates that the Earth's climate has changed in the past and continues to change, and that even greater climate change is very likely in the 21st century. This Assessment has begun a national process of research, analysis, and dialogue about the coming changes in climate, their impacts, and what Americans can do to adapt to an uncertain and continuously changing climate. This Assessment is built on a solid foundation of science conducted as part of the United States Global Change Research Program (USGCRP).

What is this document and who is the NAST?

This document is the Assessment Overview, written by the National Assessment Synthesis Team (NAST). The NAST is a committee of experts drawn from governments, universities, industry, and non-governmental organizations. It has been responsible for broad oversight of the Assessment, with the Federal agencies of the USGCRP. This Overview is based on a longer, referenced "Foundation" report, written by the NAST in cooperation with independent regional and sector assessment teams. These two national-level, peer-reviewed documents synthesize results from studies conducted by regional and sector teams, and from the broader scientific literature.

Why was this Assessment undertaken?

The Assessment was called for by a 1990 law, and has been conducted under the USGCRP in response to a request from the President's Science Advisor. The NAST developed the Assessment's plan, which was then approved by the National Science and Technology Council, the cabinet-level body of agencies responsible for scientific research, including global change research, in the US government.

National Assessment Synthesis Team Members

Jerry M.Melillo,Co-chair
Ecosystems Center
Marine Biological Laboratory

Anthony C. Janetos,Co-chair
World Resources Institute

Thomas R.Karl,Co-chair
NOAA National Climatic Data Center

Robert Corell (from January 2000)
American Meteorological Society and
Harvard University

Eric J. Barron
Pennsylvania State University

Virginia Burkett
USGS National Wetlands Research Center

Thomas F. Cecich
Glaxo Wellcome Inc.

Katharine Jacobs
Arizona Department of Water Resources

Linda Joyce
USDA Forest Service

Barbara Miller
World Bank

M.Granger Morgan
Carnegie Mellon University

Edward A. Parson (until January 2000)
Harvard University

Richard G. Richels
EPRI

David S.Schimel
National Center for Atmospheric Research

Additional Lead Authors

Lynne Carter (National Assessment Coordination Office)
David Easterling (NOAA National Climatic Data Center)
Benjamin Felzer (National Center for Atmospheric Research)
John Field (University of Washington)
Paul Grabhorn (Grabhorn Studio)
Susan Joy Hassol (Aspen Global Change Institute)
Michael MacCracken (National Assessment Coordination Office)
Joel Smith (Stratus Consulting)
Melissa Taylor (National Assessment Coordination Office)
Thomas Wilbanks (Oak Ridge National Laboratory)

Independent Review Board of the President's Committee of Advisers on Science and Technology (PCAST)

Peter Raven,Co-chair
Missouri Botanical Garden and PCAST

Mario Molina,Co-chair
MIT and PCAST

Burton Richter
Stanford University

Linda Fisher
Monsanto

Kathryn Fuller
World Wildlife Fund

John Gibbons
National Academy of Engineering

Marcia McNutt
Monterey Bay Aquarium Research Institute

Sally Ride
University of California San Diego and PCAST

William Schlesinger
Duke University

James Gustave Speth
Yale University

Robert White
University Corporation for Atmospheric Research,and Washington Advisory Group

Other Contributors

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TABLE OF CONTENTS

Summary 6

Our Changing Climate 12

Tools for Assessing Climate Change Impacts 14

Looking at America's Climate 20

Ecosystems in the Future 24

Our Changing Nation 30

Regions 38

- Northeast 40
- Southeast 46
- Midwest 52
- Great Plains 58
- West 64
- Pacific Northwest 68
- Alaska 74
- Islands 80
- Native Peoples and Homelands 84

Sectors 88

- Agriculture 90
- Water 96
- Human Health 102
- Coastal Areas and Marine Resources 108
- Forests 114

Conclusions 120

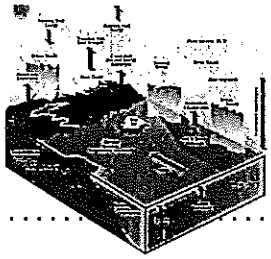
Research Pathways 124

Appendix I: Biographical Sketches of NAST Members 136

Appendix II: Acknowledgements 142

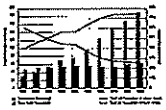
Glossary 154

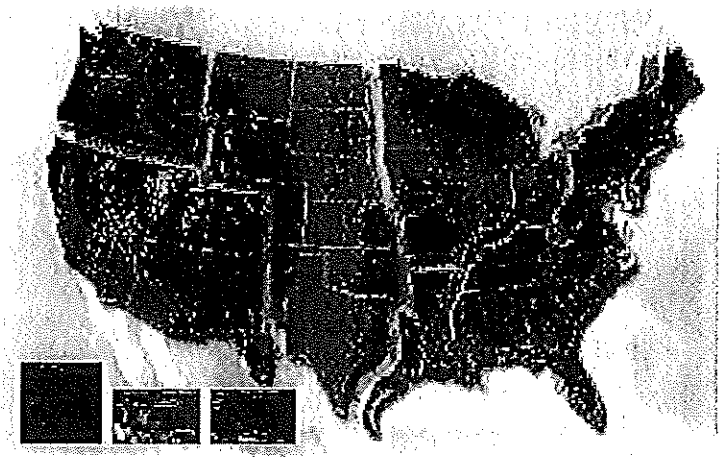




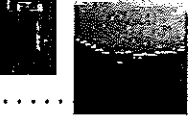


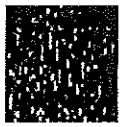


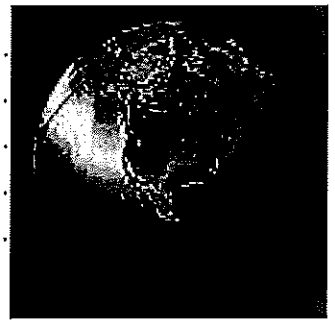












ABOUT THE ASSESSMENT PROCESS

The Assessment's purpose is to synthesize, evaluate, and report on what we presently know about the potential consequences of climate variability and change for the US in the 21st century. It has sought to identify key climatic vulnerabilities of particular regions and sectors, in the context of other changes in the nation's environment, resources, and economy. It has also sought to identify potential measures to adapt to climate variability and change. Finally, because present knowledge is limited, the Assessment has sought to identify the highest priority uncertainties about which we must know more to understand climate impacts, vulnerabilities, and our ability to adapt.

How did the process involve both stakeholders and scientists in this Assessment?

This first National Assessment involved both stakeholders and scientific experts. Stakeholders included, for example, public and private decision-makers, resource and environmental managers, and the general public. The stakeholders from different regions and sectors began the Assessment by articulating their concerns in a series of workshops about climate change impacts in the context of the other major issues they face. In the workshops and subsequent consultations, stakeholders identified priority regional and sector concerns, mobilized specialized expertise, identified potential adaptation options, and provided useful information for decision-makers. The Assessment also involved many scientific experts using advanced methods, models, and results. Further, it has stimulated new scientific research in many areas and identified priority needs for further research.

Although global change embraces many interrelated issues, this first National Assessment has examined only climate change and variability, with a primary focus on specific regions and sectors. In some cases, regional and sector analyses intersect and complement each other. For example, the Forest sector and the Pacific Northwest have both provided insights into climate impacts on Northwest forests.

The regions cover the nation. Impacts outside the US are considered only briefly, with particular emphasis on potential linkages to the US. Sector teams examined Water, Agriculture, Human Health, Forests, and Coastal Areas and Marine Resources. This first Assessment could not attempt to be comprehensive: the choice of these five sectors reflected an expectation that they were likely to be both important and particularly informative, and that relevant data and analytic tools were available – not a conclusion that they are the only important domains of climate impact. Among the sectors considered, there was a continuum in the amount of information available to support the Assessment, with some being at far earlier stages of development. Future assessments should consider other potentially important issues, such as Energy, Transportation, Urban Areas, and Wildlife.

Each regional and sector team is publishing a separate report of its own analyses, some of which are still continuing. The Overview and Foundation reports consequently represent a snapshot of our understanding at the present time.

What is meant by "climate change" and "climate variability"?

Responses to climate change can be of two broad types. One type involves adaptation measures to reduce the harms and risks, and maximize the benefits and opportunities, of climate change, whatever its cause. The other type involves mitigation measures to reduce human contributions to climate change. After identifying potential impacts, this Assessment sought to identify potential adaptation measures for each region and sector studied. While this was an important first step, it was not possible at this stage to evaluate the practicality, effectiveness, or costs of the potential adaptation measures. Both mitigation and adaptation measures are necessary elements of a coherent and integrated response to climate change. Mitigation measures were not included in this Assessment, but are being assessed in other bodies such as the United Nations Intergovernmental Panel on Climate Change (IPCC).

No. An integrated climate policy will combine mitigation and adaptation measures as appropriate. If future world emissions of greenhouse gases are lower than currently projected, for whatever reason, including intentional mitigation, then the rate of climate change, the associated impacts, and the cost and difficulty of adapting will all be reduced. If emissions are higher than expected, then the rate of change, the impacts, and the difficulty of adapting will be increased. But no matter how aggressively emissions are reduced, the world will still experience at least a century of climate change. This will happen because the elevated concentrations of greenhouse gases already in the atmosphere will remain for many decades, and because the climate system responds to changes in human inputs only very slowly. Consequently, even if the world takes mitigation measures, we must still adapt to a changing climate. Similarly, even if we take adaptation measures, future emissions will have to be curbed to stabilize climate. Neither type of response can completely supplant the other.

State-of-the-science climate models have been used to generate climate change scenarios. Computer models of ecological systems, hydrological systems, and various socioeconomic systems have also been used in the Assessment, to study responses of these systems to the scenarios generated by climate models.

What additional tools, besides models, were used to evaluate potential climate change impacts?

In addition to models, the Assessment has used two other ways to think about potential future climate. First, the Assessment has used historical climate records to evaluate sensitivities of regions and sectors to climate variability and extremes that have occurred in the 20th century. Looking at real historical climate events, their impacts, and how people have adapted, gives valuable insights into potential future impacts that complement those provided by model projections. In addition, the Assessment has used sensitivity analyses, which ask how, and how much, the climate would have to change to bring major impacts on particular regions or sectors. For example, how much would temperature have to increase in the South before agricultural crops such as soybeans would be negatively affected? What would be the result for forest productivity of continued increases in temperature and leveling off of the CO_2 fertilization effect?

This Overview and the underlying Foundation document have been extensively reviewed. More than 300 scientific and technical experts have provided detailed comments on part or all of the report in two separate technical reviews. The report was reviewed at each stage for technical accuracy by the agencies of the US Global Change Research Program. The public also provided hundreds of helpful suggestions for clarification and modification during a 60-day public comment period. A panel of distinguished experts convened by the President's Committee of Advisors on Science and Technology has provided broad oversight, and monitored the authors response to all reviews.

ABOUT SCENARIOS AND UNCERTAINTY

What are scenarios and why do we use them?

Scenarios are plausible alternative futures – each an example of what might happen under particular assumptions. Scenarios are not specific predictions or forecasts. Rather, scenarios provide a starting point for examining questions about an uncertain future and can help us visualize alternative futures in concrete and human terms. The military and industry frequently use these powerful tools for future planning in high-stakes situations. Using scenarios helps to identify vulnerabilities and plan for contingencies.

Many of the maps in this document are derived from the two primary climate model scenarios. In most cases, there are three maps: one shows average conditions based on actual observations from 1961-1990; the other two are generated by the Hadley and Canadian model scenarios and reflect the model's projection of change from those average conditions.

What are climate scenarios used in this Assessment and how were they developed?

Because we cannot predict many aspects of our nation's future climate, we have used scenarios to help explore US vulnerability to climate change. Results from state-of-the-science climate models and data from historical observations have been used to generate a variety of such scenarios. Projections of changes in climate from the Hadley Centre in the United Kingdom and the Canadian Centre for Climate Modeling and Analysis served as the primary resources for this Assessment. Results were also drawn from models developed at the National Center for Atmospheric Research, NOAA's Geophysical Fluid Dynamics Laboratory, and NASA's Goddard Institute for Space Studies.

For some aspects of climate, virtually all models, as well as other lines of evidence, agree on the types of changes to be expected. For example, all climate models suggest that the climate is going to get warmer, the heat index is going to rise, and precipitation is more likely to come in heavy and extreme events. This consistency lends confidence to these results.

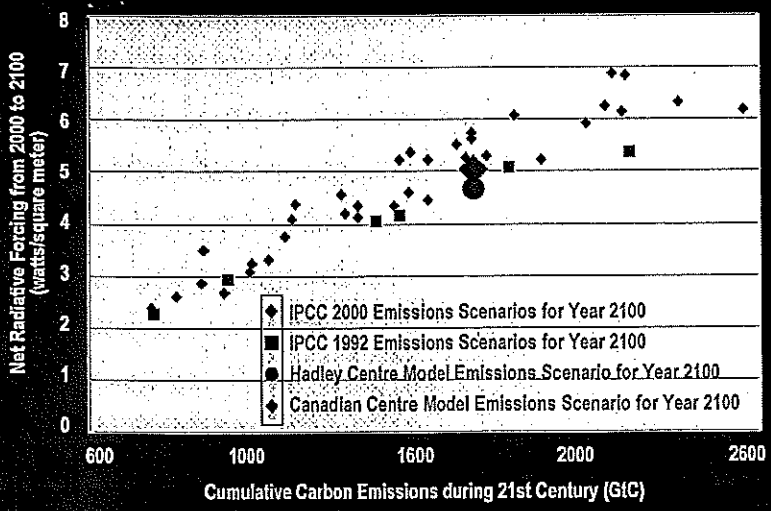
For some other aspects of climate, however, the model results differ. For example, some models, including the Canadian model, project more extensive and frequent drought in the US, while others, including the Hadley model, do not. The Canadian model suggests a drier Southeast in the 21st century while the Hadley model suggests a wetter one. In such cases, the scenarios provide two plausible but different alternatives. Such differences can help identify areas in which the models need improvement.

Many of the maps in this document are derived from the two primary climate model scenarios. In most cases, there are three maps: one shows average conditions based on actual observations from 1961-1990; the other two are generated by the Hadley and Canadian model scenarios and reflect the model's projection of change from those average conditions.

What assumptions about emissions are in these two climate scenarios?

Because future trends in fossil fuel use and other human activities are uncertain, the Intergovernmental Panel on Climate Change (IPCC) has developed a set of scenarios for how the 21st century may evolve. These scenarios consider a wide range of possibilities for changes in population, economic growth, technological development, improvements in energy efficiency, and the like. The two primary climate scenarios used in this Assessment are based on one mid-range emissions scenario for the future that assumes no major changes in policies to limit greenhouse gas emissions. Some other important assumptions in this scenario are that by the year 2100:

- world population will nearly double to about 11 billion people;
- the global economy will continue to grow at about the average rate it has been growing, reaching more than ten times its present size;
- increased use of fossil fuels will triple CO_2 emissions and raise sulfur dioxide emissions, resulting in an atmospheric CO_2 concentration of just over 700 parts per million; and
- total energy produced each year from non-fossil sources such as wind, solar, biomass, hydroelectric, and nuclear will increase to more than ten times its current amount, providing more than 40% of the world's energy, rather than the current 10%.



The graph shows a comparison of the projections of total carbon dioxide emissions (in billions of metric tons of carbon, GtC) and the human-induced warming influence due to all the greenhouse gases and sulfate aerosols for the emissions scenarios prepared by the IPCC in 1992 and 2000. As is apparent from the graph, both the emissions scenario and the human-induced warming influence assumed in this Assessment lie near the mid-range of the set of IPCC scenarios. Further detail can be found in the Climate chapter in the Foundation report.

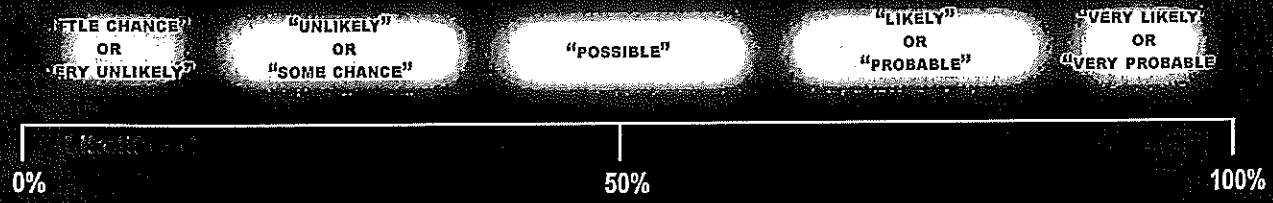
Both the emissions scenario and the human-induced warming influence assumed in this Assessment lie near the mid-range of the set of IPCC scenarios.

How is the likelihood of various impacts expressed?

To integrate a wide variety of information and differentiate more likely from less likely outcomes, the NAST developed a common language to express the team's considered judgement about the likelihood of results. The NAST developed its collective judgements through discussion and consideration of the supporting information. Historical data, model projections, published scientific literature, and other available information all provided input to these deliberations, except where specifically stated that the result comes from a particular model scenario. In developing these judgements, there were often several lines of supporting evidence (e.g., drawn from observed trends, analytic studies, model simulations). Many of these judgements were based on broad scientific consensus as stated by well-recognized authorities including the IPCC and the National Research Council. In many cases, groups outside the NAST reviewed the use of terms to provide input from a broader set of experts in a particular field.

Language used to express considered judgement

Common language



SUMMARY

CLIMATE CHANGE AND OUR NATION

The findings in this report are based on a synthesis of historical data, model projections, published scientific research, and other available information, except where specifically noted.

Long-term observations confirm that our climate is now changing at a rapid rate. Over the 20th century, the average annual US temperature has risen by almost 1°F (0.6°C) and precipitation has increased nationally by 5 to 10%,mostly due to increases in heavy downpours. These trends are most apparent over the past few decades. The science indicates that the warming in the 21st century will be significantly larger than in the 20th century. Scenarios examined in this Assessment, which assume no major interventions to reduce continued growth of world greenhouse gas emissions,indicate that temperatures in the US will rise by about 5-9°F (3-5°C) on average in the next 100 years,which is more than the projected *global* increase. This rise is very likely to be associated with more extreme precipitation and faster evaporation of water, leading to greater frequency of both very wet and very dry conditions.

This Assessment reveals a number of national-level impacts of climate variability and change including impacts to natural ecosystems and water resources. Natural ecosystems appear to be the most vulnerable to the harmful effects of climate change,as there is often little that can be done to help them adapt to the projected speed and amount of change. Some ecosystems that are already constrained by climate,such as alpine meadows in the Rocky Mountains,are likely to face extreme stress,and disappear entirely in some places. It is likely that other more widespread ecosystems will also be vulnerable to climate change. One of the climate scenarios used in this Assessment suggests the potential for the forests of the Southeast to break up into a mosaic of forests,savannas, and grasslands. Climate scenarios suggest likely changes in the species composition of the Northeast forests,including the loss of sugar maples. Major alterations to natural ecosystems due to climate change could possibly have negative consequences for our economy, which depends in part on the sustained bounty of our nation's lands, waters,and native plant and animal communities.

A unique contribution of this first US Assessment is that it combines national-scale analysis with an examination of the potential impacts of climate change on different regions of the US. For example,sea-level rise will very likely cause further loss of coastal wetlands (ecosystems that provide vital nurseries and habitats for many fish species) and put coastal communities at greater risk of storm surges,especially in the Southeast. Reduction in snowpack will very likely alter the timing and amount of water supplies,potentially exacerbating water shortages and conflicts,particularly throughout the western US. The melting of glaciers in the high-elevation West and in Alaska represents the loss or diminishment of unique national treasures of the American landscape. Large increases in the heat index (which combines temperature and humidity) and increases in the frequency of heat waves are very likely. These changes will,at minimum,increase discomfort,particularly in cities. It is very probable that continued thawing of permafrost and melting of sea ice in Alaska will further damage forests,buildings, roads,and coastlines,and harm subsistence livelihoods. In various parts of the nation,cold-weather recreation such as skiing will very likely be reduced,and air conditioning usage will very likely increase.

Highly managed ecosystems appear more robust, and some potential benefits have been identified. Crop and forest productivity is likely to increase in some areas for the next few decades due to increased carbon dioxide in the atmosphere and an extended growing season. It is possible that some US food exports could increase,depending on impacts in other food-growing regions around the world. It is also possible that a rise in crop production in fertile areas could cause prices to fall,benefiting consumers. Other benefits that are possible include extended seasons for construction and warm weather recreation, reduced heating requirements,and reduced cold-weather mortality.

Climate variability and change will interact with other environmental stresses and socioeconomic changes. Air and water pollution,habitat fragmentation, wetland loss,coastal erosion,and reductions in fisheries are likely to be compounded by climate-related stresses. An aging populace nationally, and rapidly growing populations in cities,coastal areas,and across the South and West are social factors that interact with and alter sensitivity to climate variability and change.

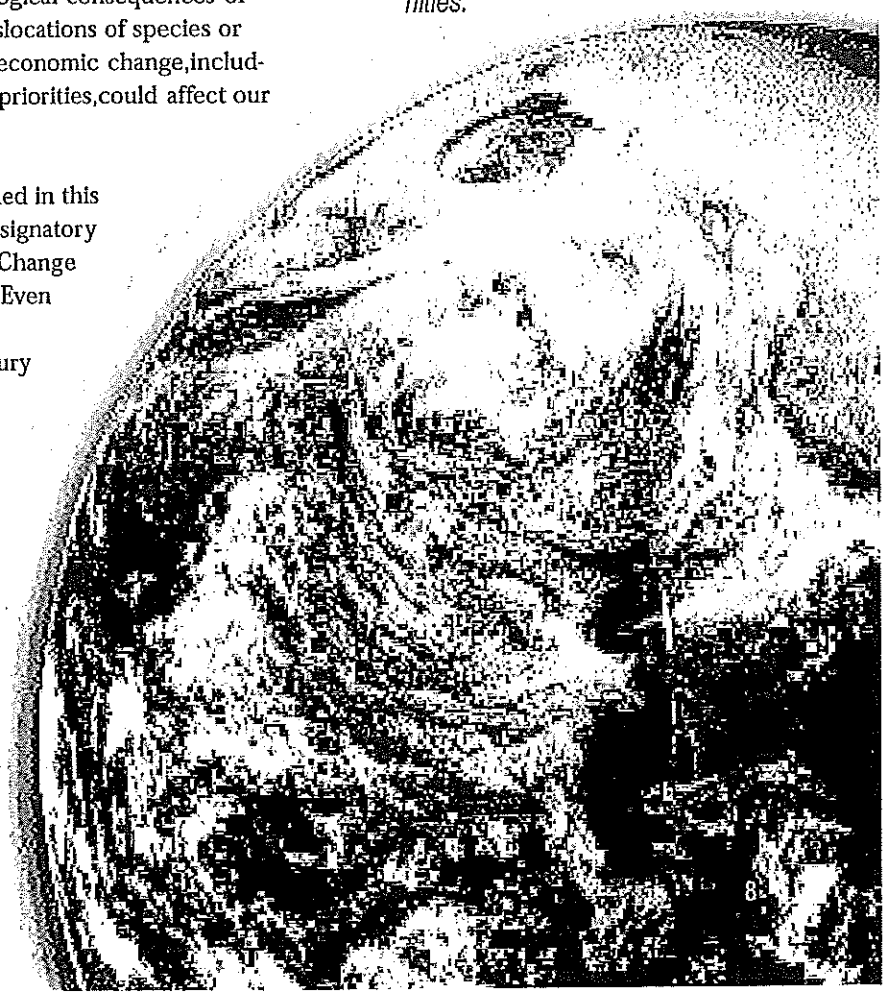
There are also very likely to be unanticipated impacts of climate change during the next century. Such "surprises" may stem from unforeseen changes in the physical climate system,such as major alterations in ocean circulation, cloud distribution,or storms;and unpredicted biological consequences of these physical climate changes,such as massive dislocations of species or pest outbreaks. In addition,unexpected social or economic change,including major shifts in wealth,technology, or political priorities,could affect our ability to respond to climate change.

Greenhouse gas emissions lower than those assumed in this Assessment would result in reduced impacts. The signatory nations of the Framework Convention on Climate Change are negotiating the path they will ultimately take. Even with such reductions,however, the planet and the nation are certain to experience more than a century of climate change,due to the long lifetimes of greenhouse gases already in the atmosphere and the momentum of the climate system. Adapting to a changed climate is consequently a necessary component of our response strategy.

The warming in the 21st century will be significantly larger than in the 20th century.

Natural ecosystems, which are our life support system in many important ways, appear to be the most vulnerable to the harmful effects of climate change...

Major alterations to natural ecosystems due to climate change could possibly have negative consequences for our economy, which depends in part on the sustained bounty of our nation's lands, waters, and native plant and animal communities.



SUMMARY

CLIMATE CHANGE AND OUR NATION

The magnitude of climate change impacts depends on time period and geographic scale. Short-term impacts differ from long-term impacts, and regional and local level impacts are much more pronounced than those at the national level.

For the nation as a whole, direct economic impacts are likely to be modest, while in some places, economic losses or gains are likely to be large. For example, while crop yields are likely to increase at the national scale over the next few decades, large increases or decreases in yields of specific crops in particular places are likely.

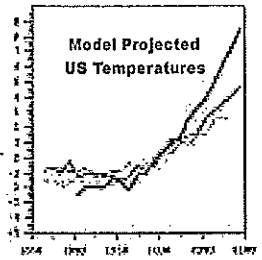
Through time, climate change will possibly affect the same resource in opposite ways. For example, forest productivity is likely to increase in the short term, while over the longer term, changes in processes such as fire, insects, drought, and disease will possibly decrease forest productivity.

Adaptation measures can,in many cases, reduce the magnitude of harmful impacts,or take advantage of beneficial impacts. For example,in agriculture, many farmers will probably be able to alter cropping and management practices. Roads,bridges,buildings,and other long-lived infrastructure can be designed taking projected climate change into account. Adaptations,however, can involve trade-offs, and do involve costs. For example,the benefits of building sea walls to prevent sea-level rise from disrupting human coastal communities will need to be weighed against the economic and ecological costs of seawall construction. The ecological costs could be high as seawalls prevent the inland shifting of coastal wetlands in response to sea-level rise, resulting in the loss of vital fish and bird habitat and other wetland functions,such as protecting shorelines from damage due to storm surges. Protecting against any increased risk of water-borne and insect-borne diseases will require diligent maintenance of our public health system. Many adaptations, notably those that seek to reduce other environmental stresses such as pollution and habitat fragmentation,will have beneficial effects beyond those related to climate change.

Vulnerability in the US is linked to the fates of other nations,and we cannot evaluate national consequences due to climate variability and change without also considering the consequences of changes elswhere in the world. The US is linked to other nations in many ways,and both our vulnerabilities and our potential responses will likely depend in part on impacts and responses in other nations. For example,conflicts or mass migrations resulting from resource limits,health,and environmental stresses in more vulnerable nations could possibly pose challenges for global security and US policy. Effects of climate variability and change on US agriculture will depend critically on changes in agricultural productivity elsewhere,which can shift international patterns of food supply and demand. Climate-induced changes in water resources available for power generation,transportation,cities,and agriculture are likely to raise potentially delicate diplomatic issues with both Canada and Mexico.

This Assessment has identified many remaining uncertainties that limit our ability to fully understand the spectrum of potential consequences of climate change for our nation. To address these uncertainties,additional research is needed to improve understanding of ecological and social processes that are sensitive to climate,application of climate scenarios and reconstructions of past climates to impacts studies, and assessment strategies and methods. Results from these research efforts will inform future assessments that will continue the process of building our understanding of humanity's impacts on climate,and climate's impacts on us.

KEY FINDINGS



1. Increased warming

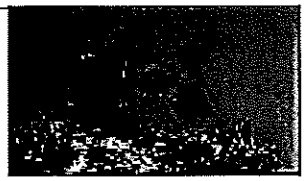
Assuming continued growth in world greenhouse gas emissions, the primary climate models used in this Assessment project that temperatures in the US will rise 5-9°F (3-5°C) on average in the next 100 years. A wider range of outcomes is possible.

2. Differing regional impacts



Climate change will vary widely across the US. Temperature increases will vary somewhat from one region to the next. Heavy and extreme precipitation events are likely to become more frequent, yet some regions will get drier. The potential impacts of climate change will also vary widely across the nation.

3. Vulnerable ecosystems



Many ecosystems are highly vulnerable to the projected rate and magnitude of climate change. A few, such as alpine meadows in the Rocky Mountains and some barrier islands, are likely to disappear entirely in some areas. Others, such as forests of the Southeast, are likely to experience major species shifts or break up into a mosaic of grasslands, woodlands, and forests. The goods and services lost through the disappearance or fragmentation of certain ecosystems are likely to be costly or impossible to replace.

4. Widespread water concerns



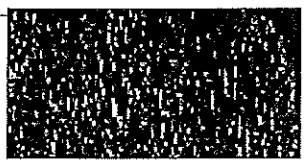
Water is an issue in every region, but the nature of the vulnerabilities varies. Drought is an important concern in every region. Floods and water quality are concerns in many regions. Snowpack changes are especially important in the West, Pacific Northwest, and Alaska.

5. Secure food supply



At the national level, the agriculture sector is likely to be able to adapt to climate change. Overall, US crop productivity is very likely to increase over the next few decades, but the gains will not be uniform across the nation. Falling prices and competitive pressures are very likely to stress some farmers, while benefiting consumers.

6. Near-term increase in forest growth



Forest productivity is likely to increase over the next several decades in some areas as trees respond to higher carbon dioxide levels. Over the longer term, changes in larger-scale processes such as fire, insects, droughts, and disease will possibly decrease forest productivity. In addition, climate change is likely to cause long-term shifts in forest species, such as sugar maples moving north out of the US.

7. Increased damage in coastal and permafrost areas



Climate change and the resulting rise in sea level are likely to exacerbate threats to buildings, roads, powerlines, and other infrastructure in climatically sensitive places. For example, infrastructure damage is related to permafrost melting in Alaska, and to sea-level rise and storm surge in low-lying coastal areas.

8. Adaptation determines health outcomes



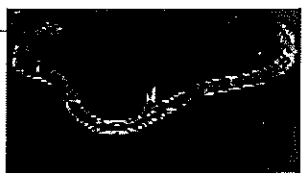
A range of negative health impacts is possible from climate change, but adaptation is likely to help protect much of the US population. Maintaining our nation's public health and community infrastructure, from water treatment systems to emergency shelters, will be important for minimizing the impacts of water-borne diseases, heat stress, air pollution, extreme weather events, and diseases transmitted by insects, ticks, and rodents.

9. Other stresses magnified by climate change



Climate change will very likely magnify the cumulative impacts of other stresses, such as air and water pollution and habitat destruction due to human development patterns. For some systems, such as coral reefs, the combined effects of climate change and other stresses are very likely to exceed a critical threshold, bringing large, possibly irreversible impacts.

10. Uncertainties remain and surprises are expected



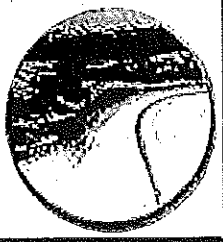
Significant uncertainties remain in the science underlying regional climate changes and their impacts. Further research would improve understanding and our ability to project societal and ecosystem impacts, and provide the public with additional useful information about options for adaptation. However, it is likely that some aspects and impacts of climate change will be totally unanticipated as complex systems respond to ongoing climate change in unforeseeable ways.

IMPACTS OF CLIMATE CHANGE

It is very likely that the US will get substantially warmer. Temperatures are projected to rise more rapidly in the next one hundred years than in the last 10,000 years. It is also very likely that there will be more precipitation overall, with more of it coming in heavy downpours. In spite of this, some areas are likely to get drier as increased evaporation due to higher temperatures outpaces increased precipitation. Droughts and flash floods are likely to become more frequent and intense.

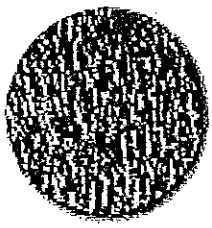
PERMAFROST AREAS

It is very probable that rising temperatures will cause further permafrost thawing, damaging roads, buildings, and forests in Alaska.



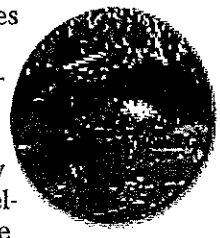
FORESTRY

Timber inventories are likely to increase over the 21st century. Hardwood productivity is likely to increase more than softwood productivity in some regions, including the Southeast.

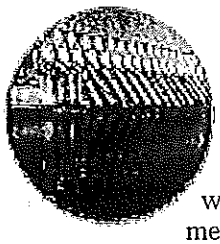


SPECIES DIVERSITY

While it is possible that some species will adapt to changes in climate by shifting their ranges, human and geographic barriers, and the presence of invasive non-native species will limit the degree of adaptation that can occur. Losses in local biodiversity are likely to accelerate towards the end of the 21st century.



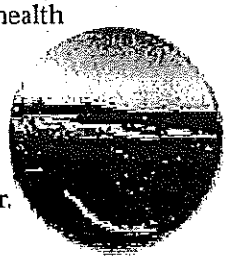
WATER SUPPLY



Reduced summer runoff, increased winter runoff, and increased demands are likely to compound current stresses on water supplies and flood management,especially in the western US.

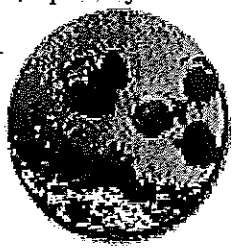
ISLANDS

Sea-level rise and storm surges will very likely threaten public health and safety and possibly reduce the availability of fresh water.



CORAL REEFS

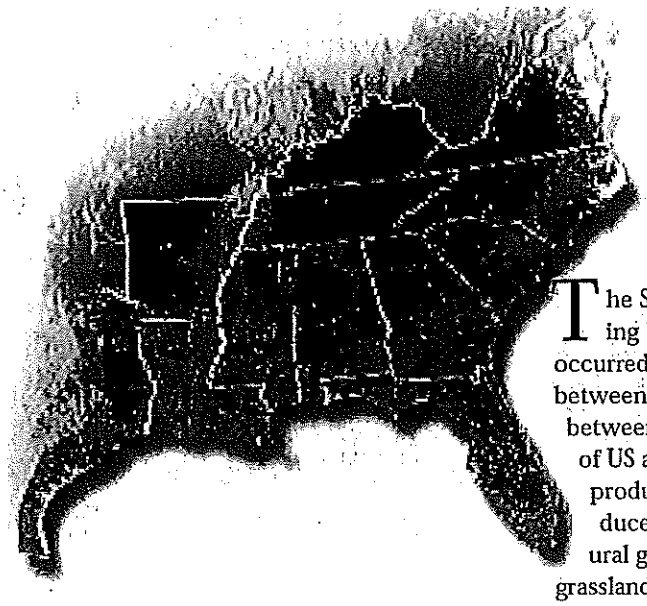
Increased CO_2 and ocean temperatures,especially combined with other stresses,will possibly exacerbate coral reef bleaching and die-off.



FRESHWATER ECOSYSTEMS

Increases in water temperature and changes in seasonal patterns of runoff will very likely disturb fish habitat and affect recreational uses of lakes,streams, and wetlands.





SOUTHEAST

The Southeast "sunbelt" is a rapidly growing region with population increasing by more than 30% between 1970 and 1990. Much of this growth occurred in coastal counties,which are projected to grow another 40% between 2000 and 2025. The number of farms in the region decreased 80% between 1930 and 1997,but the Southeast still produces roughly one quarter of US agricultural crops. The Southeast has become America's "woodbasket," producing about half of America's timber supplies. The region also produces a large portion of the nation's fish,poultry, tobacco,oil,coal,and natural gas. Prior to European settlement,the landscape was primarily forests, grasslands,and wetlands,but most of the native forests were converted to managed forests and agricultural lands by 1920. Roughly half of the remaining wetlands in the lower 48 states are located in the Southeast,and more than three-quarters of the Nation's annual wetland losses over the past 50 years occurred in this region. Although much of the landscape has been altered,a wide range of ecosystem types exists and overall species diversity is high.

KEY ISSUES

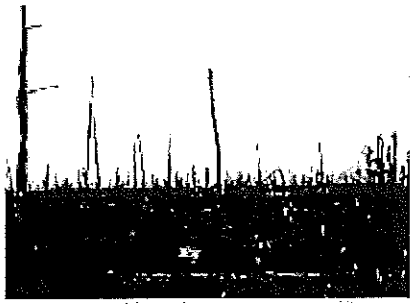
- Weather-related Stresses on Human Populations
- Agricultural Crop Yields and Economic Impacts
- Forest Productivity Shifts
- Water Quality Stresses
- Threats to Coastal Areas

Observed Climate Trends

Temperature trends in the Southeast vary between decades,with a warm period during the 1920s-1940s followed by a cooling trend through the 1960s. Since the 1970s,temperatures have been increasing,with the 1990's temperatures as warm as the peaks in the 1920s and 30s. Annual rainfall trends show very strong increases of 20-30% or more over the past 100 years across Mississippi,Arkansas,South Carolina,Tennessee,Alabama,and parts of Louisiana, with mixed changes across most of the remaining area. There has been a strong tendency for more wet spells in the Gulf Coast states,and a moderate tendency in most other areas. The percentage of the Southeast landscape experiencing severe wetness increased approximately 10% between 1910 and 1997. There are strong El Niño and La Niña effects in the Southeast that can result in dramatic seasonal and year-to-year variations in temperature and precipitation. El Niño events also tend to create atmospheric conditions that inhibit Atlantic tropical storm development, resulting in fewer hurricanes. La Niña events have the opposite effect, resulting in more hurricanes.

Ghost Forests

Vast stands of coastal forest are dying along the Gulf of Mexico shoreline. Sea-level rise resulting in saltwater intrusion is the suspected cause, and the sun-bleached remnants of dead stems have given rise to the common term "ghost forest" in parts of

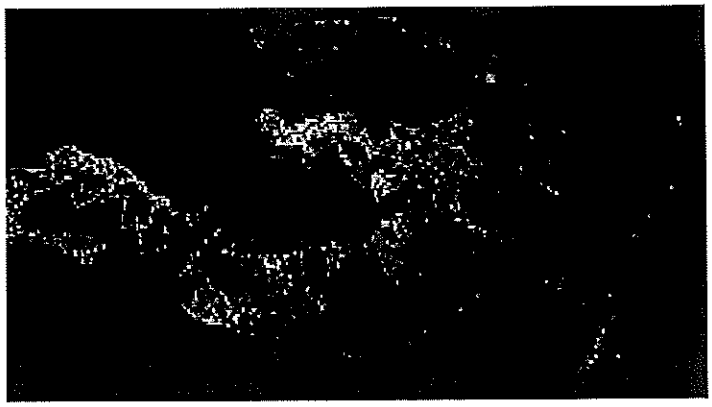


South Florida and Louisiana. Over the past 30 years, hundreds of acres of southern baldcypress trees have died in Louisiana coastal parishes, with losses most acute in areas where subsidence and navigation channels have accelerated the rate of saltwater encroachment due to rising sea level. Baldcypress and live oak mortality have occurred as far as 30 miles inland. In

Scenarios of Future Climate

Climate model projections exhibit a wide range of plausible scenarios for both temperature and precipitation over the next century. Both of the principal climate models used in the National Assessment project warming in the Southeast by the 2090s,but at different rates. The Canadian model scenario shows the Southeast experiencing a high degree of warming, which translates into lower soil moisture as higher temperatures increase evaporation. The Hadley model scenario simulates less warming and a significant increase in precipitation (about 20%). Some climate models suggest that rainfall associated with El Niño and the intensity of droughts during La Niña phases will be intensified as atmospheric CO_2 increases.

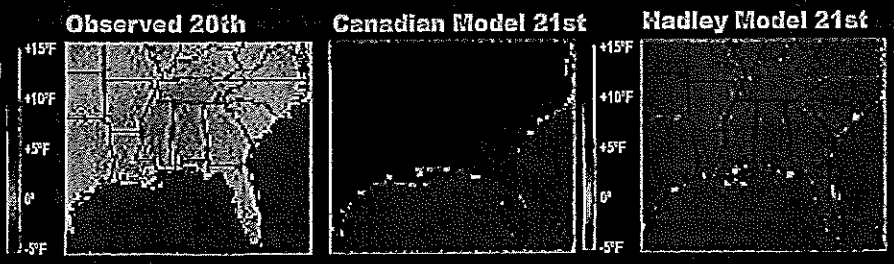
Louisiana's Coastal Land loss
Between 1956 and 1990 (Shown in Red)



Rising sea level is one of several factors that have caused the loss of about one million acres of Louisiana wetland since 1900. Natural and human-induced processes contributing to these losses include subsidence due to groundwater withdrawal and natural sediment compaction, wetland drainage, and levee construction. The white line designates the coastal zone and red designates land that has been converted to open water.

Temperature Change - 20th & 21st Centuries

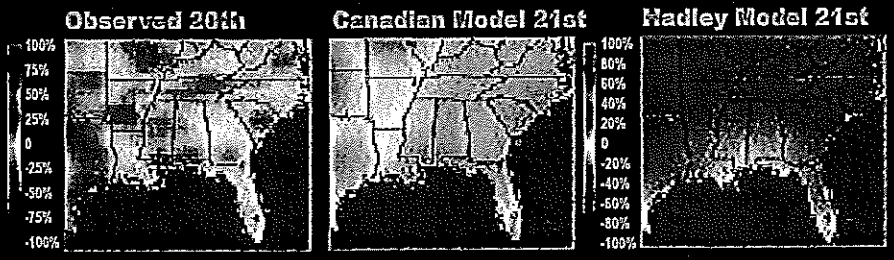
The largest warming during the last century has occurred along the coastal region (as much as 4°F), with some inland cooling.



Model scenarios project relatively uniform increases in annually averaged temperatures. However, the Canadian model projects increases that are twice as large as the Hadley model.

Precipitation Change - 20th & 21st Centuries

Observed precipitation changes during the last century are a patchwork of moderate increases and decreases.

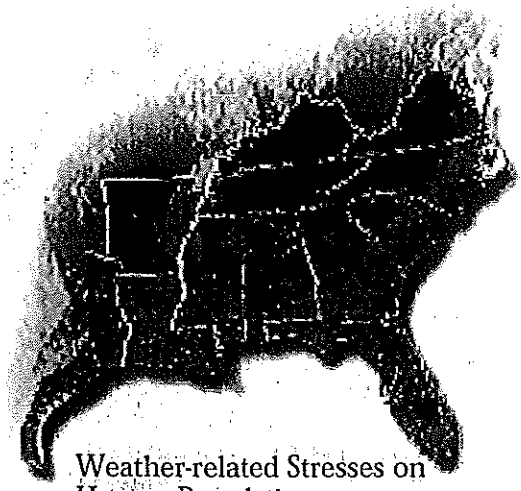


The Canadian model scenario for the 21st century indicates near neutral trends or modest increases, while the Hadley model projects increases of near 25% for the region.

Florida, chronic saltwater contamination of forest soils occurs nearer the shoreline.

Since 1991 landowners and public land managers in Florida have observed massive die-offs of sabal palm along a 40-mile stretch of coast between Cedar Key and Homosassa Springs. Ed Barnard, a forest pathologist with Florida's Forestry Division, compares what he has seen with the aftermath of Hurricane Hugo in South Carolina, and he attributes the Florida problem to saltwater.

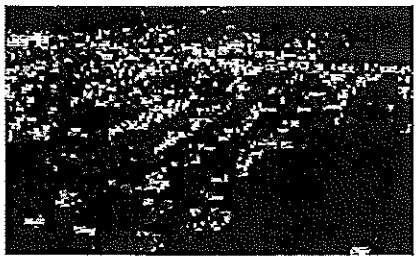
Analyses also attribute the forest decline to salt water intrusion associated with sea-level rise. Since 1852, when the first topographic charts of this region were prepared, high tidal flood elevations have increased approximately 12 inches. Coastal forest losses will be even more severe if sea-level rise accelerates as is expected as a result of global warming.



SOUTHEAST KEY ISSUES

Weather-related Stresses on Human Populations

The Southeast is prone to frequent natural weather disasters that affect human life and property. Over half of the nation's costliest weather-related disasters of the past 20 years have occurred in the Southeast,costing the region over $85 billion in damages,mostly associated with floods and hurricanes. Across the region,intense precipitation has increased over the past 100 years,and this trend is projected to continue.

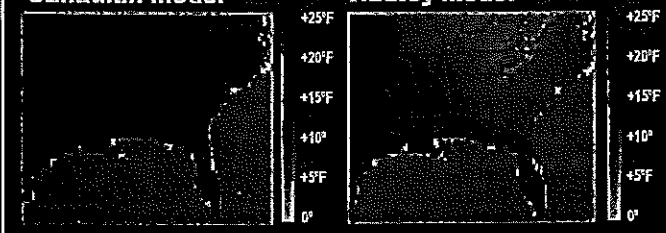


Flooded community along Bayou Lafourche in South Louisiana after landfall of Hurricane Juan in 1985.

The southern heat wave and drought of 1998 resulted in damages in excess of $6 billion and at least 200 deaths. Human health concerns arise from the projected increases in maximum temperatures and heat index in the region. These concerns are particularly great for lower income households that lack sufficient resources to improve insulation and install and operate air conditioning systems. Air quality degradation in urban areas is also a concern associated with elevated air temperatures and increased emissions from power generation, which can increase ground-level ozone. Increased flooding in low-lying coastal counties from the Carolinas to Texas is also likely to adversely impact human health; floods are the leading cause of death from natural disasters in the region and nationwide.

Adaptations: Traditional approaches such as flood levees,elevated structures,and building codes are no longer adequate by themselves,particularly in the coastal zone,as sea-level rise alone continues to increase the propensity for storm-surge flooding in virtually all southeastern coastal areas. Improvements in risk assessment,coastal and floodplain management,linking insurance to policies for mitigating flood damage, and local mitigation planning are strategies that are likely to decrease potential costs. Changes in climate and sea-level rise should be an integral consideration as coastal communities develop strategies for hazard preparedness and mitigation.

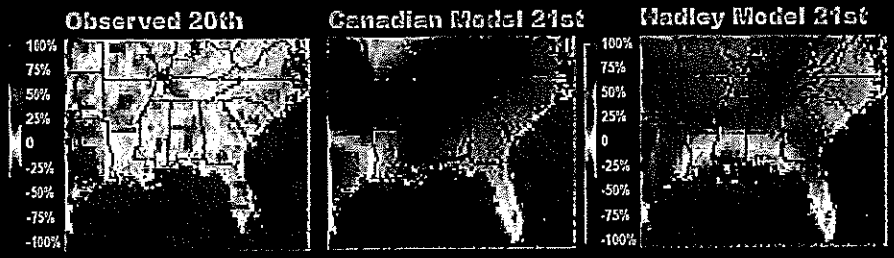
July Heat Index Change - 21st Century



The changes in the simulated heat index for the Southeast are the most dramatic in the nation with the Hadley model suggesting increases of 8 to 15°F for the southern-most states, while the Canadian model projects increases above 20°F for much of the region.

Summer Soil Moisture Change - 20th & 21st Centuries

The observed record of soil moisture illustrates mixed changes across the region.



The Hadley model projects soil moisture will increase substantially in most of the region. In contrast, the Canadian model, with larger projected warming and little change in rainfall, suggests large decreases in soil moisture.

Agricultural Crop Yields and Economic Impacts

Crop yield and economic impact estimates vary by climate scenario,area,and crop. The Hadley scenario simulates decreases in the yield of most dryland (non-irrigated) crops in the Gulf Coast area but increases elsewhere in the region through both the 2030s and 2090s. Average yields of irrigated soybean,wheat,and rice increase under the Hadley scenario by 10% in 2030 and by more than 20% in 2090. Under the hotter and drier Canadian climate scenario,dryland soybean yields decrease 10-30% in some key locations by 2030 and decrease by 80% by 2090. Economic impact simulations follow patterns similar to the yield maps below.

Of the major crop growing areas of the Southeast,the lower Mississippi Valley and Gulf Coast areas are likely to be more negatively affected,while the northern Atlantic Coastal Plain is likely to be more positively affected.

Adaptations:Expected impacts on agricultural productivity and profitability will very likely stimulate adjustments in management strategies. Producers can switch crops or vary planting dates,patterns of water usage,crop rotations,and the amounts,timing,and application methods for fertilizers and pesticides. Analyses indicate that farmers, except those in the southern Mississippi Delta and Gulf Coast areas,will likely be able to mitigate most of the negative effects and possibly benefit from changes in CO_2 and moisture that enhance crop growth. Improvements in understanding climate and forecasting weather would enhance the ability of agricultural resource managers to deal effectively with future changes. In addition,plant breeders could respond by developing new and improved varieties to accommodate the changed climate conditions.

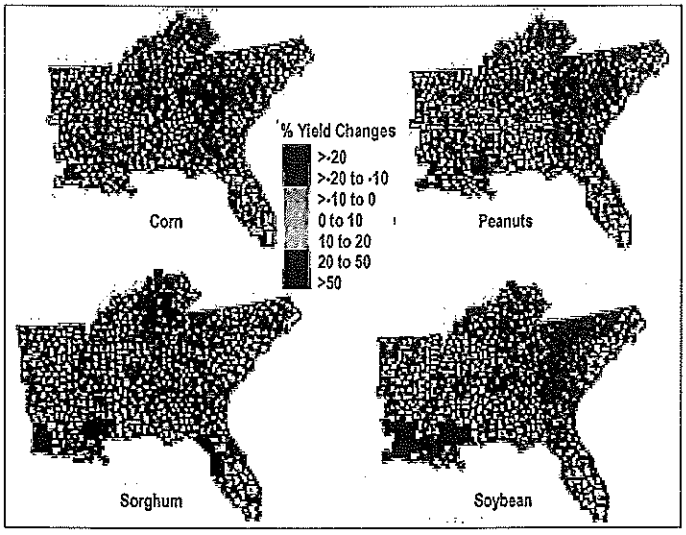
The southern heat wave and drought of 1998 resulted in damages in excess of $6 billion and at least 200 deaths.

Human health concerns arise from the projected increases in maximum temperatures and heat index in the region.

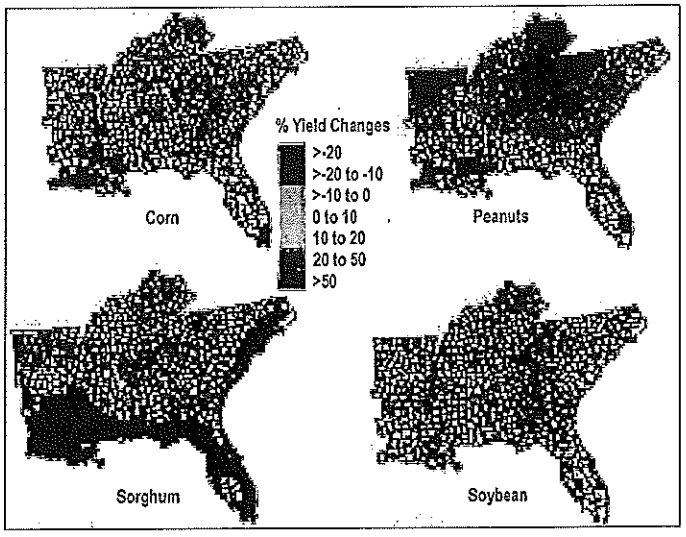
Improvements in risk assessment, coastal and floodplain management, linking insurance to policies for mitigating flood damage, and local mitigation planning are strategies that are likely to decrease potential costs.

Changes in Yields of Rainfed Crops
30 year Average

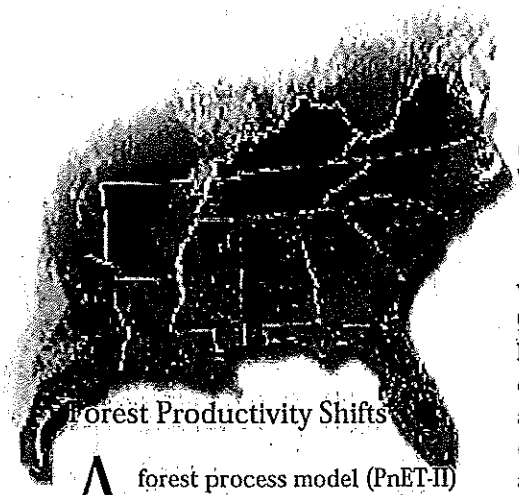
Hadley Model 2030



Hadley Model 2090



Projected changes in 30-year average rainfed yields of four major crops in the Southeast by the years 2030 and 2090 using the Hadley model scenario.



SOUTHEAST KEY ISSUES

Forest Productivity Shifts

A forest process model (PnET-II) was used to evaluate the impact of the Hadley climate scenario and increasing atmospheric CO_2 on southeastern forest productivity. The model simulates an increase in the productivity of southern loblolly pine plantations of approximately 11% by 2040 and 8% by 2100;the productivity of hardwood and mixed pine hardwood forest (which represent 64% of the total forest area) would increase 22% by 2040 and 25% by 2100,compared to 1990. The model indicates that the greatest increases in productivity of both pines and hardwoods would occur in the northern half of the region.

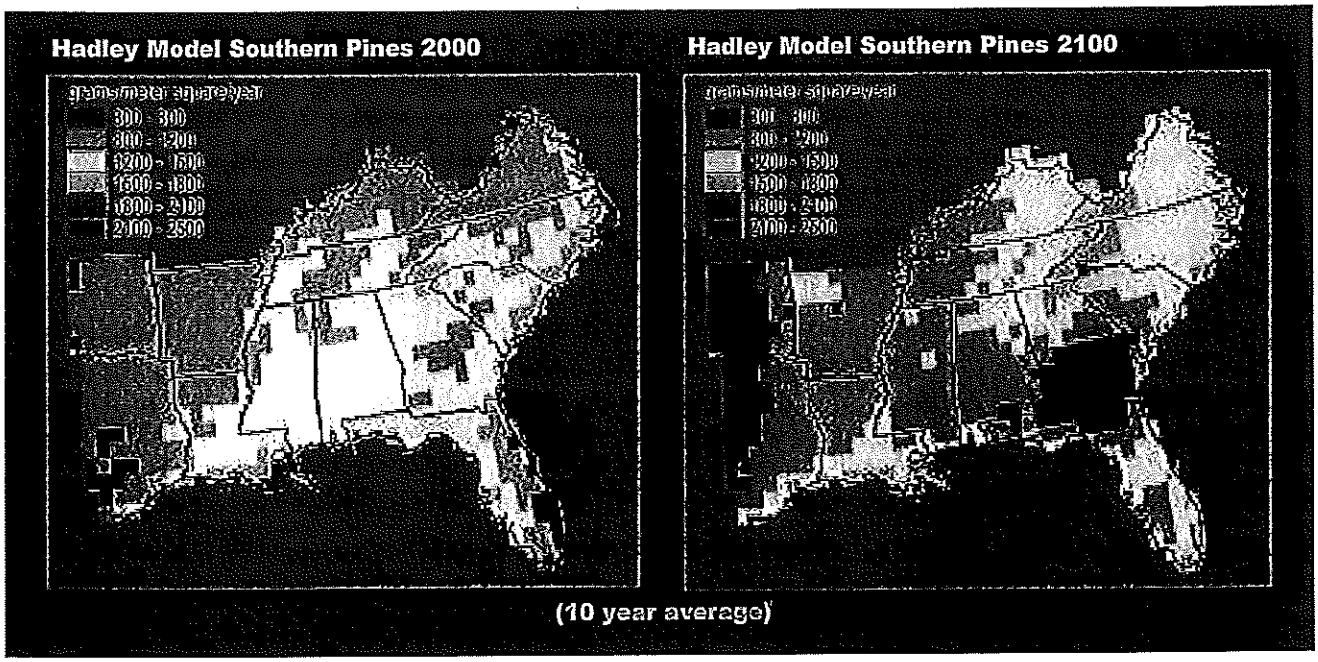
Other VEMAP ecosystem models used with the Hadley Scenario also project increases in productivity across southern forests by 2100. However, when these models are run with the Canadian climate scenario,they simulate decreases in productivity in parts of the Southeast. Furthermore,several models that are designed to project changes in vegetation distribution as a consequence of climate change simulate a breakup of the pine-dominated forests in parts of the Southeast by the end of the 21st century under the Canadian scenario. These simulations suggest that part of the forest will possibly be replaced by savannas and grasslands due to decreased soil moisture and fire (see Ecosystems).

Adaptations: As the northern parts of the region become relatively more productive as a result of climate change and the southern parts are more negatively affected,timber harvesting could be shifted northward. Other adaptation strategies include the use of more drought-hardy strains of pine and other silvicultural and genetic improvements that could increase water use efficiency or water availability. Improved knowledge of the role of hurricanes, droughts, fire,El Niño-related changes in seasonal weather patterns,and other natural disturbances will be important in developing forest management regimes and increases in productivity that are sustainable over the long term. Under a hotter, drier climate,an aggressive fire management strategy could prove to be very important in this region.

Water Quality Stresses

Surface water resources in the Southeast are intensively managed with dams and channels,and almost all are affected by human activities. In some streams and lakes, water quality is either below recommended levels or nearly so. Stresses on water quality are associated with intensive agricultural practices,urban development,coastal processes,and mining activities. The impacts of these stresses are likely to be exacerbated by climate change. For example,higher temperatures reduce dis-

Potential Southern Pines and Hardwoods Net Primary Productivity (NPP)



solved oxygen levels in water. The 1999 flooding of eastern North Carolina offers a graphic example of how water quality can also be affected by extreme precipitation events, the frequency of which are likely to continue to increase; flood waters fouled with sewage, rotting farm animal carcasses,fuel,and chemicals swamped water treatment plants and contaminated public water supplies.

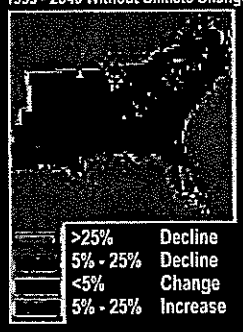
Threats to Coastal Areas

Sea-level rise is one of the more certain consequences of climate change. It has already had significant impacts on coastal areas and these impacts are very likely to increase. Between 1985 and 1995,southeastern states lost more than 32,000 acres of coastal salt marsh due to a combination of human development activities,sea-level rise,natural subsidence,and erosion. About 35 square miles of coastal land were lost each year in Louisiana alone from 1978 to 1990. Flood and erosion damage stemming from sea-level rise coupled with storm surges are very likely to increase in coastal communities. Coastal ecosystems and the services they provide to human society are likely to be negatively affected. Projected impacts are likely to include the loss of barrier islands and wetlands that protect coastal communities and ecosystems from storm surges, reduced fisheries productivity as coastal marshes and submerged grass beds are displaced or eliminated,and saltwater intrusion into surface and ground water supplies. The extent of the ecological impacts of sea-level rise is largely dependent upon the rate of rise and the development that has occurred along the shoreline. Other threats to these ecosystems come from changes in rainfall in coastal watersheds which are likely to alter fresh water inflows into estuaries,altering salinity patterns that determine the type and distribution of coastal plant and animal communities. There are few practical options for protecting natural ecosystems as a whole from increasing temperature, changes in precipitation,or rapidly rising sea level.

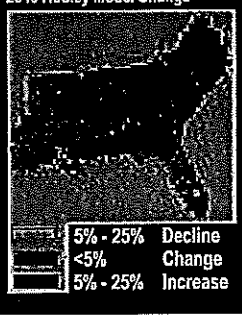
As noted for other coastal regions, one possibility is the acquisition of lands contiguous to coastal wetlands to allow for their inland migration as sea level rises.

Timberland Acreage Shifts

1993 - 2040 Without Climate Change



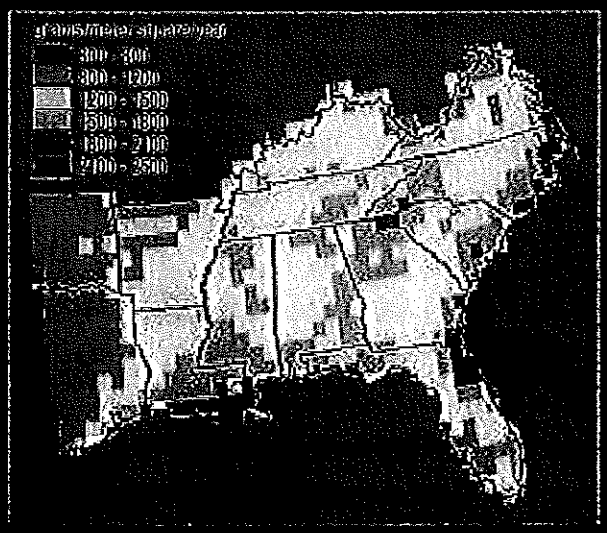
2040 Hadley Model Change



The change in forest productivity under the Hadley-based scenario is expected to cause slightly higher softwood timber prices and lower hardwood prices than would be the case without climate change. Harvests and inventory would also shift northward, reflecting the northward productivity shifts.

Simulations of Net Primary Productivity (the net amount of carbon fixed by green plants over the course of a year) of southern pines and hardwoods as projected by one ecological model, PnET, using the Hadley model scenario. By 2100, PnET projects that southern hardwoods will be much more productive than pines under the climate projected by the Hadley model.

Hadley Model Southern Hardwoods 2000



Hadley Model Southern Hardwoods 2100



(10 year average)

Exhibit D

Questionnaire for Filing Proposed Rules and Regulations with the Arkansas Legislative Council and Joint Interim Committee

APPENDIX 6

QUESTIONNAIRE FOR FILING PROPOSED RULES AND REGULATIONS WITH THE ARKANSAS LEGISLATIVE COUNCIL AND JOINT INTERIM COMMITTEE

DEPARTMENT/AGENCY ADEQ
DIVISION Air
DIVISION DIRECTOR Mike Bates
CONTACT PERSON Mike Porta
ADDRESS 5301 Northshore Dr.
PHONE NO. 501-682-0730 **FAX NO.** 501-682-0753 **E-MAIL** Baks@adeq.state.ar.us
NAME OF PRESENTER AT COMMITTEE MEETING _____
PRESENTER E-MAIL _____

INSTRUCTIONS

A. **Please make copies of this form for future use.**
B. **Please answer each question completely using layman terms. You may use additional sheets, if necessary.**
C. **If you have a method of indexing your rules, please give the proposed citation after "Short Title of this Rule" below.**
D. **Submit two (2) copies of this questionnaire and financial impact statement attached to the front of two (2) copies of the proposed rule and required documents. Mail or deliver to:**

Donna K. Davis
Administrative Rules Review Section
Arkansas Legislative Council
Bureau of Legislative Research
Room 315, State Capitol
Little Rock, AR 72201

****

1. What is the short title of this rule? Regulation 26

2. What is the subject of the proposed rule? N/A

3. Is this rule required to comply with a federal statute, rule, or regulation? Yes_____No ✓

   If yes, please provide the federal rule, regulation, and/or statute citation.

4. Was this rule filed under the emergency provisions of the Administrative Procedure Act? Yes_____ No ✓

If yes, what is the effective date of the emergency rule? _____

When does the emergency rule expire? _____

Will this emergency rule be promulgated under the permanent provisions of the Administrative Procedure Act? Yes_____ No_____

5. Is this a new rule? Yes____ No ✓ If yes, please provide a brief summary explaining the regulation.

Does this repeal an existing rule? Yes_____ No ✓ If yes, a copy of the repealed rule is to be included with your completed questionnaire. If it is being replaced with a new rule, please provide a summary of the rule giving an explanation of what the rule does.

Is this an amendment to an existing rule? Yes ✓ No___ If yes, please attach a mark-up showing the changes in the existing rule and a summary of the substantive changes. **Note: The summary should explain what the amendment does, and the mark-up copy should be clearly labeled "mark-up."**

6. Cite the state law that grants the authority for this proposed rule? If codified, please give Arkansas Code citation.

Water and Air Pollution Control Act (Ark. Code 8-4)

7. What is the purpose of this proposed rule? Why is it necessary?

update definition

8. Please provide the address where this rule is publicly accessible in electronic form via the Internet as required by Arkansas Code § 25-19-108(b).

www.adeq.state.ar.us/regs/default.htm

9. Will a public hearing be held on this proposed rule? Yes ✓ No_____
If yes, please complete the following:
Date: TBD
Time: _____
Place: _____

10. When does the public comment period expire for permanent promulgation? (Must provide a date.) TBD

11. What is the proposed effective date of this proposed rule? (Must provide a date.)
TBD

12. Do you expect this rule to be controversial? Yes_____ No ✓ If yes, please explain.

13. Please give the names of persons, groups, or organizations that you expect to comment on these rules? Please provide their position (for or against) if known.

Ken Smith, Audubon (for)
Glen Hooks, Sierra Club (for)

Exhibit E

Financial Impact Statement

APPENDIX 7

FINANCIAL IMPACT STATEMENT

PLEASE ANSWER ALL QUESTIONS COMPLETELY

DEPARTMENT N/A
DIVISION N/A
PERSON COMPLETING THIS STATEMENT Ilan Levin
TELEPHONE NO. 512-619-7287 **FAX NO.** 512-479-8302 **EMAIL:** ilevin@environmentalintegrity.org

To comply with Act 1104 of 1995, please complete the following Financial Impact Statement and file two copies with the questionnaire and proposed rules.

SHORT TITLE OF THIS RULE

---

1. Does this proposed, amended, or repealed rule have a financial impact?
   Yes _____ No ✓

2. Does this proposed, amended, or repealed rule affect small businesses?
   Yes _____ No ✓

   If yes, please attach a copy of the economic impact statement required to be filed with the Arkansas Economic Development Commission under Arkansas Code § 25-15-301 et seq.

3. If you believe that the development of a financial impact statement is so speculative as to be cost prohibited, please explain.

4. If the purpose of this rule is to implement a federal rule or regulation, please give the incremental cost for implementing the rule. Please indicate if the cost provided is the cost of the program.

Current Fiscal Year		Next Fiscal Year	
General Revenue	N/A	General Revenue	N/A
Federal Funds	N/A	Federal Funds	N/A

Cash Funds_____ Cash Funds_____ Special Revenue_____
Special Revenue_____
Other (Identify)_____ Other(Identify) _____

Total n/A Total n/A

5. What is the total estimated cost by fiscal year to any party subject to the proposed, amended, or repealed rule? Identify the party subject to the proposed rule and explain how they are affected.

Current Fiscal Year **Next Fiscal Year**

$ n/A $ n/A

6. What is the total estimated cost by fiscal year to the agency to implement this rule? Is this the cost of the program or grant? Please explain.

Current Fiscal Year **Next Fiscal Year**

$ n/A $ n/A

APPENDIX 7

FINANCIAL IMPACT STATEMENT

PLEASE ANSWER ALL QUESTIONS COMPLETELY

DEPARTMENT N/A
DIVISION N/A
PERSON COMPLETING THIS STATEMENT Ilan Levin
TELEPHONE NO. 512-619-7287 **FAX NO.** 512-479-8302 **EMAIL:** ilevin@environmentalintegrity.org

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Current Fiscal Year		Next Fiscal Year	
General Revenue	N/A	General Revenue	N/A
Federal Funds	N/A	Federal Funds	N/A

Cash Funds_____ Cash Funds_____ Special Revenue_____
Special Revenue_____
Other (Identify)_____ Other(Identify) _____

Total n/A Total n/A

5. What is the total estimated cost by fiscal year to any party subject to the proposed, amended, or repealed rule? Identify the party subject to the proposed rule and explain how they are affected.

Current Fiscal Year **Next Fiscal Year**

$ n/A $ n/A

6. What is the total estimated cost by fiscal year to the agency to implement this rule? Is this the cost of the program or grant? Please explain.

Current Fiscal Year **Next Fiscal Year**

$ n/A $ n/A

Exhibit F

Economic Impact/Environmental Benefit Analysis

Economic Impact/Environmental Benefit Analysis

The proposal to delete the term "carbon dioxide" from the definition of "Air contaminant" will bring the Arkansas definition in line with the federal definition of "air pollutant," as articulated by the U.S. Supreme Court in Massachusetts v. EPA, 127 S.Ct. 1438, 1460; 167 L.Ed.2d 248 (2007).

The proposed change would make the Arkansas definition conform to federal law, and would therefore be equivalent (neither more nor less stringent) than a federal requirement. Therefore, an economic impact/environmental benefit analysis is not required.

Exhibit G

Minute Order to Initiate Rulemaking

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

SUBJECT Regulation No. 26

Third-Party Rulemaking Audubon, Sierra Club & Environmental Integrity Project
DOCKET NO. 08- __-R

MINUTE ORDER NO. 08-_____

On May 16, 2008, Audubon, Sierra Club, and Environmental Integrity Project ("Petitioners) filed a Petition to Initiate Third-Party Rulemaking to Amend Regulation No. 26. Pursuant to Ark. Code Ann. 8-4-202(c), the Arkansas Pollution Control and Ecology Commission has sixty (60) days in which to either institute rulemaking proceedings or to give written notice denying the petition for rulemaking. The Petition has been designated as Docket No. 08-___-R.

The Commission's Regulations Committee met on _____to review the Petition and it recommends that the Commission institute a rulemaking proceeding to consider adopting the proposed amendment to Regulation No. 18. The Regulations Committee also recommends adoption of the following procedures and schedule.

1. Petitioners and the Arkansas Department of Environmental Quality ("ADEQ") shall file an original and one (1) copy and a computer disk in Word of all materials required under this Minute Order. This requirement does not apply to transcripts.

2. Persons submitting written public comments shall submit them to ADEQ and ADEQ will deliver the originals of all comments to the Commission Secretary at the conclusion of the proceeding.

3. Petitioners will submit to the ADEQ's Public Outreach and Assistance Division ("POA), the following:

a. A proposed public notice to be used in mailing notice to interested persons, for publishing in an appropriate publication as the Commission may select. The proposed public notice may, in the ADEQ's discretion, be approved for use or ADEQ may choose to prepare its own public notice. The public notice shall conform to the requirements of Regulation No. 8, Section 3.1.3. The public notice shall be published not later than 45 days prior to the first public hearing. By agreement, Petitioners shall pay the costs of the newspaper publications and the costs of the appropriate industry, trade or professional publications chosen by the Commission and shall file only the original proof of publication with the Commission. ADEQ shall be responsible for mailing the public notice to all persons who have requested advance notice of rulemaking proceedings and the cost of the mailing.

b. Fifty (50) copies of the executive summary of the proposed rulemaking.

c. Bound copies of the Petition and all supporting documentation, the number of which is to be determined by POA.

4. A public hearing shall be conducted the week of _____ in Little Rock, at the offices of ADEQ. The exact date, time, and location for each hearing will be determined by ADEQ's Public Outreach and Assistance Division.

5. The period for receiving all written comments from Petitioners, the public, and ADEQ shall conclude ten (10) business days after the date of the public hearing, unless an extension of time is granted.

6. Petitioners and ADEQ shall each file, not later than 14 days before the Commission meets to consider adoption of the proposed regulation, a Statement of Basis and Purpose and Responsive Summary as required by Regulation No. 8, Part 3, Section 3.6.2(1), (2) and (3). In addition, Petitioners and ADEQ shall file a proposed Minute Order deciding this matter.

7. ADEQ shall seek review of the proposed rule from the Joint Interim Committee on Public Health and Welfare and/or from the Joint Interim Committee on Administrative Rules and Regulations.

8. The Regulations Committee and the Commission may consider this matter at their _____, 2008 meeting. In the event the appropriate legislative committees do not complete review of the proposed rule by the above date, the Regulations Committee and the Commission will consider the proposed amendments to the regulation after review by the appropriate legislative committees. Members of the Regulations Committee may ask questions of any persons that made oral or written comments and it will make a recommendation to the Commission.

9. At the Commission meeting, the presentation of oral statements and legal arguments will be regulated as follows:

a. The Chair of the Commission will permit members of the public to make a statement to the Commission. No more than three (3) minutes will be allowed for each statement. The period for statements will close at the end of one (1) hour, or sooner if all interested persons have completed their statements. At the discretion of the Chair, the one (1) hour oral statement period may be extended.

b. At the discretion of the Chair, an attorney representing one or more individuals, a corporation or other legal entity may be permitted five (5) minutes in which to address the Commission.

c. Legal counsel or other designated persons representing Petitioners and ADEQ shall be permitted ten (10) minutes in which to address the Commission.

d. At the conclusion of all statements, the Chair will call on each Commissioner for the purpose of asking the attorneys or persons sponsoring statements who are present, any questions they may have. Attorneys will not be permitted to respond or ask follow-up questions of any person questioned by a Commissioner. After each Commissioner has had an opportunity to ask questions, the Chair will entertain a motion on the matter, allow discussion, and call for a vote of the Commission members.

10. If Petitioners desire a transcript of the public hearing, Regulations Committee meeting, and Commission meetings, or if required by the Commission, Petitioners agree to pay all costs for the preparation of a transcript of the public hearings, Regulations Committee meetings and Commission meetings that concern this docket and occur after the adoption of the Minute Order. If a transcript is required, Petitioners will employ the court reporter and the court reporter shall deliver the original transcript to the Commission Secretary.

11. The Commission finds the proposed regulation is exempt from Act 143 of 2007, because the proposed rule codifies existing federal law. Further, the proposed rule does not impose any new or additional regulation, standard, or limitation.

The Commission accepts the recommendation of the Regulations Committee and initiates the rulemaking proceeding in this docket. The Commission adopts, without modification, the procedural schedule set forth above.

COMMISSIONERS:

_____ **B. Ackerman**	_____ **J. Shannon**
_____ **L. Bengal**	_____ **L. Sickel**
_____ **S. Henderson**	_____ **W. Thompson**
_____ **C. McGrew**	_____ **E. Valdez**
_____ **R. Quillin**	_____ **B. White**
_____ **D. Samples**	_____ **R. Young**
_____ **T. Schueck**	

_____ Submitted by: _____ DATE PASSED: _____

Chair

ADEQ
ARKANSAS
Department of Environmental Quality

Memorandum

TO: Michael O'Malley, Hearing Officer
Arkansas Pollution Control and Ecology Commissioners

FROM: Mike Bates, Chief, Air Division

DATE: June 13, 2008

SUBJECT: Proposed Revisions to Regulation 18, Air Pollution Control Code

The Arkansas Department of Environmental Quality (ADEQ or "the Department") proposes revisions to Regulation 18, Arkansas Air Pollution Control Code. Regulation 18 is applicable to any source which emits or has the potential to emit any air contaminant as defined in the regulation. In a separate petition, ADEQ proposes changes to Regulation Number 19 and Regulation Number 26 contingent upon the Commission promulgating Regulation Number 18. The Department requests that the Commission consider the initiation of rulemaking associated with the promulgation of Regulation Number 18 to be contingent upon the Commission's decision to initiate rulemaking to amend Regulation Number 19 and Regulation Number 26 to avoid the potential of either of two possible results:

(a) The regulatory flexibility provisions we are proposing to add will not be effective unless all three regulations are initiated simultaneously; and
(b) Regulations containing different permitting thresholds could cause confusion and unequal treatment of sources.

The proposed regulatory amendments involve the following:

(a) Adding a definition of EPA and Title I modification;
(b) Moving the effective date language from the front of the regulation to its own, new chapter, Chapter 15;
(c) Updating Reg. 18.301, Applicability, to change the emissions permitting thresholds from 25 tons per year (tpy) to 40 tpy or more of nitrogen oxides, from 25 tpy to 40 tpy or more of sulfur dioxide from 25 tpy to 40 tpy or more of volatile organic compounds, from 15 tpy to 25 tpy or more of particulate matter from 10 tpy to 15 tpy or more of particulate matter that is 10 micrometers in diameter or smaller, from 1.0 tpy to 2.0 tpy or more of any single hazardous air pollutant and from 3.0 tpy to 5.0 tpy or more of any combination of hazardous air pollutants; and adding charcoal plants to the list of sources that are required to obtain a permit regardless of emissions and adding to the list of source types that are not required to have a permit the following: Stationary Reciprocating Internal Combustion Engines for non-part 70 sources (minor sources), Hospital Ethylene Oxide Sterilizers, Gasoline Dispensing Facilities, Stationary Compression Ignition Internal Combustion engines for engines with a displacement of less than 30 liters per cylinder and Stationary Spark Ignition Internal Combustion Engines;

(d) Removing language in Reg. 18.307 that refers to disclosure statements and replacing it with a reference to Regulation Number 8 which contains the applicable language.

(e) Clarifying that permit public notice requirements do not apply to changes in ownership or changes in name in Reg. 18.307;

(f) Modifying and adding *De Minimis* levels in Reg. 18.307 for certain pollutants, the level at which a proposed modification would be considered trivial, from 5 tpy for carbon monoxide to 75 tpy; from 20 tpy for nitrogen dioxide, sulfur dioxide, or volatile organic compounds to 40 tpy; and establishing levels for particulate matter at 25 tpy and particulate matter that is 10 micrometers in diameter or smaller at 15 tpy;

(g) Adding the new sections Reg. 18.312, Operational Flexibility-Applicant's duty to apply for alternative scenarios; Reg. 18.313, Changes resulting in no emissions increases; and 18.314, Permit Flexibility. Reg. 18.312 allows facilities to implement an operating scenario allowed for in the permit without permit revisions or notifying the Department. Reg. 18.313 also allows a permitted source to make changes in the facility that deviate with permit terms without a permit revision in certain circumstances. Reg. 18.314 allows the Department to grant extensions to any testing, compliance, or other dates in the permit. The Department may also allow temporary emissions and/or testing that would otherwise exceed a permitted emission rate, throughput requirement, or other limit in a facility's permit and the Department may grant a request to allow an alternative to the monitoring specified in a permit under certain circumstances;

(h) Changing in Appendix A, Insignificant Activities List in Group A, the list of units, operations or activities that must be either listed as insignificant or included in the permit application as sources to be permitted, to add an exemption for generators that provide electricity to the distribution grid to item number 12. Additionally in Group B, the list of emissions units, operations, or activities that need not be included in a permit application, item number 69 has been changed with the addition of hazardous air pollutants to the list of substances that cannot be used or emitted from mixers, blenders, roll mills, or calendars for rubber or plastic for which no materials in powder form are added; and

(i) Updating formatting, correcting typographical errors and inconsistencies in the regulation, and updating it to conform to state law.

These changes will allow more flexibility for the regulated community so they can better respond to market changes. Additionally, regulatory burden will be reduced on affected businesses. The changes will allow the Department to focus our resources on sources which have a greater potential to impact the environment. The changes are consistent with and allowable under federal programs. The proposed changes are protective of air quality in the state and will not affect attainment goals. The changes also clarify existing regulatory language, correct and update formatting and remove duplicative language from other Arkansas Pollution Control and Ecology Commission regulations.

BEFORE THE ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF AMENDMENTS TO REGULATION NO. 18, ARKANSAS AIR POLLUTION CONTROL CODE	)))	DOCKET NO. 08-____-R

PETITION TO INITIATE RULEMAKING TO AMEND REGULATION NUMBER 18, ARKANSAS AIR POLLUTION CODE

The Arkansas Department of Environmental Quality (hereinafter "ADEQ" or "the Department"), for its Petition to Initiate Rulemaking to Amend Regulation Number 18, Arkansas Air Pollution Control Code, states:

1. The Department requests that the Commission Initiate Rulemaking to amend Regulation Number 18, Arkansas Air Pollution Control Code. Regulation 18 is applicable to any source which emits or has the potential to emit any air contaminant as defined in the regulation. By separate petition, the Department proposes changes to Regulation Number 19 and Regulation Number 26 contingent upon the Commission promulgating Regulation Number 18. The Department requests that the Commission consider the initiation of rulemaking associated with the promulgation of Regulation Number 18 to be contingent upon the Commission's decision to initiate rulemaking to amend Regulation Number 19 and Regulation Number 26. The Department makes this request to avoid the potential of either of two possible results:

   (a) The regulatory flexibility provisions we are proposing to add will not be effective unless all three regulations are initiated simultaneously; and

   (b) Regulations containing different permitting thresholds could cause confusion and unequal treatment of sources.

2. The proposed regulatory amendments involve the following:

   (a) Adding a definition of EPA and Title I modification;

(b) Moving the effective date language from the front of the regulation to its own, new chapter, Chapter 15;

(c) Updating Reg. 18.301, Applicability, to change the emissions permitting thresholds from 25 tons per year (tpy) to 40 tpy or more of nitrogen oxides, from 25 tpy to 40 tpy or more of sulfur dioxide from 25 tpy to 40 tpy or more of volatile organic compounds, from 15 tpy to 25 tpy or more of particulate matter from 10 tpy to 15 tpy or more of particulate matter that is 10 micrometers in diameter or smaller, from 1.0 tpy to 2.0 tpy or more of any single hazardous air pollutant and from 3.0 tpy to 5.0 tpy or more of any combination of hazardous air pollutants; and adding charcoal plants to the list of sources that are required to obtain a permit regardless of emissions and adding to the list of source types that are not required to have a permit the following: Stationary Reciprocating Internal Combustion Engines for non-part 70 sources (minor sources), Hospital Ethylene Oxide Sterilizers, Gasoline Dispensing Facilities, Stationary Compression Ignition Internal Combustion engines for engines with a displacement of less than 30 liters per cylinder and Stationary Spark Ignition Internal Combustion Engines;

(d) Removing language in Reg. 18.307 that refers to disclosure statements and replacing it with a reference to Regulation Number 8 which contains the applicable language.

(e) Clarifying that permit public notice requirements do not apply to changes in ownership or changes in name in Reg. 18.307;

(f) Modifying and adding *De Minimis* levels in Reg. 18.307 for certain pollutants, the level at which a proposed modification would be considered trivial, from 5 tpy for carbon monoxide to 75 tpy; from 20 tpy for nitrogen dioxide, sulfur dioxide, or volatile organic compounds to 40 tpy; and establishing levels for

particulate matter at 25 tpy and particulate matter that is 10 micrometers in diameter or smaller at 15 tpy;

(g) Adding the new sections Reg. 18.312, Operational Flexibility-Applicant's duty to apply for alternative scenarios; Reg. 18.313, Changes resulting in no emissions increases; and 18.314, Permit Flexibility. Reg. 18.312 allows facilities to implement an operating scenario allowed for in the permit without permit revisions or notifying the Department. Reg. 18.313 also allows a permitted source to make changes in the facility that deviate with permit terms without a permit revision in certain circumstances. Reg. 18.314 allows the Department to grant extensions to any testing, compliance, or other dates in the permit. The Department may also allow temporary emissions and/or testing that would otherwise exceed a permitted emission rate, throughput requirement, or other limit in a facility's permit and the Department may grant a request to allow an alternative to the monitoring specified in a permit under certain circumstances;

(h) Changing in Appendix A, Insignificant Activities List in Group A, the list of units, operations or activities that must be either listed as insignificant or included in the permit application as sources to be permitted, to add an exemption for generators that provide electricity to the distribution grid to item number 12. Additionally in Group B, the list of emissions units, operations, or activities that need not be included in a permit application, item number 69 has been changed with the addition of hazardous air pollutants to the list of substances that cannot be used or emitted from mixers, blenders, roll mills, or calendars for rubber or plastic for which no materials in powder form are added; and

(i) Updating formatting, correcting typographical errors and inconsistencies in the regulation, and updating it to conform to state law.

3. The proposed changes to Regulation Number 18 do not require an economic impact/environmental analysis because the proposed changes are not expressly addressed by a Federal requirement.

4. The proposed changes to Regulation Number 18 are exempt from the requirements of Act 143 of 2007. As such, a review by the Arkansas Economic Development Commission (AEDC) is not required.

5. Mike Bates or other Air Division staff from ADEQ will be available to answer questions concerning this proposed rulemaking. A red-lined version of the regulation showing the proposed changes is attached as Exhibit "A" and is hereby incorporated by reference. A copy of the Legislative Questionnaire is attached as Exhibit "B", and a copy of a financial impact statement for the proposed revision is attached as Exhibit "C", both of which are incorporated by reference. An analysis of the impact to small business required pursuant to Act 143 of 2007 (formerly Executive Order 05-04), is attached as Exhibit "D" and hereby incorporated by reference. A copy of the Economic Impact/Environmental Benefit Analysis is attached hereto as Exhibit "E" and is hereby incorporated by reference. A proposed minute order is attached as Exhibit "F" and is hereby incorporated by reference.

WHEREFORE, ADEQ requests that the Commission initiate the rulemaking process, adopt the proposed Minute Order, and adopt the proposed amendments to Regulation Number 18.

Respectfully Submitted,
ARKANSAS DEPARTMENT OF
ENVIRONMENTAL QUALITY
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317
By: Mike Bates
Mike Bates

Pollution Control and Ecology Commission # 014.00-018

ARKANSAS POLLUTION CONTROL and ECOLOGY COMMISSION

REGULATION NO. 18
ARKANSAS AIR POLLUTION CONTROL CODE

INITIAL DRAFT

Submitted to the PC&E Commission in June, 2008

EXHIBIT A

~~January 22, 1999~~

~~EFFECTIVE DATE:~~

~~This regulation and any amendment thereof shall be in full force and effect on February 15, 1999.~~

~~It was filed with the Secretary of State of February 5, 1999 and took effect 10 days after the filing.~~

~~The Arkansas Pollution Control & Ecology Commission adopted the regulation on January 22, 1999.~~

~~Regulation 18~~

~~Arkansas~~

~~Air Pollution~~

~~Control Code~~

TABLE OF CONTENTS

CHAPTER 1: TITLE AND PURPOSE 1-1
~~Section~~ Reg. 18.101 Title 1-1
~~Section~~ Reg. 18.102 Intent and Construction 1-1
~~Section~~ Reg. 18.103 Applicability 1-2
~~Section~~ Reg. 18.104 Severability 1-2
CHAPTER 2: DEFINITIONS 2-1
CHAPTER 3: PERMITS 3-1
~~Section~~ Reg. 18.301 Applicability 3-1
~~Section~~ Reg. 18.302 Approval Criteria 3-3
~~Section~~ Reg. 18.303 Owner/Operator's Responsibilities 3-3
~~Section~~ Reg. 18.304 Required Information 3-3
~~Section~~ Reg. 18.305 Action on Application 3-3
~~Section~~ Reg. 18.306 Public Participation 3-5
~~Section~~ Reg. 18.307 Permit Amendments 3-6
~~Section~~ Reg. 18.308 Exemption from Permitting 3-10
~~Section~~ Reg. 18.309 Permit Revocation and Cancellation 3-11
~~Section~~ Reg. 18.310 General Permits 3-11
~~Section~~ Reg. 18.311 Transition 3-11
Reg. 18.312 Operational Flexibility-Applicant's Duty to Apply for Alternative Scenarios 3-12
Reg. 18.313 Changes Resulting in No Emissions Increases 3-12
Reg. 18.314 Permit Flexibility 3-12
Reg. 18.315 Registration 3-14
CHAPTER 4: [RESERVED] 4-1
CHAPTER 5: VISIBLE EMISSIONS 5-1
~~Section~~ Reg. 18.501 Visible Emissions Limitations 5-1
CHAPTER 6: EMISSIONS FROM OPEN BURNING 6-1
~~Section~~ Reg. 18.601 Intent 6-1
~~Section~~ Reg. 18.602 General Prohibition 6-1
~~Section~~ Reg. 18.603 Exemptions 6-1
~~Section~~ Reg. 18.604 Conditions of Air Pollution 6-2
~~Section~~ Reg. 18.605 Open Burning Permits 6-3
CHAPTER 7: EMISSIONS OF AIR CONTAMINANTS FROM MOBILE EQUIPMENT 7-1
~~Section~~ Reg. 18.701 Emissions from Mobile Equipment 7-1
CHAPTER 8: EMISSION OF AIR CONTAMINANTS SUCH AS TO CONSTITUTE AIR POLLUTION 8-1

~~Section~~ Reg. 18.801 Prohibition of the Emission of Air Contaminants Such as to Constitute Air Pollution 8-1
CHAPTER 9: CONTROL OF FUGITIVE EMISSIONS 9-1
~~Section~~ Reg. 18.901 Prohibitions 9-1
CHAPTER 10: SAMPLING, MONITORING, AND REPORTING REQUIREMENTS 10-1
~~Section~~ Reg. 18.1001 Purpose 10-1
~~Section~~ Reg. 18.1002 Air Emissions Sampling 10-1
~~Section~~ Reg. 18.1003 Continuous Emissions Monitoring 10-2
~~Section~~ Reg. 18.1004 Recordkeeping/Reporting Requirements 10-2
~~Section~~ Reg. 18.1005 Public Availability of Emissions Data 10-3
CHAPTER 11: STARTUP/SHUTDOWN, UPSET CONDITIONS, BREAKDOWNS, SCHEDULED MAINTENANCE, INTERRUPTION OF FUEL SUPPLY 11-1
~~Section~~ Reg. 18.1101 Upsets 11-1
~~Section~~ Reg. 18.1102 Fuel Curtailment 11-2
~~Section~~ Reg. 18.1103 Conditions of Air Pollution 11-2
~~Section~~ Reg. 18.1104 Department's Authority 11-2
~~Section~~ Reg. 18.1105 Emergency Conditions 11-2
CHAPTER 12: CIRCUMVENTION 12-1
~~Section~~ Reg. 18.1201 Circumvention 12-1
CHAPTER 13: AUTHORITY TO DEAL WITH EXTRAORDINARY CONDITIONS 13-1
~~Section~~ Reg. 18.1301 Authority 13-1
~~Section~~ Reg. 18.1302 Notification and Reporting Requirements 13-1
CHAPTER 14: PUBLIC INFORMATION AND CONFIDENTIALITY 14-1
~~Section~~ Reg. 18.1401 Public Notification 14-1
~~Section~~ Reg. 18.1402 Confidentiality 14-1
CHAPTER 15: EFFECTIVE DATE 15-1
Reg. 18.1501 Effective Date 15-1
APPENDIX A INSIGNIFICANT ACTIVITIES LIST A-1

CHAPTER 1: TITLE AND PURPOSE

~~Section~~ Reg. 18.101 Title

The following rules and regulations, adopted pursuant to Subchapter 2 of the Arkansas Water and Air Pollution Control Act (A. C. A. §§ 8-4-101 et seq.) shall be referred to as the "Arkansas Air Pollution Control Code," hereinafter the "Air Code," the "Code," or "Regulation 18."

~~Section~~ Reg. 18.102 Intent and Construction

(A) Regulation 18 consists of those rules and regulations deemed necessary and desirable by the Commission for control of air pollution pursuant to its rulemaking mandates under State law [A.C.A. §§ 8-4-311 (b)(1) ~~(11)~~ and 8-1-203(b)(1)]. Regulation 18 should be construed as consistent with the "Legislative Intent and Purpose" of air pollution control regulation set out in A.C.A. §§ 8-4-301--302, as those provisions apply to the Department's permitting, enforcement, and administrative functions (A.C.A. § 8-1-202) and the Commission's rulemaking and adjudicatory functions (A.C.A. § 8-1-203).

(B) By authority of the same State law, the Commission has also adopted Regulation 19 and 26, which deal exclusively with regulations compelled by federal mandates and which are to some extent federally enforceable. It is the specific intent of Regulation 18 to preclude federal enforceability of Regulation 18 requirements. Regulation 18 permits or permit conditions issued under its authority, or enforcement issues arising from Regulation 18 shall not be deemed to be federally enforceable.

(C) To the extent consistent with state law and efficient protection of the State's air quality, Regulation 18 shall be construed in a manner that promotes a streamlined permitting process, mitigation of regulatory costs, and flexibility in maintaining compliance with regulatory mandates. Any applicable documents (e.g. "White Papers," regulatory preambles, or interpretive memoranda) issued by the EPA ~~Environmental Protection Agency~~ which are consistent with this policy and the legislative intent of state laws governing air pollution control (A.C.A. § 8-4-301 et seq.) are aids for construing the requirements of Regulation 18. Any procedure applicable to major sources that promotes operational flexibility are presumed to be authorized by this regulation unless manifestly inconsistent with its substantive terms.

(D) In all applications of Regulation 18, the Department and Commission shall be guided to a resolution that categorically assures that:

(1) The least possible injury will be done to human, plant, or animal life, or to property;

(2) The public enjoyment of the State's air quality resources will be maintained; and

(3) The resolution is consistent with the economic and industrial well-being of the State.

~~Section~~ Reg. 18.103 Applicability

These regulations are applicable to any source which emits or has the potential to emit any air contaminant as defined in chapter 2.

~~Section~~ Reg. 18.104 Severability

If any provisions of this Code or the application thereof to any person or circumstance is held invalid, such invalidity shall not effect other provisions or applications of this Code which can be given effect without the invalid provision or application, and to this end the provisions of this Code are declared to be severable.

CHAPTER 2: DEFINITIONS

When used in this Code:

"12 month period" means a period of 12 consecutive months determined on a rolling basis with a new 12-month period beginning on the first day of each calendar month.

"Actual emissions" means the quantity of air contaminants emitted from a stationary source considering emissions control equipment and actual hours of source operation or amount of material processed.

"Air contaminant" means any solid, liquid, gas, or vapor or any combination thereof. The following shall not be considered air contaminants: water vapor, oxygen, carbon dioxide, nitrogen, hydrogen, and inert gases.

"Air contamination" means the presence in the outdoor atmosphere of one (1) or more air contaminants which contribute to a condition of air pollution.

"Air pollution" means the presence in the outdoor atmosphere of one (1) or more air contaminants in quantities, of ~~or~~ characteristics, and of ~~or~~ a duration that ~~which~~ are materially injurious~~,~~ or can be reasonably expected to become materially injurious~~,~~ to human, plant, or animal life or to property, or that ~~which~~ unreasonably interfere with enjoyment of life or use of property throughout the state or throughout the area of the state as shall be affected thereby.

"Commission" means the Arkansas ~~Commission on~~ Pollution Control and Ecology Commission ~~of the State of Arkansas~~.

"Conditions of air pollution" as distinguished from "air pollution" in a given area shall be deemed to exist when the Director finds that the National Ambient Air Quality Standards, as established from time to time by the EPA ~~United States Environmental Protection Agency~~, have been exceeded in such area, or when the Director finds that extraordinary measures are necessary to prevent their being exceeded.

"Conditions of episodic air pollution" in a given area shall be deemed to exist when the Director finds that meteorological conditions are such as to minimize the normal dispersion of air contaminants and that the following levels are determined to exist in a given area and that such levels can be reasonably expected to persist for twelve (12) or more hours or increase unless control actions are taken:

> Sulfur dioxide (SO_2) of a concentration equal to or greater than 800 µg/m3 (1.3 ppm) for any 24 hour average (where µg/m3 means micrograms per cubic meter and where ppm means parts per million), or where particulate matter (PM) of a concentration equal to or greater than 375 µg/m3 for any 24 hour average or where the coefficient of haze (COH) is equal to or greater than 3.0 for any 24 hour average, or where the product of SO_2 and PM reported in µg/m3 for any 24 hour average exceeds 65,000.

“Control apparatus” means any device which prevents, controls, detects, or records the emission of any air contaminant.

“Department” means the Arkansas Department of Environmental Quality ~~Pollution Control and Ecology~~, or its successor. When reference is made in this regulation to actions taken by or with reference to the Department, the reference is to the staff of the Department acting at the direction of the Director.

“Director” means the director of the Department, or its successor, acting directly or through the staff of the Department.

“EPA” means the United States Environmental Protection Agency.

“Equipment” means any device, except equipment used for any mode of vehicular transportation, capable of causing the emission of an air contaminant into the open air, and any stack, conduit, flue, duct, vent, or similar device connected or attached to, or serving the equipment.

“Fuel burning equipment” means equipment, the primary purpose of which is the production of thermal energy from the combustion of fuel by indirect heat transfer.

“Flue” or “stack” means any point in a source designed to emit solids, liquids, or gases into the air, including a pipe or duct but not including flares.

“Fugitive emissions” mean those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

“Hazardous air pollutant” means any pollutant listed pursuant to § 112 of the federal Clean Air Act, as amended, 42 U.S.C. §§ 7401 et seq., as of the effective date of this regulation.

“Garbage” means rejected food waste including waste accumulation of animal, fruit, or vegetable matter used or intended for food or that attend the preparation, use, cooking, dealing in or storage of meat, fish, fowl, fruit, or vegetable.

“Incinerator” means all devices by which garbage, refuse, or other combustible material is reduced in volume by a combustion process in which the fuel/air ratio is or can be controlled so that the remaining solid residues contain little or no combustible material.

“National Ambient Air Quality Standards” mean those ambient air quality standards promulgated by the EPA ~~Environmental Protection Agency~~ in 40 CFR Part 50 which are in effect as of the effective date of this Regulation.

“Opacity” means the degree to which air emissions reduce the transmission of light and obscure the view of an object in the background.

“Open fire” or **“open burning”** means a fire in which a material is burned in the open or in a receptacle having no means for significantly controlling the fuel/air ratio.

"Particulate matter" means any airborne finely divided solid or liquid material with an aerodynamic diameter equal to or less than 100 micrometers.

"Potential to emit" means the maximum capacity of a stationary source to emit air contaminants under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit an air contaminate, including, but not limited to, air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is practically enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

"Refuse" means any combustible waste material containing carbon in a free or combined state, other than liquid or gases.

"Responsible Official" means one of the following:

(A) For a corporation: a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative or such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(4) The facilities employ more than 250 persons or have a gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or

(5) The delegation of authority to such representative is approved in advance by the Department;

(B) For partnership or sole proprietorship: a general partner or the proprietor, respectively;

(C) For a municipality, State, Federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this regulation, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of EPA); or

(D) For acid rain sources:

(1) The designated representative insofar as actions, standards, requirements, or prohibitions under Title IV of the Act or the regulations promulgated thereunder are concerned; and

(a) The designated representative for any other purposes under Part 70.

"Salvage" means an operation conducted in whole or in part for the reclaiming of any product or material.

“Shutdown” means the cessation of operation of equipment.

“Startup” means the setting in operating of equipment.

“Stationary source” means any building, structure, facility, or installation which emits or may emit any air contaminant.

“Title I modification” means any modification as defined under any regulation promulgated pursuant to Title I of the federal Clean Air Act. De minimis changes under Regulation 19, changes to state only permit requirements, administrative permit amendments, and changes to the insignificant activities list are not Title I modifications.

Trade waste” means any solid, liquid, or gaseous material resulting from construction of the prosecution of any business, trade or industry, or any demolition operation including, but not limited to, plastics, cardboard cartons, grease, oil, chemicals, and cinders.

“Total suspended particulate” or **“TSP”** means particulate matter as measured by the method described in Appendix B of 40 CFR Part 50.

CHAPTER 3: PERMITS

~~Section~~ Reg. 18.301 Applicability

(A) General Applicability

No person shall cause or permit the operation, construction, or modification of a stationary source, which actually emits:

75 ~~40~~ tons per year or more of carbon monoxide;

40 ~~25~~ tons per year or more of nitrogen oxides;

40 ~~25~~ tons per year or more of sulfur dioxide;

40 ~~25~~ tons per year or more of volatile organic compounds;

25 ~~15~~ tons per year or more of particulate matter;

15 ~~10~~ tons per year or more of PM_{10}

0.5 tons per year or more of lead;

2.0 ~~1.0~~ ton per year or more of any single hazardous air pollutant;

5.0 ~~3.0~~ tons per year or more of any combination of hazardous air pollutants; or

25 tons per year or more of any other air contaminant

without first obtaining a permit from the Department.

(B) Special Applicability

Except as provided for by law or regulation, the following stationary sources are required to obtain a permit under this chapter regardless of emissions:

(1) Any stationary source that the Director determines should obtain a permit in order to protect the public health and welfare or to assist in the abatement or control of air pollution; or

(2) Any class of stationary sources for which the Director has determined that the intrinsic nature of the source's operation and/or actual emissions is such that a permit is necessary for the protection of public health and welfare or to assist in the abatement or control of air pollution. Such sources include but are not limited to:

(a) Medical waste incinerators;

(b) Rendering plants;

(c) Pathological waste incinerators, including crematories;

(d) Chemical process plants;

(e) Hazardous waste treatment storage or disposal facilities;

(f) Sour gas process plants; ~~or~~

(g) Lead acid battery recycling facilities~~.~~ ; or

(h) Charcoal plants.

(3) ~~Any source subject to the requirements of 40 CFR part 60, Part 61, or part 63 which is not required to obtain a permit under Regulation 26, except for:~~ Any source subject to the requirements of a rule promulgated under 40 CFR Part 60, Part 61, or part 63 as of June 27, 2008, ~~which is not required to obtain a permit under Regulation 26~~, except for:

(a) 40 CFR part 60, Subpart AAA (Wood Stoves);

(b) 40 CFR part 60, Subpart JJJ (Petroleum Dry Cleaners);

(c) 40 CFR Part 63, Subpart M (Perchloroethylene Dry Cleaners);

(d) 40 CFR Part 63, Subpart Q (Industrial Cooling Towers);

(e) Sources subject to 40 CFR Part 60, Subpart Dc (Steam Generating Units) which only burn gas;~~.~~

(f) 40 CFR Part 63, Subpart ZZZZ (Stationary Reciprocating Internal Combustion Engines) for non-Part 70 sources (minor sources);

(g) 40 CFR Part 63, Subpart WWWWW (Hospital Ethylene Oxide Sterilizers);

(h) 40 CFR Part 63, Subpart CCCCCC (Gasoline Dispensing Facilities);

(i) 40 CFR Part 60, Subpart IIII (Stationary Compression Ignition Internal Combustion Engines) for engines with a displacement of less than 30 liters per cylinder; and

(j) 40 CFR Part 60, Subpart JJJJ (Stationary Spark Ignition Internal Combustion Engines).

~~Section~~ Reg. 18.302 Approval Criteria

No permit shall be granted or modified under this chapter unless the owner/operator demonstrates to the reasonable satisfaction of the Department that the stationary source will be constructed or modified to operate without resulting in a violation of applicable portions of this regulation and without causing air pollution.

~~Section~~ Reg. 18.303 Owner/Operator's Responsibilities

Issuance of a permit by the Department does not affect the responsibility of the owner/operator to comply with applicable portions of this regulation.

~~Section~~ Reg. 18.304 Required Information

(A) General

Application of a permit shall be made on such forms and contain such information as the Department may reasonably require, including but not limited to:

(1) information on the nature and amounts of air pollutants to be emitted by the stationary source or by associated mobile sources; and

(2) such information on the location, design, and operation of stationary source as the Department may reasonably require.

(B) Duty to Supplement Submittal

If, while processing an application that has been determined to be complete, the Department determines that additional information is necessary to evaluate or take final action on that application, the Department may request such information in writing and set a reasonable deadline for a response.

(C) Duty to Correct Submittal

Any owner/operator who fails to submit any relevant facts or who has submitted incorrect information, shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any relevant requirements that become applicable to the stationary source before final action is taken on its application.

~~Section~~ Reg. 18.305 Action on Application

(A) Technical Review

The Department will review the application submitted under this chapter in order to ensure to their reasonable satisfaction that:

(1) the stationary source will be constructed or modified to operate without interfering with attainment or maintenance of a national ambient air quality standard;

(2) the stationary source will be constructed or modified to operate without violating any applicable regulation adopted by the EPA ~~U.S. Environmental Protection Agency~~ pursuant to §§111, 112, and 114 of the Clean Air Act as amended;

(3) the stationary source will be constructed or modified to operate without causing air pollution;

(4) the stationary source will be constructed or modified to incorporate the appropriate control technology, if any, developed for the kind and amount of federally regulated air pollutant emitted by the facility;

(5) the stationary source will be constructed or modified to operate without resulting in a violation of any applicable provisions of this regulation;

(6) the emission rate calculations are complete and accurate; and

(7) if the facility wishes to measure and/or monitor operating parameters rather than actual emissions, the application describes a process which will be used to ensure that the calculations are translated into enforceable limits on operational parameters rather than emissions.

(B) Proposed Action

If the Department initially determines the requirements of Reg. ~~§~~18.304(A) are met, they shall prepare a draft permit which:

(1) contains such conditions as the Department may prescribe, to prevent, control, or abate air pollution;

(2) addresses all recognized air pollutant emissions and all pollutant emitting equipment at the stationary source except pollutants or equipment specifically exempt;

If the Department initially determines the requirements of this chapter are not met, they shall prepare a notice of intent to deny. This notice will state the reasons for the Department's denial of the stationary source's submittal.

The public shall have an opportunity to comment on the Department's proposed permit decision in accordance with Reg. ~~§~~18.305.

(C) Final Action

At the conclusion of the public comment period, the Department shall announce in writing its final permit decision.

~~Section~~ Reg. 18.306 Public Participation

(A) General

No permit shall be issued, denied, or modified unless the public has first had an opportunity to comment on the information submitted by the owner/operator and the Department's analysis, as demonstrated by the permit record, of the effect of construction or modification on ambient air quality, including the Department's proposed approval or disapproval of the permit.

(B) Public Availability of Information

For purposes of this section, opportunity to comment shall include, at a minimum:

(1) Availability for the public inspection in at least one location in the area where the source is located, or proposes to locate, and in the Department's central offices of the Department's draft decision, information submitted by the owner/operator, and any information developed by the Department in support of its draft permit decision;

(2) A 30-day period for submittal of public comment (beginning on the date of the latest newspaper notice, ending on the date 30 days later);

(3) A publication in a newspaper of general circulation in the area where the source is located or proposes to locate, and in a State publication designed to give general public notice. Such notice shall, as a minimum, describe the locations at which the information submitted by the owner/operator and the Department's analysis of this information, may be inspected and the procedure for submitting public comment;

(4) A copy of the public notice, required pursuant to this subsection, shall be sent to the owner/operator and to the:

(a) mayor of the community where the stationary source is proposed to be constructed or modified; and

(b) county judge of the county where the equipment is proposed to be constructed or modified~~;~~.

(5) Public comments addressing the technical merits of the permit application and the Department's analysis of the effect of the proposed emissions on air quality submitted in accordance with procedures in the public notice shall be considered by the Department prior to making its final decision.

(6) The Department shall take final action on a permit application after the close of the public comment period. The Department shall notify in writing the owner/operator and any person that submitted a written comment, of the Department's final action and the Department's reasons for its final action.

~~Section~~ Reg. 18.307 Permit Amendments

(A) Administrative Permit Amendments

(1) An administrative permit amendment is a permit revision that:

(a) corrects a typographical error;

(b) identifies a change in the name, address, or phone number of any person identified in the permit, or provides a similar minor administrative change in the source;

(c) requires more frequent monitoring or reporting by the permittee;

(d) incorporates a change in the permit involving the retiring of equipment or emission units, or the decrease of permitted emissions from equipment or emission units; or

(e) incorporates a change to the facilities' insignificant activities list.

(2) The Department shall revise the permit as expeditiously as practicable and may incorporate such revisions without providing notice to the public.

(3) The applicant may implement the changes addressed in the request for an administrative amendment immediately upon approval.

(B) Change in Ownership

(1) Permits issued under this regulation shall remain freely transferable provided:

(a) the applicant for the transfer notifies the Director at least thirty (30) days in advance of the proposed transfer date on such forms as the Director may reasonably require, and

(b) submits a disclosure statement in accordance with Commission Regulation 8, Administrative Procedures, or other such documents as required by the Department.

~~(i) "Disclosure statement" means a written statement by the applicant which contains:~~

~~(aa) The full name, business address, and social security number of the applicant an all affiliated persons;~~

~~(bb) The full name and business address of any legal entity in which the applicant holds a debt or equity interest of at least five percent (5%) or which is a parent company or subsidiary of the applicant, and a description of the ongoing~~

organizational relationships as they may impact operations within the state;

(cc) A description of the experience and credentials of the applicant, including any past or present permits, licenses, certifications, or operational authorizations relating to environmental regulation;

(dd) A listing and explanation of any civil or criminal legal actions by government agencies involving environmental protection laws or regulations against the applicant and affiliated persons in the ten (10) years immediately preceding the filing of the application, including administrative enforcement actions resulting in the imposition of sanctions, permit or license revocations or denials issued by any state or federal authority, actions that have resulted in a finding or a settlement of a violation, and actions that are pending;

(ee) A listing of any federal environmental agency and any other environmental agency outside this state that has or has had regulatory responsibility over the applicant;

(ff) Any other information the director may require that relates to the competency, reliability, or responsibility of the applicant and affiliated persons.

(ii) Deliberate falsification or omission of relevant information from disclosure statements shall be grounds for civil or criminal enforcement action or administrative denial of a permit, license, certification, or operational authorization. The following persons or entities are not required to file a disclosure statement:

(aa) Governmental entities, consisting only of subdivisions or agencies of the federal government, agencies of the state government, counties, municipalities, or duly authorized regional solid waste authorities. This exemption shall not extend to improvement districts or any other subdivision of government which is not specifically instituted by an act of the General Assembly; and

(bb) (bb)Applicants for a general permit to be issued by the Department pursuant to its authority to implement the National Pollutant Discharge Elimination System for storm water discharge.

(iii) Nothing in this sub-paragraph, including the exemptions in supporting paragraph (ii) of this sub-paragraph, shall be construed

~~as a limitation upon the authority of the director to deny a permit based upon a history of noncompliance to any applicant or for other just cause.~~

~~(iv)~~ ~~If the applicant is a publicly held company required to file periodic reports under the Securities and Exchange Act of 1934, or a wholly owned subsidiary of a publicly held company, the applicant shall not be required to submit a disclosure statement, but shall submit the most recent annual and quarterly reports required by the Securities and Exchange which provide information regarding legal proceedings in which the applicant has been involved. The applicant shall submit such other information as the director may require that relates to the competency, reliability, or responsibility of the applicant and affiliated persons.~~

(2) The Director ~~director~~ may deny the issuance or transfer of any permit, license, certification, or operational authority if he finds, based upon the disclosure statement and other investigation which he deems appropriate, that:

(c) (A)The applicant has a history of noncompliance with the environmental laws or regulations of this state or any other jurisdiction;

(b) An applicant which owns or operates other facilities in the state is not in substantial compliance with, or on a legally enforceable schedule that will result in compliance with, the environmental laws or regulations of this state; or

(c) A person with a history of noncompliance with environmental laws or regulations of this state or any other jurisdiction is affiliated with the applicant to the extent~~d~~ of being capable of significantly influencing the practices or operations of the applicant which could have an impact upon the environment.

(3) Public notice requirements shall not apply to changes in ownership or changes in name.

(C) *De Minimis* Changes

(1) A proposed modification to a facility will be considered *De Minimis* if:

(a) minimal judgment is required to establish the permit requirements for the modification; and

(b) the modification will result in a trivial environmental impact.

(2) The environmental impact of a proposed modification generally will be considered trivial if the potential emissions from the modification alone, without taking into account any corresponding emission reductions, will:

(a) be less than the following amounts:

(i) ~~five (5) tons per year of carbon monoxide, nitrogen dioxide, PM 10, and sulfur dioxide~~, seventy-five (75) tons per year of carbon monoxide;

(ii) ~~twenty (20) tons per year of volatile organic compounds; and~~ forty (40) tons per year of nitrogen dioxide, sulfur dioxide, or volatile organic compounds;

(iii) one-half (0.5) a ton per year of lead;

(iv) twenty five (25) tons per year of particulate matter;.

(v) fifteen (15) tons per year of PM_{10} emissions; and

(b) or, result in an air quality impact less than:

pollutant	*De Minimis* Concentration	Averaging time
carbon monoxide	500 μg/m3	8-hour
nitrogen dioxide	10 μg/m3	annual
PM10	8 μg/m3	24-hour
sulfur dioxide	18 μg/m3	24-hour
lead	0.1 μg/m3	3-month

(3) The following changes will not be considered *De Minimis* changes:

(a) any increase in the permitted emission rate at a stationary source without a corresponding physical change or change in the method of operation at the source;

(b) any change which would result in a violation Clean Air Act;

(c) any change seeking to change a case-by-case determination of an emission limitation established pursuant to BACT, §112(g), §112(i)(5), §112(j), or §111(d) of the Clean Air Act;

(d) a change that would result in a violation of any provision of this regulation;

(e) any change in a permit term, condition, or limit that a source has assumed to avoid an applicable requirement to which the source would otherwise be subject;

(f) any significant change or relaxation to existing testing, monitoring, reporting, or recordkeeping requirements; or

(g) any proposed change which requires more than minimal judgment to determine eligibility.

(4) A source may not submit multiple applications for *De Minimis* changes that are designed to conceal a larger modification that would not be considered a *De Minimis* change. The Department will require such multiple applications be processed as a permit modification with public notice and reconstruction requirements. Deliberate misrepresentation may be grounds for permit revocation.

(5) The applicant may implement *De Minimis* changes immediately upon approval by the Department.

(6) The Department shall revise the permit as expeditiously as practicable and may incorporate *De Minimis* changes without providing notice to the public. The applicant may implement *De Minimis* changes immediately upon approval by the Department.

~~Section~~ Reg. 18.308 Exemption from Permitting

(A) Insignificant Activities

Stationary sources and activities listed in Appendix A of this regulation shall be considered to be insignificant and will not require a permit under this chapter or be included in a source's permit.

(B) Grandfathering

Stationary sources operating prior to July 30, 1969, and have not been modified since, will not be required to obtain a permit under this chapter.

(C) Regulation 26 Sources

A stationary source subject to the permitting requirements of Regulation 26 and the requirements of this chapter, will only be required to obtain one permit which shall also contain the requirements unique to this regulation.

(D) Regulation 19 Sources

A stationary source subject to the permitting requirements of Regulation 19 and the requirements of this chapter, will only be required to obtain one permit which shall also contain the requirements unique to this regulation.

~~Section~~ Reg. 18.309 Permit Revocation and Cancellation

(A) Revocation

Any permit issued under this regulation is subject to revocation, suspension, or modification in whole or in part, for cause, including without limitation:

(1) Violation of any condition of the permit;

(2) Obtaining a permit by misrepresentation of failure to disclose fully all relevant facts; or

(3) Change in any applicable regulation or change in any pre-existing condition affecting the nature of the emission that requires either a temporary or permanent reduction or elimination of the permitted emission.

(B) Cancellation

The Director may cancel a permit if the construction or modification is not begun within 18 months from the date of the permit issuance or if the work involved in the construction or modification is suspended for a total of 18 months or more.

~~Section~~ Reg. 18.310 General Permits

(A) General Authority

The Department may, after notice and opportunity for public participation provided under this chapter, issue a general permit covering numerous similar sources. Any general permit shall comply with all requirements applicable to other permits and shall identify criteria by which sources may qualify for the general permit. To sources that qualify, the Department shall grant the conditions and terms of the general permit. The source shall be subject to enforcement action for operation without a permit if the source is later determined not to qualify for the conditions and terms of the general permit.

(B) Application

Sources that would qualify for a general permit must apply to the Department for coverage under the terms of the general permit or must apply for permit consistent with this chapter. The Department may grant a source's request for authorization to operate under a general permit, but such a grant shall not be a final permit action for purposes of judicial review. The Department will give notice of all applications for general permits pursuant to ~~pursant of~~ A.C.A. §8-4-203(c)~~(b)~~.

~~Section~~ Reg. 18.311 Transition

Facilities which are now subject to this regulation which were not previously subject to this regulation shall be in full compliance within 180 days of the effective date of this regulation. The

Director may extend this compliance period on a case-by-case basis provided that the total compliance period does not exceed one year.

Reg. 18.312 Operational Flexibility-Applicant's Duty to Apply for Alternative Scenarios

Any operating scenario allowed for in a permit may be implemented by the facility without the need for any permit revision or any notification to the Department. It is incumbent upon the permit applicant to apply for any reasonably anticipated alternative facility operating scenarios at the time of permit application. The Department shall include approved alternative operating scenarios in the permit.

Reg. 18.313 Changes Resulting in No Emissions Increases

A permitted source may make changes within the facility that contravene permit terms without a permit revision if the changes:

(A) Are not modifications under any provision of Title I of the Act;

(B) Do not exceed emissions allowable under the permit (whether expressed therein as a rate of emissions or in the terms of total emissions);

(C) Do not violate applicable requirements; and

(D) Do not contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements;

provided that the facility provides the Department with written notification as required below in advance of the proposed changes, which shall be a minimum of 7 days, or such shorter time frame that Department allows for emergencies. The source and Department shall attach each such notice to their copy of the relevant permit. For each such change, the written notification required above shall include a brief description of the change within the permitted facility, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change.

Reg. 18.314 Permit Flexibility

(E) The Department may grant an extension to any testing, compliance or other dates in the permit. No extensions shall be authorized until the owner and/or operator of the facility receives written approval from the Department. The Department may grant such a request, at its discretion, in the following circumstances:

(4) The owner and/or operator of the facility makes such a request in writing at least 15 days in advance of the deadline specified in the facility's permit;

(5) The extension does not violate a federal requirement;

(6) The owner and/or operator of the facility demonstrates the need for the extension; and

(7) The owner and/or operator of the facility documents that all reasonable measures have been taken to meet the current deadline and documents reasons the current deadline cannot be met.

(F) The Department may grant a request to allow temporary emissions and/or testing that would otherwise exceed a permitted emission rate, throughput requirement or other limit in a facility's permit. No such activities shall be authorized until the owner and/or operator of the facility receives written approval from the Department. The Department may grant such a request, at its discretion, in the following circumstances:

(8) The owner and/or operator of the facility makes such a request in writing at least 30 days in advance of the date that temporary emissions and/or testing that would otherwise exceed a permitted emission rate, throughput requirement or other limit in a facility's permit;

(9) Such a request does not violate a federal requirement;

(10) Such a request is temporary in nature;

(11) Such a request will not result in a condition of air pollution;

(12) The request contains such information necessary for the Department to evaluate the request, including but not limited to, quantification of such emissions and the date and time such emission will occur;

(13) Such a request will result in increased emissions less than five tons of any individual criteria pollutant, one ton of any single HAP and 2.5 tons of total HAPs; and

(14) The owner and/or operator of the facility maintains records of the dates and results of such temporary emissions and/or testing.

(G) The Department may grant a request to allow an alternative to the monitoring specified in a facility's operating permit. No such activities shall be authorized until the owner and/or operator of the facility receives written approval from the Department. The Department may grant such a request, at its discretion, in the following circumstances:

(15) The owner and/or operator of the facility makes such a request in writing at least 30 days in advance of the first date that the monitoring alternative will be used at the facility;

(16) Such a request does not violate a federal requirement;

(17) The monitoring alternative provides an equivalent or greater degree of actual monitoring to the requirements in the facility's operating permit; and

(18) Any such request, if approved by the Department, is incorporated into the next permit modification application by the owner and/or operator of the facility.

Reg. 18.315 Registration

(A) No person shall cause or permit the operation, construction, or modification of a stationary source, whose actual emissions are:

(1) 40 tons per year or more but less than 75 tons per year of carbon monoxide;

(2) 25 tons per year or more but less than 40 tons per year of nitrogen oxides;

(3) 25 tons per year or more but less than 40 tons per year of sulfur dioxide;

(4) 25 tons per year or more but less than 40 tons per year of volatile organic compounds;

(5) 10 tons per year or more but less than 15 tons per year of PM_{10};

(6) 1.0 ton per year or more but less than 2 tons per year of any single hazardous air pollutant; or

(7) 3.0 tons per year or more but less than 5 tons per year of an combination of hazardous air pollutants

without first having registered the source with the Department.

(B) Such registration shall be made on such forms and contain such information as the Department may reasonably require, including but not limited to:

(1) The name and address of the facility;

(2) An estimate of emission from the facility; and

(3) An explanation of how the emission estimate was determined.

(C) Such registration does not affect the responsibility of the owner/operator to comply with applicable portions of this regulation.

(D) A facility may construct, operate, or modify a source subject to registration under this section immediately upon submittal of the registration.

(E) Sources registered under this section shall pay an annual fee of $200. The requirements of chapter 3 of Regulation 9 shall apply to fees collected under this section.

(F) Sources currently holding permits but whose emissions are below the permitting thresholds in Reg. 18.302, and above the registration threshold under Reg. 18.301 may elect to continue to operate under their existing permit or they may submit a registration and request their permit be voided. The permit shall remain in effect until voided. If a source takes no action the permit will remain in effect.

(G) A source otherwise required to be registered under this section may instead choose to operate under a permit issued in accordance with Reg. 18.302.

CHAPTER 4: [RESERVED]

CHAPTER 5: VISIBLE EMISSIONS

~~Section~~ Reg. 18.501 Visible Emissions Limitations

(A) No person shall cause or permit visible emissions (other than uncombined water vapor) from equipment to exceed the limitations of this section except as specifically provided within this Code. More stringent limitations on individual pieces of equipment may be imposed by the Department in applicable permits due to control requirements or control apparatus, corresponding emission limitations and/or applicable national standards.

(1) For equipment installed on or before January 30, 1972, emissions shall not exceed 40% opacity, except that emissions greater than 40% opacity will be allowed for not more that six (6) minutes in the aggregate in any consecutive 60-minute period, provided such emissions will not be permitted more than three (3) times during any 24-hour period.

(2) For equipment installed or modified after January 30, 1972, emissions shall not exceed an opacity greater than 20% except as described in (A)(3) below.

(3) Notwithinstanding (A)(2) if this subsection, for wood, coal or oil fired boilers installed or modified after January 30, 1972, emissions shall not exceed 20% opacity, except that emissions of opacity greater than 20%, but not exceeding 60%, will be allowed for not more than six (6) minutes in the aggregate in any consecutive 60-minute period, provided such emissions will not be permitted more than three (3) times during any 24-hour period.

(4) Wood fired boilers shall meet all visible emissions of this chapter except that visible emissions may exceed the permitted opacity for up to 45 minutes once in any consecutive 8 hour period, three times in any consecutive 24 hour period for soot blowing, grate cleaning, ash raking, and refiring necessary for proper operation of these units. This practice is to be scheduled for the same specific time each day and shall be recorded. The Department shall be notified in advance and in writing of the schedule or any changes. The process of soot blowing, grate cleaning, ash raking, and refiring or any part thereof is considered one activity and the time limit on this activity is 45 minutes.

In determining the emissions of a source for purposes of demonstrating air pollution will not occur, the Department shall take into account any incremental increase in allowable emissions under these conditions.

(B) Opacity of visible emissions shall be determined using EPA Method 9 (40 CFR Part 60, Appendix A).

(C) As used in this subsection, the term “existing equipment” means equipment which was installed and in operation as of January 30, 1972, or equipment for which a permit has

been issued pursuant to chapter 3 of this Code prior to January 30, 1972, and the term "new equipment" means all equipment other than existing equipment.

(D) The emission limitations of this section shall not apply to the following conditions and activities:

(1) The start-up of a new fire in an incinerator used exclusively for the disposal of woodwaste or the waste from cotton gins, provided that start-up does not exceed thirty minutes and provided, further, that there is only one such start-up per day;

(2) The application of fertilizers, pesticides, and defoliants;

(3) The use of mobile and portable equipment in the clearing, grading, or plowing of land;

(4) The application of base or surface materials to roads, runways, parking lots, and similar facilities;

(5) The use of agricultural equipment in the planting, cultivating, or harvesting of crops, or in the feeding of animals or fowls;

(6) The non-commercial preparation of food and to the use of outdoor fireplaces used in connection with any residence;

(7) The use of incinerators and heating equipment used in connection with residences used exclusively as dwellings for not more than four families; and

(8) The use of portable incinerators used for the disposal of debris from demolition and land clearing operations.

(E) The owner or operator of equipment may petition the Director for an emission limitation less stringent than that provided in subsection (A) of this section provided, however, that such petition if filed not more than six months after commencement of operation of equipment for which a permit has been issued by the Director and, provided further, that such equipment is in compliance with all provisions of the Air Code except those of subsection (A) of this section. The petition shall contain such information as the Director may reasonably require. Upon review of the petition and any other evidence before him or her, the Director may require additional information; grant the relief sought in the petition; or establish an emission limitation other than that sought by the petitioner; provided that the Director affirmatively finds full compliance with all other provisions of the Air Code, and that full compliance with provisions of this section is technically or economically infeasible. The petitioner shall be notified of the Director's decision within a reasonable time.

CHAPTER 6: EMISSIONS FROM OPEN BURNING

~~Section~~ Reg. 18.601 Intent

In order to avoid conflicting and overlapping jurisdiction, it is the intention of this chapter to clarify the position that the Department occupies the field of control and abatement of air pollution and contamination; and no political subdivision of this state shall enact or enforce laws, ordinances, resolutions, rules or regulation in this field, unless such laws, ordinances, resolutions, rules or regulations are for the purpose of prohibiting burning in the open or in a receptacle having no means for significantly controlling the fuel/air ratio.

~~Section~~ Reg. 18.602 General Prohibition

No person shall cause or permit the open burning of refuse, garbage, trade waste, or other waste material, or shall conduct a salvage operation by open burning.

~~Section~~ Reg. 18.603 Exemptions

The provisions of Reg. ~~§~~18.602 herein shall not apply to the following activities:

(A) Fires used for the non-commercial cooking of food or for ceremonial or recreational purposes, including barbecues and outdoor fireplaces used in connection with any residence;

(B) Open burning related to agricultural activities including, but not limited to, clearing previously uncultivated lands and burning of stubble and other debris on previously harvested fields; provided however, that this exemption shall not be extended to the disposal, by open burning, of waste products generated by cotton gins, or similar equipment used in a manufacturing process or to the disposal by open burning of fowls or animals;

(C) Controlled fires used for purposes of forest and wildlife management, provided that such fires are used and burned when winds are blowing away from populated areas which might be affected;

(D) Controlled fires used only for purposes of on-site land clearing operations;

(E) Smokeless flares or safety flares from the combustion of waste gases, provided that all other applicable provisions of this Code are complied with;

(F) Open burning of the site or origin of waste hydrocarbon products from oil exploration, development, or production, or from natural gas processing plants, or from materials spilled or lost from pipeline breaks, where, because of the isolated location, such waste products cannot be reclaimed, recovered, or disposed of lawfully in any other manner;

(G) Fires set or authorized by any public officer, board, council, or commission when the fire is set or permission to burn is given in the performance of the duty of the officer for the

purpose of weed abatement, or the prevention or elimination of a fire hazard; or fires set for the purposes of the instruction in methods of firefighting or for civil defense instructions;

(H) Open burning incident to on-site clean-up operations resulting from transportation accidents where, because of the isolated location, the material to be burned cannot be reclaimed or recovered, or where there is no other practical, safe, or lawful method of disposal; provided, however, that the Director shall be notified of the exact location, and the nature and quantities of materials to be burned prior to ignition; and provided, further, that such burning shall be conducted in accordance with the written approval of the Director. At his or her election, the Director's approval may be delivered by telephone, and confirmed, thereafter, in writing, in the case of an emergency; and

(I) Open burning of any material not elsewhere specifically prohibited or exempted in this chapter and for which there is no practical, safe, or lawful means of disposal; except that no person shall cause or permit such open burning without first obtaining a letter of authorization for open burning from the Director in accordance with the provisions as set forth in Reg. §18.605.

~~Section~~ Reg. 18.604 Conditions of Air Pollution

During conditions of air pollution, when declared by the Director to exist in any area of the State, all open burning in such area which otherwise is exempted in this Section, shall be discontinued as set forth herein, unless otherwise is specifically provided in the Director's public announcements pursuance to the provisions of chapter 14 of this Code.

(A) Conditions of air pollution as defined in chapter 2 -- Open burning as provided in Reg. §18.603(B)(C)(F)&(H) shall be discontinued until such conditions have been declared by the Director to have ceased to exist. The Department may limit the scope of such discontinuance to one or more of the activities as provided in Reg. §18.603(B)(C)(F)&(H) if it finds that the conditions of air pollution are primarily caused by such activity.

(B) Conditions of episodic air pollution as defined in chapter 2 -- Open burning as provided in Reg. §18.603(B)(C)(F)&(G) shall be discontinued upon public announcement by the Director, until such time that the Director declares such conditions have ceased to exist. The Director may limit the scope of such discontinuance to one or more of the activities if he or she finds that the conditions of air pollution are caused primarily by such activity.

(C) The prohibition of open burning pursuant to the provisions of Reg. §18.604 shall be in effect as of January 30, 1972, except that such prohibition shall not be applicable to Reg. §18.603(B) of this chapter until July 15, 1973.

(D) The Director may permit open burning during the existence of a condition of air pollution under conditions described in Reg. §18.603(F)(G)&(H) if the Director, after consultation with public safety officials in the locality in question, determines that such open burning is absolutely necessary, in the Director's opinion, to prevent danger to life or property.

(E) The statutory authority of the Department to grant variances and permits is in no way limited by this chapter.

~~Section~~ Reg. 18.605 Open Burning Permits

Upon application, the Department shall issue permits for open burning, provided that the applicant affirmatively demonstrates to the satisfaction of the Department, that there are no practicable, safe, and lawful alternative methods of disposal and that open burning is absolutely necessary and in the public interest and provided, further, that said applications contain such other information as the Department may reasonably require. Only permits issued by the Department satisfy this chapter. Open burning permits may also be required by the local public officers, boards, councils, or commissions for safety or other purposes; however, those permits do not satisfy the requirement to obtain a permit under this chapter.

CHAPTER 7: EMISSIONS OF AIR CONTAMINANTS FROM MOBILE EQUIPMENT

~~Section~~ Reg. 18.701 Emissions from Mobile Equipment

(A) Any person owning or operating a motor vehicle including, but not limited to automobiles and trucks, incorporating a system for the control or emissions from the crankcase or exhaust system, or for the control or evaporative emissions, shall maintain the system in good operable condition and shall use it at all times that the vehicle is operated. The operator of such vehicle shall not intentionally make the system inoperable and shall not remove it except to install a proper replacement.

(B) **)**No person shall cause or permit the emission of an air contaminant from a motor vehicle including, but not limited to, automobiles and trucks of a density exceeding 30% opacity, except during acceleration and gear shifting for periods not to exceed 5 seconds. Where the presence of an uncombined water is the only reason for failure of an emission to comply herewith, this subsection shall not apply.

(C) Railroad locomotives shall be maintained and operated such as to minimize visible emissions.

(D) The provisions of this chapter shall not be applicable to the emission of air contaminants from motor exhaust of tractors, graders, earthmovers, or other mobile and portable equipment used exclusively in land clearing, agricultural, or road building operations; provided, however, that prime movers used for the transportation of said portable and mobile equipment shall not be exempt.

CHAPTER 8: EMISSION OF AIR CONTAMINANTS SUCH AS TO CONSTITUTE AIR POLLUTION

~~Section~~ Reg. 18.801 Prohibition of the Emission of Air Contaminants Such as to Constitute Air Pollution

No person shall cause or permit the emission of air contaminants, including odors or water vapor and including an air contaminant whose emission is not otherwise prohibited by this Code, if the emission of the air contaminant constitutes air pollution.

CHAPTER 9: CONTROL OF FUGITIVE EMISSIONS

~~Section~~ Reg. 18.901 Prohibitions

(A) No person shall cause or permit the handling, transporting, or storage of any material in a manner which allows or may allow unnecessary amounts of air contaminants to become airborne.

(B) No person shall cause or permit any building or its appurtenances to be constructed, altered, used, repaired, or demolished without applying all such reasonable measures as may be required to prevent unnecessary amounts of particulate matter from becoming airborne.

CHAPTER 10: SAMPLING, MONITORING, AND REPORTING REQUIREMENTS

~~Section~~ Reg. 18.1001 Purpose

The purpose of this chapter is to generally define the powers of the Department in requiring sampling, monitoring, and reporting requirements at stationary sources. The Department shall enforce all properly incorporated and delegated federal testing requirements at a minimum, and the Department reserves the right to require additional sampling, monitoring, and reporting requirements not already required in federal regulations. Any credible evidence based on sampling, monitoring, and reporting may be used to determine violations of applicable emission limitations.

~~Section~~ Reg. 18.1002 Air Emissions Sampling

Any stationary source subject to this regulation shall be subject to the following requirements:

(A) To provide any sampling ports, at the request of the Department, required for air emissions sampling, including safe and easy access to such ports.

(B) To conduct air contaminant emissions sampling, at the request of the Department, to determine the rate, opacity, composition, and/or contaminant concentration of the emissions. All compliance testing shall be done at the expense of the permittee by an independent firm, unless otherwise approved by the Department. Sampling shall not be required for those pollutants monitored with continuous emissions monitors.

(C) All compliance testing averaging times shall be consistent with the averaging times of the applicable emissions limitations stated in the applicable permit, which in no case shall be greater than the minimum averaging times of the applicable National Ambient Air Quality Standard.

(D) Unless otherwise approved by the Department, all air contaminant emissions sampling shall be performed with the equipment being tested operating at least at 90 % of its permitted capacity. Emissions results shall be extrapolated to correlate with 100 % of permitted capacity to determine compliance.

(E) Any equipment that is to be tested, at the request of the Department, shall be tested in accordance with the following time frames:

(1) Equipment to be constructed or modified shall be tested within 60 days after achieving its maximum permitted production rate, but no later than 180 days after its initial start-up.

(2) Equipment already operating shall be tested according to the time frames set forth by the Department.

The Department shall require that all applicable testing be performed using the methods described in 40 CFR Part 60, Appendix A. The Department may approve, at its discretion, alternative sampling methods that are equivalent to the specified methods. The results of such tests shall be submitted to the Department within the time frame and on such forms as required by the Department and federal regulations. The owner or operator of the equipment shall retain the results of such tests for at least 5 years, and shall make the results available to any agents of the Department or the EPA during regular business hours.

~~Section~~ Reg. 18.1003 Continuous Emissions Monitoring

Any stationary source subject to this regulation shall, upon request by the Department:

(A) Install, calibrate, operate, and maintain equipment or continuously monitor air contaminant emissions in accordance with applicable performance specifications in 40 CFR Part 60, Appendix B, and quality assurance procedures in 40 CFR Part 60, Appendix F, or other methods and conditions that the Department shall approve. Any source listed in a category in 40 CFR Part 51, Appendix P or 40 CFR Part 60 shall adhere to all continuous emissions monitoring requirements stated therein, if applicable.

(B) Report the data collected by the monitoring equipment to the Department at such intervals and on such forms as the Department shall prescribe, in accordance with 40 CFR Part 51, Appendix P, Section 4.0 (Minimum Data Requirements) and any other applicable reporting requirements promulgated by the EPA.

~~Section~~ Reg. 18.1004 Recordkeeping/Reporting Requirements

Any stationary source subject to this regulation shall, upon request of the Department:

(A) Maintain records on the nature and amounts of contaminants emitted to the air by the equipment in question. All records, including compliance status records and excess emissions measurements, shall be retained for at least 5 years, and shall be made available to any agent of the Department or EPA during regular business hours. Reporting periods shall be a 12 month period.

(B) Supply the following information, correlated in units of the applicable emissions limitations, to the Department:

(1) General process information related to the emissions of contaminants into the air; and~~.~~

(2) Emissions data obtained through sampling or continuous emissions monitoring.

Information and data shall be submitted to the Department by a responsible official on such forms and at such time intervals as prescribed by applicable federal regulations or the Department.

~~Section~~ Reg. 18.1005 Public Availability of Emissions Data

Emissions data obtained by the Department shall be correlated in units of applicable emissions limitations and be made available to the public at the Department's central offices during normal business hours.

CHAPTER 11: STARTUP/SHUTDOWN, UPSET CONDITIONS, BREAKDOWNS, SCHEDULED MAINTENANCE, INTERRUPTION OF FUEL SUPPLY

~~Section~~ Reg. 18.1101 Upsets

Any source exceeding an emission limit established by this Code or applicable permit, shall be deemed in violation of said Code or permit and shall be subject to enforcement action. The Director may forego enforcement action for emissions exceeding any limits established by this Code or permit as a direct result of unavoidable upset conditions in the nature of the process, or unavoidable and unforeseeable breakdown of any air pollution control equipment or related operating equipment, or as a direct result of shutdown or start-up of such equipment for necessary scheduled maintenance, provided the following requirements are met:

(A) Such occurrence, in the case of unavoidable upset in or breakdown of equipment, shall have been reported to the Director by the end of the next business day after the occurrence.

(B) The person responsible for such emission shall submit to the Director, at his or her request, a full report of such occurrence, including a statement of all known causes and of the scheduling and nature of the actions to be taken to minimize or eliminate future occurrences, including, but not limited to, action to reduce the frequency of occurrence of such conditions, to minimize the amount by which said limits are exceeded, and to reduce the length of time for which said limits are exceeded.

(C) In the case of shutdown for necessary scheduled maintenance, the intent to shutdown shall be reported to the Director at least twenty-four (24) hours prior to the shutdown; provided, however, that the exception provided by this subsection shall only apply in those cases where maximum reasonable effort has been made to accomplish such maintenance during periods of non operation of any related source operation or where it would be unreasonable or impossible to shut down the source operation during the maintenance period.

(D) The person responsible for such emissions shall have submitted to the Department for its approval prior to April 30, 1972, either as a part of its permit application, if a new source, or on a separate application for existing sources, a schedule of those precautionary devices and procedures designed to minimize such occurrences as are described in Reg. ~~§~~18.110(A); said application shall be on such forms and shall contain such information as the Department may reasonably require; said application shall have been approved by the Department and not therefore withdrawn; and said equipment is being operated within the terms of the application as approved, at the time of such occurrence.

(E) Demonstrates to the satisfaction of the Department that the emissions resulted from:

(1) equipment malfunction or upset and are not the result of negligence or improper maintenance; and

(2) physical constraints on the ability of a source to comply with the emission standard, limitation or rate during startup or shutdown~~;~~.

And that all reasonable measures have been taken to immediately minimize or eliminate the excess emissions.

~~Section~~ Reg. 18.1102 Fuel Curtailment

Any person responsible for the operation of any equipment operating in compliance with the provisions of this Code but which can reasonably anticipate periods of non-compliance due to change of fuels, or lack thereof, shall file with the Department, for its approval prior to April 30, 1972, and on such forms and containing such information as the Department may reasonably require, an application which demonstrates to the Department's satisfaction:

(A) The nature and frequency of such anticipated periods of non-compliance;

(B) That such alterations in fuel supply are beyond the control of said person, firm, or corporation;

(C) That said person, firm, or corporation has, or will, incorporate all reasonable steps to minimize the frequency of such periods of non-compliance and to minimize the degree of non-compliance during such periods; and

(D) That such person, firm, or corporation has, or will, take such measures as may be necessary, to insure full or substantial compliance with all provisions of the Code during periods of episodic air pollution. Such required measures may include but need not be limited to the maintenance of an emergency fuel supply, and/or provisions for shut-down or curtailment of production.

~~Section~~ Reg. 18.1103 Conditions of Air Pollution

Except for those persons who have filed for and received Department approval of applications submitted pursuant to the provisions of Reg. ~~§~~18.1101 or Reg. ~~§~~18.1102 hereof, the exceptions granted in said sections shall not be extended and shall be considered inapplicable during the existence of conditions of air pollution, as declared by the Director pursuant to provisions of Reg. 18.604 ~~chapter 2(E)~~ if the affected sources are located in the area in which a condition of air pollution is so declared.

~~Section~~ Reg. 18.1104 Department's Authority

Nothing provided herein shall be construed to limit the Department's authority to require the installation and maintenance of control equipment as a condition of the granting of a permit or approval of an application.

~~Section~~ Reg. 18.1105 Emergency Conditions

An "emergency" means any situation arising from the sudden and reasonably unforeseeable events beyond the control of the source, including natural disasters, which situation requires

immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the upset condition. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

(A) An emergency constitutes a complete affirmative defense to an action brought for noncompliance with such technology-based limitations if the following conditions are met. The affirmative defense of emergency shall demonstrate through properly signed contemporaneous operating logs, or such other relevant evidence that:

(1) An emergency occurred and that the permittee can identify the cause(s) of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of the emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and

(4) The permittee submitted notice of the upset to the Department by the end of the next business day after the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(B) [RESERVED~~.~~]

CHAPTER 12: CIRCUMVENTION

~~Section~~ Reg. 18.1201 Circumvention

Unless prior written approval is obtained from the Director, no person shall build, erect, install, or use any article, machine, equipment, or other contrivance, the sole purpose of which is to dilute or conceal an emission without resulting in a reduction of the total amount or air contaminants emitted to the atmosphere. This rule does not apply to the control of odors or to the installation of stacks for which a permit has been issued as provided in chapter 3.

CHAPTER 13: AUTHORITY TO DEAL WITH EXTRAORDINARY CONDITIONS

~~Section~~ Reg. 18.1301 Authority

Within areas of high source density or higher receptor density and/or within areas affected by levels of air contamination, which, due to their intensity and/or duration, threaten to constitute a significant departure from the National Ambient Air Quality Standards, the Department may prescribe air quality control requirements that are more restrictive and more extensive than those provided in the regulations of general application within said areas. Such requirements may be kept in effect for such period and to such extent the Department deems necessary to adequately deal with such conditions.

~~Section~~ Reg. 18.1302 Notification and Reporting Requirements

(A) The owner or operator of any stationary source shall, upon notification from the Department, maintain records of the nature and amounts or emissions from such source and/or any other information as may be deemed necessary by the Department to determine whether such source is in compliance with applicable emission limitations or other control measures.

(B) The information recorded shall be summarized and reported to the Department on forms furnished by the Department, and shall be submitted within 45 days after the end of the reporting period. Reporting periods are January 1-June 30 and July 1-December 31, except that the initial reporting period shall commence on the date the Department issued notification of the record-keeping requirements.

(C) Information recorded by the owner or operator and copies of the summarizing reports submitted to the Department shall be retained by the owner or operator for 2 years after the date on which the pertinent report is submitted.

(D) Emission data obtained from owners or operators of stationary sources will be correlated with applicable emission limitations and other control measures and will be available to the public during normal business hours at the Department office in North Little Rock.

CHAPTER 14: PUBLIC INFORMATION AND CONFIDENTIALITY

~~Section~~ Reg. 18.1401 Public Notification

In the event the Director finds the existence of a condition of air pollution pursuant to chapter 2 or of episodic air pollution pursuant to chapter 2, or the Department imposes extraordinary air quality control requirements pursuant to Reg. ~~§~~18.1301, the Director shall summarize the conditions and the actions taken in response thereto and make said summary available to the news media and to the public, and shall continue to publish such summaries at regular intervals throughout the duration of said conditions and the actions.

~~Section~~ Reg. 18.1402 Confidentiality

Information which constitutes a trade secret shall be held confidential and segregated from the public files of the Department if requested in writing by the permit applicant in accordance with this subsection.

(A) For purposes of this subsection, "Trade Secret" means any information, including formula, pattern, compilation, program, device, method, technique, process, or rate of production that:

(1) Derives independent economic value (actual or potential) from not being generally known to, and not being readily ascertainable through, proper means by other persons who can obtain economic value from its disclosure or use; and

(2) Is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

(B) In order to establish entitlement to confidentiality, the applicant must submit a sworn affidavit to the Department that is subject to public scrutiny which describes in a manner that does not reveal trade secrets, the processes or market conditions that supports the applicant's confidentiality claim in the terms of Reg. ~~§~~18.1402(A)(1)&(2). This affidavit must also recite the following:

> "The applicant agrees to act as an indispensable party and to exercise extraordinary diligence in any legal action arising from the Department's denial of public access to the documents or information claimed herein to be a trade secret."

If an applicant anticipates numerous permit modifications that may involve regulatory review of trade secrets, it may submit an omnibus affidavit establishing the prerequisites of Reg. ~~§~~18.1402(A)(1)&(2) and reference this document in future confidentiality claims.

(C) Confidentiality claims shall be afforded interim protected status until the Department determines whether the requirements of Reg. ~~§~~18.402(B) are satisfied. The Department shall make such determination prior to the issuance of any permit or publication of any draft permit. In the event the Department does not make such determination prior to

permit issuance, the information shall be deemed confidential until a request is made. If a third party request to review information claimed as confidential is received before the Department provides its written determination concerning the claim, the Department shall not release such information before notifying the applicant of the request. The Department shall notify the applicant of the request and the Department's determination on the confidentiality claim at least two business days before releasing the information, at which time the applicant may choose to supplement its affidavit supporting confidentiality or seek legal recourse.

(D) For any permit application submitted subject to a claim of trade secret, the applicant shall provide two copies of the application; one prominently marked as confidential and another that is subject to public review with confidential information excised. The Department will not accept applications that are deemed totally confidential.

CHAPTER 15: EFFECTIVE DATE

Reg. 18.1501 Effective Date

This regulation is effective ten (10) days after filing with the Secretary of State, the State Library and the Bureau of Legislative Research.

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

REGULATION NO. 18

APPENDIX A

INSIGNIFICANT ACTIVITIES LIST

INITIAL DRAFT

June 2008

~~January 22, 1999~~

APPENDIX A INSIGNIFICANT ACTIVITIES LIST

The following types of activities or emissions are deemed insignificant on the basis of size, emission rate, production rate, or activity. Certain of these listed activities include qualifying statements intended to exclude many similar activities. By such listing, the Department exempts certain sources or types of sources from the requirements to obtain a permit or plan under this regulation. Listing in this part has no effect on any other law to which the activity may be subject. Any activity for which a state or federal applicable requirement applies (such as NSPS, NESHAP, or MACT) is not insignificant, even if this activity meets the criteria below.

Group A

The following emission units, operations, or activities must either be listed as insignificant or included in the permit application as sources to be permitted. The listing of insignificant sources does not necessarily mean that the emissions from these sources must be quantified.

1. Fuel burning equipment with a design rate less than 10 million BTU per hour, provided that the aggregate pollutant specific emissions from all such units listed as insignificant do not exceed 5 tons per year (tpy) of any combination of HAPs and 10 tpy of any other pollutant.

2. Storage tanks less than or equal to 250 gallons storing organic liquids having a true vapor pressure less than or equal to 3.5 psia, provided that the aggregate pollutant specific emissions from all such liquid storage tanks listed as insignificant do not exceed 5 tpy of any combination of HAPs and 10 tpy of any other pollutant.

3. Storage tanks less than or equal to 10,000 gallons storing organic liquids having a true vapor pressure less than or equal to 0.5 psia, provided that the aggregate pollutant specific emissions from all such liquid storage tanks listed as insignificant do not exceed 5 tpy of any combination of HAPs and 10 tpy of any other pollutant.

4. Caustic storage tanks that contain no VOCs.

5. Emissions from laboratory equipment/vents used exclusively for routine chemical or physical analysis for quality control or environmental monitoring purposes provided that the aggregate pollutant specific emissions from all such equipment/vents considered insignificant do not exceed 5 tpy of any combination of HAPs and 10 tpy of any other pollutant.

6. Non commercial water washing operations of empty drums less than or equal to 55 gallons with less than three percent of the maximum container volume of material.

7. Welding or cutting equipment related to manufacturing activities that do not result in aggregate emissions of HAPs in excess of 0.1 tpy.

8. Containers of less than or equal to 5 gallons in capacity that do not emit any detectable

VOCs or HAPs when closed. This includes filling, blending, or mixing of the contents of such containers by a retailer.

9. Equipment used for surface coating, painting, dipping, or spraying operations, containing less than 0.4 lb/gal VOCs, any hexavalent chromium, or that emit no more than 0.1 tpy of all other HAPs.

10. Non-production equipment approved by the Department, used for waste treatability studies or other pollution prevention programs provided that the emissions are less than 10 tpy of any pollutant regulated under this regulation or less than 2 tpy of a single HAP[1] or 5 tpy of any combination of HAPs.

11. Operation of groundwater remediation wells, including emissions from the pumps and collection activities provided that the emissions are less than 10 tpy of any pollutant regulated under this regulation or less than 2 tpy of a single HAP or 5 tpy of any combination of HAPs. This does not include emissions from air-stripping or storage.

12. Emergency use generators, boilers, or other fuel burning equipment that is

    (a) of equal or smaller capacity than the primary operating unit;~~,~~

    (b) cannot be used in conjunction with the primary operating unit;~~,~~and

    (c) does not emit or have the potential to emit regulated air pollutants in excess of the primary operating unit and not operated more than 90 days a year.

    This does not apply to generators which provide electricity to the distribution grid.

13. Other activities for which the facility demonstrates that no enforceable permit conditions are necessary to insure compliance with any applicable law or regulation provided that the emissions are less than 5 tpy of any pollutant regulated under this regulation or less than 1 tpy of a single HAP or 2.5 tpy of any combination of HAPs.

[1] The treatability study or pollution prevention program must be approved separately. The activity creating the emissions must also be determined to be insignificant as discussed in the introduction to this group.

Group B

The following emission units, operations, or activities need not be included in a permit application:

1. Combustion emissions from propulsion of mobile sources and emissions from refueling these sources unless regulated by Title II and required to obtain a permit under Title V of the federal Clean Air Act, as amended. This does not include emissions from any transportable units, such as temporary compressors or boilers. This does not include emissions from loading racks or fueling operations covered under any applicable federal requirements.

2. Air conditioning and heating units used for comfort that do not have applicable requirements under Title VI of the Act.

3. Ventilating units used for human comfort that do not exhaust air pollutants into the ambient air from any manufacturing/industrial or commercial process.

4. Non-commercial food preparation or food preparation at restaurants, cafeterias, or caterers, etc.

5. Consumer use of office equipment and products, not including commercial printers or business primarily involved in photographic reproduction.

6. Janitorial services and consumer use of janitorial products.

7. Internal combustion engines used for landscaping purposes.

8. Laundry activities, except for dry-cleaning and steam boilers.

9. Bathroom/toilet emissions.

10. Emergency (backup) electrical generators at residential locations.

11. Tobacco smoking rooms and areas.

12. Blacksmith forges.

13. Maintenance of grounds or buildings, including: lawn care, weed control, pest control, and water washing activities.

14. Repair, up-keep, maintenance, or construction activities not related to the sources' primary business activity, and not otherwise triggering a permit modification. This may include, but is not limited to such activities as general repairs, cleaning, painting, welding, woodworking, plumbing, re-tarring roofs, installing insulation, paved/paving parking lots, miscellaneous solvent use, application of refractory, or insulation, brazing,

soldering, the use of adhesives, grinding, and cutting.[2]

15. Surface-coating equipment during miscellaneous maintenance and construction activities. This activity specifically does not include any facility whose primary business activity is surface-coating or includes surface-coating or products.

16. Portable electrical generators that can be "moved by hand" from one location to another.[3]

17. Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning, or machining wood, metal, or plastic.

18. Brazing or soldering equipment related to manufacturing activities that do not result in emission of HAPs.[4]

19. Air compressors and pneumatically operated equipment, including hand tools.

20. Batteries and battery charging stations, except at battery manufacturing plants.

21. Storage tanks, vessels, and containers holding or storing liquid substances that do not contain any VOCs or HAPs.[5]

22. Storage tanks, reservoirs, and pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat, and no volatile aqueous salt solutions, provided appropriate lids and covers are used and appropriate odor control is achieved.

23. Equipment used to mix and package soaps, vegetable oil, grease, animal fat, and nonvolatile aqueous salt solutions, provided appropriate lids and covers are used and appropriate odor control is achieved.

24. Drop hammers or presses for forging or metalworking.

25. Equipment used exclusively to slaughter animals, but not including other equipment at slaughter-houses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.

26. Vents from continuous emissions monitors and other analyzers.

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[2] Cleaning and painting activities qualify if they are not subject to VOC or HAP control requirements. Asphalt batch plant owners/operators must get a permit.

[3] "Moved by hand" means that it can be moved by one person without assistance of any motorized or non-motorized vehicle, conveyance, or device.

[4] Brazing, soldering, and welding equipment, and cutting torches related to manufacturing and construction activities that emit HAP metals are more appropriate for treatment as insignificant activities based on size or production thresholds. Brazing, soldering, and welding equipment, and cutting torches related directly to plant maintenance and upkeep and repair or maintenance shop activities that emit HAP metals are treated as trivial and listed separately in this appendix.

[5] Exemptions for storage tanks containing petroleum liquids or other volatile organic liquids are based on size and limits including storage tank capacity and vapor pressure of liquids stored and are not appropriate for this list.

27. Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.

28. Hand-held applicator equipment for hot melt adhesives with no VOCs in the adhesive.

29. Lasers used only on metals and other materials which do not emit HAPs in the process.

30. Consumer use of paper trimmers/binders.

31. Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.

32. Salt baths using non-volatile salts that do not result in emissions of any air pollutant covered by this regulation.

33. Laser trimmers using dust collection to prevent fugitive emissions.

34. Bench-scale laboratory equipment used for physical or chemical analysis not including lab fume hoods or vents.

35. Routine calibration and maintenance of laboratory equipment or other analytical instruments.

36. Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.

37. Hydraulic and hydrostatic testing equipment.

38. Environmental chambers not using hazardous air pollutant gases.

39. Shock chambers, humidity chambers, and solar simulators.

40. Fugitive emissions related to movement of passenger vehicles, provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.

41. Process water filtration systems and demineralizers.

42. Demineralized water tanks and demineralizer vents.

43. Boiler water treatment operations, not including cooling towers.

44. Emissions from storage or use of water treatment chemicals, except for hazardous air pollutants or pollutants listed under regulations promulgated pursuant to Section 112(r) of

the Act, for use in cooling towers, drinking water systems, and boiler water/feed systems.

45. Oxygen scavenging (de-aeration) of water.

46. Ozone generators.

47. Fire suppression systems.

48. Emergency road flares.

49. Steam vents and safety relief valves.

50. Steam leaks.

51. Steam cleaning operations.

52. Steam and microwave sterilizers.

53. Site assessment work to characterize waste disposal or remediation sites.

54. Miscellaneous additions or upgrades of instrumentation.

55. Emissions from combustion controllers or combustion shutoff devices but not combustion units itself.

56. Use of products for the purpose of maintaining motor vehicles operated by the facility, not including air cleaning units of or such vehicles (i.e. antifreeze, fuel additives).

57. Stacks or vents to prevent escape of sanitary sewer gases through the plumbing traps.

58. Emissions from equipment lubricating systems (i.e. oil mist), not including storage tanks, unless otherwise exempt.

59. Residential wood heaters, cookstoves, or fireplaces.

60. Barbecue equipment or outdoor fireplaces used in connection with any residence or recreation.

61. Log wetting areas and log flumes.

62. Periodic use of pressurized air for cleanup.

63. Solid waste dumpsters.

64. Emissions of wet lime from lime mud tanks, lime mud washers, lime mud piles, lime mud filter and filtrate tanks, and lime mud slurry tanks.

65. Natural gas odoring activities unless the Department determines that emissions constitute air pollution.

66. Emissions from engine crankcase vents.

67. Storage tanks used for the temporary containment of materials resulting from an emergency reporting to an unanticipated release.

68. Equipment used exclusively to mill or grind coatings in roll grinding rebuilding, and molding compounds where all materials charged are in paste form.

69. Mixers, blenders, roll mills, or calendars for rubber or plastic for which no materials in powder form are added and in which no hazardous air pollutants, organic solvents, diluents, or thinners are used or emitted.

70. The storage , handling, and handling equipment for bark and wood residues not subject to fugitive dispersion offsite (this applies to the equipment only).

71. Maintenance dredging of pulp and paper mill surface impoundments and ditches containing cellulosic and cellulosic derived biosolids and inorganic materials such as lime, ash, or sand.

72. Tall oil soap storage, skimming, and loading.

73. Water heaters used strictly for domestic (non-process) purposes.

74. Facility roads and parking areas, unless necessary to control offsite fugitive emissions.

75. Agricultural operations, including onsite grain storage, not including IC engines or grain elevators.

76. The following natural gas and oil exploration production site equipment: separators, dehydration units, natural gas fired compressors, and pumping units. This does not include compressors located on natural gas transmission pipelines.

QUESTIONNAIRE FOR FILING PROPOSED RULES AND REGULATIONS WITH THE ARKANSAS LEGISLATIVE COUNCIL AND JOINT INTERIM COMMITTEE

DEPARTMENT/AGENCY Arkansas Department of Environmental Quality
DIVISION Air Division
DIVISION DIRECTOR Mike Bates, Chief
CONTACT PERSON Deborah Pitts, Attorney
ADDRESS 5301 Northshore Drive, North Little Rock, AR 72118-5317
PHONE NO. (501) 682-0883 **FAX NO.**(501) 682-0891 **E-MAIL** pitts@adeq.state.ar.us
NAME OF PRESENTER AT COMMITTEE MEETING Karen Bassett or Mike Bates
PRESENTER E-MAIL bassett@adeq.state.ar.us or bates@adeq.state.ar.us

INSTRUCTIONS

A. Please make copies of this form for future use.
B. Please answer each question completely using layman terms. You may use additional sheets, if necessary.
C. If you have a method of indexing your rules, please give the proposed citation after "Short Title of this Rule" below.
D. Submit two (2) copies of this questionnaire and financial impact statement attached to the front of two (2) copies of the proposed rule and required documents. Mail or deliver to:

Donna K. Davis
Administrative Rules Review Section
Arkansas Legislative Council
Bureau of Legislative Research
Room 315, State Capitol
Little Rock, AR 72201

****

1. What is the short title of this rule?
Regulation 18

2. What is the subject of the proposed rule?
Arkansas Pollution Control and Ecology Commission Regulation 18, Arkansas Air Pollution Control Code

3. Is this rule required to comply with a federal statute, rule, or regulation? Yes____ No__X__

If yes, please provide the federal rule, regulation, and/or statute citation.

4. Was this rule filed under the emergency provisions of the Administrative Procedure Act? Yes_____ No__X___

If yes, what is the effective date of the emergency rule?_____N/A_____

When does the emergency rule expire? _____N/A_____

Will this emergency rule be promulgated under the permanent provisions of the Administrative Procedure Act? Yes_____ No__X____

EXHIBIT B

5. Is this a new rule? Yes_____ No__X__ If yes, please provide a brief summary explaining the regulation.

Does this repeal an existing rule? Yes_____ No__X__If yes, a copy of the repealed rule is to be included with your completed questionnaire. If it is being replaced with a new rule, please provide a summary of the rule giving an explanation of what the rule does.

Is this an amendment to an existing rule? Yes__X__No___If yes, please attach a mark-up showing the changes in the existing rule and a summary of the substantive changes. **Note: The summary should explain what the amendment does, and the mark-up copy should be clearly labeled "mark-up."**

See the attached Petition to Initiate Rulemaking for a summary and Exhibit A for a mark-up copy of the changes.

6. Cite the state law that grants the authority for this proposed rule? If codified, please give Arkansas Code citation.

A.C.A §8-4-201; 8-4-202, and 8-4-311.

7. What is the purpose of this proposed rule? Why is it necessary?

These changes will allow more flexibility for the regulated community so they can better respond to market changes. Additionally, regulatory burden will be reduced on affected businesses. The changes will allow the Department to focus our resources on sources which have a greater potential to impact the environment. The changes are consistent with and allowable under federal programs. The proposed changes are protective of air quality in the state and will not affect attainment goals. The changes also clarify existing regulatory language, correct and update formatting and remove duplicative language from other Arkansas Pollution Control and Ecology Commission regulations.

8. Please provide the address where this rule is publicly accessible in electronic form via the Internet as required by Arkansas Code § 25-19-108(b).

http://www.adeq.state.ar.us/regs/drafts/draft_regs.htm

9. Will a public hearing be held on this proposed rule? Yes__X__ No_____
If yes, please complete the following:
Date: August 4, 2008
Time: Beginning at 2:00 PM
Place: ADEQ Commission Room, 5301 Northshore Drive, North Little Rock, AR

10. When does the public comment period expire for permanent promulgation? (Must provide a date.) 10 business days after the date of the public hearing: on or about August 18, 2008.

11. What is the proposed effective date of this proposed rule? (Must provide a date.)

On or about January 1, 2009.

12. Do you expect this rule to be controversial? Yes_____ No__X__ If yes, please explain.

13. Please give the names of persons, groups, or organizations that you expect to comment on these rules? Please provide their position (for or against) if known.

The Arkansas Environmental Federation has expressed interest and provided input in the development of this regulation. Their comments are expected to be positive. Environmental groups may also comment and their positions on these changes were not known at the time this document was prepared.

FINANCIAL IMPACT STATEMENT

PLEASE ANSWER ALL QUESTIONS COMPLETELY

DEPARTMENT Arkansas Department of Environmental Quality
DIVISION Air Division
PERSON COMPLETING THIS STATEMENT Elizabeth Sartain
TELEPHONE NO. (501) 682-0719 **FAX NO.** (501) 682-0753 **EMAIL:** sartain@adeq.state.ar.us

To comply with Act 1104 of 1995, please complete the following Financial Impact Statement and file two copies with the questionnaire and proposed rules.

SHORT TITLE OF THIS RULE
Regulation 18

1. Does this proposed, amended, or repealed rule have a financial impact?
   Yes _____ No X

   The proposed changes will not have an economic impact on entities subject to this regulation. The economic impact to the Arkansas Department of Environmental Quality (ADEQ) will be a minor decrease to ADEQ revenue of less than one-half of one percent.

2. Does this proposed, amended, or repealed rule affect small businesses?
   Yes _____ No X

   If yes, please attach a copy of the economic impact statement required to be filed with the Arkansas Economic Development Commission under Arkansas Code § 25-15-301 et seq.

   We believe the proposed changes will not adversely affect small business.

3. If you believe that the development of a financial impact statement is so speculative as to be cost prohibited, please explain.

   N/A

4. If the purpose of this rule is to implement a federal rule or regulation, please give the incremental cost for implementing the rule. Please indicate if the cost provided is the cost of the program.

Current Fiscal Year		**Next Fiscal Year**	
General Revenue	N/A	General Revenue	N/A
Federal Funds	N/A	Federal Funds	N/A
Cash Funds	N/A	Cash Funds	N/A
Special Revenue	N/A	Special Revenue	N/A
Other (Identify)	N/A	Other (Identify)	N/A
Total	N/A	Total	N/A

The Department does not expect to incur additional expenses as a result of the amendments.

EXHIBIT C

5. What is the total estimated cost by fiscal year to any party subject to the proposed, amended, or repealed rule? Identify the party subject to the proposed rule and explain how they are affected.

Current Fiscal Year	**Next Fiscal Year**
$ -389.00	$ -389.00

Parties subject to this regulation will experience a per facility average annual decrease in costs of approximately $389.00 associated with the proposed regulation changes.

6. What is the total estimated cost by fiscal year to the agency to implement this rule? Is this the cost of the program or grant? Please explain.

Current Fiscal Year	**Next Fiscal Year**
$ 0	$ 0

The Department does not expect to incur additional expenses as a result of the amendments.

ECONOMIC IMPACT STATEMENT
OF PROPOSED RULES OR REGULATIONS
Act 143: Regulatory Flexibility

Department	Arkansas Department of Environmental Quality
Division	Air Division
Contact Person	Technical: Mike Bates; Formatting: Mike Porta
Date	June 13, 2008
Contact Phone	Mike Bates: 501.682.0750; Mike Porta: 501.682.0752
Contact Email	Mike Bates: bates@adeq.state.ar.us; Mike Porta: porta@adeq.state.ar.us
Title or Subject:	Amendment to the Arkansas Pollution Control and Ecology Regulation 18, Arkansas Air Pollution Control Code

Benefits of the Proposed Rule or Regulation

1. Explain the need for the proposed change(s). Did any complaints motivate you to pursue regulatory action? If so, Please explain the nature of such complaints.

   These changes will allow more flexibility for the regulated community so they can better respond to market changes. Additionally, regulatory burden will be reduced on affected businesses. The changes will allow the Department to focus our resources on sources which have a greater potential to impact the environment. The changes are consistent with and allowable under federal programs. The proposed changes are protective of air quality in the state and will not affect attainment goals. The changes also clarify existing regulatory language, correct and update formatting and remove duplicative language from other Arkansas Pollution Control and Ecology Commission regulations.

2. What are the top three benefits of the proposed rule or regulation?
   - *The proposed changes will allow more flexibility to the regulated community so they can better respond to market changes.*
   - *The proposed changes are protective of the state's air quality.*
   - *The proposed rule will reduce the regulatory burden on affected sources including small businesses.*

3. What, in your estimation, would be the consequence of taking no action, thereby maintaining the status quo?

   Inflexibility would remain in the air permitting program and current levels of regulatory burden would continue to affect businesses in Arkansas. In addition, industry would be expected to propose similar rule changes should these changes not proceed.

4. Describe market-based alternatives or voluntary standards that were considered in place of the proposed regulation and state the reason(s) for not selecting those alternatives.

   None. There are no market-based alternatives.

Impact of Proposed Rule or Regulation

5. Estimate the cost to state government of collecting information, completing paperwork, filing recordkeeping, auditing and inspecting associated with this new rule or regulation.

   No additional costs are anticipated as a result of these changes.

6. What types of small businesses will be required to comply with the proposed rule or regulation? Please estimate the number of small businesses affected.

   All businesses that meet permitting thresholds that require they apply for, receive and comply with terms in an air permit under Regulation 18. The estimated number of small businesses is zero.

7. Does the proposed regulation create barriers to entry? If so, please describe those barriers and why those barriers are necessary.

   The proposed regulation will create no barriers to entry.

EXHIBIT D

8. Explain the additional requirements with which small business owners will have to comply and estimate the costs associated with compliance.

There are no additional requirements for small business owners.

9. State whether the proposed regulation contains different requirements for different sized entities, and explain why this is, or is not, necessary.

There are not different requirements for different sized entities. The proposed changes are based on air emissions, not the size of the affected business.

10. Describe your understanding of the ability of small business owners to implement changes required by the proposed regulation.

Small businesses are not required to implement any changes.

11. How does this rule or regulation compare to similar rules and regulations in other states or the federal government?

Other states have similar regulations and some of the proposed changes are being made to comply with federal rules and regulations. Federal rules and regulations allow the proposed changes.

Provide a summary of the input your agency has received from small business or small business advocates about the proposed rule or regulation.

The Arkansas Environmental Federation whose members include businesses of various sizes provided input and suggestions on the proposed changes. They support the suggested changes.

ECONOMIC IMPACT/ENVIRONMENTAL BENEFIT ANALYSIS

Answer to best of the proponent's ability, as required by ADPCEC Regulation 8, Chapter 3.5

STEP 1: DETERMINATION OF ANALYSIS REQUIREMENT (to be included in petition to initiate rulemaking)

APC&EC REGULATION NO. 18
Arkansas Air Pollution Control Code
June 2008

1A. Is the proposal expressly addressed by a Federal requirement?

No. Economic Impact/Environmental Benefit Analysis is not required

1B. If 1A is YES, is proposed regulation equivalent, or more stringent, or less stringent than federal requirement?

- If equivalent – Economic Impact/Environmental Benefit Analysis is not required
- If more stringent - Economic Impact/Environmental Benefit Analysis is required
- If less stringent - Economic Impact/Environmental Benefit Analysis is not required, but does require federal agency approval prior to adoption if the proposal is part of an authorized state program.

STEP 2: THE ANALYSIS (to be included in petition to initiate rulemaking, if required)

2A. ECONOMIC IMPACT

Not Required.

2B. ENVIRONMENTAL BENEFIT

Not Required.

EXHIBIT E

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

SUBJECT: Petition to Initiate Rulemaking - Regulation No. 18

Docket No. 08- -R

MINUTE ORDER NO. 08 -

On June 13, 2008, The Arkansas Department of Environmental Quality ("Department") filed a Petition to Amend Regulation No. 18, Arkansas Air Pollution Control Code ("Petition"). The Petition has been designated as Docket No. 08- -R.

The Commission's Regulations Committee met on June 27, 2008, to review the Petition. Having considered the Petition, the Regulations Committee recommends the Commission institute a rulemaking proceeding to consider adopting the proposed revisions to Regulation No. 18 contingent upon the initiation of rulemaking for Regulation 19 and Regulation 26.

1. The Department shall file an original and two (2) copies and a computer disk in Word of all materials required under this Minute Order.

2. Persons submitting written public comments shall submit their written comments to the Department. Within ten (10) business days following the adoption or denial of the proposed rule, the Department shall deliver the originals of all comments to the Commission Secretary.

3. A public hearing shall be conducted on August 4, 2008, beginning at 2:00 p.m. in the ADEQ Commission Room, 5301 Northshore Drive, North Little Rock, AR 72118-5317.

4. The period for receiving all written comments shall conclude ten (10) business days after the date of the public hearing pursuant to Regulation No. 8, Part 3, Section 3.2.3, unless an extension of time is granted.

5. The Department shall file, not later than 14 days before the Commission meets to consider adoption of the proposed rule, a Statement of Basis and Purpose as required by Regulation No. 8, Part 3, Section 3.6.2(1), (2) and (3).

6. The Department shall file, not later than 14 days before the Commission meets to consider adoption of the proposed rule, a proposed Minute Order deciding this matter.

7. The Department shall seek review of the proposed rule from the Joint Interim Committee on Public Health and Welfare and/or from the Joint Interim

Committee on Administrative Rules and Regulations.

8. The Regulations Committee will consider this matter at its October 24, 2008, meeting. Members of the Regulations Committee may ask questions of the Department and any person that made oral or written comments. The Regulations Committee will make a recommendation to the Commission.

9. At its regularly scheduled October 24, 2008, meeting, the presentation of oral statements and legal arguments shall be regulated as follows:

a. The Chair of the Commission will permit members of the public to make a statement to the Commission. No more than three (3) minutes will be allowed for each statement. The period for statements will close at the end of one (1) hour, or sooner if all interested persons have completed their statements. The Chair, in his discretion, may extend the one (1) hour public comment period.

b. At the discretion of the Chair, an attorney representing one or more individuals, a corporation or other legal entity may be permitted five (5) minutes in which to address the Commission.

c. Department legal counsel or other designated Department employee will be permitted ten (10) minutes in which to address the Commission.

d. At the conclusion of all comments, the Chairman will call on each Commissioner for the purpose of asking the attorneys or persons sponsoring comments who are present, any questions they may have. Attorneys will not be permitted to respond or ask follow-up questions of any person questioned by a Commissioner.

After each Commissioner has had an opportunity to ask questions, the Chair will entertain a motion on the matter, allow discussion, and call for a vote of the Commission members.

10. The Commission finds the proposed regulation does not affect small businesses and therefore concludes that Act 143 of 2007 is not applicable.

The Commission accepts the recommendation of the Regulations Committee and initiates the rulemaking proceeding in Docket No. 08 - - R effective June 27, 2008. The Commission adopts, without modification, the procedural schedule set forth above.

COMMISSIONERS

_____ L. Bengal
_____ S. Henderson
_____ D. Hendrix
_____ C. McGrew
_____ D. Samples
_____ T. Schueck
_____ J. Shannon
_____ L. Sickel
_____ J. Simpson
_____ W. Thompson
_____ E. Valdez
_____ B. White
_____ R. Young

Mike Bates SUBMITTED BY: Mike Bates PASSED: June 27, 2008

EXHIBIT F

ADEQ
ARKANSAS
Department of Environmental Quality

Memorandum

TO: Michael O'Malley, Hearing Officer
Arkansas Pollution Control and Ecology Commissioners

FROM: Mike Bates, Chief, Air Division

DATE: June 13, 2008

SUBJECT: Proposed Revisions to Regulation 19, Regulations of the Arkansas Plan of Implementation for Air Pollution Control

The Arkansas Department of Environmental Quality (ADEQ or "the Department") proposes revisions to Regulation 19, Regulations of the Arkansas Plan of Implementation for Air Pollution Control. Regulation 19 is applicable to any stationary source which has the potential to emit any federally regulated air pollutant equal to or in excess of the threshold for a major source and is federally enforceable. In a separate petition, ADEQ proposes changes to Regulation Number 18 and Regulation Number 26 contingent upon the Commission promulgating Regulation Number 19. The Department requests that the Commission consider the initiation of rulemaking associated with the promulgation of Regulation Number 19 to be contingent upon the Commission's decision to initiate rulemaking to amend Regulation Number 18 and Regulation Number 26 to avoid the potential of either of two possible results:

(a) The regulatory flexibility provisions we are proposing to add will not be effective unless all three regulations are initiated simultaneously; and
(b) Regulations containing different permitting thresholds could cause confusion and unequal treatment of sources.

The proposed regulatory amendments involve the following:

(a) Adding a definition of Title I modification and modifying the definition of volatile organic compounds to conform with the federal definition;
(b) Updating Reg. 19.401, General Applicability, to change the emissions permitting thresholds from 40 to 75 tpy or more of carbon monoxide, from 25 tons per year (tpy) to 40 tpy or more of nitrogen oxides, from 25 tpy to 40 tpy or more of sulfur dioxide, from 25 tpy to 40 tpy or more of volatile organic compounds, from 10 tpy to 15 tpy or more of particulate matter that is 10 micrometers in diameter or smaller, from 1.0 tpy to 2.0 tpy or more of any single hazardous air pollutant and from 3.0 tpy to 5.0 tpy or more of any combination of hazardous air pollutants;
(c) Clarifying that permit public notice requirements do not apply to changes in ownership or changes in name in Reg. 19.407;
(d) Modifying and adding *De Minimis* levels in Reg. 19.407 for certain pollutants, the level at which a proposed modification would be considered trivial, from 5 tons per year (tpy) for carbon monoxide to 75 tpy; from 20 tpy for nitrogen dioxide, sulfur dioxide, or volatile organic compounds to 40 tpy; and establishing levels for particulate matter at 25 tpy and particulate matter that is 10 micrometers in

diameter or smaller at 15 tpy. Another modification to Reg. 19.407 is the removal of language that refers to disclosure statements and replacing it with a reference to Regulation Number 8 which contains the applicable language.

(e) Updating the incorporation by reference in Reg. 19.412, Dispersion Modeling, to adopt a revision of EPA's guideline on air quality models to include a preferred general purpose (flat and complex terrain) dispersion model;

(f) Adding the new sections Reg. 19.414, Operational Flexibility-Applicant's Duty to Apply for Alternative Scenarios; Reg. 19.415, Changes Resulting in No Emission Increases; and Reg. 19.416, Permit Flexibility. Reg. 19.414 allows facilities to implement an operating scenario allowed for in the permit to be implemented by the facility without permit revisions or notifying the Department. Reg. 19.415 also allows a permitted source to make changes in the facility that deviate with permit terms without a permit revision in certain circumstances; Reg. 19.416 allows the Department to grant extensions to any testing, compliance or other dates in the permit. The Department may also allow temporary emissions and/or testing that would otherwise exceed a permitted emission rate, throughput requirement or other limit in a facility's permit and the Department may grant a request to allow an alternative to the monitoring specified in a permit under certain circumstances;

(g) Adding the new section Reg. 19.417, Registration, allow for tracking of facilities that are currently regulated under the emissions limits in Reg. 19.401 that would not be regulated under the proposed changes in Reg. 19.401.

(h) Updating Reg. 19.904, Adoption of Regulations, to incorporate required changes to the state implementation plan. The change is an update of federal regulations that are incorporated by reference. The change makes a facility that is a major source for oxides of nitrogen or volatile organic compounds also a major source for ozone. The change recognizes that both oxides of nitrogen and volatile organic compounds are precursor pollutants for ozone formation.

(i) Changing in Appendix A, Insignificant Activities List in Group A, the list of units, operations or activities that must be either listed as insignificant or included in the permit application as sources to be permitted, to add an exemption for generators that provide electricity to the distribution grid to item number 12. Additionally in Group B, the list of emissions units, operations, or activities that need not be included in a permit application, item number 69 has been changed with the addition of hazardous air pollutants to the list of substances that cannot be used or emitted from mixers, blenders, roll mills, or calendars for rubber or plastic for which no materials in powder form are added; and

(j) Updating formatting, correcting typographical errors and inconsistencies in the regulation, and updating it to conform to state law.

These changes will allow more flexibility for the regulated community so they can better respond to market changes. Additionally, regulatory burden will be reduced on affected businesses. The changes will allow the Department to focus our resources on sources which have a greater potential to impact the environment. The changes are consistent with and allowable under federal programs. The proposed changes are protective of air quality in the state and will not affect attainment goals. The changes also clarify existing regulatory language, correct and update formatting and remove duplicative language from other Arkansas Pollution Control and Ecology Commission regulations.

BEFORE THE ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF AMENDMENTS TO REGULATION NO. 19, REGULATIONS OF THE ARKANSAS PLAN OF IMPLEMENTATION FOR AIR POLLUTION CONTROL	DOCKET NO. 08-____-R

PETITION TO INITIATE RULEMAKING TO AMEND REGULATION NUMBER 19, REGULATIONS OF THE ARKANSAS PLAN OF IMPLEMENTATION FOR AIR POLLUTION CONTROL

The Arkansas Department of Environmental Quality (hereinafter "ADEQ" or "the Department"), for its Petition to Initiate Rulemaking to Amend Regulation Number 19, Regulations of the Arkansas Plan of Implementation for Air Pollution Control, states:

1. The Department requests that the Commission Initiate Rulemaking to amend Regulation Number 19, Regulations of the Arkansas Plan of Implementation for Air Pollution Control. Regulation 19 is applicable to any stationary source which has the potential to emit any federally regulated air pollutant equal to or in excess of the threshold for a major source and is federally enforceable. By separate petition, the Department proposes changes to Regulation Number 18 and Regulation Number 26 contingent upon the Commission promulgating Regulation Number 19. The Department requests that the Commission consider the initiation of rulemaking associated with the promulgation of Regulation Number 19 to be contingent upon the Commission's decision to initiate rulemaking to amend Regulation Number 18 and Regulation Number 26. The Department makes this request to avoid the potential of either of two possible results:

(a) The regulatory flexibility provisions we are proposing to add will not be effective unless all three regulations are initiated simultaneously; and

(b) Regulations containing different permitting thresholds could cause confusion and unequal treatment of sources.

2. The proposed regulatory amendments involve the following:

(a) Adding a definition of Title I modification and modifying the definition of volatile organic compounds to conform with the federal definition;

(b) Updating Reg. 19.401, General Applicability, to change the emissions permitting thresholds from 40 to 75 tpy or more of carbon monoxide, from 25 tons per year (tpy) to 40 tpy or more of nitrogen oxides, from 25 tpy to 40 tpy or more of sulfur dioxide, from 25 tpy to 40 tpy or more of volatile organic compounds, from 10 tpy to 15 tpy or more of particulate matter that is 10 micrometers in diameter or smaller, from 1.0 tpy to 2.0 tpy or more of any single hazardous air pollutant and from 3.0 tpy to 5.0 tpy or more of any combination of hazardous air pollutants;

(c) Clarifying that permit public notice requirements do not apply to changes in ownership or changes in name in Reg. 19.407;

(d) Modifying and adding *De Minimis* levels in Reg. 19.407 for certain pollutants, the level at which a proposed modification would be considered trivial, from 5 tons per year (tpy) for carbon monoxide to 75 tpy; from 20 tpy for nitrogen dioxide, sulfur dioxide, or volatile organic compounds to 40 tpy; and establishing levels for particulate matter at 25 tpy and particulate matter that is 10 micrometers in diameter or smaller at 15 tpy. Another modification to Reg. 19.407 is the removal of language that refers to disclosure statements and replacing it with a reference to Regulation Number 8 which contains the applicable language.

(e) Updating the incorporation by reference in Reg. 19.412, Dispersion Modeling, to adopt a revision of EPA's guideline on air quality models to include a preferred general purpose (flat and complex terrain) dispersion model;

(f) Adding the new sections Reg. 19.414, Operational Flexibility-Applicant's Duty to Apply for Alternative Scenarios; Reg. 19.415, Changes Resulting in No

Emission Increases; and Reg. 19.416, Permit Flexibility. Reg. 19.414 allows facilities to implement an operating scenario allowed for in the permit to be implemented by the facility without permit revisions or notifying the Department. Reg. 19.415 also allows a permitted source to make changes in the facility that deviate with permit terms without a permit revision in certain circumstances; Reg. 19.416 allows the Department to grant extensions to any testing, compliance or other dates in the permit. The Department may also allow temporary emissions and/or testing that would otherwise exceed a permitted emission rate, throughput requirement or other limit in a facility's permit and the Department may grant a request to allow an alternative to the monitoring specified in a permit under certain circumstances;

(g) Adding the new section Reg. 19.417, Registration, allow for tracking of facilities that are currently regulated under the emissions limits in Reg. 19.401 that would not be regulated under the proposed changes in Reg. 19.401.

(h) Updating Reg. 19.904, Adoption of Regulations, to incorporate required changes to the state implementation plan. The change is an update of federal regulations that are incorporated by reference. The change makes a facility that is a major source for oxides of nitrogen or volatile organic compounds also a major source for ozone. The change recognizes that both oxides of nitrogen and volatile organic compounds are precursor pollutants for ozone formation.

(i) Changing in Appendix A, Insignificant Activities List in Group A, the list of units, operations or activities that must be either listed as insignificant or included in the permit application as sources to be permitted, to add an exemption for generators that provide electricity to the distribution grid to item number 12. Additionally in Group B, the list of emissions units, operations, or activities that need not be included in a permit application, item number 69 has

been changed with the addition of hazardous air pollutants to the list of substances that cannot be used or emitted from mixers, blenders, roll mills, or calendars for rubber or plastic for which no materials in powder form are added; and

(j) Updating formatting, correcting typographical errors and inconsistencies in the regulation, and updating it to conform to state law.

3. The proposed changes to Regulation Number 19 do not require an economic impact/environmental analysis because some of the proposed changes are not expressly addressed by a Federal requirement. Those changes that are not expressly addressed by a Federal requirement are expressly addressed by a federal requirement and are equivalent to those requirements.

4. The proposed changes to Regulation Number 19 are exempt from the requirements of Act 143 of 2007. As such, a review by the Arkansas Economic Development Commission (AEDC) is not required.

5. Mike Bates or other Air Division staff from ADEQ will be available to answer questions concerning this proposed rulemaking. A red-lined version of the regulation showing the proposed changes is attached as Exhibit "A" and is hereby incorporated by reference. A copy of the Legislative Questionnaire is attached as Exhibit "B", and a copy of a financial impact statement for the proposed revision is attached as Exhibit "C", both of which are incorporated by reference. An analysis of the impact to small business required pursuant to Act 143 of 2007 (formerly Executive Order 05-04), is attached as Exhibit "D" and hereby incorporated by reference. A copy of the Economic Impact/Environmental Benefit Analysis is attached hereto as Exhibit "E" and is hereby incorporated by reference. A proposed minute order is attached as Exhibit "F" and is hereby incorporated by reference.

WHEREFORE, ADEQ requests that the Commission initiate the rulemaking

process, adopt the proposed Minute Order, and adopt the proposed amendments to Regulation Number 19.

Respectfully Submitted,
ARKANSAS DEPARTMENT OF
ENVIRONMENTAL QUALITY
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317
By: _____
Mike Bates

Pollution Control and Ecology Commission # 014.00-019

ARKANSAS POLLUTION CONTROL and ECOLOGY COMMISSION

REGULATION NO. 19
REGULATIONS OF THE ARKANSAS PLAN OF IMPLEMENTATION FOR AIR POLLUTION CONTROL

INITIAL DRAFT

Submitted to the PC&E Commission in June, 2008

EXHIBIT A

TABLE OF CONTENTS

CHAPTER 1: TITLE, INTENT, AND PURPOSE 1-1
Reg. 19.101 Title 1-1
Reg. 19.102 Applicability 1-1
Reg. 19.103 Intent and Construction 1-1
Reg. 19.104 Severability 1-2
CHAPTER 2: DEFINITIONS 2-1
CHAPTER 3: PROTECTION OF THE NATIONAL AMBIENT AIR QUALITY STANDARDS 3-1
Reg. 19.301 Purpose 3-1
Reg. 19.302 Department Responsibilities 3-1
Reg. 19.303 Regulated Sources Responsibilities 3-1
Reg. 19.304 Delegated Federal Programs 3-2
CHAPTER 4: MINOR SOURCE REVIEW 4-1
Reg. 19.401 General Applicability 4-1
Reg. 19.402 Approval Criteria 4-1
Reg. 19.403 Owner/Operator's Responsibilities 4-1
Reg. 19.404 Required Information 4-2
Reg. 19.405 Action on Application 4-2
Reg. 19.406 Public Participation 4-4
Reg. 19.407 Permit Amendments 4-5
Reg. 19.408 Exemption from Permitting 4-11
Reg. 19.409 Transition 4-12
Reg. 19.410 Permit Revocation and Cancellation 4-12
Reg. 19.411 General Permits 4-12
Reg. 19.412 Dispersion Modeling 4-13
Reg. 19.413 Confidentiality 4-14
Reg. 19.414 Operational Flexibility-Applicant's Duty to Apply for Alternative Scenarios 4-15
Reg. 19.415 Changes Resulting in No Emissions Increases 4-16
Reg. 19.416 Permit Flexibility 4-16
Reg. 19.417 Registration 4-18
CHAPTER 5: GENERAL EMISSIONS LIMITATIONS APPLICABLE TO EQUIPMENT ... 5-1

Reg. 19.501 Purpose 5-1
Reg. 19.502 General Regulations 5-1
Reg. 19.503 Visible Eemission Rregulations 5-1
Reg. 19.504 Stack Hheight/Ddispersion Rregulations 5-2
Reg. 19.505 Revised Eemissions Llimitation 5-2
CHAPTER 6: UPSET AND EMERGENCY CONDITIONS 6-1
Reg. 19.601 Upset Ceonditions 6-1
Reg. 19.602 Emergency Ceonditions 6-2
CHAPTER 7: SAMPLING, MONITORING, AND REPORTING REQUIREMENTS 7-1
Reg. 19.701 Purpose 7-1
Reg. 19.702 Air Emissions Sampling 7-1
Reg. 19.703 Continuous Emissions Monitoring 7-2
Reg. 19.704 Notice of Completion 7-3
Reg. 19.705 Record Keeping and Reporting Requirements 7-3
Reg. 19.706 Public Availability of Emissions Data 7-4
CHAPTER 8: 111(D) DESIGNATED FACILITIES 8-1
Reg. 19.801 Purpose 8-1
Reg. 19.802 Permit Emissions Limitations 8-1
Reg. 19.803 Sulfuric Acid Plants (H_2SO_4 Mist) 8-1
Reg. 19.804 Kraft Pulp Mills (TRS) 8-1
CHAPTER 9: PREVENTION OF SIGNIFICANT DETERIORATION 9-1
Reg. 19.901 Title 9-1
Reg. 19.902 Purposes 9-1
Reg. 19.903 Definitions 9-1
Reg. 19.904 Adoption of Regulations 9-2
CHAPTER 10: REGULATIONS FOR THE CONTROL OF VOLATILE ORGANIC COMPOUNDS IN PULASKI COUNTY 10-1
Reg. 19.1001 Title 10-1
Reg. 19.1002 Purpose 10-1
Reg. 19.1003 Definitions 10-1
Reg. 19.1004 General Provisions 10-4
Reg. 19.1005 Provisions fFor Specific Processes 10-12
Reg. 19.1006 Severability 10-18
CHAPTER 11: MAJOR SOURCE PERMITTING PROCEDURES 11-1
CHAPTER 12: [RESERVED] 12-1

CHAPTER 13: STAGE I VAPOR RECOVERY 13-1
Reg. 19.1301 Purpose 13-1
Reg. 19.1302 Applicability 13-1
Reg. 19.1303 Definitions 13-1
Reg. 19.1304 Exemptions 13-3
Reg. 19.1305 Prohibited Activities 13-4
Reg. 19.1306 Record Keeping 13-5
Reg. 19.1307 Inspections 13-5
Reg. 19.1308 Vapor Recovery Systems 13-5
Reg. 19.1309 Gasoline Delivery Vessels 13-6
Reg. 19.1310 Owner/Operator Responsibility 13-6
Reg. 19.1311 Test Methods 13-7
Reg. 19.1312 Effective Date 13-8
CHAPTER 14: CAIR NO_X OZONE SEASON TRADING PROGRAM GENERAL PROVISIONS 14-1
Reg. 19.1401 Adoption of Regulations 14-1
Reg. 19.1402 State Trading Budget 14-1
Reg. 19.1403 Timing Requirements for CAIR NO_x Ozone Season Allowance Allocations 14-1
Reg. 19.1404 CAIR NO_x Ozone Season Allowance Allocations 14-2
CHAPTER 15: REGIONAL HAZE 15-1
Reg. 19.1501 Purpose 15-1
Reg. 19.1502 Definitions 15-1
Reg. 19.1503 BART Eligible Sources 15-1
Reg. 19.1504 Facilities Subject-to-BART 15-3
Reg. 19.1505 BART Requirements 15-3
Reg. 19.1506 Compliance Provisions 15-7
Reg. 19.1507 Permit Reopening 15-7
CHAPTER 16: EFFECTIVE DATE 16-1
Reg. 19.1601 Effective Date 16-1
APPENDIX A: INSIGNIFICANT ACTIVITIES LIST 1

CHAPTER 1: TITLE, INTENT, AND PURPOSE

Reg. 19.101 Title

The following rules and regulations, adopted in accordance with the provisions of Subchapter 2 of the Arkansas Water and Air Pollution Control Act A.C.A. §§ 8-4-201 et seq., shall be known as "Regulations of the Arkansas Plan of Implementation of Air Pollution Control," hereinafter referred to as the "Regulations of the Plan," and "Regulation 19."

Reg. 19.102 Applicability

These regulations are applicable to any stationary source which has the potential to emit any federally regulated air pollutant.

Reg. 19.103 Intent and Construction

(A) The purpose and intent of Regulation 19, as amended, is to provide a clear delineation of those regulations that are promulgated by the Commission in satisfaction of certain requirements of the federal Clean Air Act, 42 U.S.C. §§ 7401 et seq., and the federal regulations stemming therefrom. Federal programs that the Department is responsible for administering include, but are not limited to, the attainment and maintenance of the National Ambient Air Quality Standards (40 C.F.R. Part 50), certain delegated subparts of the New Source Performance Standards (40 C.F.R. Part 60), provisions designed for the Prevention of Significant Deterioration (40 C.F.R. § 52.21), minor new source review as described in Chapter 4 (40 CFR Part 51), and certain delegated subparts of the National Emission Standards for Hazardous Air Pollutants (40 C.F.R. Parts 61 and 63). This subsection shall not be construed as limiting the future delegation of federal programs to the Department for administration.

(B) Regulation 19, as amended, is further intended to limit the federal enforceability of its requirements to only those mandated by federal law. Regulation 19, as amended, is also intended to facilitate a permit system for stationary sources within the State, which permit shall provide which provisions are federally enforceable and which provisions are state enforceable.

(C) Regulation 19, as amended, presumes a single-permit system, encompassing both federal and state requirements. A regulated facility which is subject to permitting under Regulation 19 shall be required to apply for and comply with only one permit, even though that permit may contain conditions derived from the federal mandates contained in Regulation 19, as well as conditions predicated solely on state law. Regulation 19, through construction or implication, shall not support the conclusion that all conditions of a permit have become federally enforceable because the permit contains provisions derived from Regulation 19. Permits or permit conditions issued under the authority of state law, or enforcement issues arising out of state law, shall not be federally enforceable.

(D) To the extent consistent with state law and efficient protection of the State's air quality, Regulation 19 shall be construed in a manner that promotes a streamlined permitting process, mitigation of regulatory costs, and flexibility in maintaining compliance with federal mandates. Any applicable documents (e.g. "White Papers," regulatory preambles, or interpretive memoranda) issued by the Environmental Protection Agency which are consistent with this policy and the legislative intent of state laws governing air pollution control (A.C.A. § 8-4-301 et seq.) are aids for construing the requirements of Regulation 19. Any procedure applicable to major sources that promotes operational flexibility are presumed to be authorized by this regulation unless manifestly inconsistent with its substantive terms.

(E) Nothing in Regulation 19 shall be construed as curtailing the Department's or Commission's authority under state law.

Reg. 19.104 Severability

If any provision of Regulation 19 is determined to be invalid, such invalidity shall not affect other provisions of Regulation 19.

CHAPTER 2: DEFINITIONS

Terms and phrases used in this regulation which are not explicitly defined herein shall have the same meaning as those terms which are used in the federal Clean Air Act. For purposes of this regulation:

"12-month period" means a period of 12 consecutive months determined on a rolling basis with a new 12-month period beginning on the first day of each calendar month.

"Actual emissions" means the quantity of federally regulated air pollutants emitted from a stationary source considering emissions control equipment and actual hours of source operation or amount of material processed.

"Commission" means the Arkansas Pollution Control and Ecology Commission.

"Construction" means fabrication, erection, or installation of equipment. See also 40 CFR 60.2, 40 CFR 51.165, and 40 CFR 52.21.

"Control apparatus" means any device which prevents, controls, detects or records the emission of any federally regulated air pollutants.

"Department" means the Arkansas Department of Environmental Quality, or its successor. When reference is made in this regulation to actions taken by or with reference to the Department, the reference is to the staff of the Department acting at the direction of the Director.

"Director" means the Director ~~director~~ of the Arkansas Department of Environmental Quality, or its successor, acting directly or through the staff of the Department.

"Emission limitation" and **"emission standard"** mean a requirement established by the Department or the Administrator of the United States Environmental Protection Agency which limits the emissions of federally regulated air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission

reduction.

“Emission unit” means any article, machine, equipment, operation, or contrivance that emits or has the potential to emit any federally regulated air pollutant.

“EPA” means the United States Environmental Protection Agency.

“Equipment” means any device, except equipment used for any mode of vehicular transportation, capable of causing the emission of a federally regulated air pollutant into the open air, and any stack, conduit, flue, duct, vent, or similar device connected or attached to or serving the equipment.

“Federal Clean Air Act” or **“Clean Air Act”** or **“FCAA”** means the federal Clean Air Act, as amended, 42 U.S.C. 7401, et seq. and its implementing regulations as of the effective date of this regulation.

“Federally regulated air pollutant” means the following:

(1) Nitrogen oxides or any volatile organic compounds;

(2) Any pollutant for which a National Ambient Air Quality Standard has been promulgated;

(3) Any pollutant that is subject to any standard promulgated under 42 U.S.C. §§ 7401, et seq., as of the effective date of this regulation;

(4) Any Class I or II substance subject to a standard promulgated under or established by Title VI of the Clean Air Act, as amended, 42 U.S.C.§§ 7401, et seq.

“Fugitive emissions” means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening. Those emissions are those that, according to customary and good engineering practice, considering technological and economic feasibility, could not pass through a stack, chimney, vent or other functionally-equivalent opening, except that the Department will utilize the definition of fugitive emissions for those industries for which an approved EPA definition exist under federal law or regulation and which

are meeting that law or regulation.

"Hazardous Air Pollutant" means any air pollutant listed pursuant to § 112 of the Clean Air Act, as amended, 42 U.S.C. §§ 7401, et seq., as of the effective date of this regulation.

"Modification" means any physical change in, or change in the method of operation of, a stationary source which increases the emission rate of any federally regulated air pollutant over permitted rates or which results in the emission of a federally regulated air pollutant not previously emitted, except that:

(1) Routine maintenance, repair, and replacement shall not be considered a physical change, and

(2) The following shall not be considered a change in the method of operation:

(a) Any change in the production rate, if such change does not exceed the permitted operating capacity of the source;

(b) Any change in the hours of operation, as long as it does not violate applicable air permit conditions; or

(c) The use of an alternate fuel or raw material, as long as it does not violate applicable air permit conditions.

(3) *De Minimis* changes, as defined in §19.407(C), and changes in ownership shall not be considered.

"National Ambient Air Quality Standard" or **"(NAAQS),"** mean those ambient air quality standards promulgated by the EPA in 40 CFR Part 50.

"Opacity" means the degree to which air emissions reduce the transmission of light and obscure the view of an object in the background.

"Operator" means any person who leases, operates, controls, or supervises any equipment affected by these regulations.

"Owner" means any person who has legal or equitable title to any source, facility, or equipment affected by these regulations.

"Particulate matter" means any airborne finely divided solid or liquid material with an aerodynamic diameter equal to or less than 100 micrometers.

"Particulate matter emissions" means all particulate matter, other than uncombined water, emitted to the ambient air as measured by applicable reference methods, or an equivalent or alternate method, specified in 40 CFR Part 60 Appendix A or by a test method specified in these regulations or any supplement thereto.

"Person" means any individual or other legal entity or their legal representative or assignee.

"Plan" means the Arkansas Plan of Implementation for Air Pollution Control.

"PM_{10}" means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by a reference method based on Appendix J of 40 CFR Part 50, or by an equivalent method designated in accordance with 40 CFR Part 53.

"PM_{10} emissions" means PM_{10} emitted to the ambient air as measured by an applicable reference method, or an equivalent or alternate method, specified in 40 CFR Part 51, Appendix M, or by a test method specified in these regulations or any supplement thereto.

"Potential to emit" means the maximum capacity of a stationary source to emit a federally regulated air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a federally regulated air pollutant, including, but not, limited to, air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is enforceable to the extent it is regulated by the federal Clean Air Act, 42 U.S.C. §§ 7401 et seq. Secondary air emissions do not count in determining the potential to emit of a stationary source.

"Responsible official" means one of the following:

(1) For a corporation: a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative or such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(a) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or

(b) The delegation of authority to such representative is approved in advance by the Department;

(2) For partnership or sole proprietorship: a general partner or the proprietor, respectively;

(3) For a municipality, State, Federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this regulation, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of EPA); or

(4) For acid rain sources:

(a) The designated representative insofar as actions, standards, requirements, or prohibitions under Title IV of the Act or the regulations promulgated thereunder are concerned; and

(b) The designated representative for any other purposes under Part 70.

"Secondary emissions" means those emissions of federally regulated air pollutants which, although associated with a source, are not emitted from the source itself.

"Shutdown" means the cessation of operation of equipment.

"Startup" means the setting in operation of equipment.

"Stationary source" means any building, structure, facility, or installation which emits or may emit any federally regulated air pollutant.

"Title I modification" means any modification as defined under any regulation promulgated pursuant to Title I of the federal Clean Air Act. De minimis changes under Regulation 19, changes to state only permit requirements, administrative permit amendments, and changes to the insignificant activities list are not Title I modifications.

"Volatile organic compounds" (VOC) means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions.

(1) This includes any such organic compound other than the following, which have been determined to have negligible photochemical reactivity:

acetone;
methane;
ethane;
methylene chloride (dichloromethane);
1,1,1- trichloroethane (methyl chloroform);
tetrachloroethylene (perchloroethylene);
~~1,1,1 trichloro-2,2,2- trifluoroethane~~ 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113);
trichlorofluoromethane (CFC-11);
dichlorodifluoromethane (CFC-12);
chlorodifluoromethane (HCFC-22);
trifluoromethane (HFC-23);
1,2-dichloro 1,1, 2, 2-tetrafluoroethane (CFC-114);
chloropentafluoroethane (CFC-115);
1,1,1-trifluoro 2,2-dichloroethane (HCFC-123);
1,1,1,2-tetrafluoroethane (HFC-134a);
1,1-dichloro 1-fluoroethane (HCFC-141b);
1-chloro 1,1-difluoroethane (HCFC-142b);
2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124);
pentaflurorethane (HFC-125);
1,1,2,2-tetrafluoroethane (HFC-134);
1,1,1-trifluoroethane (HFC-143a);
1,1-difluoroethane (HFC-152a);
parachlorobenzotrifluoride (PCBTF);

cyclic, branched, or linear completely methylated siloxanes;
3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca);
1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb);
1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee);
difluoromethane (HFC-32);
ethylfluoride (HFC-161);

1,1,1,3,3,3-hexafluoropropane (HFC-236fa);
1,1,2,2,3-pentafluoropropane (HFC-245ca);
1,1,2,3,3-pentafluoropropane (HFC 245ea);
1,1,1,2,3-pentafluoropropane (HFC-245eb);
1,1,1,3,3-pentafluoropropane (HFC-245fa);
1,1,1,2,3,3-hexafluoropropane (HFC-236ea);
1,1,1,3,3-pentafluorobutane (HFC-365mfc);
chlorofluoromethane (HCFC-31);
1 chloro-1-fluoroethane (HCFC-151a);
1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a);
1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane ($C_4F_9OCH_3$ or HFE-7100);
2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-
heptafluoropropane ($(CF_3)_2CFCF_2OCH_3$);
1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane ($C_4F_9OC_2H_5$ or HFE 7200);
2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane
($(CF_3)_2CFCF_2OC_2H_5$);
methyl acetate;
1,1,1,2,2,3,3-heptafluoro-3-methoxy-propane (n-$C_3F_7OCH_3$ or HFE-7000);
3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-(trifluoromethyl) hexane (HFE-7500)
1,1,1,2,3,3,3-heptafluoropropane (HFC 227ea);
methyl formate ($HCOOCH_3$)
1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4-trifluoromethyl-pentane (HFE-7300);
and perfluorocarbon compounds which fall into these classes:

(a) cyclic, branched, or linear, completely fluorinated alkanes;

(b) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

(c) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and

(d) sulfur containing perfluorocarbons with no saturations and with sulfur bonds only to carbon and fluorine.

(2) For purposes of determining compliance with emission limits, VOC will be measured by the test methods in the approved State Implementation Plan (SIP) or 40 CFR Part 60, Appendix A, as applicable. Where such a method also measures compounds with negligible photochemical reactivity, these negligibly-reactive compounds may be excluded as VOC if the amount of such compounds is accurately quantified, and such exclusion is approved by the Department.

(3) As a precondition to excluding these compounds as VOC or at any time thereafter, the Department may require an owner or operator to provide monitoring or testing results demonstrating, to the satisfaction of the Department, the amount of negligibly-reactive compounds in the source's ~~sources'~~ emissions.

(4) The following compound(s) are VOC for purposes of all recordkeeping, emissions reporting, photochemical dispersion modeling and inventory requirements which apply to VOC and shall be uniquely identified in emission reports, but are not VOC for purposes of VOC emissions limitations or VOC content requirements: t-butyl acetate.

CHAPTER 3: PROTECTION OF THE NATIONAL AMBIENT AIR QUALITY STANDARDS

Reg. 19.301 Purpose

The purpose of this chapter is to state the responsibilities of the Department and regulated sources in meeting and maintaining the NAAQS contained in 40 CFR Part 50. If any area of the state is determined to be in violation of the NAAQS, all applicable requirements contained in the Clean Air Act, as amended, and all regulations promulgated thereto shall be met by the Department.

Reg. 19.302 Department Responsibilities

The Department shall be responsible for taking the following precautions to prevent the NAAQS from being exceeded:

(A) Ambient air monitoring in any area that can reasonably be expected to be in excess of the NAAQS.

(B) Computer modeling of regulated air pollutant emissions for any area that can reasonably be expected to be in excess of the NAAQS, and review of the ambient air impacts of any new or modified source of federally regulated air emission that is the subject of the requirements of this Plan. All computer modeling shall be performed using EPA-approved models, and using averaging times commensurate with averaging times stated in the NAAQS.

Reg. 19.303 Regulated Sources Responsibilities

Any source subject to the provisions of this Plan shall be responsible for taking the following precautions to prevent the NAAQS from being exceeded:

(A) When required by law or this regulation, obtaining a permit from the Department prior to construction of a new source of federally regulated air pollutant emissions or prior to the modification of an existing source of air emissions.

(B) Operating equipment in such a manner as to meet any applicable permit requirement or any applicable regulations.

(C) Repairing malfunctioning equipment and pollution control equipment as quickly as possible. If the malfunctioning equipment is causing, or contributing to, a violation of the NAAQS, as determined by computer modeling, the source is responsible for ceasing operations of the affected equipment until such time that it is repaired.

Reg. 19.304 Delegated Federal Programs

Sources subject to this regulation shall also comply with all Federal programs that the Department is responsible for administering including certain delegated subparts of the New Source Performance Standards (40 C.F.R. Part 60), provisions designed for the Prevention of Significant Deterioration (40 C.F.R. § 52.21), and certain delegated subparts of the National Emissions Standards for Hazardous Air Pollutants (40 C.F.R. Parts 61 and 63), which were promulgated as of January 27, 2006. These delegated subparts only apply to major sources. (There are subparts that apply to minor sources, but the Department has not requested delegation of them as of April 28, 2006.)

CHAPTER 4: MINOR SOURCE REVIEW

Reg. 19.401 General Applicability

No person shall cause or permit the operation, construction, or modification of a stationary source, whose actual emissions are:

75 ~~40~~ tons per year or more of carbon monoxide;

40 ~~25~~ tons per year or more of nitrogen oxides;

40 ~~25~~ tons per year or more of sulfur dioxide;

40 25 tons per year or more of volatile organic compounds;

15 ~~10~~ tons per year or more of PM_{10};

0.5 tons per year or more of lead;

2.0 ~~1.0~~ ton per year or more of any single hazardous air pollutant; or

5.0 ~~3.0~~ tons per year or more of any combination of hazardous air pollutants

without first obtaining a permit from the Department pursuant to the provisions of this chapter.

Reg. 19.402 Approval Criteria

No permit shall be granted or modified under this chapter unless the owner/operator demonstrates to the reasonable satisfaction of the Department that the stationary source will be constructed or modified to operate without resulting in a violation of applicable portions of this regulation or without interfering with the attainment or maintenance of a national ambient air quality standard.

Reg. 19.403 Owner/Operator's Responsibilities

Issuance of a permit by the Department does not affect the responsibility of the owner/operator to comply with applicable portions of this regulation.

Reg. 19.404 Required Information

(A) General

Application for a permit shall be made on such forms and contain such information as the Department may reasonably require, including but not limited to:

(1) information on the nature and amounts of federally regulated air pollutants to be emitted by the stationary source; and

(2) such information on the location, design, and operation of stationary source as the Department may reasonably require.

(B) Duty to Supplement Submittal

If, while processing an application that has been determined to be complete, the Department determines that additional information is necessary to evaluate or take final action on that application, the Department may request such information in writing and set a reasonable deadline for a response.

(C) Duty to Correct Submittal

Any owner/operator who fails to submit any relevant facts or who has submitted incorrect information, shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any relevant requirements that become applicable to the stationary source before final action is taken on its application.

Reg. 19.405 Action on Application

(A) Technical Review

The Department will review the application submitted under this chapter in order to ensure to their reasonable satisfaction that:

(1) the stationary source will be constructed or modified to operate without interfering with attainment or maintenance of a national ambient air quality standard;

(2) the stationary source will be constructed or modified to operate without violating any applicable regulation adopted by the U.S. Environmental Protection Agency pursuant to §§111, 112, and 114 of the Clean Air Act as amended;

(3) the stationary source will be constructed or modified to operate without resulting in a violation of any applicable provisions of this regulation;

(4) the emission rate calculations are complete and accurate; and

(5) if the facility wishes to measure and/or monitor operating parameters rather than actual emissions, the application describes a process which will be used to ensure that the calculations are translated into enforceable limits on operational parameters rather than emissions.

(B) Proposed Action

(1) If the Department initially determines the requirements of Reg. ~~§~~19.405(A) are met, they shall prepare a draft permit which:

(a) contains such conditions as are necessary to comply with this Regulation;

(b) addresses all recognized federally regulated air pollutant emissions and all federally regulated air pollutant emitting equipment at the stationary source except pollutants or equipment specifically exempt.

(2) If the Department initially determines the requirements of this chapter are not met, they shall prepare a notice of intent to deny. This notice will state the reasons for the Department's denial of the stationary source's submittal.

(3) Except as provided in Reg. ~~§~~19.407, the public shall have an opportunity to comment on the Department's proposed permit decision in accordance with Reg. ~~§~~19.406.

(4) Within 90 days of receipt by the Department of an initial permit application, or an application for a major modification which contains such information as required by the Department (unless said period is extended by mutual agreement between the Department and the applicant), the Department shall notify the applicant in writing of its draft permitting decision. If the Department fails to take action of the application within the prescribed time frames, the aggrieved applicant may petition the Commission for relief from Department inaction. The Commission shall either grant or deny the petition within 45 days of its submittal.

(C) Final Action

The Department shall take final action on a permit application after the close of the public comment period. The Department shall notify in writing the owner/operator and any person that submitted a written comment, of the Department's final action and the Department's reasons for its final action.

Reg. 19.406 Public Participation

(A) General

No permit shall be issued, denied, or modified unless the public has first had an opportunity to comment on the information submitted by the owner/operator and the Department's analysis, as demonstrated by the permit record, of the effect of construction or modification on ambient air quality, including the Department's proposed approval or disapproval of the permit.

(B) Public Availability of Information

For purposes of this section, opportunity to comment shall include, at a minimum:

(1) Availability for the public inspection in at least one location in the area where the source is located, or proposes to locate, and in the Department's central offices of the Department's draft decision, information submitted by the owner/operator, and any information developed by the Department in support of its draft permit decision;

(2) A 30-day period for submittal of public comment (beginning on the date of the latest newspaper notice, ending on the date 30 days later);

(3) A publication in a newspaper of general circulation in the area where the source is located or proposes to locate, and in a State publication designed to give general public notice. Such notice shall, as a minimum, describe the locations at which the information submitted by the owner/operator and the Department's analysis of this information, may be inspected and the procedure for submitting public comment;

(4) A copy of the notice, required pursuant to this subsection, shall be sent to the owner/operator and to the:

(a) Regional Administrator of the United States Environmental Protection Agency;

(b) mayor of the community where the stationary source is proposed to be constructed or modified;

(c) county judge of the county where the equipment is proposed to be constructed or modified; and

(d) appropriate air pollution control agencies of adjoining states if the construction or modification of the source will impact air quality in adjoining states.

(5) Public comments addressing the technical merits of the permit application and the Department's analysis of the effect of the proposed emissions on air quality submitted in accordance with procedures in the public notice shall be considered by the Department prior to taking final action on the permit application.

Reg. 19.407 Permit Amendments

(A) Administrative Permit Amendments

(1) An administrative permit amendment is a permit revision that:

(a) corrects a typographical error;

(b) identifies a change in the name, address, or phone number of any person identified in the permit, or provides a similar minor administrative change in the source;

(c) requires more frequent monitoring or reporting by the permittee;

(d) incorporates a change in the permit involving the retiring of equipment or emission units, or the decrease of permitted emissions from equipment or emission units; or

(e) incorporates a change to the facilities' insignificant activities list.

(2) The Department shall revise the permit as expeditiously as practicable and may incorporate such revisions without providing notice to the public.

(3) The applicant may implement the changes addressed in the request for an administrative amendment immediately upon approval.

(B) Change in Ownership

(1) Permits issued under this regulation shall remain freely transferable provided:

(a) the applicant for the transfer notifies the Director at least thirty (30) days in advance of the proposed transfer date on such forms as the Director may reasonably require, and

(b) submits a disclosure statement in accordance with Commission Regulation 8, Administive Procedures, or other such documents as required by the Department.

~~(i) "Disclosure statement" means a written statement by the applicant which contains:~~

~~(aa) The full name, business address, and social security number of the applicant an all affiliated persons;~~

~~(bb) The full name and business address of any legal entity in which the applicant holds a debt or equity interest of at~~

least five percent (5%) or which is a parent company or subsidiary of the applicant, and a description of the ongoing organizational relationships as they may impact operations within the state;

(cc) A description of the experience and credentials of the applicant, including any past or present permits, licenses, certifications, or operational authorizations relating to environmental regulation;

(dd) A listing and explanation of any civil or criminal legal actions by government agencies involving environmental protection laws or regulations against the applicant and affiliated persons in the ten (10) years immediately preceding the filing of the application, including administrative enforcement actions resulting in the imposition of sanctions, permit or license revocations or denials issued by any state or federal authority, actions that have resulted in a finding or a settlement of a violation, and actions that are pending;

(ee) A listing of any federal environmental agency and any other environmental agency outside this state that has or has had regulatory responsibility over the applicant;

(ff) Any other information the director may require that relates to the competency, reliability, or responsibility of the applicant and affiliated persons.

(ii) Deliberate falsification or omission of relevant information from disclosure statements shall be grounds for civil or criminal enforcement action or administrative denial of a permit, license, certification, or operational authorization. The following persons or entities are not required to file a disclosure statement:

~~(aa) Governmental entities, consisting only of subdivisions or agencies of the federal government, agencies of the state government, counties, municipalities, or duly authorized regional solid waste authorities. This exemption shall not extend to improvement districts or any other subdivision of government which is not specifically instituted by an act of the General Assembly; and~~

~~(bb) Applicants for a general permit to be issued by the Department pursuant to its authority to implement the National Pollutant Discharge Elimination System for storm water discharge.~~

~~(iii) Nothing in this sub-paragraph, including the exemptions in supporting paragraph (ii) of this sub-paragraph, shall be construed as a limitation upon the authority of the director to deny a permit based upon a history of noncompliance to any applicant or for other just cause.~~

~~(iv) If the applicant is a publicly held company required to file periodic reports under the Securities and Exchange Act of 1934, or a wholly owned subsidiary of a publicly held company, the applicant shall not be required to submit a disclosure statement, but shall submit the most recent annual and quarterly reports required by the Securities and Exchange which provide information regarding legal proceedings in which the applicant has been involved. The applicant shall submit such other information as the director may require that relates to the competency, reliability, or responsibility of the applicant and affiliated persons.~~

(2) The Director ~~director~~ may deny the issuance or transfer of any permit, license, certification, or operational authority if he finds, based upon the disclosure statement and other investigation which he deems appropriate, that:

(a) The applicant has a history of noncompliance with the environmental laws or regulations of this state or any other jurisdiction;

(b) An applicant which owns or operates other facilities in the state is not in substantial compliance with, or on a legally enforceable schedule that will result in compliance with, the environmental laws or regulations of this state; or

(c) A person with a history of noncompliance with environmental laws or regulations of this state or any other jurisdiction is affiliated with the applicant to the extent of being capable of significantly influencing the practices or operations of the applicant which could have an impact upon the environment.

(3) Public notice requirements shall not apply to changes in ownership or changes in name.

(C) *De Minimis* Changes

(1) A proposed change to a facility will be considered *De Minimis* if:

(a) minimal judgment is required to establish the permit requirements for the change; and

(b) the change will result in a trivial environmental impact.

(2) The environmental impact of a proposed change generally will be considered trivial if the potential emissions from the change alone, without taking into account any corresponding emission reductions, will:

(a) be less than the following amounts:

(i) Seventy-five (75) ~~five (5)~~ tons per year of carbon monoxide, ~~nitrogen dioxide, PM_{10}, and sulfur dioxide~~;

(ii) Forty (40) ~~twenty (20)~~ tons per year of nitrogen dioxides, sulfur dioxides, or volatile organic compounds; ~~and~~

(iii) Twenty-five (25) ~~one-half (0.5)~~ tons per year of particulate matter emissions ~~lead~~;

(iv) Fifteen (15) tons per year of PM_{10} emissions; and

(v) One-half (0.5) a ton per year lead;

(b) or, result in an air quality impact less than:

pollutant	*De Minimis* Concentration	Averaging time
carbon monoxide	500 $\mu g/m^3$	8-hour
nitrogen dioxide	10 $\mu g/m^3$	annual
PM_{10}	8 $\mu g/m^3$	24-hour
sulfur dioxide	18 $\mu g/m^3$	24-hour
lead	0.1 $\mu g/m^3$	3-month

(3) The following changes will not be considered *De Minimis* changes:

(a) any increase in the permitted emission rate at a stationary source without a corresponding physical change or change in the method of operation at the source;

(b) any change which would result in a violation of the Clean Air Act;

(c) any change seeking to change a case-by-case determination of an emission limitation established pursuant to BACT, §112(g), §112(i)(5), §112(j), or §111(d) of the Clean Air Act;

(d) a change that would result in a violation of any provision of this regulation;

(e) any change in a permit term, condition, or limit that a source has assumed to avoid an applicable requirement to which the source would otherwise be subject;

(f) any significant change or relaxation to existing testing, monitoring, reporting, or recordkeeping requirements; or

(g) any proposed change which requires more than minimal judgment to determine eligibility.

(4) A source may not submit multiple applications for *De Minimis* changes that are designed to conceal a larger modification that would not be considered a *De Minimis* change. The Department will require such multiple applications be processed as a permit modification with public notice and reconstruction requirements. Deliberate misrepresentation may be grounds for permit revocation.

(5) The applicant may implement *De Minimis* changes immediately upon approval by the Department.

(6) The Department shall revise the permit as expeditiously as practicable and may incorporate *De Minimis* changes without providing notice to the public. The applicant may implement *De Minimis* changes immediately upon approval by the Department.

Reg. 19.408 Exemption from Permitting

(A) Insignificant Activities

Stationary sources and activities listed in Appendix A of this regulation shall be considered to be insignificant and will not require a permit under this chapter or be included in a source's permit.

(B) Grandfathering

Stationary sources operating prior to June 30, 1975, and which have not been modified since, will not be required to obtain a permit under this chapter.

Reg. 19.409 Transition

Facilities which are now subject to this regulation which were not previously subject to this regulation shall be in full compliance within 180 days of the effective date of this regulation. Facilities which are now subject to permitting under this regulation which were not previously subject to permitting under this regulation shall submit a complete application within 180 days of the effective date of this regulation. The Director may extend this compliance period on a case-by-case basis provided that the total compliance period does not exceed one year.

Reg. 19.410 Permit Revocation and Cancellation

(A) Revocation

Any permit issued under this regulation is subject to revocation, suspension, or modification in whole or in part, for cause, including without limitation:

(1) Violation of any condition of the permit;

(2) Obtaining a permit by misrepresentation or failure to disclose fully all relevant facts; or

(3) Change in any applicable regulation or change in any pre-existing condition affecting the nature of the emission that requires either a temporary or permanent reduction or elimination of the permitted emission.

(B) Cancellation

The Director may cancel a permit if the construction or modification is not begun within 18 months from the date of the permit issuance or if the work involved in the construction or modification is suspended for a total of 18 months or more.

Reg. 19.411 General Permits

(A) General Authority

The Department may, after notice and opportunity for public participation provided under this chapter, issue a general permit covering numerous similar sources. The criteria for the review and approval of permits under this chapter shall be used for general permits as well. Any general

permit shall comply with all requirements applicable to other permits and shall identify criteria by which sources may qualify for the general permit. They shall also include enforceable emission limitations or other control measures, means, or techniques, as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this regulation. To sources that qualify, the Department shall grant the conditions and terms of the general permit. The source shall be subject to enforcement action for operation without a permit if the source is later determined not to qualify for the conditions and terms of the general permit.

(B) Application

Sources that would qualify for a general permit must apply to the Department for coverage under the terms of the general permit or must apply for permit consistent with this chapter. The Department may grant a source's request for authorization to operate under a general permit, but such a grant shall not be a final permit action for purposes of judicial review.

(1) When any application for the issuance of a new permit or a modification of an existing permit is filed with the Department, the Department shall cause notice of the application to be published in a newspaper of general circulation in the county in which the proposed facility is to be located.

(2) The notice required by Reg. 19.411(B)(1) shall advise that any interested person may request a public hearing on the permit application by giving the Department a written request within ten (10) days of the publication of the notice.

(3) Should a hearing be deemed necessary by the Department, or in the event the Department desires such a hearing, the Department shall schedule a public hearing and shall, by first class mail, notify the applicant and all persons who have submitted comments of the date, time, and place thereof.

Reg. 19.412 Dispersion Modeling

The following shall apply when dispersion or other air quality modeling is used to meet the requirements of this chapter.

(A) General

All applications of air quality modeling involved in this chapter shall be based on the applicable models, data bases, and other requirements specified in appendix W of 40 CFR Part 51 (Guideline on Air Quality Models) as of November 9, 2005 ~~August 12, 1996~~.

(B) Substitution

Where an air quality model specified in the Guideline on Air Quality Models is inappropriate, the model may be modified or another model substituted. Such a modification or substitution of a model may be made on a case-by-case basis or, where appropriate, on a generic basis for a specific pollutant or type of stationary source. Written approval of the Administrator of the US EPA must be obtained for any modification or substitution.

Reg. 19.413 Confidentiality

Information which constitutes a trade secret shall be held confidential and segregated from the public files of the Department if requested in writing by the permit applicant in accordance with this subsection.

(A) For purposes of this subsection, "Trade Secret" means any information, including formula, pattern, compilation, program, device, method, technique, process, or rate of production that:

(1) Derives independent economic value (actual or potential) from not being generally known to, and not being readily ascertainable through, proper means by other persons who can obtain economic value from its disclosure or use, and

(2) Is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

(B) In order to establish entitlement to confidentiality, the applicant must submit a sworn affidavit to the Department that is subject to public scrutiny which describes in a manner that does not reveal trade secrets, the processes or market conditions that supports the applicant's confidentiality claim in the terms of Reg. 19.413(A)(1) and (2). This affidavit must also recite the following:

"The applicant agrees to act as an indispensable party and to exercise extraordinary diligence in any legal action arising from the Department's denial

of public access to the documents or information claimed herein to be a trade secret."

If an applicant anticipates numerous permit modifications that may involve regulatory review of trade secrets, it may submit an omnibus affidavit establishing the prerequisites of Reg. 19.413(A)(1) and (2) and reference this document in future confidentiality claims.

(C) Confidentiality claims shall be afforded interim protected status until the Department determines whether the requirements of Reg. 19.413(B) are satisfied. The Department shall make such determination prior to the issuance of any permit or publication of any draft permit. In the event the Department does not make such determination prior to permit issuance, the information shall be deemed confidential until a request is made. If a third party request to review information claimed as confidential is received before the Department provides its written determination concerning the claim, the Department shall not release such information before notifying the applicant of the request. The Department shall notify the applicant of the request and the Department's determination on the confidentiality claim at least two business days before releasing the information, at which time the applicant may choose to supplement its affidavit supporting confidentiality or seek legal recourse.

(D) For any permit application submitted subject to a claim of trade secret, the applicant shall provide two copies of the application; one prominently marked as confidential and another that is subject to public review with confidential information excised. The Department will not accept applications that are deemed totally confidential except under extraordinary circumstances guaranteeing future disclosure at a meaningful time for public review.

Reg. 19.414 Operational Flexibility-Applicant's Duty to Apply for Alternative Scenarios

Any operating scenario allowed for in a permit may be implemented by the facility without the need for any permit revision or any notification to the Department. It is incumbent upon the permit applicant to apply for any reasonably anticipated alternative facility operating scenarios at the time of permit application. The Department shall include approved alternative operating scenarios in the permit.

Reg. 19.415 Changes Resulting in No Emissions Increases

A permitted source may make changes within the facility that contravene permit terms without a permit revision if the changes:

(A) Are not modifications under any provision of Title I of the Act;

(B) Do not exceed emissions allowable under the permit (whether expressed therein as a rate of emissions or in the terms of total emissions);

(C) Do not violate applicable requirements; and

(D) Do not contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements;

provided that the facility provides the Department with written notification as required below in advance of the proposed changes, which shall be a minimum of 7 days, or such shorter time frame that Department allows for emergencies. The source and Department shall attach each such notice to their copy of the relevant permit. For each such change, the written notification required above shall include a brief description of the change within the permitted facility, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change.

Reg. 19.416 Permit Flexibility

(A) The Department may grant an extension to any testing, compliance or other dates in the permit. No extensions shall be authorized until the owner and/or operator of the facility receives written approval from the Department. The Department may grant such a request, at its discretion, in the following circumstances:

(1) The owner and/or operator of the facility makes such a request in writing at least 15 days in advance of the deadline specified in the facility's permit;

(2) The extension does not violate a federal requirement;

(3) The owner and/or operator of the facility demonstrates the need for the extension; and

(4) The owner and/or operator of the facility documents that all reasonable measures have been taken to meet the current deadline and documents reasons the current deadline cannot be met.

(B) The Department may grant a request to allow temporary emissions and/or testing that would otherwise exceed a permitted emission rate, throughput requirement or other limit in a facility's permit. No such activities shall be authorized until the owner and/or operator of the facility receives written approval from the Department. The Department may grant such a request, at its discretion, in the following circumstances:

(1) The owner and/or operator of the facility makes such a request in writing at least 30 days in advance of the date that temporary emissions and/or testing that would otherwise exceed a permitted emission rate, throughput requirement or other limit in a facility's permit;

(2) Such a request does not violate a federal requirement;

(3) Such a request is temporary in nature;

(4) Such a request will not result in a condition of air pollution;

(5) The request contains such information necessary for the Department to evaluate the request, including but not limited to, quantification of such emissions and the date and time such emission will occur;

(6) Such a request will result in increased emissions less than five tons of any individual criteria pollutant, one ton of any single HAP and 2.5 tons of total HAPs; and

(7) The owner and/or operator of the facility maintains records of the dates and results of such temporary emissions and/or testing.

(C) The Department may grant a request to allow an alternative to the monitoring specified in a facility's operating permit. No such activities shall be authorized until the owner

and/or operator of the facility receives written approval from the Department. The Department may grant such a request, at its discretion, in the following circumstances:

(1) The owner and/or operator of the facility makes such a request in writing at least 30 days in advance of the first date that the monitoring alternative will be used at the facility;

(2) Such a request does not violate a federal requirement;

(3) The monitoring alternative provides an equivalent or greater degree of actual monitoring to the requirements in the facility's operating permit; and

(4) Any such request, if approved by the Department, is incorporated into the next permit modification application by the owner and/or operator of the facility.

Reg. 19.417 Registration

(A) No person shall cause or permit the operation, construction, or modification of a stationary source, whose actual emissions are:

(1) 40 tons per year or more but less than 75 tons per year of carbon monoxide;

(2) 25 tons per year or more but less than 40 tons per year of nitrogen oxides;

(3) 25 tons per year or more but less than 40 tons per year of sulfur dioxide;

(4) 25 tons per year or more but less than 40 tons per year of volatile organic compounds;

(5) 10 tons per year or more but less than 15 tons per year of PM_{10};

(6) 1.0 ton per year or more but less than 2 tons per year of any single hazardous air pollutant; or

(7) 3.0 tons per year or more but less than 5 tons per year of an combination of hazardous air pollutants

without first having registered the source with the Department.

(B) Such registration shall be made on such forms and contain such information as the Department may reasonably require, including but not limited to:

(1) The name and address of the facility;

(2) An estimate of emission from the facility; and

(3) An explanation of how the emission estimate was determined.

(C) Such registration does not affect the responsibility of the owner/operator to comply with applicable portions of this regulation.

(D) A facility may construct, operate, or modify a source subject to registration under this section immediately upon submittal of the registration.

(E) Sources registered under this section shall pay an annual fee of $200. The requirements of chapter 3 of Regulation 9 shall apply to fees collected under this section.

(F) Sources currently holding permits but whose emissions are below the permitting thresholds in Reg. 19.402, and above the registration threshold under Reg. 19.401 may elect to continue to operate under their existing permit or they may submit a registration and request their permit be voided. The permit shall remain in effect until voided. If a source takes no action the permit will remain in effect.

(G) A source otherwise required to be registered under this section may instead choose to operate under a permit issued in accordance with Reg. 19.402.

CHAPTER 5: GENERAL EMISSIONS LIMITATIONS APPLICABLE TO EQUIPMENT

Reg. 19.501 Purpose

The purpose of this chapter is to define the general federally regulated air pollutant emissions limitations applicable to all equipment subject to the Plan. Stricter specific limitations may be required in applicable permits if such limitations are necessary to comply with federal law or regulations which are in effect as of the effective date of this regulation.

Reg. 19.502 General Regulations

No person shall cause or permit the construction or modification of equipment which would cause or allow the following standards or limitations which are in effect as of the effective date of this regulation, to be exceeded:

(A) Any National Ambient Air Quality Standard or ambient air increment (as listed in 40 CFR 52.21).

(B) Any applicable emission limitation promulgated by the United States Environmental Protection Agency.

(C) Any applicable emission limitation promulgated by the Department in this regulation.

Reg. 19.503 Visible Eemission Rregulations

(A) No person shall cause or permit visible emissions (other than uncombined water vapor) from equipment identified hereinunder and which was installed and in operation, or for which a permit had been issued by the Department prior to January 30, 1972 to exceed the following limitations:

(1) Emissions shall not exceed 40% opacity, except that emissions greater than 40% opacity will be allowed for not more than six (6) minutes in the aggregate in any consecutive 60-minute period, provided such emissions will not be permitted more than three (3) times during any 24-hour period.

(B) No person shall cause or permit visible emissions (other than uncombined water vapor) from new equipment identified hereinunder which was installed or permitted by the Department after January 30, 1972 to exceed the following limitations or to exceed any applicable visible emission limitations of the New Source Performance Standards promulgated by the EPA ~~United States Environmental Protection Agency~~:

(1) For incinerators and fuel burning equipment, exclusively, emissions shall not exceed 20% opacity except that emissions greater than 20% opacity but not exceeding 60% opacity will be allowed for not more than six (6) minutes in the aggregate in any consecutive 60-minute period, provided such emissions will not be permitted more than three (3) times during any 24-hour period.

(2) For equipment used in a manufacturing process, emissions shall not exceed 20%.

(C) Opacity of visible emissions shall be determined using EPA Method 9 (40 CFR Part 60, Appendix A).

Reg. 19.504 Stack H~~h~~eight/D~~d~~ispersion R~~r~~egulations

The stack height provisions of 40 CFR 51.118 are incorporated by reference. The definition of "stack," "a stack in existence," "dispersion technique," "good engineering practice," "nearby," and "excessive concentration" contained in 40 CFR 51.100 (ff) through (kk) are incorporated into this chapter by reference.

Reg. 19.505 Revised E~~e~~missions L~~l~~imitation

The emissions limitations contained within the Plan and applicable permits are for the purpose of assuring the attainment and maintenance of the NAAQS ~~National Ambient Air Quality Standards~~ and have been established within the framework of information presently available to the Department. As additional and more precise information becomes available, the emission limitations and reporting procedures of this chapter may be amended as described below:

(A) More restrictive limitations to protect the NAAQS. In accordance with the provisions of the federal Clean Air Act, as amended, and the federal regulations promulgated pursuant to the Clean Air Act, as amended, the emission limitations and reporting procedures of this chapter or any applicable permits may be further amended and made

more restrictive where the Director finds more restrictive measures are necessary to assure maintenance of the NAAQS.

(B) Less restrictive limitations. Any person subject to the emission limitations contained in this Plan or in a permit may petition the Director for a less stringent limitation on the grounds that the existing limitation cannot be met when considering physical, economical, or technological constraints. In no case shall the Director approve a less stringent limitation if it would cause a violation of the NAAQS. The Director shall not approve a less stringent limitation if it violates a federal emission standard or regulation, unless approved according to applicable federal regulations.

The Director shall take into account the following factors when making such determinations:

(1) The process, fuels, and raw materials available and to be employed in the facility involved;

(2) The engineering aspects of the application of various types of control techniques which have been adequately demonstrated;

(3) Process and fuel changes;

(4) The respective costs of the application of all such control techniques, process changes, alternative fuels, etc.; and

(5) Locational and siting considerations.

(C) In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

(D) This provision is in addition to any emergency or upset provision contained in any applicable requirement.

CHAPTER 6: UPSET AND EMERGENCY CONDITIONS

Reg. 19.601 Upset Cconditions

For purposes of this paragraph, "upset condition" shall be defined as exceedences of applicable emission limitations lasting 30 or more minutes, in the aggregate, during a 24-hour period, unless otherwise specified in an applicable permit or regulation (such as NSPS regulations). All upset conditions, resulting in violation of an applicable permit or regulation, shall be reported to the Department. Any source exceeding an emission limit established by the Plan or applicable permit shall be deemed in violation of said Plan or permit and shall be subject to enforcement action. The Department may forego enforcement action for federally regulated air pollutant emissions given that the person responsible for the source of the excess emissions does the following:

(A) Demonstrates to the satisfaction of the Department that the emissions resulted from:

(1) equipment malfunction or upset and are not the result of negligence or improper maintenance; or

(2) physical constraints on the ability of a source to comply with the emission standard, limitation or rate during startup or shutdown;

And that all reasonable measures have been taken to immediately minimize or eliminate the excess emissions.

(B) Reports such occurrence or upset or breakdown of equipment to the Department by the end of the next business day after the discovery of the occurrence.

(C) Submits to the Department, at its request, a full report of such occurrence, including the identification of and location of the process and control equipment involved in the upset and including a statement of all known causes and the scheduling and nature of the actions to be taken to eliminate future occurrences or to minimize the amount by which said limits are exceeded and to reduce the length of time for which said limits are exceeded.

Reg. 19.602 Emergency Ceonditions

An "emergency" means any situation arising from the sudden and reasonably unforseeable events beyond the control of the source, including natural disasters, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the upset condition. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

(A) An emergency constitutes a complete affirmative defense to an action brought for noncompliance with such technology-based limitations if the following conditions are met. The affirmative defense of emergency shall demonstrate through properly signed contemporaneous operating logs, or such other relevant evidence that:

(1) An emergency occurred and that the permittee can identify the cause(s) of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of the emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and

(4) The permittee submitted notice of the upset to the Department by the end of the next business day after the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(B) [RESERVED]

CHAPTER 7: SAMPLING, MONITORING, AND REPORTING REQUIREMENTS

Reg. 19.701 Purpose

The purpose of this chapter is to generally define the powers of the Department in requiring sampling, monitoring, and reporting requirements at stationary sources. The Department shall enforce all properly incorporated and delegated federal testing requirements at a minimum. Any credible evidence based on sampling, monitoring, and reporting may be used to determine violations of applicable emission limitations.

Reg. 19.702 Air Emissions Sampling

Any stationary source subject to this regulation shall be subject to the following requirements:

(A) Sampling Ports

To provide any sampling ports, at the request of the Department, required for federally regulated air pollutant emissions sampling, including safe and easy access to such ports.

(B) Sampling

To conduct federally regulated air pollutant emissions sampling, at the request of the Department, to determine the rate, opacity, composition, and/or contaminant concentration of the emissions. All compliance testing shall be done at the expense of the permittee by an independent firm, unless otherwise approved by the Department. Sampling shall not be required for those pollutants with continuous emissions monitors.

(C) Averaging Times

All compliance testing averaging times shall be consistent with the averaging times of the applicable federally regulated air pollutant emissions limitations stated in the applicable permit, which in no case shall be greater than the minimum averaging times of the applicable NAAQS.

(D) Process Rates

Unless otherwise approved by the Department, all federally regulated air pollutant emissions sampling shall be performed with the equipment being tested operating at least at 90% of its permitted capacity. Emissions results shall be extrapolated to correlate with 100% of permitted capacity to determine compliance.

(E) Testing Time Frames

Any equipment that is to be tested, at the request of the Department, shall be tested in accordance with the following time frames:

(1) Equipment to be constructed or modified shall be tested within 60 days after achieving its maximum permitted production rate, but no later than 180 days after its initial start-up;

(2) Equipment already operating shall be tested according to the time frames set forth by the Department.

The Department shall require that all applicable testing be performed using the methods described in 40 CFR Part 60, Appendix A. The Department, with the concurrence of the EPA, may approve, at its discretion, alternate sampling methods that are equivalent to the specified methods. The results of such tests shall be submitted to the Department within the time frames and on such forms as required by the Department and federal regulations. The owner or operator of the equipment shall retain the results of such tests for at least 5 years, and shall make the results available to any agents of the Department or the EPA during regular business hours.

Reg. 19.703 Continuous Emissions Monitoring

Any stationary source subject to this regulation shall, as required by federal law and upon request of the Department:

(A) Install, calibrate, operate, and maintain equipment to continuously monitor or determine federally regulated air pollutant emissions in accordance with applicable performance specifications in 40 CFR Part 60 Appendix B, and quality assurance procedures in 40 CFR Part 60 Appendix F, and other methods and conditions that the Department, with the concurrence of the EPA, shall prescribe. Any source listed in a category in 40 CFR Part 51 Appendix P or in 40 CFR Part 60 shall adhere to all

continuous emissions monitoring or alternative continuous emission monitoring requirements stated therein, if applicable.

(B) Report the data collected by the monitoring equipment to the Department at such intervals and on such forms as the Department shall prescribe, in accordance with 40 CFR Part 51, Appendix P, Section 4.0 (Minimum Data Requirements) and any other applicable reporting requirements promulgated by the EPA.

Reg. 19.704 Notice of Completion

For equipment for which a new permit or major permit modification is required, the Department shall be notified in writing within 30 days of the following events;

(A) The date of commencement of construction or modification; and

(B) The date of commencement of operation of the equipment.

Reg. 19.705 Record Keeping and Reporting Requirements

Any stationary source subject to this regulation shall, upon request by the Department:

(A) Maintain records on the nature and amounts of federally regulated air pollutants emitted to the air by the equipment in question. All records, including compliance status reports and excess emissions measurements shall be retained for at least five (5) years, and shall be made available to any agent of the Department or EPA during regular business hours.

(B) Supply the following information, correlated in units of the applicable emissions limitations, to the Department:

(1) General process information related to the emissions of federally regulated air pollutants into the air.

(2) Emissions data obtained through sampling or continuous emissions monitoring.

(C) Information and data shall be submitted to the Department by a responsible official on such forms and at such time intervals as prescribed by applicable federal regulations or the Department. Reporting periods shall be a 12 month period.

(D) Each emission inventory is to be accompanied by a certifying statement, signed by the owner(s) or operator(s) and attesting that the information contained in the inventory is true and accurate to the best knowledge of the certifying official. The certification shall include the full name, title, signature, date of signature, and telephone number of the certifying official.

Reg. 19.706 Public Availability of Emissions Data

Emissions data obtained by the Department shall be correlated in units of applicable emissions limitations and be made available to the public at the Department's central offices during normal business hours.

CHAPTER 8: 111(D) DESIGNATED FACILITIES

Reg. 19.801 Purpose

The purpose of this chapter is to establish regulations for designated pollutants emitted from designated facilities in accordance with Section 111(d) of the Clean Air Act.

Reg. 19.802 Permit Emissions Limitations

No person shall cause or permit emissions from equipment located at facilities described in this chapter to be exceeded. Future permit conditions may place more stringent emissions limitations on the equipment which shall supersede the limitations of this section.

Reg. 19.803 Sulfuric Acid Plants (H_2SO_4 Mist)

(A) El Dorado Chemical Company (AFIN 7000040) of El Dorado shall not exceed the following emission limitation after November 1, 1980:

(1) Sulfuric Acid Plant - 0.5 lb H_2SO_4 mist/ton 100% acid.

(2) [RESERVED]

(B) Compliance testing shall be performed using EPA Method #8 (40 CFR Part 60 Appendix A) at intervals specified in the applicable permit.

Reg. 19.804 Kraft Pulp Mills (TRS)

(A) Affected Facilities

Equipment located at the following kraft pulp mills are affected by the provisions of this subsection. The total reduced sulfur (TRS) emissions limitations are contained in Table 19.8.1.

(1) International Paper Company (AFIN 3500016) of Pine Bluff.

(2) Green Bay Packaging, Arkansas Kraft Division (AFIN 1500001) of Morrilton.

(3) Delta National Kraft (AFIN 3500017) of Pine Bluff.

(4) Georgia-Pacific Corporation (AFIN 0200013) of Crossett.

(5) Georgia-Pacific Corporation (AFIN 4100002) of Ashdown.

(6) Potlatch Corporation (AFIN 2100036) of McGehee.

(B) Compliance Testing Requirements

All designated equipment in Table 19.8.1 shall have annual compliance testing of TRS emissions performed using EPA Method 16. Data reduction shall be performed as set forth in 40 CFR 60.8. Annual compliance testing will not be required for equipment with a continuous TRS emissions monitor.

(C) Continuous Monitoring Requirements

Any equipment located at the above designated facilities shall conduct TRS continuous monitoring in accordance with the requirements of 40 CFR 60.284 (date of installation not withstanding). The continuous monitoring systems shall be operated according to the provisions of 40 CFR 60.284 by April 1, 1993, except that continuous emissions monitors for affected lime kilns shall be installed and certified by January 1, 1994.

Table 19.8.1 Kraft Pulp Mill TRS Emission Limits			
AFIN	Facility	Equipment	TRS Concentration
5200013	IP Camden	recovery furnace	40 ppm
		lime kiln	40 ppm
		smelt dissolving tank	0.0168 g/kg
3500016	IP Pine Bluff	recovery furnace	40 ppm
		lime kiln	40 ppm

		smelt dissolving tank	0.0168 g/kg
1500001	Green Bay Packaging, Arkansas Kraft Division	recovery furnace	40 ppm
		lime kiln	40 ppm
		smelt dissolving tank	0.0168 g/kg
3500017	Gaylord Container, Corp.	recovery furnace	100 ppm
		lime kiln	40 ppm
		smelt dissolving tank	0.0168 g/kg
0200013	GP Crossett	recovery furnace	5 ppm
		lime kiln	8 ppm
		smelt dissolving tank	0.0168 g/kg
4100002	GP Ashdown	recovery furnace	5 ppm
		lime kiln	8 ppm
		smelt dissolving tank	0.0168 g/kg
2100036	Potlatch McGehee	recovery furnace	5 ppm
		lime kiln	20 ppm
		smelt dissolving tank	0.0168 g/kg

Recovery Furnaces – measured as H_2S on a dry basis and on a 12 hour average, corrected to 8% by volume oxygen.
Lime Kilns – measured as H_2S on a dry basis and on a 12 hour average, corrected to 10% volume oxygen.
Smelt Dissolving Tanks – measured as grams H_2S/kg black liquor solids on a 12 hour average.
Digesters and Evaporators – efficient incineration of non-condensible gases (at least 1200°F for at least 0.5 second).

CHAPTER 9: PREVENTION OF SIGNIFICANT DETERIORATION

Reg. 19.901 Title

The following rules and regulations of the Arkansas Pollution Control and Ecology Commission, adopted in accordance with the provisions of Part II of the Arkansas Water and Air Pollution Control Act at A.C.A §§8-4-101 et seq., shall be known as the Prevention of Significant Deterioration Regulations of the Arkansas Plan of Implementation for Air Pollution Control, hereinafter referred to, respectively, as the "PSD Regulations."

Reg. 19.902 Purposes

Promulgation and enforcement of these PSD Regulations is intended to further the purposes of the Plan and the Regulations of the Plan, including, but not limited to, acceptance of delegation by the EPA ~~U.S. Environmental Protection Agency~~ of authority for enforcement of regulations governing the prevention of significant deterioration of air quality and regulations governing the protection of visibility in mandatory Class I federal areas.

Reg. 19.903 Definitions

(A) "Advance notification" (of a permit application) means any written communication which establishes the applicant's intention to construct, and which provides the Department with sufficient information to determine that the proposed source may constitute a major new source or major modification, and that such source may affect any mandatory Class I federal area, including, but not limited to, submittal of a draft or partial permit application, a PSD monitoring plan, or a sufficiently detailed letter. "Advance notification" does not include general inquiries about the Department's regulations.

(B) All other terms used herein shall have the same meaning as set forth in chapter 2 or in 40 CFR 52.21(b) [PSD] and 40 CFR 51.301 [Protection of Visibility], all as in effect upon the latest date of amendment of this supplement, unless manifestly inconsistent with the context in which they are used. Wherever there is a difference between the definitions in chapter 2 and those listed in 40 CFR 52.21(b) and 40 CFR 51.301, the federal definitions as listed in 40 CFR 52.21(b) and 40 CFR 51.301 shall apply.

(C) The definition for "routine maintenance, repair and replacement" in 40 CFR 52.21(b)(2)(iii)(a) is not incorporated.

Reg. 19.904 Adoption of Regulations

(A) Except where manifestly inconsistent with the provisions of the Clean Air Act, as amended, or with federal regulations adopted pursuant thereto, and as amended specifically herein by paragraphs (B), (C), (D), (E), and (F) of this section, the Arkansas Department of Environmental Quality shall have those responsibilities and that authority, with reference to the State of Arkansas, granted to the Administrator of the EPA ~~U.S. Environmental Protection Agency~~ under 40 CFR 52.21 (a)(2) through (bb), as in effect on November 29, 2005 ~~July 23, 2004~~, which are hereby incorporated herein by reference, with the exception of 40 CFR 52.21(b)(55-58), 40 CFR 52.21(i)(9), and 40 CFR 52.21(cc), which are not incorporated. In the absence of a specific imposition of responsibility or grant of authority, the Department shall be deemed to have that responsibility and authority necessary to attain the purposes of the Plan, these PSD Regulations, and the applicable federal regulations, as incorporated herein by reference.

(B) Exclusions from the consumption of increments, as provided in 40 CFR 51.166(f)(1)(iii), shall be effective immediately. Submission of this Plan under the Governor's signature constitutes a request by the Governor for this exclusion.

(C) In addition to the requirements of 40 CFR 52.21(o), the following requirements [designated as subparagraphs (4), (5), (6), and (7)] shall also apply:

(1) Where air quality impact analyses required under this part indicate that the issuance of a permit for any major stationary source or for any major modification would result in the consumption of more than fifty percent (50%) of any available annual increment or eighty percent (80%) of any short term increment, the person applying for such a permit shall submit to the Department an assessment of the following factors:

(i) Effects that the proposed consumption would have upon the industrial and economic development within the area of the proposed source; and

(ii) Alternatives to such consumption, including alternative siting of the proposed source or portions thereof.

(2) The assessment required under subparagraph (4) above shall be made part of the application for permit and shall be made available for public inspection as provided in 40 CFR 52.21(q).

(3) The assessment required under subparagraph (4) above shall be in detail commensurate with the degree of proposed increment consumption, both in terms of the percentage of increment consumed and the area affected.

(4) The assessment required under subparagraph (4) above may be made effective where a proposed source would cause an increment consumption less than that specified in said subparagraph if the Director finds that unusual circumstances exist in the area of the proposed source which warrant such an assessment. The Director shall notify the applicant in writing of those circumstances which warrant said assessment. The Commission may rescind or modify the Director's action, upon a showing by the applicant that the circumstances alleged by the Director either do not exist or do not warrant the aforecited assessment.

(D) In addition to the requirements of 40 CFR 52.21(p)(1), the following requirements shall also apply:

Impacts on mandatory Class I federal areas include impacts on visibility. The preliminary determination that a source may affect air quality or visibility in a mandatory Class I federal area shall be made by the Department, based on screening criteria agreed upon by the Department and the Federal Land Manager.

(E) In all instances wherein the aforesaid 40 CFR 51.301 and 40 CFR 52.21 refer to the Administrator or the Environmental Protection Agency, the reference, for the purposes of paragraph (A) of Reg. ~~§~~19.904, shall be deemed to mean the Arkansas Department of Environmental Quality, unless the context plainly dictates otherwise, except in the following sections:

(1) Exclusion from increment consumption: 40 CFR 52.21(f)(1)(v), (f)(3), and (f)(4)(I);

(2) Redesignation: 40 CFR 52.21(g)(1), (g)(2), (g)(4), (g)(5), and (g)(6);

(3) Air quality models: 40 CFR 52.21 (2).

(F) Redesignation of air quality areas in Arkansas shall comply with Arkansas Code Annotated 1987 Section 8-3-101 et seq.

CHAPTER 10: REGULATIONS FOR THE CONTROL OF VOLATILE ORGANIC COMPOUNDS IN PULASKI COUNTY

Reg. 19.1001 Title

This chapter, adopted in accordance with the provisions of the Arkansas Water and Air Pollution Control Act [Arkansas Code Annotated Sections 8-4-101 et seq., as amended] and pursuant to the provisions of the federal Clean Air Act, shall be known as the Regulations for the Control of Volatile Organic Compounds.

Reg. 19.1002 Purpose

The Regulations for the Control of Volatile Organic Compounds are designed to provide for the attainment and maintenance of the National Ambient Air Quality Standards for ozone in those areas of Arkansas which have been designated as nonattainment areas by the EPA ~~United States Environmental Protection Agency~~ pursuant to the federal Clean Air Act and are further designed to bring the Arkansas Plan of Implementation for Air Pollution Control into compliance with the provisions of said Act.

Reg. 19.1003 Definitions

When used in these Regulations for the Control of Volatile Organic Compounds, the following definitions apply. Terms and phrases used in this chapter which are not explicitly defined herein shall have the same meaning as those terms used in chapter 2 or, if not defined in chapter 2, as those terms defined in the federal Clean Air Act.

Unless manifestly inconsistent therewith, terms and phrases used herein shall have the same meaning as used in the Arkansas Water and Air Pollution Control Act and the federal Clean Air Act.

"Clear coat" means a coating which lacks color and opacity.

"Coating application system" means all operations and equipment which applies, conveys, and dries a surface coating.

"Control Technique Guideline" means any of the guideline series documents describing an emission control technology for a specific source or category of sources; which documents being published by the EPA ~~United States Environmental Protection Agency~~.

"Cutback asphalt" means asphalt cement which has been liquefied by blending with petroleum solvents (diluents). Upon exposure to atmospheric conditions, the diluents evaporate, leaving the asphalt cement to perform its function.

"Crude oil" means a naturally occurring mixture consisting of hydrocarbons and/or sulfur, nitrogen, and/or oxygen derivatives of hydrocarbons and which is a liquid in the reservoir and at standard conditions.

"Custody transfer" means the transfer of produced crude oil and/or condensate, after processing and/or treating in the producing operations, from storage tanks or automatic transfer facilities to pipelines or any other forms of transportation.

"Delivery vessel" means tank trucks or trailers equipped with a storage tank and used for the transport of gasoline from sources of supply to stationary tanks of gasoline dispensing facilities.

"Existing source" means any source of volatile organic compounds other than a new source.

"External floating roof" means a storage vessel cover in an open tank top consisting of a double deck or pontoon single deck which rests upon and is supported by the petroleum liquid being contained and is equipped with a closure seal or seals to close the space between the roof edge and tank shell.

"Extreme performance coating" means coatings designed for harsh exposure or extreme environmental conditions.

"Gasoline" means a petroleum distillate having a Reid vapor pressure of 27.6 kPa (4 psi) or greater that is used as fuel for internal combustion engines.

"Gasoline dispensing facility" means any site where gasoline is dispensed to motor vehicle gasoline tanks from stationary storage tanks.

"Gasoline tank truck" means tank trucks or trailers equipped with a storage tank and used for the transport of gasoline from sources of supply to stationary storage tanks or to gasoline bulk facilities.

"Liquid-mounted" means a primary seal mounted so the bottom of the seal covers the liquid surface between the tank shell and the floating roof.

"Low solvent coating" means coatings which contain less organic solvent than the conventional coatings used by the industry. Low solvent coatings include water borne, high solids, electrodeposition and powder coatings.

"Lowest Achievable Emission Rate" (LAER) means for any source, that rate of emissions which reflects the most stringent emission limitation which is contained in the implementation plan of any State for such class or category of source, unless the owner or operator of the proposed source demonstrates that such limitations are not achievable, or the most stringent emission limitation which is achieved in practice by such class or category of source, whichever is more stringent. In no event shall the application of this term permit a proposed new or modified source to emit any pollutant in excess of the amount allowable under applicable New Source Standards of Performance.

"Major source" means any stationary source which has the potential to emit 100 tons or more per year of volatile organic compounds.

"Modification" means any physical change in, or change in the method of operation of, a stationary source which increases the amount of any volatile organic compound emitted by such source or which results in the emission of any other volatile organic compound not previously emitted.

"New source" means any stationary source of volatile organic compounds, the construction or modification of which is commenced after July 1, 1979.

"New Source Standard of Performance" means those standards which are adopted by the EPA pursuant to the provisions of Section 111 of the federal Clean Air Act [NSPS, 40 CFR Part 60].

"Operator" means any person who leases, operates, controls, or supervises any source, facility or equipment affected by these regulations.

"Owner" means any person who has legal or equitable title to any source, facility, or equipment affected by these regulations.

"Person" means any individual or other legal entity or their legal representative or assignee.

“Prime coat" means the first of two or more films of coating applied to a metal surface.

"Reasonably Available Control Technology" (RACT) means the lowest emission limit that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. It may require technology that has been applied to similar, but not necessarily identical source categories.

"Single coat" means one film coating applied to a metal surface.

"Top coat" means the final film or series of films or coatings applied in a two coat (or more) operation.

"True vapor pressure" means the equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods described in American Petroleum Institute (API) Bulletin 2517, Evaporation Loss from External Floating Roof Tanks, 1980. The API procedure may not be applicable to some high viscosity or high pour crudes. Available estimates of true vapor pressure may be used in special cases such as these.

"Vapor collection system" means a vapor transport system which used direct displacement by the gasoline being transferred to force vapors from the vessel being loaded into either a vessel being unloaded or a vapor control system or vapor holding tank.

"Vapor control system" means a system that prevents release to the atmosphere of gasoline vapors in excess of 80 milligrams per liter of gasoline loaded (4.7 grains per liter).

"Vapor-mounted" means a primary seal mounted so there is an annular vapor space underneath the seal. The annular vapor space is bounded by the bottom of the primary seal, the tank shell, the liquid surface, and the floating roof.

Reg. 19.1004 General Provisions

(A) Applicability and Effective Dates

(1) Sources which are subject to provisions of the Regulations for the Control of Volatile Organic Compounds include:

(a) Any source for which controls are governed by Reg. ~~§~~19.1005 hereof;

(b) Any source which is subject to the terms of a Commission order issued pursuant to Reg. ~~paragraph~~ 19.1004(D)(1) hereof, and

(c) Any new major source.

(2) The provisions of chapter 10, the Regulations for the Control of Volatile Organic Compounds, shall be limited to sources located in Pulaski County, except as provided in Reg. ~~paragraph~~ 19.1004(D)(1) and shall go into full force and effect on the effective date provided, however, that the provisions of Reg. ~~paragraph~~ 19.1004(D)(1) shall go into full force and effect on April 1, 1979. The effective date for Reg. ~~subsections~~ 19.1005(A)(B)&(C) is July 1, 1979 and for Reg. ~~subsections~~ 19.1005(D)&(E) is October 1, 1980. The effective date for Reg. ~~subsection~~ 19.1005(F) is April 1, 1981.

(B) Exemptions and Variances

(1) [RESERVED~~.~~]

(2) The requirements of Reg. ~~§~~19.1005 are based upon information presented in the Control Technique Guidelines as published by the EPA and are intended to be consistent with Reasonably Available Control Technology. The owner or operator of equipment affected by the provisions of Reg. ~~§~~19.1005 may be granted a variance from the specific provisions of such section provided that such owner or operator can demonstrate to the reasonable satisfaction of the Commission that full and strict compliance is technologically or economically infeasible or that alternative techniques to be employed by such owner or operator will result in substantially the same environmental benefits as would be achieved with full and strict compliance with the provisions of Reg. ~~§~~19.1005. In no event, however, shall the Commission issue variances from the requirements of Reg. ~~§~~19.1005 if such variances will prevent reasonable further progress for the attainment and maintenance of the National Ambient Air Quality Standards for ozone.

(C) Toxic Compounds

The Regulations for the Control of Volatile Organic Compounds are not intended as appropriate controls for sources which emit volatile organic compounds which are hazardous air pollutants.

(D) Determination of Reasonably Available Control Technology

(1) Where the Department proposes the existence of Reasonably Available Control Technology for existing sources, other than the sources for which the provisions of Reg. ~~§~~19.1005 are applicable, the Department shall give public notice of such determination and shall, in such notice, describe the nature of such technology and shall list by size, type, source, category or by individual source name, the affected sources. The public notice shall also give notice of public hearing concerning the subject proposals. If, after review of the information produced through the public hearing process, the Department ~~Commission~~ determines that such technology does exist and that the application of such technology is necessary to maintain reasonable further progress toward the attainment and maintenance of the National Ambient Air Quality Standards for ozone, the Department ~~Commission~~ shall issue an order requiring the installation of such technology.

(2) Any order issued pursuant to Reg. ~~paragraph~~ 19.1004(D)(1) above may require the owner or operator of sources affected by such order to file such schedules and reports as the Department ~~Commission~~ feels necessary to assure that the subject technology is placed into operation as expeditiously as practicable. The terms of such orders may be modified where the Department ~~Commission~~ finds that such modifications are necessary to avoid economic hardship and where such modification would not interfere with reasonable further progress toward the attainment of the previously cited standards.

(E) Permits and Compliance Schedules

(1) Existing Sources:

(a) No person shall cause or permit the operation or use of an existing source to which any provision of Reg. ~~§~~19.1005 applies unless the owner or operator of such source shall have submitted to the Department, prior to

the applicable date below, a compliance schedule indicating what steps have been, or will be taken to bring the operation of such source into compliance with the provisions of Reg. ~~§~~19.1005. The compliance schedule shall be of such form and contain such information as the Department ~~Commission~~ may reasonably require. The applicable date for Reg. ~~subsection~~ 19.1005(A)(B)&(C) is October 1, 1979. The applicable date for Reg. ~~subsections~~ 19.1005(D)&(E) is January 1, 1981. The applicable date for Reg. ~~subsection~~ 19.1005(F) is May 15, 1981.

(b) No person shall cause the operation or use of an existing source which is affected by any provision of Reg. ~~§~~19.1005 after the approval date if a compliance schedule of such source under Subsection (a) above has been disapproved by the Department ~~Commission~~. No compliance schedule for any source shall be approved by the Department ~~Commission~~ unless the Department ~~Commission~~ finds that the controls proposed by the owner or operator will be installed, placed in operation, and that the source will be in compliance with the provisions of Reg. ~~§~~19.1005 prior to the final compliance date. Extensions beyond the final compliance date may be granted by the Department ~~Commission~~ provided the Department ~~Commission~~ finds that such extensions are necessary to avoid economic hardship and that such extensions will not prevent reasonable further progress toward the attainment of the National Ambient Air Quality Standards for ozone. The approval date for Reg. ~~subsections~~ 19.1005(A)(B)&(C) is February 1, 1981 and for Reg. ~~subsections~~ 19.1005(D)(E)&(F) is February 1, 1982. The final compliance date for Reg. ~~subsections~~ 19.1005(A)(B)&(C) is June 1, 1981, for Reg. ~~subsection~~ 19.1005(D) is March 1, 1982, and for Reg. ~~subsections~~ 19.1005(E)&(F) is July1, 1982.

(c) No person shall cause or permit the operation of an existing source in a manner which violates the terms of a compliance schedule which has been approved or amended by the Department ~~Commission~~ or which violates the terms of a Department ~~Commission~~ order issued pursuant to the provisions of Reg. ~~paragraph~~ 19.1004(D)(1).

(2) New Sources:

Except as provided herein, no person shall commence the construction, installation or modification of a new source after July 1, 1979, unless that person has first received a permit from the Department ~~Commission~~. Application for permit shall be of such form and contain such information as the Department ~~Commission~~ may reasonably require.

(a) New Major Sources: No permit shall be issued for the construction, installation or modification of a new major source after July 1, 1979, unless the Department ~~Commission~~ determines the following conditions to have been met:

(i) The emissions resulting from the proposed source when considered together with all other existing and proposed emissions of volatile organic compounds in Pulaski County will not cause or contribute to emission levels which exceed the allowance permitted for volatile organic compounds under the Arkansas Plan of Implementation for Air Pollution Control, as revised to comply with the provisions of the Clean Air Act.

(ii) The emissions resulting from the proposed new major source will comply with the requirements of the FCAA which are in effect as of the effective date of this regulation.

(iii) The owner or operator of the proposed new or modified major source has demonstrated that all major stationary sources owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in Arkansas are in compliance, or on a schedule of compliance with all applicable emission limitations and standards under the federal Clean Air Act, including the Arkansas Plan of Implementation for Air Pollution Control.

(iv) A permit may be issued to a new major source which would otherwise cause or contribute to emission levels which exceed the allowable levels for Pulaski County, as described in the State

Implementation Plan for Air Pollution Control, as amended, if the owner or operator of that source first submits legally binding agreements to the Department ~~Commission~~ which reflect emission reductions from other sources in Pulaski County, or from sources within seventy-two (72) miles of the North Little Rock Municipal Airport, which would more than offset the emissions from such proposed new major source. Emission reductions claimed by such owner or operator may not include those emission reductions in Pulaski County which are necessary to reduce the total volatile organic compound emission to the allowable level in Pulaski County.

(b) Other New Sources:

(i) No permit shall be issued for a new source of the size, type, class, or category for which the provisions of Reg. ~~§~~19.1005 apply unless the Department ~~Commission~~ finds that such new source incorporates Reasonably Available Control Technology developed for the kind and amount of volatile organic compounds to be emitted by the source and that, as a minimum, the source will be designed, constructed and operated such that the emissions therefrom, will not exceed the allowable emission rate provided by such section for existing sources.

(ii) No permit shall be issued for a new source of the size, type, class or category for which a Department ~~Commission~~ Order has been issued pursuant to Reg. ~~paragraph~~ 19.1004(D)(1), unless the Department ~~Commission~~ finds that such source incorporates Reasonably Available Control Technology developed for the kind and amount of volatile organic compounds to be emitted by such source and that, as a minimum, the source will be designed, constructed, and operated such that the emissions therefrom will not exceed the rate required of existing sources by such order.

(F) Testing and Reporting Requirements

(1) Any person owning or operating sources which are affected by the provisions of the Regulations for the Control of Volatile Organic Compounds shall, upon the request of the Director, furnish such information as may be required to demonstrate compliance with said Regulations. For purposes of this chapter, the provisions of chapter 7 of the Regulations of the Arkansas Plan of Implementation for Air Pollution Control shall apply.

(2) For purposes of administering the provisions of the Regulations for the Control of Volatile Organic Compounds, the Director shall not be limited to the results obtained from emission tests but may, where appropriate, determine the compliance status of any source with respect to the emission limitations contained herein by the results of engineering evaluations, by inspection reports or by such information submitted, and certified, by the source owner or operator. For purposes of this chapter, a source may be deemed to be in compliance with the emission limitations of said Regulations if the equipment of such source is designed and operated in accordance with the provisions of Reg. ~~§~~19.1005 or, where Reg. ~~§~~19.1005 is not applicable, is designed and operated in accordance with the provisions of a Department ~~Commission~~ Order or a permit issued hereunder, provided however, where an emission limitation is applicable to a certain source and where emission testing has been conducted in a manner approved by the Department and where such test demonstrate compliance with such limitations, the source shall be deemed to be in compliance with such limitations.

(3) To test the leak tightness of gasoline tank trucks as required in Reg. ~~subsection~~ 9.1005(D), the following method and procedures should be followed:

(a) The owner or operator shall, at his own expense demonstrate compliance with Reg. ~~subsection~~ 19.1005(D) by the methods of Part 3 of this subsection or an alternative method approved by the Director.

(b) The owner or operator of a tank truck subject to this regulation must notify the Director in writing of the date and location of a certification test at least thirty (30) days before the anticipated test date.

(c) Test procedures to determine compliance with Reg. subsection 19.1005(D) must be approved by the Director and consistent with the test procedures described in Appendix A or C of the OAQPS Guideline Series document, "Control of Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems", EPA-450/2-78-051.

(d) Monitoring to confirm the continuing existence of leak tight conditions shall be consistent with the procedures described in Appendix B of the OAQPS Guideline Series document, "Control of Organic Compound Leaks from Gasoline Tank Trucks and Vapor Collection Systems", EPA-450/2-78-051.

(4) To test for compliance with Reg. ~~subsection~~ 19.1005(E) procedures outlined in EPA guideline series document "Measurement of Volatile Organic Compounds," EPA-450/2-78-041 and Appendix A of "Control of Volatile Organics from Existing Stationary Sources--Volume II--Surface Coating of Cans, Coils, Paper, Fabrics, Automobiles and Light Trucks," EPA 450/2-77-008 shall be used.

(5) To test for compliance with Reg. ~~subsection~~ 19.1005(F) a visual inspection must be conducted at an interval not to exceed one year. For tanks with vapor mounted primary seals, the secondary seal gap area should be determined by measuring the length and width of the gaps around the entire circumference of the secondary seal. Only gaps greater than or equal to 0.32 cm (1/8 inch) shall be used in computing the gap area. The area of the gaps shall be accumulated to determine the compliance with Reg. 19.1005(F)(1)(b) ~~paragraph19.1005(F)(b)~~. This data along with records of the throughput and type of volatile petroleum liquids for each vessel should be maintained by the owner or operator.

(G) Circumvention

(1) No owner or operator subject to these Regulations may build, erect, install, or use any article, machine, equipment, process or method, the use of which conceals an emission which would otherwise constitute a violation of these Regulations.

(2) The provisions of paragraph (1) above include, but are not limited to, the use of

gaseous diluents to achieve compliance and the piecemeal carrying out of an operation to avoid coverage by a Regulation that applies only to operations larger than a specified size.

(H) Malfunctions, Breakdowns, Upsets

(1) Emissions in excess of these Regulations which are temporary and result solely from a sudden and unavoidable breakdown, malfunction or upset of process or emission control equipment, or sudden and unavoidable upset of operation will not be considered a violation of these Regulations provided:

(a) the owner or operator notifies the Department of any such occurrence by the end of the next business day of the occurrence; and

(b) the owner or operator demonstrates to the Director that the suggested period of time for correction is as expeditious as practicable; and

(c) the breakdown or upset is determined by the Director to be unavoidable and not the result of negligence; and

(d) within five (5) days after the beginning of the occurrence, a written report is submitted to the Director which includes the cause and nature of the event, estimated quantity of volatile organic compounds emitted, time of emission and to prevent recurrence; and

(e) the Director is immediately notified when corrective measures have been accomplished.

(2) [RESERVED.]

Reg. 19.1005 Provisions for Specific Processes

(A) Gasoline Storage and Marketing

(1) No person shall cause or permit the loading of gasoline into a storage tank of a gasoline storage or marketing facility with a monthly throughput in excess of 10,000 gallons except through a submerged fill pipe or by bottom loading. This provision shall not apply to storage tanks of less than 4,000 liter capacity (approximately 1,000 gallons).

(2) No person shall cause or permit the operation of a gasoline bulk facility of less than 87,000 liters (23,000 gallons) per day throughput unless all gasoline delivery vessels are loaded by submerged fill pipe or bottom filling.

(3) No person shall cause or permit the operation of a gasoline bulk facility having a daily throughput equal to greater than 87,000 liters (23,000 gallons) per day unless a vapor control system is in place, is properly maintained and is used to prevent gasoline vapors from being emitted into the atmosphere at a rate in excess of 80 milligrams per liter of gasoline loaded (4.7 grains per gallon).

(B) Petroleum Liquid Storage

(1) No person shall cause or permit the storage of volatile organic compounds having a true vapor pressure in excess of 10.5 kilopascals (1.52 psia) in tanks having a capacity equal to or greater than 150,000 liters (approximately 39,000 gallons) unless such tanks:

(a) meet the equipment specifications and maintenance requirements of the federal Standards of Performance for New Stationary Sources--Storage Vessels for Petroleum Liquids, 40 CFR 60.110, as amended by proposed rule change, *Federal Register*, May 18, 1978, pages 21617 through 21625; or

(b) are retrofitted with a floating roof or internal floating cover using a non-metallic resilient seal as a primary seal which meets the equipment specifications in the federal standards referred to in (a) above, or its equivalent, or

(c) have a covered floating roof or internal floating cover which is maintained in effective working order and which meets the manufacturer's equipment specifications in effect at the time it was installed.

(2) All seals necessary to meet the requirements of (1)(b)&(c) of this subsection are to be maintained in good operating condition.

(3) All openings, except stub drains and those related to safety, are to be sealed with suitable closures when not in use.

(C) Cutback Asphalt

No person shall mix, use or apply cutback asphalt for roadway paving except where the cutback asphalt is used solely as a penetrating prime coat or when the maximum ambient temperature on the day of application is less than 15 degrees C (59˚F).

(D) Gasoline Tank Trucks and Vapor Collection Systems

(1) No person shall allow a gasoline tank truck subject to this regulation to be filled or emptied unless the gasoline tank truck:

(a) is tested on a schedule acceptable to the Director according to the test procedure referenced in Reg. 19.1004(F)(3) ~~paragraph 19.10004(F)(3)~~;

(b) sustains a pressure change of no more than 750 pascals (3 in. of H_2O) in five minutes when pressurized to a gauge pressure of 4,500 pascals (18 in. of H_2O) or evacuated to a gauge pressure of 1,500 pascals (6 in. of H_2O) during the testing required in subparagraph (1)(a) of this chapter; and

(c) is repaired by the owner or operator and retested within 15 days of testing if it does not meet the criteria of subparagraph (1)(b) of this chapter.

(2) The owner or operator of a vapor collection system subject to this regulation shall:

(a) Design and operate the vapor collection system and the gasoline loading equipment in a manner that prevents:

(i) Gauge pressure from exceeding 4,500 pascals (18 in. of H_2O) and vacuum from exceeding 1,500 pascals (6 in. of H_2O) in the gasoline tank truck;

(ii) A reading equal to or greater than 100 percent of the lower explosive limit (LEL, measured as propane) at 2.5 centimeters from all points on the perimeter of a potential leak source when measured by the method referenced in Reg. 19.1004(F)(3) ~~paragraph 19.10004(F)(3)~~ during loading or unloading operations at gasoline dispensing facilities, bulk plants and bulk terminals; and

(iii) Avoidable visible liquid leaks during loading or unloading operations at gasoline dispensing facilities, bulk plants and bulk terminals.

(b) Within 15 days, repair and retest a vapor collection or control system that exceeds the limit in supporting Reg. 19.1005(D)(2)(a)(ii) ~~paragraph (2)(a)(ii)~~ above.

(3) The Director may, at any time, monitor a gasoline tank truck, vapor collection system, or vapor control system by the method referenced in Reg. 19.1004(F)(3) ~~paragraph 19.10004(F)(3)~~ to confirm continuing compliance with Reg. 19.1005(D)(1) or (2) ~~paragraphs (1) or (2)~~ of this section.

(E) Surface Coating of Metal Parts and Products

(1) No owner or operator of a major source engaged in the surface coating of miscellaneous metal parts and products may operate a coating application system subject to this regulation that emits VOC in excess of:

(a) 0.52 kg/l (4.3 lb/gal) of coating, excluding water, delivered to a coating applicator that applies clear coatings;

(b) 0.42 kg/l (3.5 lb/gal) of coating, excluding water, delivered to a coating applicator in a coating application system that utilizes air or forced air dryers;

(c) 0.42 kg/l (3.5 lb/gal) of coating, excluding water, delivered to a coating applicator that applies extreme performance coatings;

(d) 0.36 kg/l (3.0 lb/gal) of coating, excluding water, delivered to a coating applicator for all other coatings and coating application systems; and

(e) The above emission limitations shall include all VOC emissions from both coating and solvent washing unless the solvent is directed into containers that prevent evaporation.

(2) If more than one emission limitation in Reg. 19.1005(E)(1) ~~paragraph (1)~~ applies to a specific coating, then the most stringent emission limitation shall be applied.

(3) The emission limits set forth in Reg. 19.1005(E)(1) ~~paragraph (1)~~ shall be achieved by:

(a) The application of low solvent coating technology;

(b) An incineration system which oxidizes at least 90.0 percent of the non-methane volatile organic compounds (VOC) measured as total combustible carbon to carbon dioxide and water; or

(c) An equivalent means of VOC removal. The equivalent means must be certified by the owner or operator and approved by the Director.

(4) A capture system must be used in conjunction with the emission control system in Reg. 19.1005(E)(3)(b)&(c) ~~paragraph (3)(b)&(c)~~. The design and operation of a capture system must be consistent with good engineering practice, and shall be required to provide for an overall VOC emission reduction efficiency of at least 80 percent.

(F) External Floating Roof

(1) No person shall cause or permit the storage of volatile organic compounds having a true vapor pressure in excess of 10.5 kilo pascals (1.52 psia) in tanks having a capacity equal to or greater than 150,000 liters (approximately 39,000 gallons) equipped with an external floating roof unless:

(a) The storage tank has been fitted with a continuous secondary seal extending from the floating roof to the tank wall (rim mounted) or an equivalent control device with an effectiveness equal to or greater than the secondary seal;

(b) All seal closure devices meet the following requirements:

(i) There shall be no visible holes, tears, or other openings in the seals or seals fabric;

(ii) The seals must be intact and uniformly in place around the circumference of the floating roof between the floating roof and the tank walls; and

(iii) For vapor mounted seals, the gap area between the secondary seal and the tank wall shall not exceed 21.2 square centimeters per meter of inside tank diameter (1.0 square inch per foot of inside tank diameter);

(c) All openings in the external floating roof except for automatic bleeder vents, rim space vents, and leg sleeves provide a projection below the liquid surface and are sealed with a suitable closure when not in use;

(d) Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports;

(e) Rim vents are set to open only when the roof is being floated off the leg supports or at the manufacturer's recommended settings; and

(f) Emergency roof drains are provided with slotted membrane fabric covers or equivalent covers which cover at least 90 percent of the area of the opening.

(2) The following are specifically exempted from the requirements of this subsection:

(a) External floating roof tanks having capacities less than 1,600,000 liters (10,000 bbls) used to store produced crude oil and condensate prior to custody transfer;

(b) A metallic-type shoe seal in a welded tank which has a secondary seal from the top of the shoe to the tank wall (a shoe-mounted secondary); and

(c) External floating roof tanks storing waxy, heavy pour crudes.

Reg. 19.1006 Severability

If any provision of the Regulations for the Control of Volatile Organic Compounds or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the Regulations for the Control of Volatile Organic Compounds which can be given effect without the invalid provision or application, and to this end, the provisions of the Regulations for the Control of Volatile Organic Compounds are declared to be severable.

CHAPTER 11: MAJOR SOURCE PERMITTING PROCEDURES

Facilities subject to Regulation 26 shall be required to have their permit applications processed in accordance with the procedures contained in the Regulations of the Arkansas Operating Air Permit program, Regulation 26, which are hereby incorporated by reference.

CHAPTER 12: [RESERVED]

CHAPTER 13: STAGE I VAPOR RECOVERY

Reg. 19.1301 Purpose

The purpose of this chapter is to limit emissions of volatile organic compounds (VOC) from gasoline stored in stationary dispensing tanks and from gasoline delivered into such tanks.

Reg. 19.1302 Applicability

This rule applies to all gasoline dispensing facilities and gasoline service stations and to delivery vessels delivering gasoline to a gasoline dispensing facility or gasoline service station in a nonattainment area; and this rule applies to all persons owning or operating a gasoline distribution facility or gasoline service station in a nonattainment area.

Reg. 19.1303 Definitions

(A) "Coaxial system" means the delivery of the product to the stationary storage tank and the recovery of vapors from the stationary storage tanks occurs through a single coaxial fill tube, which is a tube within a tube. Product is delivered through the inner tube, and vapor is recovered through the annular space between the walls of the inner tube and outer tube.

(B) "Delivery vessel" means tank trucks or trailers equipped with a storage tank and used for the transport of gasoline from sources of supply to stationary storage tanks of gasoline dispensing facilities.

(C) "Dual point system" means the delivery of the product to the stationary storage tank and the recovery of vapors from the stationary storage tank occurs through two separate openings in the storage tank and two separate hoses between the tank truck and the stationary storage tank.

(D) "Gasoline" means any petroleum distillate or blend of petroleum distillates with other combustible liquids that is used as a fuel for internal combustion engines and has a Reid vapor pressure of 4.0 psi or greater. This does not include diesel fuel or liquefied petroleum gas (LPG).

(E) "Gasoline dispensing facility" means any site where gasoline is dispensed to motor vehicle gasoline tanks from stationary storage tanks.

(F) "Gasoline service station" means any gasoline dispensing facility where gasoline is sold to the motoring public from stationary storage tanks.

(G) "Independent small business marketer" means a person engaged in the marketing of gasoline unless such person:

(1) (a) is a refiner, or

(b) controls, is controlled by, or is under common control with, a refiner, or

(c) is otherwise directly or indirectly affiliated with a refiner or with a person who controls, is controlled by, or is under common control with a refiner, unless the sole affiliation referred to is by means of a supply contract or an agreement or contract to use a trademark, trade name, service mark, or other identifying symbol or name owned by such refiner or any such person; or

(2) receives less than 50 percent of his annual income from refining or marketing of gasoline.

(3) For purposes of this regulation, the term "refiner" shall not include any refiner whose total refinery capacity (including the refinery capacity of any person who controls, is controlled by, or is under common control with, such refiner) does not exceed 65,000 barrels per day. For purposes of this section, "control" of a corporation means ownership of more than 50 percent of its stock.

(H) "Leak free" means a condition in which there is no liquid gasoline escape or seepage of more than three (3) drops per minute from gasoline storage, handling, and ancillary equipment, including, but not limited to, seepage and escapes from above ground fittings.

(I) "Line" means any pipe suitable for transferring gasoline.

(J) "Nonattainment area" means a county or counties designated by EPA as not meeting the NAAQS ~~national ambient air quality standards~~ for ozone.

(K) "Operator" means any person who leases, operates, controls, or supervises a facility at which gasoline is dispensed.

(L) "Owner" means any person who has legal or equitable title to the gasoline storage tank at a facility.

(M) "Poppeted vapor recovery adaptor" means a vapor recovery adaptor that automatically and immediately closes itself when the vapor return line is disconnected and maintains a tight seal when the vapor return line is not connected.

(N) "Stationary storage tank" means a gasoline storage container that is a permanent fixture.

(O) "Submerged fill pipe" means any fill pipe with a discharge opening which is entirely submerged when the pipe normally used to withdraw liquid from the tank can no longer withdraw any liquid, or which is entirely submerged when the level of the liquid is:

(1) Six inches above the bottom of the tank if the tank does not have a vapor recovery adaptor; or

(2) Twelve inches above the bottom of the tank if the tank has a vapor recovery adaptor. If the opening of the submerged fill pipe is cut at a slant, the distance is measured from the top of the slanted cut to the bottom of the tank.

(P) "Throughput" means the amount of gasoline dispensed at a facility.

(Q) "Vapor tight" means a condition in which an organic vapor analyzer or a combustible gas detector at a potential VOC leak source shows either less than 10,000 ppm when calibrated with methane, or less than 20% of the lower explosive limit when calibrated and operated according to the manufacturer's specifications.

Reg. 19.1304 Exemptions

This rule does not apply to:

(A) Transfers made to storage tanks at gasoline dispensing facilities or gasoline service stations equipped with floating roofs or their equivalent.

(B) Stationary storage tanks with a capacity of not more than 550 gallons, if the tanks are equipped with a submerged fill pipe.

(C) Stationary storage tanks used exclusively for the fueling of implements of normal farm operations.

(D) Facilities selling less than 10,000 gallons of gasoline per month.

(E) Independent small business marketers of gasoline selling less than 50,000 gallons per month.

(F) Any other facility or use exempted by state or federal statute.

Reg. 19.1305 Prohibited Activities

No person may cause, allow or permit the transfer of gasoline from any delivery vessel into any stationary storage tank unless such transfer complies with the following requirements:

(A) The stationary storage tank is equipped with a submerged fill pipe and the vapors displaced from the tank during filling are controlled by a vapor control system as described herein;

(B) The vapor control system is in good working order and is connected and operating with a vapor tight connection;

(C) The vapor control system is properly maintained and any damaged or malfunctioning components or elements of design have been repaired, replaced or modified;

(D) Gauges, meters, or other specified testing devices are maintained in proper working order;

(E) All loading lines and vapor lines of delivery vessels and vapor collection systems are equipped with fittings which are leak tight and vapor tight;

(F) All hatches on the delivery vessel are kept closed and securely fastened; and

(G) The stationary storage tank has been tested, no less than annually, on a schedule acceptable to the Director according to the test methods required herein.

Reg. 19.1306 Record Keeping

The following records shall be maintained for not less than two (2) years and the same shall be made available for inspection by the Department:

(A) The scheduled date for maintenance and testing, and the date that a malfunction was detected;

(B) The date the maintenance and testing was performed or the malfunction corrected; and

(C) The date the component or element of design of the control system was repaired, replaced, or modified.

(D) Monthly totals of gallons of gasoline sold by the facility.

Reg. 19.1307 Inspections

(A) The premises of any gasoline dispensing facility or gasoline service station shall be available for inspection by representatives of the Department.

(B) The process of transfer of gasoline from any delivery vessel into any stationary storage tank shall be subject to observation and inspection by representatives of the Department.

Reg. 19.1308 Vapor Recovery Systems

(A) The vapor control system required by Reg. 19.1305 of this rule shall include one or more of the following:

(1) A vapor-tight line from the stationary storage tank to the delivery vessel and:

(a) For a coaxial vapor recovery system, either a poppeted or unpoppeted vapor recovery adaptor;

(b) For a dual point vapor recovery system, a poppeted vapor recovery adaptor;

(2) A refrigeration-condensation system or equivalent designed to recover or destroy at least 90 percent by weight of the organic compounds in the displaced vapor.

(B) If an unpoppeted vapor recovery adaptor is used, the tank liquid fill connection shall remain covered either with a vapor-tight cap or a vapor return line except when the vapor return line is being connected or disconnected.

(C) If an unpoppeted vapor recovery adaptor is used, the unpoppeted vapor recovery adaptor shall be replaced with a poppeted vapor recovery adaptor when the tank is replaced or upgraded.

(D) Where vapor lines from the storage tanks are manifolded, poppeted vapor recovery adapters shall be used. No more than one tank is to be loaded at a time if the manifold vapor lines have a nominal pipe size of less than 3 inches. If the manifold vapor lines have a nominal pipe size of 3 inches or larger, then two tanks at a time may be loaded.

(E) Vent lines on stationary storage tanks shall have pressure release valves or restrictors.

Reg. 19.1309 Gasoline Delivery Vessels

(A) Gasoline delivery vessels shall be designed and maintained to be vapor-tight during loading and unloading operations and during transport.

(B) Gasoline delivery vessels shall be tested, no less than annually, on a schedule acceptable to the Director according to the test methods required herein.

(C) Gasoline delivery vessels shall sustain a pressure change of no more than 750 pascals (3 in. of H_2O) in five minutes when pressurized to a gauge pressure of 4,500 pascals (18 in. of H_2O) or evacuated to a gauge pressure of 1,500 pascals (6 in. of H_2O) during testing.

Reg. 19.1310 Owner/Operator Responsibility

(A) It shall be the responsibility of owners and operators of gasoline dispensing facilities and gasoline service stations to assure compliance with this rule and to disallow the transfer from any delivery vessel that does not comply with those requirements of this rule applicable to delivery vessels.

(B) It shall be the responsibility of owners, operators and drivers of delivery vessels to assure compliance with this rule and to refuse to transfer from any delivery vessel that does not comply with those requirements of this rule applicable to delivery vessels.

(C) It shall be the responsibility of owners and operators of gasoline dispensing facilities and gasoline service stations to properly maintain, repair, replace, modify, and test the vapor recovery system components of stationary storage tanks regulated herein.

(D) It shall be the responsibility of owners and operators of gasoline dispensing facilities, gasoline service stations, and gasoline delivery vehicles to repair and retest equipment within (15) days of a test that exceeds the limitations set forth herein.

Reg. 19.1311 Test Methods

(A) Test method for leak detection:

(1) Within four (4) hours prior to monitoring, the organic vapor analyzer or combustible gas detector shall be suitably calibrated in a manner and with the gas specified by the manufacturer for 20% of the lower explosive limit response, or calibrated with methane for a 10,000 ppm response.

(2) The probe inlet shall be 2.5 centimeters or less from the potential leak source when searching for leaks.

(3) The highest detector reading and location for each incident of detected leakage shall be recorded, along with the date, time and name of the person performing the testing. If no gasoline vapor is detected, that fact shall be recorded.

(B) Control efficiency of vapor recovery systems and vapor collection/processing systems shall be determined according to EPA Method 2A and either EPA Method 25A or 25B. EPA Method 2B shall be used for vapor incineration devices.

(C) Vapor pressure of gasoline shall be determined using American Society for Testing and Materials (ASTM) Method D323-94 or ASTM Method D4953-93. Method D323-94 shall be used for gasoline either containing no oxygenates or MTBE (methyl ethyl butyl ether) as the sole oxygenate. Method D-4953-93 shall be used for oxygenated gasoline.

Reg. 19.1312 Effective Date

(A) The requirements of this rule shall be effective within nonattainment areas one (1) year after the designation by EPA of an area as a nonattainment area.

(B) In the case of an independent small business marketer with sales of 50,000 gallons or more per month, this rule shall be phased-in as follows:

(1) 33 percent of facilities shall be in compliance at the end of the first year;

(2) 66 percent at the end of the second year; and,

(3) 100 percent at the end of the third year.

CHAPTER 14: CAIR NO_X OZONE SEASON TRADING PROGRAM GENERAL PROVISIONS

Reg. 19.1401 Adoption of Regulations

40 CFR Part 96, Subparts AAAA-HHHH for the CAIR NO_x Ozone Season Trading Program, as finalized by the U.S. Environmental Protection Agency (EPA) on May 12, 2005, and further revised by EPA on April 28, 2006, with correcting amendments on December 13, 2006, are herein incorporated by reference with the exception of Subpart EEEE (CAIR NO_x Ozone Season Allowance Allocations) and all references to CAIR NO_x Ozone Season Opt-in Units, which, along with Subpart IIII (CAIR NO_x Ozone Season Opt-in Units), are not incorporated. The following regulations replace 40 CFR 96 Subpart EEEE.

Reg. 19.1402 State Trading Budget

The Arkansas State trading budgets for annual allocations for CAIR NO_x Ozone Season allowances have been set by EPA as follows: for the control periods of 2009 through 2014, 11,515 tons per control period; and for the control periods for 2015 and beyond, 9,596 tons per control period. The total number of allowances allocated by the State of Arkansas shall not exceed these budgets for their respective control periods.

Reg. 19.1403 Timing Requirements for CAIR NO_x Ozone Season Allowance Allocations

(A) For EGUs allocated allowances under Reg. 19.1404(B) and (C), the Department will determine and notify the Administrator of each unit's allocation of CAIR NO_x Ozone Season allowances by April 30, 2007, for 2009, 2010, and 2011 and by October 31, 2008, and October 31 of each year thereafter for the 4^{th} year after the notification deadline.

(B) For EGUs allocated allowances under Reg. 19.1404(D), the Department will determine and notify the Administrator of each unit's allocation of CAIR NO_x Ozone Season allowances by July 31 of the year for which the CAIR NO_x Ozone Season allowances are allocated.

Reg. 19.1404 CAIR NO_x Ozone Season Allowance Allocations

(A) The baseline gross electric generation (in MW) used with respect to CAIR NO_x Ozone Season allowance allocations under paragraph (B) of this section for each CAIR NO_x Ozone Season unit that has operated each calendar year during a period of 5 or more consecutive calendar years, the average of the 3 highest amounts of the unit's control period gross electrical output over the 5 years immediately preceding the year in which allocations are due to EPA, provided that gross electrical output of a generator served by two or more units will be attributed to each unit in proportion to each unit's share of the total control period heat input of such units for the year. For the allocations allocated for 2009, 2010, 2011, baseline data will be determined using gross electrical output for years 2000 through 2004.

(B) With regard to the timing requirements contained in Reg. 19.1403, for each control period in 2009 and thereafter, the Department will allocate to all CAIR NO_x Ozone Season units in the State that have baseline gross electric generation (as determined under paragraph (A) of this section) a total amount of CAIR NO_x Ozone Season allowances equal to 95 percent for a control period, of the tons of NO_x emissions in the State trading budget under Reg. 19.1402 (except as provided in paragraph (E) of this section).

(C) The Department will allocate CAIR NO_x Ozone Season allowances to each CAIR NO_x Ozone Season unit under paragraph (B) of this section in an amount determined by multiplying the total amount of CAIR NO_x Ozone Season allowances allocated under paragraph (B) of this section by the ratio of the baseline gross electric generation of such CAIR NO_x Ozone Season unit to the total amount of baseline gross electric generation of all such CAIR NO_x Ozone Season units in the State and rounding to the nearest whole allowances as appropriate.

(D) For each control period in 2009 and thereafter, the Department will allocate CAIR NO_x Ozone Season allowances to CAIR NO_x Ozone Season units in the State that do not yet have a baseline gross electric generation (as determined under paragraph (A) of this section), in accordance with the following procedures:

(1) The Department will establish a separate new unit set-aside for each control period. Each new unit set-aside will be allocated CAIR NO_x Ozone Season

allowances equal to 5 percent of the amount of tons of NO_x emissions in the State trading budget under Reg. 19.1402.

(2) The CAIR designated representative of such a CAIR NO_x Ozone Season unit may submit to the Department a request, in a format specified by the Department, to be allocated CAIR NO_x Ozone Season allowances, starting with the later of the control period in 2009 or the first control period after the control period in which the CAIR NO_x Ozone Season unit commences commercial operation and until the first control period for the which the unit is allocated CAIR NO_x Ozone Season allowances under paragraph (B) of this section. The CAIR NO_x Ozone Season allowance allocation request must be submitted on or before January 1 of the first control period for which the CAIR NO_x Ozone Season allowances are requested and after the date on which the CAIR NO_x Ozone Season unit commences commercial operation.

(3) In a CAIR NO_x Ozone Season allowance allocation request under paragraph (D)(2) of this section, the CAIR designated representative may request for a control period CAIR NO_x Ozone Season allowances in an amount not exceeding the CAIR NO_x Ozone Season unit's total tons of NO_x emissions during the control period immediately before such control period.

(4) The Department will review each CAIR NO_x Ozone Season allowance allocation request under paragraph (D)(2) of this section and will allocate CAIR NO_x Ozone Season allowances for each control period pursuant to such request as follows:

(a) The Department will accept an allowance allocation request only if the request meets, or is adjusted by the Department as necessary to meet, the requirements of paragraphs (D)(2) and (3) of this section.

(b) On or after February 1 of the control period, the Department will determine the sum of the CAIR NO_x Ozone Season allowances requested (as adjusted under paragraph (D)(4)(a) of this section) for the control period.

(c) If the amount of CAIR NO_x Ozone Season allowances in the new unit set-aside for the control period is greater than or equal to the sum under Reg. 19.1404 ~~paragraph~~ (D)(4)(b) ~~of this section~~, then the Department will allocate the amount of CAIR NO_x Ozone Season allowances requested (as

adjusted under Reg. 19.1404 ~~paragraph~~ (D)(4)(a) ~~of this section~~) to each CAIR NO_x Ozone Season unit covered by Reg. 19.1404 ~~paragraph~~ (D)(4)(a) ~~of this section~~.

(d) If the amount of CAIR NO_x Ozone Season allowances in the new unit set-aside for the control period is less than the sum under Reg. 19.1404 ~~paragraph~~ (D)(4)(b) ~~of this section~~, then the Department will allocate to each CAIR NO_x Ozone Season unit covered by an allowance allocation request accepted under Reg. 19.1404 ~~paragraph~~ (D)(4)(a) ~~of this section~~ the amount of the CAIR NO_x Ozone Season allowances requested (as adjusted under Reg. ~~paragraph~~ (D)(4)(a) of this section), multiplied by the amount of CAIR NO_x Ozone Season allowances in the new unit set-aside for the control period, divided by the sum determined under Reg. 19.1404 ~~paragraph~~ (D)(4)(b) ~~of this section~~, and rounded to the nearest whole allowance as appropriate.

(e) The Department will notify each CAIR designated representative that submitted an allowance allocation request of the amount of CAIR NO_x Ozone Season allowances (if any) allocated for the control period to the CAIR NO_x Ozone Season unit covered by the request.

(E) If, after completion of the procedures under Reg. 19.1404 ~~paragraphs~~ (D)(4~~) of this section~~ for a control period, any unallocated CAIR NO_x Ozone Season allowances remain in the new unit set-aside for the control period, the Department will allocate to each CAIR NO_x Ozone Season unit that was allocated CAIR NO_x Ozone Season allowances under Reg. 19.1404 ~~paragraph~~ (B) ~~of this section~~ an amount of CAIR NO_x Ozone Season allowances equal to the total amount of such remaining unallocated CAIR NO_x Ozone Season allowances, multiplied by the unit's allocation under paragraph (B) of this section, divided by 95 percent of the amount of tons of NO_x emissions in the State trading budget under Reg. 19.1402, and rounded to the nearest whole allowance as appropriate.

CHAPTER 15: REGIONAL HAZE

Reg. 19.1501 Purpose

The purpose of this Chapter is to establish regional haze program requirements.

Reg. 19.1502 Definitions

For purposes of this Chapter only the definitions contained in 40 CFR 51.301 as in effect on June 22, 2007, are hereby incorporated by reference.

Reg. 19.1503 BART Eligible Sources

The following are BART-eligible sources:

BART Source Category Number and Name	Facility Name	AFIN	Unit ID	Unit Description
1. Fossil fuel-fired Electric Plants > 250 MMbtu/hour – Electric Generating Units (EGUs)	Arkansas Electric Coop – Carl E. Bailey	74-00024	SN-01	Boiler
	Arkansas Electric Coop – John L. McClelland Generating Station	52-00055	SN-01	Boiler
	Entergy Arkansas, Inc. – Lake Catherine Plant	30-00011	SN-03	Unit 4 Boiler
	Entergy Arkansas – Ritchie	54-00017	SN-02	Unit 2
	Entergy Arkansas, Inc. – White Bluff	35-00110	SN-01	Unit 1 Boiler
			SN-02	Unit 2 Boiler
			SN-05	Auxiliary Boiler
	SWEPCO Flint Creek Power Plant	04-00107	SN-01	Boiler

3. Kraft Pulp Mills	Domtar Industries, Inc. – Ashdown Mill	41-00002	SN-03	#1 Power Boiler
			SN-05	#2 Power Boiler
	Delta Natural Kraft and Mid America Packaging LLC	35-00017	SN-02	Recovery Boiler
	Evergreen Packaging Inc., Pine Bluff Mill	35-00016	SN-04	#4 Recovery Boiler
	Georgia-Pacific Corporation – Crossett Paper Operations	02-00013	SN-19	6A Boiler
			SN-22	9A Boiler
	Green Bay Packaging, Inc. – Arkansas Kraft Division	15-00001	SN-05A	Recovery Boiler
	Potlatch Forest Products Corporation – Cypress Bend Mill	21-00036	SN-04	Power Boiler
11. Petroleum Refineries	Lion Oil Company	70-00016	SN-809	#7 Catalyst Regenerator
15. Sulfur Recovery Plant	Albermarle Corporation – South Plant	14-00028	SR-01	Tail Gas Incinerator
19. Sintering Plants	Big River Industries	18-00082	SN-01	Kiln A
21. Chemical Processing Plants	Albermarle Corporation – South Plant	14-00028	BH-01	Boiler #1
			BH-02	Boiler #2
	FutureFuels Chemical Co.	32-00036	6M01-01	3 Coal Boilers
	El Dorado Chemical Company	70-00040	SN-08	West Nitric Acid Plant
			SN-09	East Nitric Acid Plant
			SN-10	Nitric Acid Concentrator

Reg. 19.1504 Facilities Subject-to-BART

(A) The following sources are subject-to-BART:

AFIN	Facility Name	Source #	Source Name
74-00024	Arkansas Electric Cooperative Corporation Carl E Bailey Generating Station	SN-01	Boiler
52-00055	Arkansas Electric Cooperative Corporation John L. McClellan Generating Station	SN-01	Boiler
41-00002	Domtar Industries Inc. ,Ashdown Mill	SN-03	#1 Power Boiler
		SN-05	#2 Power Boiler
30-00011	Entergy Arkansas, Inc. – Lake Catherine Plant	SN-03	Unit 4 Boiler
35-00110	Entergy Arkansas, Inc. – White Bluff	SN-01	Unit 1 Boiler
		SN-02	Unit 2 Boiler
		SN-05	Auxiliary Boiler
04-00107	SWEPCO Flint Creek Power Plant	SN-01	Boiler

(A) Each source subject-to-BART shall install and operate BART as expeditiously as practicable, but in no event later than 6 years after the effective date of this regulation or 5 years after EPA approval of the Arkansas Regional Haze State Implementation Plan, whichever comes first.

(B) Each source subject-to-BART shall maintain the control equipment required by this chapter and establish procedures to ensure such equipment is properly operated and maintained.

Reg. 19.1505 BART Requirements

(A) On or before the compliance date required under Reg. ~~section~~ 19.1504(B) ~~19.15004(B)~~, SWEPCO Flint Creek Power Plant, SN-01 shall comply with BART by meeting the following emission limits:

(1) 0.15 pounds of sulfur dioxide (SO_2) per million Btu of heat input (0.15 lb/MMBtu) on a 30-day rolling average;

(2) 0.23 pounds of nitrogen oxides (NO_x) per million Btu of heat input (0.23 lb/MMBtu) on a 30-day rolling average; and

(3) The existing particulate matter emission limit satisfies the BART particulate matter requirement.

(B) On or before the compliance date required under Reg. ~~section~~ 19.1504(B) ~~19.15004(B)~~, Arkansas Electric Cooperative Corporation Carl E Bailey Generating Station, SN-01 shall comply with BART by burning fuel oil that has a 1% or less sulfur content by weight.

(C) On or before the compliance date required under Reg. ~~section~~ 19.1504(B) ~~19.15004(B)~~, Arkansas Electric Cooperative Corporation John L. McClellan Generating Station, SN-01 shall comply with BART by burning fuel oil that has a 1% or less sulfur content by weight.

(D) On or before the compliance date required under Reg. ~~section~~ 19.1504(B) ~~19.15004(B)~~, Domtar Industries Inc. – Ashdown Mill, #1 Power Boiler, SN-03 shall comply with BART by meeting the following emission limits:

(1) 1.12 pounds of sulfur dioxide (SO_2) per million Btu of heat input (1.12 lb/MMBtu) on a 30-day rolling average;

(2) 0.46 pounds of nitrogen oxides (NO_x) per million Btu of heat input (0.46 lb/MMBtu) on a 30-day rolling average; and

(3) 0.07 pounds of PM_{10} per million Btu of heat input (0.07 lb/MMBtu) on a 30-day rolling average.

(E) On or before the compliance date required under Reg. ~~section~~ 19.1504(B) ~~19.15004(B)~~, Domtar Industries Inc. – Ashdown Mill, #2 Power Boiler, SN-05 shall comply with BART by meeting the following emission limits:

(1) 1.20 pounds of sulfur dioxide (SO_2) per million Btu of heat input (1.20 lb/MMBtu) on a 30-day rolling average;

(2) 0.450 pounds of nitrogen oxides (NO_x) per million Btu of heat input (0.450lb/MMBtu) on a 30-day rolling average; and

(3) 0.10 pounds of PM_{10} per million Btu of heat input (0.10 lb/MMBtu) on a 30-day rolling average.

(F) On or before the compliance date required under Reg. ~~section~~ 19.1504(B) ~~19.15004(B)~~, Entergy Arkansas, Inc. – White Bluff, Unit 1 Boiler, SN-01 shall comply with BART by meeting the following emission limits when burning bituminous coal:

(1) 0.15 pounds of sulfur dioxide (SO_2) per million Btu of heat input (0.15 lb/MMBtu) on a 30-day rolling average;

(2) 0.28 pounds of nitrogen oxides (NOx) per million Btu of heat input (0.28 lb/MMBtu) on a 30-day rolling average; and

(3) The existing particulate matter emission limit satisfies the BART particulate matter requirement.

(G) On or before the compliance date required under Reg. ~~section~~ 19.1504(B) ~~19.15004(B)~~, Entergy Arkansas, Inc. – White Bluff, Unit 1 Boiler, SN-01 shall comply with BART by meeting the following emission limits when burning sub-bituminous coal:

(1) 0.15 pounds of sulfur dioxide (SO_2) per million Btu of heat input (0.15 lb/MMBtu) on a 30-day rolling average;

(2) 0.15 pounds of nitrogen oxides (NOx) per million Btu of heat input (0.15 lb/MMBtu) on a 30-day rolling average; and

(3) The existing particulate matter emission limit satisfies the BART particulate matter requirements.

(H) When burning a mix of bituminous coal and sub-bituminous coal in the Unit 1 Boiler at Entergy Arkansas, Inc. – White Bluff the NOx BART limits shall be prorated using the percentage of each of coal being burned.

(I) On or before the compliance date required under Reg. ~~section~~ 19.1504(B) ~~19.15004(B)~~, Entergy Arkansas, Inc. – White Bluff, Unit 2 Boiler, SN-02 shall comply with BART by meeting the following emission limits when burning bituminous coal:

(1) 0.15 pounds of sulfur dioxide (SO_2) per million Btu of heat input (0.15 lb/MMBtu) on a 30-day rolling average;

(2) 0.28 pounds of nitrogen oxides (NOx) per million Btu of heat input (0.28 lb/MMBtu) on a 30-day rolling average; and

(3) The existing particulate matter emission limit satisfies the BART particulate matter requirements.

(J) On or before the compliance date required under Reg. ~~section~~ 19.1504(B) ~~19.15004(B)~~, Entergy Arkansas, Inc. – White Bluff, Unit 2 Boiler, SN-02 shall comply

with BART by meeting the following emission limits when burning sub-bituminous coal:

(1) 0.15 pounds of sulfur dioxide (SO_2) per million Btu of heat input (0.15 lb/MMBtu) on a 30-day rolling average;

(2) 0.15 pounds of nitrogen oxides (NOx) per million Btu of heat input (0.15 lb/MMBtu) on a 30-day rolling average; and

(3) The existing particulate matter emission limit satisfies the BART particulate matter requirements.

(K) When burning a mix of bituminous coal and sub-bituminous coal in the Unit 2 Boiler at Entergy Arkansas, Inc. – White Bluff the NOx BART limits shall be prorated using the percentage of each of coal being burned.

(L) On or before the compliance date required under Reg. ~~section~~ 19.1504(B) ~~19.15004(B)~~, Entergy Arkansas, Inc. – White Bluff, auxiliary boiler, SN-05 shall comply with BART by restricting operation to not more than 4360 hours annually.

(M) On or before the compliance date required under Reg. ~~section~~ 19.1504(B) ~~19.15004(B)~~, Entergy Arkansas, Inc. – Lake Catherine Plant, Unit 4 Boiler, SN-03 shall comply with BART by meeting the following emission limits when burning natural gas:

(1) 0.15 pounds of nitrogen oxides (NOx) per million Btu of heat input (0.15 lb/MMBtu) on a 30 day rolling average; and

(2) The existing particulate matter emission limit satisfies the BART particulate matter requirements.

(N) On or before the compliance date required under Reg. ~~section~~ 19.1504(B) ~~19.15004(B)~~, Entergy Arkansas, Inc. – Lake Catherine Plant, Unit 4 Boiler, SN-03 shall comply with BART by meeting the following emission limits when burning oil:

(1) 0.562 pounds of sulfur dioxide (SO_2) per million Btu of heat input (0.562 lb/MMBtu) on a 30 day rolling average;

(2) 0.25 pounds of nitrogen oxides (NOx) per million Btu of heat input (0.25 lb/MMBtu) on a 30 day rolling average; and

(3) 0.037 pounds of $PM_{2.5}$ per million Btu of heat input (0.037 lb/MMBtu) on a 30 day rolling average.

Reg. 19.1506 Compliance Provisions

Each facility listed in Reg. ~~section~~ 19.1504(A) ~~19.15004(A)~~ as being subject to BART shall demonstrate compliance with the BART limits listed in 19.15005 in accordance with the provisions of Chapter 7 of this regulation.

Reg. 19.1507 Permit Reopening

The Part 70 permit of each facility subject-to-BART shall be subject to re-opening in accordance with section 26.1011(A) of Arkansas Pollution Control and Ecology Commission Regulation 26.

CHAPTER 16: EFFECTIVE DATE

Reg. 19.1601 Effective Date

This regulation is effective ten (10) days after filing with the Secretary of State, the State Library and the Bureau of Legislative Research.

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

REGULATION NO. 19

APPENDIX A

Insignificant Activities List

June 27, 2008

APPENDIX A: INSIGNIFICANT ACTIVITIES LIST

The following types of activities or emissions are deemed insignificant on the basis of size, emission rate, production rate, or activity. Certain of these listed activities include qualifying statements intended to exclude many similar activities. By such listing, the Department exempts certain sources or types of sources from the requirements to obtain a permit or plan under this regulation. Listing in this part has no effect on any other law to which the activity may be subject. Any activity for which a state or federal applicable requirement applies (such as NSPS, NESHAP, or MACT) is not insignificant, even if this activity meets the criteria below.

Group A

The following emission units, operations, or activities must either be listed as insignificant or included in the permit application as sources to be permitted. The listing of insignificant sources does not necessarily mean that the emissions from these sources must be quantified.

1. Fuel burning equipment with a design rate less than 10 million BTU per hour, provided that the aggregate pollutant specific emissions from all such units listed as insignificant do not exceed 5 tons per year (tpy) of any combination of HAPs and 10 tpy of any other pollutant.

2. Storage tanks less than or equal to 250 gallons storing organic liquids having a true vapor pressure less than or equal to 3.5 psia, provided that the aggregate pollutant specific emissions from all such liquid storage tanks listed as insignificant do not exceed 5 tpy of any combination of HAPs and 10 tpy of any other pollutant.

3. Storage tanks less than or equal to 10,000 gallons storing organic liquids having a true vapor pressure less than or equal to 0.5 psia, provided that the aggregate pollutant specific emissions from all such liquid storage tanks listed as insignificant do not exceed 5 tpy of any combination of HAPs and 10 tpy of any other pollutant.

4. Caustic storage tanks that contain no VOCs.

5. Emissions from laboratory equipment/vents used exclusively for routine chemical or physical analysis for quality control or environmental monitoring purposes provided that the aggregate pollutant specific emissions from all such equipment/vents considered insignificant do not exceed 5 tpy of any combination of HAPs and 10 tpy of any other pollutant.

6. Non commercial water washing operations of empty drums less than or equal to 55 gallons with less than three percent of the maximum container volume of material.

7. Welding or cutting equipment related to manufacturing activities that do not result in aggregate emissions of HAPs in excess of 0.1 tpy.

8. Containers of less than or equal to 5 gallons in capacity that do not emit any detectable VOCs or HAPs when closed. This includes filling, blending, or mixing of the contents of such containers by a retailer.

9. Equipment used for surface coating, painting, dipping, or spraying operations, provided the material used contains no more than 0.4 lb/gal VOCs, no hexavalent chromium, and no more than 0.1 tpy of all other HAPs.

10. Non-production equipment approved by the Department, used for waste treatability studies or other pollution prevention programs provided that the emissions are less than 10 tpy of any pollutant regulated under this regulation or less than 2 tpy of a single HAP or 5 tpy of any combination of HAPs.[1]

11. Operation of groundwater remediation wells, including emissions from the pumps and collection activities provided that the emissions are less than 10 tpy of any pollutant regulated under this regulation or less than 2 tpy of a single HAP or 5 tpy of any combination of HAPs. This does not include emissions from air-stripping or storage.

12. Emergency use generators, boilers, or other fuel burning equipment that is of equal or smaller capacity than the primary operating unit, cannot be used in conjunction with the primary operating unit, and does not emit or have the potential to emit regulated air pollutants in excess of the primary operating unit and not operated more than 90 days a year. This does not apply to generators which provide electricity to the distribution grid.

13. Other activities for which the facility demonstrates that no enforceable permit conditions are necessary to insure compliance with any applicable law or regulation provided that the emissions are less than 5 tpy of any pollutant regulated under this regulation or less than 1 tpy of a single HAP or 2.5 tpy of any combination of HAPs. These emission limits apply to the sum of all activities listed under this group.

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[1] The treatability study or pollution prevention program must be approved separately. The activity creating the emissions must also be determined to be insignificant as discussed in the introduction to this group.

Group B

The following emission units, operations, or activities need not be included in a permit application:

1. Combustion emissions from propulsion of mobile sources and emissions from refueling these sources unless regulated by Title II and required to obtain a permit under Title V of the federal Clean Air Act, as amended. This does not include emissions from any transportable units, such as temporary compressors or boilers. This does not include emissions from loading racks or fueling operations covered under any applicable federal requirements.

2. Air conditioning and heating units used for comfort that do not have applicable requirements under Title VI of the Act.

3. Ventilating units used for human comfort that do not exhaust air pollutants into the ambient air from any manufacturing/industrial or commercial process.

4. Non-commercial food preparation or food preparation at restaurants, cafeterias, or caterers, etc.

5. Consumer use of office equipment and products, not including commercial printers or business primarily involved in photographic reproduction.

6. Janitorial services and consumer use of janitorial products.

7. Internal combustion engines used for landscaping purposes.

8. Laundry activities, except for dry-cleaning and steam boilers.

9. Bathroom/toilet emissions.

10. Emergency (backup) electrical generators at residential locations.

11. Tobacco smoking rooms and areas.

12. Blacksmith forges.

13. Maintenance of grounds or buildings, including: lawn care, weed control, pest control, and water washing activities.

14. Repair, up-keep, maintenance, or construction activities not related to the sources' primary business activity, and not otherwise triggering a permit modification. This may include, but is not limited to such activities as general repairs, cleaning, painting, welding, woodworking, plumbing, re-tarring roofs, installing insulation, paved/paving parking lots, miscellaneous solvent use, application of refractory, or insulation, brazing, soldering, the use of adhesives, grinding, and cutting.[2]

15. Surface-coating equipment during miscellaneous maintenance and construction activities. This activity specifically does not include any facility whose primary business activity is surface-coating or includes surface-coating or products.

16. Portable electrical generators that can be "moved by hand" from one location to another.[3]

17. Hand-held equipment for buffing, polishing, cutting, drilling, sawing, grinding, turning, or machining wood, metal, or plastic.

18. Brazing or soldering equipment related to manufacturing activities that do not result in emission of HAPs.[4]

19. Air compressors and pneumatically operated equipment, including hand tools.

20. Batteries and battery charging stations, except at battery manufacturing plants.

21. Storage tanks, vessels, and containers holding or storing liquid substances that do not contain any VOCs or HAPs.[5]

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[2] Cleaning and painting activities qualify if they are not subject to VOC or HAP control requirements. Asphalt batch plant owners/operators must get a permit.

[3] "Moved by hand" means that it can be moved by one person without assistance of any motorized or non-motorized vehicle, conveyance, or device.

[4] Brazing, soldering, and welding equipment, and cutting torches related to manufacturing and construction activities that emit HAP metals are more appropriate for treatment as insignificant activities based on size or production thresholds. Brazing, soldering, and welding equipment, and cutting torches related directly to plant maintenance and upkeep and repair or maintenance shop activities that emit HAP metals are treated as trivial and listed separately in this appendix.

[5] Exemptions for storage tanks containing petroleum liquids or other volatile organic liquids are based on size and limits including storage tank capacity and vapor pressure of liquids stored and are not appropriate for this list.

22. Storage tanks, reservoirs, and pumping and handling equipment of any size containing soaps, vegetable oil, grease, animal fat, and no volatile aqueous salt solutions, provided appropriate lids and covers are used and appropriate odor control is achieved.

23. Equipment used to mix and package soaps, vegetable oil, grease, animal fat, and non-volatile aqueous salt solutions, provided appropriate lids and covers are used and appropriate odor control is achieved.

24. Drop hammers or presses for forging or metalworking.

25. Equipment used exclusively to slaughter animals, but not including other equipment at slaughter-houses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.

26. Vents from continuous emissions monitors and other analyzers.

27. Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.

28. Hand-held applicator equipment for hot melt adhesives with no VOCs in the adhesive.

29. Lasers used only on metals and other materials which do not emit HAPs in the process.

30. Consumer use of paper trimmers/binders.

31. Electric or steam-heated drying ovens and autoclaves, but not the emissions from the articles or substances being processed in the ovens or autoclaves or the boilers delivering the steam.

32. Salt baths using non-volatile salts that do not result in emissions of any air pollutant covered by this regulation.

33. Laser trimmers using dust collection to prevent fugitive emissions.

34. Bench-scale laboratory equipment used for physical or chemical analysis not including lab fume hoods or vents.

35. Routine calibration and maintenance of laboratory equipment or other analytical instruments.

36. Equipment used for quality control/assurance or inspection purposes, including sampling equipment used to withdraw materials for analysis.

37. Hydraulic and hydrostatic testing equipment.

38. Environmental chambers not using hazardous air pollutant gases.

39. Shock chambers, humidity chambers, and solar simulators.

40. Fugitive emissions related to movement of passenger vehicles, provided the emissions are not counted for applicability purposes and any required fugitive dust control plan or its equivalent is submitted.

41. Process water filtration systems and demineralizers.

42. Demineralized water tanks and demineralizer vents.

43. Boiler water treatment operations, not including cooling towers.

44. Emissions from storage or use of water treatment chemicals, except for hazardous air pollutants or pollutants listed under regulations promulgated pursuant to Section 112(r) of the Act, for use in cooling towers, drinking water systems, and boiler water/feed systems.

45. Oxygen scavenging (de-aeration) of water.

46. Ozone generators.

47. Fire suppression systems.

48. Emergency road flares.

49. Steam vents and safety relief valves.

50. Steam leaks.

51. Steam cleaning operations.

52. Steam and microwave sterilizers.

53. Site assessment work to characterize waste disposal or remediation sites.

54. Miscellaneous additions or upgrades of instrumentation.

55. Emissions from combustion controllers or combustion shutoff devices but not combustion units itself.

56. Use of products for the purpose of maintaining motor vehicles operated by the facility, not including air cleaning units of such vehicles (i.e. antifreeze, fuel additives).

57. Stacks or vents to prevent escape of sanitary sewer gases through the plumbing traps.

58. Emissions from equipment lubricating systems (i.e. oil mist), not including storage tanks, unless otherwise exempt.

59. Residential wood heaters, cookstoves, or fireplaces.

60. Barbecue equipment or outdoor fireplaces used in connection with any residence or recreation.

61. Log wetting areas and log flumes.

62. Periodic use of pressurized air for cleanup.

63. Solid waste dumpsters.

64. Emissions of wet lime from lime mud tanks, lime mud washers, lime mud piles, lime mud filter and filtrate tanks, and lime mud slurry tanks.

65. Natural gas odoring activities unless the Department determines that emissions constitute air pollution.

66. Emissions from engine crankcase vents.

67. Storage tanks used for the temporary containment of materials resulting from an emergency reporting to an unanticipated release.

68. Equipment used exclusively to mill or grind coatings in roll grinding rebuilding, and molding compounds where all materials charged are in paste form.

69. Mixers, blenders, roll mills, or calendars for rubber or plastic for which no materials in powder form are added and in which no hazardous air pollutants, organic solvents, diluents, or thinners are used or emitted.

70. The storage, handling, and handling equipment for bark and wood residues not subject to fugitive dispersion offsite (this applies to the equipment only).

71. Maintenance dredging of pulp and paper mill surface impoundments and ditches containing cellulosic and cellulosic derived biosolids and inorganic materials such as lime, ash, or sand.

72. Tall oil soap storage, skimming, and loading.

73. Water heaters used strictly for domestic (non-process) purposes.

74. Facility roads and parking areas, unless necessary to control offsite fugitive emissions.

75. Agricultural operations, including onsite grain storage, not including IC engines or grain elevators.

76. The following natural gas and oil exploration production site equipment: separators, dehydration units, natural gas fired compressors, and pumping units. This does not include compressors located on natural gas transmission pipelines.

QUESTIONNAIRE FOR FILING PROPOSED RULES AND REGULATIONS WITH THE ARKANSAS LEGISLATIVE COUNCIL AND JOINT INTERIM COMMITTEE

DEPARTMENT/AGENCY Arkansas Department of Environmental Quality
DIVISION Air Division
DIVISION DIRECTOR Mike Bates, Chief
CONTACT PERSON Deborah Pitts, Attorney
ADDRESS 5301 Northshore Drive, North Little Rock, AR 72118-5317
PHONE NO. (501) 682-0883 **FAX NO.**(501) 682-0891 **E-MAIL** pitts@adeq.state.ar.us
NAME OF PRESENTER AT COMMITTEE MEETING Karen Bassett or Mike Bates
PRESENTER E-MAIL bassett@adeq.state.ar.us or bates@adeq.state.ar.us

INSTRUCTIONS

A. Please make copies of this form for future use.
B. Please answer each question completely using layman terms. You may use additional sheets, if necessary.
C. If you have a method of indexing your rules, please give the proposed citation after "Short Title of this Rule" below.
D. Submit two (2) copies of this questionnaire and financial impact statement attached to the front of two (2) copies of the proposed rule and required documents. Mail or deliver to:

Donna K. Davis
Administrative Rules Review Section
Arkansas Legislative Council
Bureau of Legislative Research
Room 315, State Capitol
Little Rock, AR 72201

****

1. What is the short title of this rule?
Regulation 19

2. What is the subject of the proposed rule?
Arkansas Pollution Control and Ecology Commission Regulation 19, Regulations of the Arkansas Plan of Implementation for Air Pollution Control

3. Is this rule required to comply with a federal statute, rule, or regulation? Yes X No

If yes, please provide the federal rule, regulation, and/or statute citation.
Appendix W of 40 CFR Part 51 and 40 CFR 52.21 (a)(2) through (bb)

4. Was this rule filed under the emergency provisions of the Administrative Procedure Act? Yes_____ No X

If yes, what is the effective date of the emergency rule? N/A

When does the emergency rule expire? N/A

Will this emergency rule be promulgated under the permanent provisions of the Administrative Procedure Act? Yes_____ No X

EXHIBIT B

5. Is this a new rule? Yes_____ No__X__ If yes, please provide a brief summary explaining the regulation.

Does this repeal an existing rule? Yes_____ No__X__If yes, a copy of the repealed rule is to be included with your completed questionnaire. If it is being replaced with a new rule, please provide a summary of the rule giving an explanation of what the rule does.

Is this an amendment to an existing rule? Yes__X__No___If yes, please attach a mark-up showing the changes in the existing rule and a summary of the substantive changes. **Note: The summary should explain what the amendment does, and the mark-up copy should be clearly labeled "mark-up."**

See the attached Petition to Initiate Rulemaking for a summary and Exhibit A for a mark-up copy of the changes.

6. Cite the state law that grants the authority for this proposed rule? If codified, please give Arkansas Code citation.

A.C.A §8-4-201; 8-4-202, and 8-4-311.

7. What is the purpose of this proposed rule? Why is it necessary?

These changes will allow more flexibility for the regulated community so they can better respond to market changes. Additionally, regulatory burden will be reduced on affected businesses. The changes will allow the Department to focus our resources on sources which have a greater potential to impact the environment. The changes are consistent with and allowable under federal programs. The proposed changes are protective of air quality in the state and will not affect attainment goals. The changes also clarify existing regulatory language, correct and update formatting and remove duplicative language from other Arkansas Pollution Control and Ecology Commission regulations.

8. Please provide the address where this rule is publicly accessible in electronic form via the Internet as required by Arkansas Code § 25-19-108(b).

http://www.adeq.state.ar.us/regs/drafts/draft_regs.htm

9. Will a public hearing be held on this proposed rule? Yes__X__ No_____
If yes, please complete the following:
Date: August 4, 2008
Time: Beginning at 2:00 PM
Place: ADEQ Commission Room, 5301 Northshore Drive, North Little Rock, AR

10. When does the public comment period expire for permanent promulgation? (Must provide a date.) 10 business days after the date of the public hearing: on or about August 18, 2008.

11. What is the proposed effective date of this proposed rule? (Must provide a date.)

On or about January 1, 2009.

12. Do you expect this rule to be controversial? Yes_____ No__X__ If yes, please explain.

13. Please give the names of persons, groups, or organizations that you expect to comment on these rules? Please provide their position (for or against) if known.

The Arkansas Environmental Federation has expressed interest and provided input in the development of this regulation. Their comments are expected to be positive. Environmental groups may also comment and their positions on these changes were not known at the time this document was prepared.

FINANCIAL IMPACT STATEMENT

PLEASE ANSWER ALL QUESTIONS COMPLETELY

DEPARTMENT Arkansas Department of Environmental Quality
DIVISION Air Division
PERSON COMPLETING THIS STATEMENT Elizabeth Sartain
TELEPHONE NO. (501) 682-0719 **FAX NO.** (501) 682-0753 **EMAIL:** sartain@adeq.state.ar.us

To comply with Act 1104 of 1995, please complete the following Financial Impact Statement and file two copies with the questionnaire and proposed rules.

SHORT TITLE OF THIS RULE
Regulation 19

1. Does this proposed, amended, or repealed rule have a financial impact?
   Yes _____ No X

   The proposed changes will not have an economic impact on entities subject to this regulation. The economic impact to the Arkansas Department of Environmental Quality (ADEQ) will be a minor decrease to ADEQ revenue of less than one-half of one percent.

2. Does this proposed, amended, or repealed rule affect small businesses?
   Yes _____ No X

   If yes, please attach a copy of the economic impact statement required to be filed with the Arkansas Economic Development Commission under Arkansas Code § 25-15-301 et seq.

   We believe the proposed changes will not adversely affect small business.

3. If you believe that the development of a financial impact statement is so speculative as to be cost prohibited, please explain.

   N/A

4. If the purpose of this rule is to implement a federal rule or regulation, please give the incremental cost for implementing the rule. Please indicate if the cost provided is the cost of the program.

Current Fiscal Year		**Next Fiscal Year**	
General Revenue	N/A	General Revenue	N/A
Federal Funds	N/A	Federal Funds	N/A
Cash Funds	N/A	Cash Funds	N/A
Special Revenue	N/A	Special Revenue	N/A
Other (Identify)	N/A	Other (Identify)	N/A
Total	N/A	Total	N/A

The Department does not expect to incur additional expenses as a result of the amendments.

EXHIBIT C

5. What is the total estimated cost by fiscal year to any party subject to the proposed, amended, or repealed rule? Identify the party subject to the proposed rule and explain how they are affected.

Current Fiscal Year	**Next Fiscal Year**
$ -389.00	$ -389.00

Parties subject to this regulation will experience a per facility average annual decrease in costs of approximately $389.00 associated with the proposed regulation changes.

6. What is the total estimated cost by fiscal year to the agency to implement this rule? Is this the cost of the program or grant? Please explain.

Current Fiscal Year	**Next Fiscal Year**
$ 0	$ 0

The Department does not expect to incur additional expenses as a result of the amendments.

ECONOMIC IMPACT STATEMENT
OF PROPOSED RULES OR REGULATIONS
Act 143: Regulatory Flexibility

Department	Arkansas Department of Environmental Quality
Division	Air Division
Contact Person	Technical: Mike Bates; Formatting: Mike Porta
Date	June 13, 2008
Contact Phone	Mike Bates: 501.682.0750; Mike Porta: 501.682.0752
Contact Email	Mike Bates: bates@adeq.state.ar.us; Mike Porta: porta@adeq.state.ar.us
Title or Subject:	Amendment to the Arkansas Pollution Control and Ecology Regulation 19, Regulations of the Arkansas Plan of Implementation for Air Pollution Control

Benefits of the Proposed Rule or Regulation

1. Explain the need for the proposed change(s). Did any complaints motivate you to pursue regulatory action? If so, Please explain the nature of such complaints.

   These changes will allow more flexibility for the regulated community so they can better respond to market changes. Additionally, regulatory burden will be reduced on affected businesses. The changes will allow the Department to focus our resources on sources which have a greater potential to impact the environment. The changes are consistent with and allowable under federal programs. The proposed changes are protective of air quality in the state and will not affect attainment goals. The changes also clarify existing regulatory language, correct and update formatting and remove duplicative language from other Arkansas Pollution Control and Ecology Commission regulations.

2. What are the top three benefits of the proposed rule or regulation?
   - *The proposed changes will allow more flexibility to the regulated community so they can better respond to market changes.*
   - *The proposed changes are protective of the state's air quality and ensure our State Implementation Plan will conform to federal requirements.*
   - *The proposed rule will reduce the regulatory burden on affected sources including small businesses.*

3. What, in your estimation, would be the consequence of taking no action, thereby maintaining the status quo?

   Inflexibility would remain in the air permitting program and current levels of regulatory burden would continue to affect businesses in Arkansas. In addition, industry would be expected to propose similar rule changes should these changes not proceed. Failure to adopt the federal requirements could result in our State Implementation Plan being declared deficient and imposition of a Federal Implementation Plan in the state.

4. Describe market-based alternatives or voluntary standards that were considered in place of the proposed regulation and state the reason(s) for not selecting those alternatives.

   None. There are no market-based alternatives.

Impact of Proposed Rule or Regulation

5. Estimate the cost to state government of collecting information, completing paperwork, filing recordkeeping, auditing and inspecting associated with this new rule or regulation.

   No additional costs are anticipated as a result of these changes.

6. What types of small businesses will be required to comply with the proposed rule or regulation? Please estimate the number of small businesses affected.

   All businesses that meet permitting thresholds that require they apply for, receive and comply with terms in an air permit under Regulation 19. The estimated number of small businesses is zero.

7. Does the proposed regulation create barriers to entry? If so, please describe those barriers and why those barriers are necessary.

EXHIBIT D

The proposed regulation will create no barriers to entry.

8. Explain the additional requirements with which small business owners will have to comply and estimate the costs associated with compliance.

   There are no additional requirements for small business owners.

9. State whether the proposed regulation contains different requirements for different sized entities, and explain why this is, or is not, necessary.

   There are not different requirements for different sized entities. The proposed changes are based on air emissions, not the size of the affected business.

10. Describe your understanding of the ability of small business owners to implement changes required by the proposed regulation.

    Small businesses are not required to implement any changes.

11. How does this rule or regulation compare to similar rules and regulations in other states or the federal government?

    Other states have similar regulations and some of the proposed changes are being made to comply with federal rules and regulations. Federal rules and regulations allow and/or require the proposed changes.

Provide a summary of the input your agency has received from small business or small business advocates about the proposed rule or regulation.

The Arkansas Environmental Federation whose members include businesses of various sizes provided input and suggestions on the proposed changes. They support the suggested changes.

ECONOMIC IMPACT/ENVIRONMENTAL BENEFIT ANALYSIS

Answer to best of the proponent's ability, as required by ADPCEC Regulation 8, Chapter 3.5

STEP 1: DETERMINATION OF ANALYSIS REQUIREMENT (to be included in petition to initiate rulemaking)

APC&EC REGULATION NO. 19
Regulations of the Arkansas Plan of Implementation for Air Quality Control
June 2008

1A. Is the proposal expressly addressed by a Federal requirement?

Yes. See 1B; and
No. Economic Impact/Environmental Benefit Analysis is not required.

Some portions of the proposed changes are expressly addressed by a Federal requirement while others are not. Those that are addressed by Federal requirements are equivalent to those requirements.

1B. If 1A is YES, is proposed regulation equivalent, or more stringent, or less stringent than federal requirement?

The proposed changes that are addressed by Federal requirements are equivalent to those requirements.

- If equivalent – Economic Impact/Environmental Benefit Analysis is not required
- If more stringent - Economic Impact/Environmental Benefit Analysis is required
- If less stringent - Economic Impact/Environmental Benefit Analysis is not required, but does require federal agency approval prior to adoption if the proposal is part of an authorized state program.

STEP 2: THE ANALYSIS (to be included in petition to initiate rulemaking, if required)

2A. ECONOMIC IMPACT

Not Required.

2B. ENVIRONMENTAL BENEFIT

Not Required.

EXHIBIT E

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

SUBJECT: Petition to Initiate Rulemaking - Regulation No. 19

Docket No. 08- -R

MINUTE ORDER NO. 08 -

On June 13, 2008, The Arkansas Department of Environmental Quality ("Department") filed a Petition to Amend Regulation No. 19, Regulations of the Arkansas Plan of Implementation for Air Pollution Control ("Petition"). The Petition has been designated as Docket No. 08- -R.

The Commission's Regulations Committee met on June 27, 2008, to review the Petition. Having considered the Petition, the Regulations Committee recommends the Commission institute a rulemaking proceeding to consider adopting the proposed revisions to Regulation No. 19 contingent upon the initiation of rulemaking for Regulation 18 and Regulation 26.

1. The Department shall file an original and two (2) copies and a computer disk in Word of all materials required under this Minute Order.

2. Persons submitting written public comments shall submit their written comments to the Department. Within ten (10) business days following the adoption or denial of the proposed rule, the Department shall deliver the originals of all comments to the Commission Secretary.

3. A public hearing shall be conducted on August 4, 2008, beginning at 2:00 p.m. in the ADEQ Commission Room, 5301 Northshore Drive, North Little Rock, AR 72118-5317.

4. The period for receiving all written comments shall conclude ten (10) business days after the date of the public hearing pursuant to Regulation No. 8, Part 3, Section 3.2.3, unless an extension of time is granted.

5. The Department shall file, not later than 14 days before the Commission meets to consider adoption of the proposed rule, a Statement of Basis and Purpose as required by Regulation No. 8, Part 3, Section 3.6.2(1), (2) and (3).

6. The Department shall file, not later than 14 days before the Commission meets to consider adoption of the proposed rule, a proposed Minute Order deciding this matter.

7. The Department shall seek review of the proposed rule from the Joint Interim Committee on Public Health and Welfare and/or from the Joint Interim

Committee on Administrative Rules and Regulations.

8. The Regulations Committee will consider this matter at its October 24, 2008, meeting. Members of the Regulations Committee may ask questions of the Department and any person that made oral or written comments. The Regulations Committee will make a recommendation to the Commission.

9. At its regularly scheduled October 24, 2008, meeting, the presentation of oral statements and legal arguments shall be regulated as follows:

a. The Chair of the Commission will permit members of the public to make a statement to the Commission. No more than three (3) minutes will be allowed for each statement. The period for statements will close at the end of one (1) hour, or sooner if all interested persons have completed their statements. The Chair, in his discretion, may extend the one (1) hour public comment period.

b. At the discretion of the Chair, an attorney representing one or more individuals, a corporation or other legal entity may be permitted five (5) minutes in which to address the Commission.

c. Department legal counsel or other designated Department employee will be permitted ten (10) minutes in which to address the Commission.

d. At the conclusion of all comments, the Chairman will call on each Commissioner for the purpose of asking the attorneys or persons sponsoring comments who are present, any questions they may have. Attorneys will not be permitted to respond or ask follow-up questions of any person questioned by a Commissioner.

After each Commissioner has had an opportunity to ask questions, the Chair will entertain a motion on the matter, allow discussion, and call for a vote of the Commission members.

10. The Commission finds the proposed regulation does not affect small businesses and therefore concludes that Act 143 of 2007 is not applicable.

The Commission accepts the recommendation of the Regulations Committee and initiates the rulemaking proceeding in Docket No. 08 - - R effective June 27, 2008. The Commission adopts, without modification, the procedural schedule set forth above.

COMMISSIONERS

_____ L. Bengal
_____ S. Henderson
_____ D. Hendrix
_____ C. McGrew
_____ D. Samples
_____ T. Schueck
_____ J. Shannon
_____ L. Sickel
_____ J. Simpson
_____ W. Thompson
_____ E. Valdez
_____ B. White
_____ R. Young

Mike Bates SUBMITTED BY: Mike Bates PASSED: June 27, 2008

EXHIBIT F

ADEQ
ARKANSAS
Department of Environmental Quality

Memorandum

TO: Michael O'Malley, Hearing Officer
Arkansas Pollution Control and Ecology Commissioners

FROM: Mike Bates, Chief, Air Division

DATE: June 13, 2008

SUBJECT: Proposed Revisions to Regulation 26, Regulations of the Arkansas Operating Air Permit Program

The Arkansas Department of Environmental Quality (ADEQ or "the Department") proposes revisions to Regulation 26, Regulations of the Arkansas Operating Air Permit Program. Regulation 26 is applicable to any stationary source which has the potential to emit any federally regulated air pollutant equal to or in excess of the threshold for a major source and is federally enforceable. In a separate petition, ADEQ proposes changes to Regulation Number 18 and Regulation Number 19 contingent upon the Commission promulgating Regulation Number 26. ADEQ requests that the Commission consider the initiation of rulemaking associated with the promulgation of Regulation Number 26 to be contingent upon the Commission's decision to initiate rulemaking to amend Regulation Number 18 and Regulation Number 19 to avoid the potential of either of two possible results:

(a) The regulatory flexibility provisions we are proposing to add will not be effective unless all three regulations are initiated simultaneously; and
(b) Regulations containing different permitting thresholds could cause confusion and unequal treatment of sources.

The proposed regulatory amendments involve the following:

(a) Adding definitions of EPA and a clarified the definition of Title I modification by explaining what is not a Title I modification;
(b) Moving the effective date language from the front of the regulation to its own, new chapter, Chapter 13;
(c) Clarifying in Reg. 26.406, Permit renewal application, that a timely permit renewal application is one that is received by the Department at least 6 months before the permit expires;
(d) Modifying Reg. 26.801, Applicant's duty to apply for alternative scenarios, to remove language so the section applies to any permit granted under Regulation 26;
(e) Updating Reg. 26.1002, Minor permit modification applicability, to describe the levels of emissions increases the minor permit modification procedures may be used. These levels are as follows: 75 tons per year (tpy) of carbon monoxide, 40 tpy of nitrogen oxides, 40 tpy of sulfur dioxide, 25 tpy of particulate matter, 15 tpy of particulate matter that is 10 micrometers in diameter or smaller, and 40 tpy of volatile organic compounds; and

(f) Updating formatting, correcting typographical errors and inconsistencies in the regulation, and updating it to conform to state law.

These changes will allow more flexibility for the regulated community so they can better respond to market changes. Additionally, regulatory burden will be reduced on affected businesses. The changes will allow the Department to focus our resources on sources which have a greater potential to impact the environment. The changes are consistent with and allowable under federal programs. The proposed changes are protective of air quality in the state and will not affect attainment goals. The changes also clarify existing regulatory language, correct and update formatting and remove duplicative language from other Arkansas Pollution Control and Ecology Commission regulations.

BEFORE THE ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF AMENDMENTS TO)
REGULATION NO. 26, REGULATIONS OF THE) DOCKET NO. 08-____-R
ARKANSAS AIR PERMIT PROGRAM)

PETITION TO INITIATE RULEMAKING TO AMEND REGULATION NUMBER 26, REGULATIONS OF THE ARKANSAS AIR PERMIT PROGRAM

The Arkansas Department of Environmental Quality (hereinafter "ADEQ" or "the Department"), for its Petition to Initiate Rulemaking to Amend Regulation Number 26, Regulations of the Arkansas Air Permit Program, states:

1. The Department requests that the Commission Initiate Rulemaking to amend Regulation Number 26, Regulations of the Arkansas Operating Air Permit Program. Regulation 26 is applicable to any stationary source which has the potential to emit any federally regulated air pollutant equal to or in excess of the threshold for a major source and is federally enforceable. By separate petition, the Department proposes changes to Regulation Number 18 and Regulation Number 19 contingent upon the Commission promulgating Regulation Number 26. The Department requests that the Commission consider the initiation of rulemaking associated with the promulgation of Regulation Number 26 to be contingent upon the Commission's decision to initiate rulemaking to amend Regulation Number 18 and Regulation Number 19. The Department makes this request to avoid the potential of either of two possible results:

(a) The regulatory flexibility provisions we are proposing to add will not be effective unless all three regulations are initiated simultaneously; and

(b) Regulations containing different permitting thresholds could cause confusion and unequal treatment of sources.

2. The proposed regulatory amendments involve the following:

(a) Adding definitions of EPA and a clarified the definition of Title I modification by explaining what is not a Title I modification;

(b) Moving the effective date language from the front of the regulation to its own, new chapter, Chapter 13;

(c) Clarifying in Reg. 26.406, Permit renewal application, that a timely permit renewal application is one that is received by the Department at least 6 months before the permit expires;

(d) Modifying Reg. 26.801, Applicant's duty to apply for alternative scenarios, to remove language so the section applies to any permit granted under Regulation 26;

(e) Updating Reg. 26.1002, Minor permit modification applicability, to describe the levels of emissions increases the minor permit modification procedures may be used. These levels are as follows: 75 tons per year (tpy) of carbon monoxide, 40 tpy of nitrogen oxides, 40 tpy of sulfur dioxide, 25 tpy of particulate matter, 15 tpy of particulate matter that is 10 micrometers in diameter or smaller, and 40 tpy of volatile organic compounds; and

(f) Updating formatting, correcting typographical errors and inconsistencies in the regulation, and updating it to conform to state law.

3. The proposed changes to Regulation Number 26 do not require an economic impact/environmental analysis because some of the proposed changes are not expressly addressed by a Federal requirement. Those changes that are not expressly addressed by a Federal requirement are expressly addressed by a federal requirement and are equivalent to those requirements.

4. The proposed changes to Regulation Number 26 are exempt from the requirements of Act 143 of 2007. As such, a review by the Arkansas Economic Development Commission (AEDC) is not required.

5. Mike Bates or other Air Division staff from ADEQ will be available to answer questions concerning this proposed rulemaking. A red-lined version of the regulation showing the proposed changes is attached as Exhibit "A" and is hereby incorporated by reference. A copy of the Legislative Questionnaire is attached as Exhibit "B", and a copy of a financial impact statement for the proposed revision is attached as Exhibit "C", both of which are incorporated by reference. An analysis of the impact to small business required pursuant to Act 143 of 2007 (formerly Executive Order 05-04), is attached as Exhibit "D" and hereby incorporated by reference. A copy of the Economic Impact/Environmental Benefit Analysis is attached hereto as Exhibit "E" and is hereby incorporated by reference. A proposed minute order is attached as Exhibit "F" and is hereby incorporated by reference.

WHEREFORE, ADEQ requests that the Commission initiate the rulemaking process, adopt the proposed Minute Order, and adopt the proposed amendments to Regulation Number 26.

Respectfully Submitted,
ARKANSAS DEPARTMENT OF
ENVIRONMENTAL QUALITY
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317
By: _____
Mike Bates

Pollution Control and Ecology Commission # 014.00-026

ARKANSAS POLLUTION CONTROL and ECOLOGY COMMISSION

REGULATION NO. 26
REGULATIONS OF THE ARKANSAS OPERATING AIR PERMIT PROGRAM

INITIAL DRAFT

Submitted to the PC&E Commission in June, 2008

EXHIBIT A

~~Revised August 23, 2002~~

TABLE OF CONTENTS

CHAPTER 1: TITLE AND PURPOSE 1-1
~~Section~~ Reg. 26.101 Title 1-1
~~Section~~ Reg. 26.102 Purpose 1-1
~~Section~~ Reg. 26.103 Severability 1-1
~~Section 26.104 Effective Date ..... 1-1~~
CHAPTER 2: DEFINITIONS 2-1
CHAPTER 3: REQUIREMENT FOR A PERMIT, APPLICABILITY 3-1
~~Section~~ Reg. 26.301 Requirement for a permit 3-1
~~Section~~ Reg. 26.302 Sources subject to permitting 3-1
~~Section~~ Reg. 26.303 Source category exemptions 3-2
~~Section~~ Reg. 26.304 Emissions units subject to permitting 3-2
~~Section~~ Reg. 26.305 Emissions subject to permitting 3-2
~~Section~~ Reg. 26.306 Fugitive emissions subject to permitting 3-3
CHAPTER 4: APPLICATIONS FOR PERMITS 4-1
~~Section~~ Reg. 26.401 Duty to apply 4-1
~~Section~~ Reg. 26.402 Standard application form and required information 4-1
~~Section~~ Reg. 26.403 Initial applications from existing part 70 sources 4-4
~~Section~~ Reg. 26.404 Applications for proposed new part 70 sources 4-4
~~Section~~ Reg. 26.405 Applications for proposed significant modifications at part 70 sources 4-5
~~Section~~ Reg. 26.406 Permit renewal applications 4-5
~~Section~~ Reg. 26.407 Complete application 4-5
~~Section~~ Reg. 26.408 Confidential information 4-5
~~Section~~ Reg. 26.409 Applicant's duty to supplement or correct application 4-5
~~Section~~ Reg. 26.410 Certification by responsible official 4-6
CHAPTER 5: ACTION ON APPLICATIONS 5-1
~~Section~~ Reg. 26.501 Action on part 70 permit applications 5-1
~~Section~~ Reg. 26.502 Final action on permit application 5-1
~~Section~~ Reg. 26.503 Priority for application review 5-1
~~Section~~ Reg. 26.504 Notification of application completeness 5-1
~~Section~~ Reg. 26.505 Source's ability to operate prior to final permit action 5-2
~~Section~~ Reg. 26.506 Basis for draft permit conditions 5-2
CHAPTER 6: PERMIT REVIEW BY THE PUBLIC, AFFECTED STATES, AND EPA 6-1
~~Section~~ Reg. 26.601 Applicability 6-1
~~Section~~ Reg. 26.602 Public participation 6-1
~~Section~~ Reg. 26.603 Transmission of permit information to the Administrator 6-2
~~Section~~ Reg. 26.604 Review of draft permit by affected States 6-2
~~Section~~ Reg. 26.605 EPA objection to proposed permit 6-3
~~Section~~ Reg. 26.606 Public petitions to the Administrator 6-3
~~Section~~ Reg. 26.607 Prohibition on default issuance 6-4
CHAPTER 7: PERMIT CONTENT 7-1
~~Section~~ Reg. 26.701 Standard permit requirements 7-1
~~Section~~ Reg. 26.702 Federally-enforceable requirements 7-5
~~Section~~ Reg. 26.703 Compliance requirements 7-5

~~Section~~ Reg. 26.704 Permit shield 7-7
~~Section~~ Reg. 26.705 General permits 7-8
~~Section~~ Reg. 26.706 Temporary sources 7-8
~~Section~~ Reg. 26.707 Emergency provision 7-8
CHAPTER 8: OPERATIONAL FLEXIBILITY PROVISIONS 8-1
~~Section~~ Reg. 26.801 Applicant's duty to apply for alternative scenarios 8-1
~~Section~~ Reg. 26.802 Changes resulting in no emissions increases 8-1
~~Section~~ Reg. 26.803 Emissions trading in permit 8-1
~~Section~~ Reg. 26.804 Emissions trading allowed under Regulation No. #19 8-2
CHAPTER 9: ADMINISTRATIVE PERMIT AMENDMENTS 9-1
~~Section~~ Reg. 26.901 Administrative permit amendment applicability 9-1
~~Section~~ Reg. 26.902 Acid Rain administrative permit amendments 9-1
~~Section~~ Reg. 26.903 Administrative permit amendment procedures 9-1
CHAPTER 10: PERMIT MODIFICATIONS, REOPENINGS 10-1
~~Section~~ Reg. 26.1001 Permit modification 10-1
~~Section~~ Reg. 26.1002 Minor permit modification applicability 10-1
~~Section~~ Reg. 26.1003 Prohibition on multiple related minor permit modification application submittals 10-2
~~Section~~ Reg. 26.1004 Minor permit modification application 10-2
~~Section~~ Reg. 26.1005 EPA and affected State notification of minor permit modification application 10-2
~~Section~~ Reg. 26.1006 Timetable for issuance of minor permit modification 10-2
~~Section~~ Reg. 26.1007 Source's ability to make minor modification 10-3
~~Section~~ Reg. 26.1008 Group processing of minor permit modifications 10-3
~~Section~~ Reg. 26.1009 Permit shield not applicable to minor permit modifications 10-3
~~Section~~ Reg. 26.1010 Significant modification procedures 10-3
~~Section~~ Reg. 26.1011 Reopening for cause by the Department 10-4
~~Section~~ Reg. 26.1012 Reopenings for cause by EPA 10-5
Reg. 26.1013 Permit Flexibility 10-5
CHAPTER 11: PERMIT FEES 11-1
~~Section~~ Reg. 26.1101 Fee requirement 11-1
~~Section~~ Reg. 26.1102 Fee schedule 11-1
CHAPTER 12: ACID RAIN SOURCES PROVISIONS 12-1
~~Section~~ Reg. 26.1201 Purpose 12-1
~~Section~~ Reg. 26.1202 Adoption by reference 12-1
CHAPTER 13: EFFECTIVE DATE 13-1
Reg. 26.1301 Effective Date 13-1

CHAPTER 1: TITLE AND PURPOSE

~~Section~~ Reg. 26.101 Title

The following rules and regulations of the Arkansas Pollution Control & Ecology Commission, adopted in accordance with the provisions of Part II of the Arkansas Water and Air Pollution Control Act A.C.A. §§8-4-101 *et seq*., shall be known as the "Regulations of the Arkansas Operating Air Permit Program", hereinafter referred to as the "program", the "regulations", and "Regulation No. ~~#~~26".

~~Section~~ Reg. 26.102 Purpose

Promulgation and enforcement of these regulations is intended to meet the requirements of title V of the federal Clean Air Act, 42 U.S.C. §§7401, *et seq*., and 40 CFR part 70, as promulgated July 21, 1992 and last modified November 27, 2001, by establishing a comprehensive state air quality permitting program for major sources of air contaminant emissions. Permits issued under this program will address all applicable air contaminant emissions and regulatory requirements in a single document.

~~Section~~ Reg. 26.103 Severability

If any provision of Regulation No. ~~#~~26 is determined to be invalid, such invalidity shall not affect other provisions of Regulation No. ~~#~~26.

~~Section 26.104 Effective Date~~

~~Any part of Regulation #26, or any amendment thereto, shall be in full force and in effect 10 days after filing with the Arkansas Secretary of State.~~

CHAPTER 2: DEFINITIONS

The following definitions apply to these regulations. Except as specifically provided in this section, terms used in this regulation retain the meaning accorded them under the applicable requirements of the federal Clean Air Act or the Arkansas Pollution Control & Ecology Commission Regulation No. 19 (SIP).

"Acid rain source" shall have the meaning of "affected source" as defined in title IV of the Act.

"Act" means the Clean Air Act, as amended, 42 U.S.C. 7401, et seq.

"Administrator" or "**EPA**" means the Administrator of the United States Environmental Protection Agency ~~EPA~~ or his/her designee.

"Affected States" are all States:

(A) Whose air quality may be affected and that are contiguous to the State in which a part 70 permit, permit modification or permit renewal is being proposed; or

(B) That are within 50 miles of the permitted source.

"Air contaminant" means any solid, liquid, gas, or combination thereof, other than water vapor, nitrogen (N_2), carbon dioxide (CO_2), and oxygen (O_2).

"Applicable requirement" means all of the following as they apply to emissions units in a part 70 source (including requirements that have been promulgated or approved by EPA through rulemaking at the time of issuance but have future-effective compliance dates):

(A) Any standard or other requirement provided for in the applicable implementation plan approved or promulgated by EPA through rulemaking under title I of the Act that implements the relevant requirements of the Act, including any revisions to that plan promulgated in 40 CFR part 52;

(B) Any term or condition of any preconstruction permits issued pursuant to regulations approved or promulgated through rulemaking under title I, including parts C or D, of the Act;

(C) Any standard or other requirement under section 111 of the Act, including section 111(d);

(D) Any standard or other requirement under section 112 of the Act, including any requirement concerning accident prevention under section 112(r)(7) of the Act;

(E) Any standard or other requirement of the acid rain program under title IV of the Act or the regulations promulgated thereunder;

(F) Any requirements established pursuant to section 504(b) or section 114(a)(3) of the Act;

(G) Any standard or other requirement governing solid waste incineration, under section 129 of the Act;

(H) Any standard or other requirement for consumer and commercial products, under section 183(e) of the Act;

(I) Any standard or other requirement for tank vessels, under section 183(f) of the Act;

(J) Any standard or other requirement of the program to control air pollution from outer continental shelf sources, under section 328 of the Act;

(K) Any standard or other requirement of the regulations promulgated to protect stratospheric ozone under title VI of the Act, unless the Administrator has determined that such requirements need not be contained in a title V permit; and

(L) Any national ambient air quality standard or increment or visibility requirement under part C of title I of the Act, but only as it would apply to temporary sources permitted pursuant to section 504(e) of the Act.

"Department" means Arkansas Department of Environmental Quality or its successor.

"Designated representative" shall have the meaning given to it in section 402(26) of the Act and the regulations promulgated thereunder.

"Draft permit" means the version of a permit for which the Department offers public participation and affected State review.

"Emissions allowable under the permit" means a federally enforceable permit term or condition determined at issuance to be required by an applicable requirement that establishes an emissions limit (including a work practice standard) or a federally enforceable emissions cap that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject.

"Emissions unit" means any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant. This term is not meant to alter or affect the definition of the term "unit" for purposes of title IV of the Act.

"Existing part 70 source" means a part 70 source that is in operation on the effective date of these regulations.

"Final permit" means the version of a part 70 permit issued by the Department that has completed all review procedures required by these regulations.

"Fugitive emissions" are those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally-equivalent opening.

"Initial permit" means a part 70 permit issued to a part 70 source that is in existence on the effective date of these regulations.

"Major source" means any stationary source (or any group of stationary sources that are located on one or more contiguous or adjacent properties, and are under common control of the same person [or persons under common control]) belonging to a single major industrial grouping and that are described in subsection (A), (B), or (C) of this definition. For the purposes of defining "major source," a stationary source or group of stationary sources shall be considered part of a single industrial grouping if all of the pollutant emitting activities at such source or group of sources on contiguous or adjacent properties belong to the same Major Group (i.e., all have the same two-digit code) as described in the Standard Industrial Classification Manual, 1987.

(A) A major source under section 112 of the Act, which is defined as:

(1) For pollutants other than radionuclides, any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, in the aggregate, 10 tons per year (tpy) or more of any hazardous air pollutant which has been listed pursuant to section 112(b) of the Act, 25 tpy or more of any combination of such hazardous air pollutants, or such lesser quantity as the Administrator may establish by rule. Notwithstanding the preceding sentence, emissions from any oil or gas exploration or production well (with its associated equipment) and emissions from any pipeline compressor or pump station shall not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major sources; or

(2) For radionuclides, "major source" shall have the meaning specified by the Administrator by rule.

(B) A major stationary source of air pollutants, as defined in section 302 of the Act, that directly emits or has the potential to emit, 100 tpy or more of any regulated air pollutant (including any major source of fugitive emissions of any such pollutant, as determined by rule by the Administrator). The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of section 302(j) of the Act, unless the source belongs to one of the following categories of stationary source:

(1) Coal cleaning plants (with thermal dryers);

(2) Kraft pulp mills;

(3) Portland cement plants;

(4) Primary zinc smelters;

(5) Iron and steel mills;

(6) Primary aluminum ore reduction plants;

(7) Primary copper smelters;

(8) Municipal incinerators capable of charging more than 250 tons of refuse per day;

(9) Hydrofluoric, sulfuric, or nitric acid plants;

(10) Petroleum refineries;

(11) Lime plants;

(12) Phosphate rock processing plants;

(13) Coke oven batteries;

(14) Sulfur recovery plants;

(15) Carbon black plants (furnace process);

(16) Primary lead smelters;

(17) Fuel conversion plant;

(18) Sintering plants;

(19) Secondary metal production plants;

(20) Chemical process plants;

(21) Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

(22) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(23) Taconite ore processing plants;

(24) Glass fiber processing plants;

(25) Charcoal production plants;

(26) Fossil-fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input; or

(27) Any other stationary source category, which as of August 7, 1980, is being regulated under section 111 or 112 of the Act.

(C) A major stationary source as defined in part D of title I of the Act, including:

(a) For ozone nonattainment areas, sources with the potential to emit 100 tpy or more of volatile organic compounds or oxides of nitrogen in areas classified as "marginal" or "moderate," 50 tpy or more in areas classified as "serious," 25 tpy or more in areas classified as "severe," and 10 tpy or more in areas classified as "extreme"; except that the references in this paragraph to 100, 50, 25, and 10 tpy of nitrogen oxides shall not apply with respect to any source for which the Administrator has made a finding, under section 182(f)(1) or (2) of the Act, that requirements under section 182(f) of the Act do not apply;

(b) For ozone transport regions established pursuant to section 184 of the Act, sources with the potential to emit 50 tpy or more of volatile organic compounds;

(c) For carbon monoxide nonattainment areas (1) that are classified as "serious," and (2) in which stationary sources contribute significantly to carbon monoxide levels as determined under rules issued by the Administrator, sources with the potential to emit 50 tpy or more of carbon monoxide; and

(d) For particulate matter (PM-10) nonattainment areas classified as "serious," sources with the potential to emit 70 tpy or more of PM-10.

"Part 70 permit" or **"permit"** (unless the context suggests otherwise) means any permit or group of permits covering a part 70 source that is issued, renewed, amended, or revised pursuant to this regulation.

"Part 70 program" or **"State program"** means a program approved by the Administrator under 40 CFR Part 70, as promulgated July 21, 1992 and last modified November 27, 2001.

"Part 70 source" means any source subject to the permitting requirements of this regulation.

"Permit modification" means a revision to a part 70 permit that meets the requirements of chapter 10.

"Permit revision" means any permit modification or administrative permit amendment.

"Permitting authority" means either of the following:

(A) The Arkansas Department of Environmental Quality; or

(B) The Administrator, in the case of EPA-implemented programs.

"Potential to emit" means the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation is enforceable by the Administrator. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in title IV of the Act or the regulations promulgated thereunder.

"Proposed permit" means the version of a permit that the Department proposes to issue and forwards to the Administrator for review.

"Recognized air contaminant emissions" shall mean those air contaminant emissions which may reasonably be assumed to be present according to mass balance calculations or applicable published literature on air contaminant emissions or those air contaminant emissions which characteristics, toxicity, rate and quantity of emission, and duration of their presence in the atmosphere cause or present a threat of harm to human health or the environment.

"Regulated air pollutant" means the following:

(A) Nitrogen oxides or any volatile organic compounds;

(B) Any pollutant for which a national ambient air quality standard has been promulgated;

(C) Any pollutant that is subject to any standard promulgated under section 111 of the Act;

(D) Any Class I or II substance subject to a standard promulgated under or established by title VI of the Act; or

(E) Any hazardous air pollutant listed pursuant to section 112 of the Act.

"Renewal" means the process by which a permit is reissued at the end of its term.

"Renewal permit" means a part 70 permit that is reissued at the end of its term.

"Responsible official" means one of the following:

(A) For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(1) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter l980 dollars); or

(2) The delegation of authority to such representative is approved in advance by the Department;

(B) For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

(C) For a municipality, State, Federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this regulation, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of EPA); or

(D) For acid rain sources:

(1) The designated representative insofar as actions, standards, requirements, or prohibitions under title IV of the Act or the regulations promulgated thereunder are concerned; and

(2) The designated representative for any other purposes under part 70.

"State" means any non-Federal permitting authority, including any local agency, interstate association, or statewide program. The term "State" also includes the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. Where such meaning is clear from the context, "State" shall have its conventional meaning. For purposes of the acid rain program, the term "State" shall be limited to authorities within the 48 contiguous States and the District of Columbia as provided in section 402(14) of the Act.

"Stationary source" means any building, structure, facility, or installation that emits or may emit any regulated air pollutant.

"Title I modification" means any modification as defined under any regulation promulgated pursuant to Title I of the federal Clean Air Act. De minimis changes under Regulation 19, changes to state only permit requirements, administrative permit amendments, and changes to the insignificant activities list are not Title I modifications.

CHAPTER 3: REQUIREMENT FOR A PERMIT, APPLICABILITY

~~Section~~ Reg. 26.301 Requirement for a permit

(A) No part 70 source may operate unless it is operating in compliance with a part 70 permit, or unless it has filed a timely and complete application for an initial or renewal permit as required under these regulations. Existing part 70 sources shall submit initial applications according to the provisions of section 4. If a part 70 source submits a timely and complete application for an initial or renewal permit, the source's failure to have a part 70 permit is not a violation of this regulation until the Department takes final action on the permit application, except as noted in this section. This protection shall cease to apply if, subsequent to the completeness determination, the applicant fails to submit by the deadline specified in writing by the Department any additional information identified as being needed to process the application. If the Department fails to act in a timely way on a permit renewal, EPA may invoke its authority under section 505(e) of the Act to terminate or revoke and reissue the permit.

(B) No proposed new part 70 source shall begin construction prior to obtaining a part 70 permit, unless the applicable permit application was submitted prior to the effective date of these regulations and the Department's draft permitting decision for such source has already proceeded to public notice in accordance with Regulation No. #19.

(C) No part 70 source shall begin construction of a new emissions unit or begin modifications to an existing emissions unit prior to obtaining a modified part 70 permit. This applies only to significant modifications and does not apply to modifications that qualify as minor modifications or changes allowed under the operational flexibility provisions of a part 70 permit. An existing part 70 source shall be subject to the permit modification procedures of Regulation No. #19 until such time that an initial part 70 permit application is due from the source.

~~Section~~ Reg. 26.302 Sources subject to permitting

The following sources shall be subject to permitting under these regulations, unless exempted by Reg. ~~§~~26.303 below:

(A) Any major source;

(B) Any source, including an area source, subject to a standard, limitation, or other requirement under section 111 of the Act (i.e., NSPS regs.) However, nonmajor sources subject to section 111 of the Act are exempt from the obligation to obtain a part 70 permit until such time that the Administrator completes a rulemaking to determine how the program should be structured for nonmajor sources;

(C) Any source, including an area source, subject to a standard or other requirement under section 112 of the Act (i.e., hazardous air pollutant regs.), except that a

source is not required to obtain a permit solely because it is subject to regulations or requirements under section 112(r) of this Act;

(D) Any source subject to Regulation §19.9 of the *Regulations of the Arkansas Plan of Implementation for Air Pollution Control.*

(E) Any acid rain source (which shall be permitted in accordance with the provisions of the federal acid rain program); and

(F) Any source in a source category designated by the Administrator pursuant to this section.

Section Reg. 26.303 Source category exemptions

The following source categories are exempted from the obligation to obtain a part 70 permit:

(A) All sources listed in Reg. section 26.302 that are not major sources, acid rain sources, or solid waste incineration units required to obtain a permit pursuant to section 129(e) of the Act, are exempted from the obligation to obtain a part 70 permit until such time as the Administrator completes a rulemaking to determine how the program should be structured for nonmajor sources.

(B) All sources and source categories that would be required to obtain a permit solely because they are subject to 40 CFR part 60, Subpart AAA - Standards of Performance for New Residential Wood Heaters; and

(C) All sources and source categories that would be required to obtain a permit solely because they are subject to 40 CFR part 61, Subpart M - National Emission Standard for Hazardous Air Pollutants for Asbestos, section 6l.145, Standard for Demolition and Renovation.

(D) Any other nonmajor sources subject to a standard or other requirement under either section 111 or 112 of the Act exempted by the Administrator.

Section Reg. 26.304 Emissions units subject to permitting

The Department shall include in the part 70 permit all applicable requirements for all relevant emissions units in the part 70 source. Some equipment with very small emission rates is exempt from permitting requirements as per chapter 4 and Appendix A of Regulation No. #19.

Section Reg. 26.305 Emissions subject to permitting

All regulated air pollutant emissions and recognized air contaminant emissions from a part 70 source shall be included in a part 70 permit. However, only regulated air pollutants may trigger the need for a part 70 permit or a part 70 permit modification process. A permit modification involving only air contaminants other than regulated air pollutants shall be permitted according to the procedure of Regulation No. #19. Such permits shall be incorporated into the part 70 permit by administrative permit amendment.

~~Section~~ Reg. 26.306 Fugitive emissions subject to permitting

Fugitive emissions from a part 70 source shall be included in the permit application and the part 70 permit in the same manner as stack emissions, regardless of whether the source category in question is included in the list of sources contained in the definition of major source.

CHAPTER 4: APPLICATIONS FOR PERMITS

~~Section~~ Reg. 26.401 Duty to apply

For each source subject to 40 CFR part 70, as promulgated July 21, 1992 and last modified November 27, 2001, the owner or operator shall submit a timely and complete permit application (on forms supplied by the Department) in accordance with this section.

~~Section~~ Reg. 26.402 Standard application form and required information

The Department shall provide a standard application form or forms and shall provide them to part 70 sources upon request. Information as described below for each emissions unit at a part 70 source shall be required by the application form and included by the applicant in the application.

(A) Insignificant activities which are exempted because of size or production rate, a list of such insignificant activities must be included in the application.

(B) An application may not omit information needed to determine the applicability of, or to impose, any applicable requirement, or to evaluate the fee amount required by Regulation No. 9. The Department may use discretion in developing application forms that best meet program needs and administrative efficiency. The forms and attachments chosen, however, shall include the elements specified below:

(1) Identifying information, including company name and address (or plant name and address if different from the company name), owner's name and agent, and telephone number and names of plant site manager/contact.

(2) A description of the source's processes and products (by Standard Industrial Classification Code or the North American Industry Classification System) including any associated with alternate scenario identified by the source.

(3) The following emission-related information:

(a) A permit application shall describe all emissions of regulated air pollutants emitted from any emissions unit, except where such units are exempted under subsection (A). The Department shall require additional information related to the emissions of air pollutants sufficient to verify which requirements are applicable to the source, and other information necessary to collect any permit fees owed under the fee schedule in Regulation No. 9.

(b) Identification and description of all points of emissions described above in sufficient detail to establish the basis for fees and applicability of requirements of the Act.

(c) Emissions rate in tpy and in such terms as are necessary to establish compliance consistent with the applicable standard reference test method.

(d) The following information to the extent it is needed to determine or regulate emissions: Fuels, fuel use, raw materials, production rates, and operating schedules.

(e) Identification and description of air pollution control equipment and compliance monitoring devices or activities.

(f) Limitations on source operation affecting emissions or any work practice standards, where applicable, for all regulated pollutants at the part 70 source.

(g) Other information required by any applicable requirement (including information related to stack height limitations developed pursuant to section 123 of the Act).

(h) Calculations on which the information in paragraph (3) of this section is based.

(4) The following air pollution control requirements:

(a) Citation and description of all applicable requirements, and

(b) Description of or reference to any applicable test method for determining compliance with each applicable requirement.

(5) Other specific information that may be necessary to implement and enforce other applicable requirements of the Act or of this part or to determine the applicability of such requirements.

(6) An explanation of any proposed exemptions from otherwise applicable requirements.

(7) Additional information as determined to be necessary by the Department to define alternative operating scenarios identified by the source pursuant to Reg. ~~§~~26.701(I) or to define permit terms and conditions implementing Reg. ~~§~~26.802 or Reg. ~~§~~26.701(J).

(8) A compliance plan for all part 70 sources that contains all the following:

(a) A description of the compliance status of the source with respect to all applicable requirements.

(b) A description as follows:

(i) For applicable requirements with which the source is in compliance, a statement that the source will continue to comply with such requirements.

(ii) For applicable requirements that will become effective during the permit term, a statement that the source will meet such requirements on a timely basis.

(iii) For requirements for which the source is not in compliance at the time of permit issuance, a narrative description of how the source will achieve compliance with such requirements.

(c) A compliance schedule as follows:

(i) For applicable requirements with which the source is in compliance, a statement that the source will continue to comply with such requirements.

(ii) For applicable requirements that will become effective during the permit term, a statement that the source will meet such requirements on a timely basis. A statement that the source will meet in a timely manner applicable requirements that become effective during the permit term shall satisfy this provision, unless a more detailed schedule is expressly required by the applicable requirement.

(iii) A schedule of compliance for sources that are not in compliance with all applicable requirements at the time of permit issuance. Such a schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the source will be in noncompliance at the time of permit issuance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based.

(d) A schedule for submission of certified progress reports no less frequently than every 6 months for sources required to have a schedule of compliance to remedy a violation.

(e) The compliance plan content requirements specified in this paragraph shall apply and be included in the acid rain portion of a compliance plan for an affected source, except as specifically

superseded by regulations promulgated under title IV of the Act with regard to the schedule and method(s) the source will use to achieve compliance with the acid rain emissions limitations.

(9) Requirements for compliance certification, including the following:

(a) A certification of compliance with all applicable requirements by a responsible official consistent with Reg. ~~§~~26.410 and section 114(a)(3) of the Act;

(b) A statement of methods used for determining compliance, including a description of monitoring, recordkeeping, and reporting requirements and test methods;

(c) A schedule for submission of compliance certifications during the permit term, to be submitted no less frequently than annually, or more frequently if specified by the underlying applicable requirement or by the Department; and

(d) A statement indicating the source's compliance status with any applicable enhanced monitoring and compliance certification requirements of the Act.

(10) The use of nationally-standardized forms for acid rain portions of permit applications and compliance plans, as required by regulations promulgated under title IV of the Act.

(C) Reserved

~~Section~~ Reg. 26.403 Initial applications from existing part 70 sources

A timely application for a part 70 source existing on the effective date of these regulations is one that is submitted within 12 months after the source becomes subject to the permit program, or on or before such earlier date as the Department may establish. The earliest that the Department may require an initial application from such an existing part 70 source is 6 months after the Department notifies the source in writing of its duty to apply for an initial part 70 permit.

~~Section~~ Reg. 26.404 Applications for proposed new part 70 sources

The owner or operator proposing to construct a new part 70 source shall apply for and obtain a part 70 permit prior to the construction of the source, unless the applicable permit application was submitted prior to the effective date of these Regulations and the Department's draft permitting decision for such source has already proceeded to public comment in accordance with Regulation No. ~~#~~19.

~~Section~~ Reg. 26.405 Applications for proposed significant modifications at part 70 sources

Part 70 sources proposing to construct a new emissions unit or modify an existing emissions unit shall apply for and obtain a modified part 70 permit prior to the construction or modification of such emissions unit. This applies only to significant modifications and does not apply to modifications that qualify as minor modifications or changes allowed under the operational flexibility provisions of a part 70 permit.

~~Section~~ Reg. 26.406 Permit renewal applications

For purposes of permit renewal, a timely application is one that is received by the Department ~~submitted~~ at least 6 months prior to the date of permit expiration or such other longer time as may be approved by the Administrator that ensures that the term of the permit will not expire before the permit is renewed. In no event shall this time be greater than 18 months. Renewal permits are subject to the same procedural requirements that apply to initial permit issuance. Permit expiration terminates a part 70 source's right to operate unless a timely and complete renewal application has been received by the Department ~~submitted~~, in which case the existing permit shall remain in effect until the Department takes final action on the renewal application. If the Department fails to act in a timely way on a permit renewal, EPA may invoke its authority under section 505(e) of the Act to terminate or revoke and reissue the permit.

~~Section~~ Reg. 26.407 Complete application

To be deemed complete, an application must provide all information required by Reg. ~~§~~26.402, except that applications for permit revision need supply only that information related to the proposed change. Unless the Department determines that an application is not complete within 60 days of receipt of the application, such application shall be deemed to be complete. If, while processing an application that has been determined or deemed to be complete, the Department determines that additional information is necessary to evaluate or take final action on that application, it may request such information in writing and set a reasonable deadline for a response.

~~Section~~ Reg. 26.408 Confidential information

In the case where a source has submitted information to the State under a claim of confidentiality, the Department may also require the source to submit a copy of such information directly to the Administrator.

~~Section~~ Reg. 26.409 Applicant's duty to supplement or correct application

Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application but prior to release of a draft permit.

~~Section~~ Reg. 26.410 Certification by responsible official

Any application form, report, or compliance certification submitted pursuant to these regulations shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under these regulations shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

CHAPTER 5: ACTION ON APPLICATIONS

~~Section~~ Reg. 26.501 Action on part 70 permit applications

A permit, permit modification, or permit renewal may be issued only if all of the following conditions have been met:

(A) The Department has received a complete application for a permit, permit modification, or permit renewal, except that a complete application need not be received before issuance of a general permit.

(B) Except for modifications qualifying for minor permit modification procedures under chapter 10, the Department has complied with the requirements under chapter 6 for public participation and for notifying and responding to affected States.

(C) The processing of the permit application and the conditions of the permit provide for compliance with all applicable requirements and the requirements of this regulation; and

(D) The Administrator has received a copy of the proposed permit and any notices required under chapter 6 and has not objected to issuance of the permit within the time period specified therein.

~~Section~~ Reg. 26.502 Final action on permit application

The Department shall take final action on each permit application (including a request for permit modification or renewal) as expeditiously as practicable, but no later than 18 months after receiving a complete application, unless a different time period is provided for in these regulations (i.e., initial permitting of existing part 70 sources and minor permit modifications). Failure of the Department to act upon an application shall not constitute approval of the permit application. An aggrieved applicant may seek relief from Department inaction on a permit application in accordance with the procedures of Arkansas Code Annotated §§ 8-4-311 (b)(10)(F) ~~(15)(F)~~.

~~Section~~ Reg. 26.503 Priority for application review

Priority shall be given by the Department to taking action on applications for construction and modification over applications for permit renewal to the extent practicable.

~~Section~~ Reg. 26.504 Notification of application completeness

The Department shall promptly provide notice to the applicant of whether the application is complete. Unless the Department requests additional information or otherwise notifies the applicant of incompleteness within 60 days of receipt of an application, the application shall be deemed complete. For modifications processed through minor permit modification procedures,

the program shall not require a completeness determination, but shall be subject to an eligibility determination.

~~Section~~ Reg. 26.505 Source's ability to operate prior to final permit action

A part 70 source's ability to operate without a permit prior to initial permit issuance (to existing part 70 sources) or permit renewal shall be in effect from the date the timely and complete application for initial permit or permit renewal is determined or deemed to be complete until the final permit is issued, provided that the applicant submits any requested additional information by the deadline specified by the Department. However, the installation of new emissions units and the modification of existing emissions units may not commence until a final permit for such activity is issued, unless such activity involves equipment exempt from permitting requirements or modifications eligible to be processed through minor permit modification procedures.

~~Section~~ Reg. 26.506 Basis for draft permit conditions

The Department shall provide a statement that sets forth the legal and factual basis for the draft permit conditions (including references to the applicable statutory or regulatory provisions). The Department shall send this statement to EPA and to any other person who requests it.

CHAPTER 6: PERMIT REVIEW BY THE PUBLIC, AFFECTED STATES, AND EPA

~~Section~~ Reg. 26.601 Applicability

All initial permits, renewal permits, and significant permit modifications shall meet the permit review requirements of this chapter.

~~Section~~ Reg. 26.602 Public participation

All initial permit issuances, significant modifications, minor modifications, and renewals shall afford the public the opportunity to comment.

(A) Public notice shall be given:

(1) By publication of notice of application receipt by the Department, in a newspaper of general circulation in the county in which the proposed facility or activity is to be located, in accordance with Regulation No. ~~#~~8 (minor permit modification applications are exempt from this requirement). In the event the local newspaper is unable or unwilling to publish the notice, notice may be published in a newspaper in general circulation through the State;

(2) By the availability for public inspection in at least one location in the area where the source is located and in the Department's central offices of the permit application submitted by the owner or operator and the Department's draft permitting decision and analysis of the effect of the proposed emissions on air quality;

(3) By publication of a notice of the Department's draft permitting decision in a newspaper of general circulation in the county in which the proposed facility or activity is to be located, in accordance with Regulation No. ~~#~~8. In the event the local newspaper is unable or unwilling to publish the notice, notice may be published in a newspaper in general circulation through the State;

(4) To the mayor of the community in which the source is located;

(5) To the county judge of the county in which the source is located;

(6) To persons on a mailing list developed by the Department, including those who request in writing to be on the list; and

(7) By other means if necessary to assure adequate notice to the affected public.

(B) The notice of Reg. ~~§~~26.602(A)(3) shall identify the affected facility; the name and address of the permittee; the name and address of the Department; the activity or activities involved in the permit action; the emissions change involved in any permit modification; the name, address, and telephone number of a person from whom interested persons may obtain additional information, including copies of the permit draft, the application, all relevant supporting materials and all other materials available to the Department that are relevant to the permit decision; a brief description of the comment procedures required by this regulation; and a statement of procedures to request a hearing;

(C) The Department shall provide such notice and opportunity for participation by affected States as is provided for in this section;

(D) The Department shall provide at least 30 days for public comment on its draft permitting decision and shall give notice of any public hearing at least 30 days in advance of the hearing.

(E) The Department shall keep a record of the commenters and also of the issues raised during the public participation process so that the Administrator may fulfill his obligation under section 505(b)(2) of the Act to determine whether a citizen petition may be granted, and such records shall be available to the public.

~~Section~~ Reg. 26.603 Transmission of permit information to the Administrator

(A) The Department shall provide to the Administrator a copy of each permit application (including any application for permit modification), each proposed permit, and each final part 70 permit. The applicant may be required by the Department to provide a copy of the permit application (including the compliance plan) directly to the Administrator. Upon agreement with the Administrator, the Department may submit to the Administrator a permit application summary form and any relevant portion of the permit application and compliance plan, in place of the complete permit application and compliance plan.

(B) The Department shall keep for 5 years such records and submit to the Administrator such information as the Administrator may reasonably require to ascertain whether the State program complies with the requirements of the Act or of 40 CFR part 70, as promulgated July 21, 1992 and last modified November 27, 2001.

~~Section~~ Reg. 26.604 Review of draft permit by affected States

(A) The Department shall give notice of each draft permit to any affected State on or before the time that the Department provides this notice to the public, except to the extent that minor permit modification procedures requires the timing of the notice to be different.

(B) The Department, as part of the submittal of the proposed permit to the Administrator (or as soon as possible after the submittal for minor permit

modification procedures), shall notify the Administrator and any affected State in writing of any refusal by the Department to accept all recommendations for the proposed permit that the affected State submitted during the public or affected State review period. The notice shall include the Department's reasons for not accepting any such recommendation. The Department is not required to accept recommendations that are not based on applicable requirements or the requirements of 40 CFR part 70, as promulgated July 21, 1992 and last modified November 27, 2001.

~~Section~~ Reg. 26.605 EPA objection to proposed permit

(A) The Administrator will object to the issuance of any proposed permit determined by the Administrator not to be in compliance with applicable requirements or requirements under this regulation. No permit for which an application is required to be transmitted to the Administrator may be issued if the Administrator objects to its issuance in writing within 45 days of receipt of the proposed permit and all necessary supporting information.

(B) Any EPA objection shall include a statement of the Administrator's reasons for objection and a description of the terms and conditions that the permit must include to respond to the objections. The Administrator will provide the permit applicant a copy of the objection.

(C) Failure of the Department to follow proper permit issuance procedural requirements or to submit required information necessary to review the proposed permit also shall constitute grounds for an objection.

(D) If the Department fails, within 90 days after the date of an objection under Reg. ~~§~~26.605(A) to revise and submit a proposed permit in response to the objection, the Administrator will issue or deny the permit in accordance with the requirements of the Federal program promulgated under title V of this Act.

~~Section~~ Reg. 26.606 Public petitions to the Administrator

If the Administrator does not object in writing to a proposed part 70 permit, any person may petition the Administrator within 60 days after the expiration of the Administrator's 45-day review period to make such objection. Any such petition shall be based only on objections to the permit that were raised with reasonable specificity during the public comment period, unless the petitioner demonstrates that it was impracticable to raise such objections within such period, or unless the grounds for such objection arose after such period. If the Administrator objects to the permit as a result of a petition filed under this subsection, the Department shall not issue the permit until EPA's objection has been resolved, except that a petition for review does not stay the effectiveness of a permit or its requirements if the permit was issued after the end of the 45-day review period and prior to an EPA objection. If the Department has issued a permit prior to receipt of an EPA objection under this subsection, the Administrator will modify, terminate, or revoke such permit, and shall do so consistent with the procedures in chapter 10 except in unusual circumstances, and the Department may thereafter issue only a revised permit that

satisfies EPA's objection. In any case, the source will not be in violation of the requirement to have submitted a timely and complete application.

~~Section~~ Reg. 26.607 Prohibition on default issuance

No part 70 permit (including a permit renewal or modification) shall be issued until affected States and EPA have had an opportunity to review the proposed permit as required under this chapter.

CHAPTER 7: PERMIT CONTENT

~~Section~~ Reg. 26.701 Standard permit requirements

Each permit issued under this program shall include the following elements:

(A) Emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of permit issuance.

(1) The permit shall specify and reference the origin of and authority for each term or condition, and identify any difference in form as compared to the applicable requirement upon which the term or condition is based.

(2) The permit shall state that, where an applicable requirement of the Act is more stringent than an applicable requirement of regulations promulgated under title IV of the Act, both provisions shall be incorporated into the permit and shall be enforceable by the Administrator.

(3) If an applicable implementation plan allows a determination of an alternative emission limit at a part 70 source, equivalent to that contained in the plan, to be made in the permit issuance, renewal, or significant modification process, and the Department elects to use such process, any permit containing such equivalency determination shall contain provisions to ensure that any resulting emissions limit has been demonstrated to be quantifiable, accountable, enforceable, and based on replicable procedures.

(B) The Department shall issue permits for a fixed term of 5 years in the case of acid rain sources, and for a term not to exceed 5 years in the case of all other part 70 sources. Notwithstanding this requirement, the Department shall issue permits for solid waste incineration units combusting municipal waste subject to standards under section 129(e) of the Act for a period not to exceed 12 years and shall review such permits at least every 5 years.

(C) Monitoring and related recordkeeping and reporting requirements.

(1) Each permit shall contain the following requirements with respect to monitoring:

(a) All monitoring and analysis procedures or test methods required under applicable monitoring and testing requirements, including 40 CFR part 64 and any other procedures and methods that may be promulgated pursuant to sections 114(a)(3) or 504(b) of the Act. If more than one monitoring or testing requirement applies, the permit may specify a streamlined set of monitoring or testing provisions provided the specified monitoring or testing is adequate

to assure compliance at least to the same extent as the monitoring or testing applicable requirements that are not included in the permit as a result of such streamlining;

(b) Where the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of recordkeeping designed to serve as monitoring), periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit, as reported pursuant to Reg. ~~§~~26.701(C)(3). Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement. Recordkeeping provisions may be sufficient to meet the requirements of this paragraph; and

(c) As necessary, requirements concerning the use, maintenance, and, where appropriate, installation of monitoring equipment or methods.

(2) With respect to recordkeeping, the permit shall incorporate all applicable recordkeeping requirements and require, where applicable, the following:

(a) Records of required monitoring information that include the following:

(i) The date, place as defined in the permit, and time of sampling or measurements;

(ii) The date(s) analyses were performed;

(iii) The company or entity that performed the analyses;

(iv) The analytical techniques or methods used;

(v) The results of such analyses; and

(vi) The operating conditions as existing at the time of sampling or measurement;

(b) Retention of records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

(3) With respect to reporting, the permit shall incorporate all applicable reporting requirements and require the following:

(a) Submittal of reports of any required monitoring at least every 6 months. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official consistent with Reg. ~~§~~26.410 and section 114(a)(3) of the Act.

(b) Prompt reporting of deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. The Department shall define in each permit "prompt" in relation to the degree and type of deviation likely to occur and the applicable requirements.

(D) A permit condition prohibiting emissions exceeding any allowances that the source lawfully holds under title IV of the Act or the regulations promulgated thereunder.

(1) No permit revision shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program, provided that such increases do not require a permit revision under any other applicable requirement.

(2) No limit shall be placed on the number of allowances held by the source. The source may not, however, use allowances as a defense to noncompliance with any other applicable requirement.

(3) Any such allowance shall be accounted for according to the procedures established in regulations promulgated under title IV of the Act.

(E) A severability clause to ensure the continued validity of the various permit requirements in the event of a challenge to any portions of the permit.

(F) Provisions stating the following:

(1) The permittee must comply with all conditions of the part 70 permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

(2) It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

(3) The permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit

modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

(4) The permit does not convey any property rights of any sort, or any exclusive privilege.

(5) The permittee shall furnish to the Department, within a reasonable time, any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Department copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

(G) A provision to ensure that a part 70 source pays fees to the Department consistent with the fee schedule approved pursuant to Regulation No. 9.

(H) A provision stating that no permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in the permit.

(I) Terms and conditions for reasonably anticipated operating scenarios identified by the source in its application as approved by the Department. Such terms and conditions:

(1) Shall require the source, contemporaneously with making a change from one operating scenario to another, to record in a log at the permitted facility a record of the scenario under which it is operating;

(2) May extend the permit shield described in Reg. ~~§~~26.704 to all terms and conditions under each such operating scenario; and

(3) Must ensure that the terms and conditions of each such alternative scenario meet all applicable requirements and the requirements of this part.

(J) Terms and conditions, if the permit applicant requests them, for the trading of emissions increases and decreases in the permitted facility, to the extent that the applicable requirements provide for trading such increases and decreases without a case-by-case approval of each emissions trade. Such terms and conditions:

(1) Shall include all terms required under Reg. ~~§~~26.701 and Reg. ~~§~~26.703 to determine compliance;

(2) May extend the permit shield described in Reg. ~~Section~~ 26.704 to all terms and conditions that allow such increases and decreases in emissions; and

(3) Must meet all applicable requirements and requirements of this part.

~~Section~~ Reg. 26.702 Federally-enforceable requirements

(A) All terms and conditions in a part 70 permit, including any provisions designed to limit a source's potential to emit, are enforceable by the Administrator and citizens under the Act.

(B) Notwithstanding subsection (A), the Department shall specifically designate as not being federally enforceable under the Act any terms and conditions included in the permit that are not required under the Act or under any of its applicable requirements. Terms and conditions so designated are not subject to the requirements of chapters 6 and 10 of this regulation, other than those contained in this section.

~~Section~~ Reg. 26.703 Compliance requirements

All part 70 permits shall contain the following elements with respect to compliance:

(A) Consistent with Reg. ~~§~~26.701(C), compliance certification, testing, monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit. Any document (including reports) required by a part 70 permit shall contain a certification by a responsible official consistent with Reg. ~~§~~26.410 and section 114(a)(3) of the Act.

(B) Inspection and entry requirements that require that, upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Department or an authorized representative to perform the following:

(1) Enter upon the permittee's premises where a part 70 source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;

(3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and

(4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.

(C) A schedule of compliance consistent with Reg. ~~§~~26.402(B)(8).

(D) Progress reports consistent with an applicable schedule of compliance and Reg. ~~§~~26.402(B)(8) to be submitted at least semiannually, or at a more frequent period

if specified in the applicable requirement or by the Department. Such progress reports shall contain the following:

(1) Dates for achieving the activities, milestones, or compliance required in the schedule of compliance, and dates when such activities, milestones or compliance were achieved; and

(2) An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

(E) Requirements for compliance certification with terms and conditions contained in the permit, including emission limitations, standards, or work practices. Permits shall include each of the following:

(1) The frequency (not less than annually or such more frequent periods as specified in the applicable requirement or by the Department) of submissions of compliance certifications;

(2) In accordance with Reg. §26.701(C), a means for monitoring the compliance of the source with its emissions limitations, standards, and work practices;

(3) A requirement that the compliance certification include all of the following (provided that the identification of applicable information may cross-reference the permit or previous reports, as applicable):

(a) The identification of each term or condition of the permit that is the basis of the certification;

(b) The identification of the method(s) or other means used by the owner or operator for determining the compliance status with each term and condition during the certification period, and whether such methods or other means provide continuous or intermittent data. Such methods and other means shall include, at a minimum, the methods and means required under Reg. §26.701(C). If necessary, the owner or operator also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the Act, which prohibits knowingly making a false certification or omitting material information;

(c) The status of compliance with the terms and conditions of the permit for the period covered by the certification, based on the method or means designated in subparagraph (b) above. The certification shall identify each deviation and take it into account in the compliance certification. The certification shall also identify as possible exceptions to compliance any periods during which

compliance is required and in which an excursion or exceedance occurred; and

(d) Such other facts as the Department may require to determine the compliance status of the source.

(4) A requirement that all compliance certifications be submitted to the Administrator as well as to the Department.

(F) Such other provisions as the Department may require.

~~Section~~ Reg. 26.704 Permit shield

(A) Except as provided in this regulation, the Department shall, if requested by the applicant, expressly include in a part 70 permit a provision stating that compliance with the conditions of the permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that:

(1) Such applicable requirements are included and are specifically identified in the permit; or

(2) The Department, in acting on the permit application or revision, determines in writing that other requirements specifically identified are not applicable to the source, and the permit includes the determination or a concise summary thereof.

(B) A part 70 permit that does not expressly state that a permit shield exists shall be presumed not to provide such a shield.

(C) Nothing in this subsection or in any part 70 permit shall alter or affect the following:

(1) The provisions of section 303 of the Act (emergency orders), including the authority of the Administrator under that section;

(2) The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;

(3) The applicable requirements of the acid rain program, consistent with section 408(a) of the Act; or

(4) The ability of EPA to obtain information from a source pursuant to section 114 of the Act.

(D) Permit shield provisions shall not extend to minor permit modifications.

~~Section~~ Reg. 26.705 General permits

(A) The Department may, after notice and opportunity for public participation provided under chapter 6, issue a general permit covering numerous similar sources. Any general permit shall comply with all requirements applicable to other part 70 permits and shall identify criteria by which sources may qualify for the general permit. To sources that qualify, the Department shall grant the conditions and terms of the general permit. Notwithstanding the permit shield provisions of this section, the source shall be subject to enforcement action for operation without a part 70 permit if the source is later determined not to qualify for the conditions and terms of the general permit. General permits shall not be authorized for acid rain sources under the acid rain program unless otherwise provided in regulations promulgated under title IV of the Act.

(B) Part 70 sources that would qualify for a general permit must apply to the Department for coverage under the terms of the general permit or must apply for a part 70 permit consistent with chapter 4. The Department may, in the general permit, provide for applications which deviate from the requirements of chapter 4, provided that such applications meet the requirements of title V of the Act, and include all information necessary to determine qualification for, and to assure compliance with, the general permit. Without repeating the public participation procedures, the Department may grant a source's request for authorization to operate under a general permit, but such a grant shall not be a final permit action for purposes of judicial review.

~~Section~~ Reg. 26.706 Temporary sources

The Department may issue a single permit authorizing emissions from similar operations by the same source owner or operator at multiple temporary locations. The operation must be temporary and involve at least one change of location during the term of the permit. No acid rain source shall be permitted as a temporary source. Permits for temporary sources shall include the following:

(A) Conditions that will assure compliance with all applicable requirements at all authorized locations;

(B) Requirements that the owner or operator notify the Department at least 10 days in advance of each change in location; and

(C) Conditions that assure compliance with all other provisions of this section.

~~Section~~ Reg. 26.707 Emergency provision

(A) An “emergency” means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency

shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

(B) An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the following conditions are met. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An emergency occurred and that the permittee can identify the cause(s) of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and

(4) The permittee submitted notice of the emergency to the Department by the next working day after the emergency. This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(D) In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

(E) This provision is in addition to any emergency or upset provision contained in any applicable requirement.

CHAPTER 8: OPERATIONAL FLEXIBILITY PROVISIONS

~~Section~~ Reg. 26.801 Applicant's duty to apply for alternative scenarios

Any operating scenario allowed for in a ~~an applicable part 70~~ permit may be implemented by the facility without the need for any permit revision or any notification to the Department. It is incumbent upon the ~~part 70~~ permit applicant to apply for any reasonably anticipated alternative facility operating scenarios at the time of ~~initial or renewal~~ permit application. The Department shall include approved alternative operating scenarios in the ~~part 70~~ permit. ~~The permit shield described in chapter 7 shall extend to all alternative operating scenarios addressed in the part 70 permit.~~

~~Section~~ Reg. 26.802 Changes resulting in no emissions increases

A permitted ~~part 70~~ source may make changes within the facility that contravene permit terms without a ~~part 70~~ permit revision if the changes:

(A) Are not modifications under any provision of title I of the Act;

(B) Do not exceed emissions allowable under the permit (whether expressed therein as a rate of emissions or in the terms of total emissions);

(C) Do not violate applicable requirements; and

(D) Do not contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements;

provided that the facility provides the Administrator and the Department with written notification as required below in advance of the proposed changes, which shall be a minimum of 7 days, or such shorter time frame that Department allows for emergencies. The source, Department, and EPA shall attach each such notice to their copy of the relevant permit. For each such change, the written notification required above shall include a brief description of the change within the permitted facility, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change. The permit shield described in chapter 7 does not apply to any change made pursuant to this subsection.

~~Section~~ Reg. 26.803 Emissions trading in permit

The Department shall, if a permit applicant requests it, issue permits that contain terms and conditions, including all terms required under 40 CFR 70.6(a) and (c), as promulgated July 21, 1992 and last modified November 27, 2001, to determine compliance, allowing for the trading of emissions increases and decreases in the permitted facility solely for the purpose of complying with a federally-enforceable emissions cap that is established in the permit independent of otherwise applicable requirements. The permit applicant shall include in its application proposed replicable procedures and permit terms that ensure the emissions trades are quantifiable and enforceable. The Department shall not be required to include in the emissions trading provisions

any emissions units for which emissions are not quantifiable or for which there are no replicable procedures to enforce the emissions trades. The permit shall also require compliance with all applicable requirements. The permittee shall provide 7-days written notice to the Department which shall state when the change will occur and shall describe the changes in emissions that will result and how these increases and decreases in emissions will comply with the terms and conditions of the permit. The permit shield described in chapter 7 shall extend to terms and conditions that allow such increases and decreases in emissions.

~~Section~~ Reg. 26.804 Emissions trading allowed under Regulation No. #19

A permitted part 70 source may trade increases and decreases in emissions within the permitted facility, where Regulation No. #19, the State Implementation Plan, provides for such emissions trades, without requiring a permit revision. The permittee shall provide 7-days written notice to the Department which shall state when the proposed change will occur, a description of such change, any change in emissions, the permit requirements with which the source will comply using the emissions trading provisions of the State Implementation Plan, and the pollutants emitted subject to the emissions trade. The notice shall also refer to the provisions with which the source will comply in the State Implementation Plan and that provide for the emissions trade. The permit shield described in chapter 7 shall not extend to any change made pursuant to this subsection. Compliance with the permit requirements that the source will meet using the emissions trade shall be determined according to requirements of the State Implementation Plan authorizing the emissions trade.

CHAPTER 9: ADMINISTRATIVE PERMIT AMENDMENTS

~~Section~~ Reg. 26.901 Administrative permit amendment applicability

An "administrative permit amendment" is a permit revision, requested by the permittee, that:

(A) Corrects typographical errors;

(B) Identifies a change in the name, address, or phone number of any person identified in the permit, or provides a similar minor administrative change at the source;

(C) Requires more frequent monitoring or reporting by the permittee;

(D) Allows for a change in ownership or operational control of a source, which has been permitted under Regulation No. ~~#~~19, where the Department determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the Department;

(E) Incorporates a change in the permit involving air contaminants other than regulated air pollutants which has been processed under permitting provisions of Regulations No. #18 and No. #19.

(F) Incorporates a change in the permit solely involving the retiring of an emissions unit.

(G) Incorporates a change to the facilities' insignificant activities list.

~~Section~~ Reg. 26.902 Acid Rain administrative permit amendments

Administrative permit amendments for purposes of the acid rain portion of the permit shall be governed by regulations promulgated under title IV of the Act.

~~Section~~ Reg. 26.903 Administrative permit amendment procedures

An administrative permit amendment shall be made by the Department consistent with the following:

(A) The Department shall take no more than 60 days from receipt of a request for an administrative permit amendment to take final action on such request, and may incorporate such changes without providing notice to the public or affected States provided that it designates any such permit revisions as having been made pursuant to this section.

(B) The Department shall submit a copy of the revised permit to the Administrator.

(C) The source may implement the changes addressed in the request for an administrative amendment immediately upon submittal of the request.

CHAPTER 10: PERMIT MODIFICATIONS, REOPENINGS

~~Section~~ Reg. 26.1001 Permit modification

A permit modification is any revision to a part 70 permit that cannot be accomplished under the program's provisions for administrative permit amendments. A permit modification for purposes of the acid rain portion of the permit shall be governed by regulations promulgated under title IV of the Act.

~~Section~~ Reg. 26.1002 Minor permit modification applicability

The minor permit modification process is an expedited procedure that allows a source to make changes involving limited emissions increases without a public notice process or a preconstruction permit. Minor permit modification procedures may be used only for those permit modifications that:

(A) Involve emissions increases of less than: ~~not over 20% of the applicable definition of major source, or 15 tons/year of PM_{10}, or 0.6 tons/year of lead (potential to emit basis), whichever is less, of a regulated air pollutant over permitted rates;~~

(1) 75 tons per year of carbon monoxide (CO)

(2) 40 tons per year of nitrogen oxides (NO_x)

(3) 40 tons per year of sulfur dioxide (SO_2)

(4) 25 tons per year of particulate matter (PM)

(5) 15 tons per year of fine particulate (PM_{10})

(6) 40 tons per year of volatile organic compounds (VOCs)

(7) 0.6 tons per year of lead

(B) Involve the installation or modification of emissions units which do not require a title I emissions netting procedure to determine eligibility;

(C) Do not violate any applicable requirement;

(D) Do not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;

(E) Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis;

(F) Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed

to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:

(1) A federally enforceable emissions cap assumed to avoid classification as a modification under any provision of title I; and

(2) An alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Act;

(G) Are not modifications under any provision of title I of the Act.

~~Section~~ Reg. 26.1003 Prohibition on multiple related minor permit modification application submittals

A part 70 source may not submit multiple minor permit modification applications that are designed to conceal a larger modification that would not be eligible for minor permit modification procedures. The Department may, in its discretion, require that multiple related minor permit modification applications be processed as a significant permit modification.

~~Section~~ Reg. 26.1004 Minor permit modification application

An application requesting the use of minor permit modification procedures shall meet the standard part 70 permit application requirements and shall additionally include the following:

(A) A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs;

(B) The source's suggested draft permit conditions;

(C) Certification by a responsible official that the proposed modification meets the criteria for use of minor permit modification procedures and a request that such procedures be used; and

(D) Completed forms for the Department to use to notify the Administrator and affected States as required under chapter 6.

~~Section~~ Reg. 26.1005 EPA and affected State notification of minor permit modification application

Within 5 working days of receipt of a complete minor permit modification application, the Department shall meet its obligation to notify the Administrator and affected States of the requested permit modification. The Department promptly shall send any notice required under chapter 6 to the Administrator.

~~Section~~ Reg. 26.1006 Timetable for issuance of minor permit modification

The Department may not issue a final minor permit modification until after EPA's 45-day review period or until EPA has notified the Department that EPA will not object to issuance of the

permit modification, although the Department can approve the permit modification prior to that time. Within 90 days of the Department's receipt of an application under minor permit modification procedures or 15 days after the end of the Administrator's 45-day review period under chapter 6, whichever is later, the Department shall:

(A) Issue the permit modification as proposed;

(B) Deny the permit modification application;

(C) Determine that the requested modification does not meet the minor permit modification criteria and should be reviewed under the significant modification procedures; or

(D) Revise the draft permit modification and transmit to the Administrator the new proposed permit modification as required by chapter 6.

~~Section~~ Reg. 26.1007 Source's ability to make minor modification

A source may make the change proposed in its minor permit modification application upon receipt of written notification from the Department. The Department shall have 15 days after its receipt of the application to determine if the minor permit modification application is complete and is eligible for minor permit modification procedures. If the Department does not respond within this 15-day period, the source may proceed with the proposed modification at its own risk. After the source makes the change allowed by the preceding sentence, and until the Department takes action on the application, the source must comply with both the applicable requirements governing the change and the proposed permit terms and conditions. During this time period, the source need not comply with the existing permit terms and conditions it seeks to modify. However, if the source fails to comply with its proposed permit terms and conditions during this time period, the existing permit terms and conditions it seeks to modify may be enforced against it.

~~Section~~ Reg. 26.1008 Group processing of minor permit modifications

Multiple applications for different minor permit modifications may be processed as a single minor permit modification by the Department if the group of multiple permit applications as a whole meets the eligibility requirements of Reg. ~~§~~26.1002.

~~Section~~ Reg. 26.1009 Permit shield not applicable to minor permit modifications

The permit shield under chapter 7 does not extend to minor permit modifications.

~~Section~~ Reg. 26.1010 Significant modification procedures

Significant modifications involving the procedures of chapter 6 shall be used for applications that:

(A) Involve new applicable requirements;

(B) Are modifications under any provision of title I of the Act.

(C) Involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit;

(D) Require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis;

(E) Seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:

(1) A federally enforceable emissions cap assumed to avoid classification as a modification under any provision of title I; and

(2) An alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Act;

(F) Involve an increase in regulated air pollutant emissions that cannot be processed under minor permit modification procedures.

~~Section~~ Reg. 26.1011 Reopening for cause by the Department

(A) Each issued permit shall include provisions specifying the conditions under which the permit will be reopened prior to the expiration of the permit. A permit shall be reopened and revised under any of the following circumstances:

(1) Additional applicable requirements under the Act become applicable to a major part 70 source with a remaining permit term of 3 or more years. Such a reopening shall be completed not later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended due to failure of the Department to take action on a renewal permit.

(2) Additional requirements (including excess emissions requirements) become applicable to an acid rain source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into the permit.

(3) The Department or EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.

(4) The Administrator or the Department determines that the permit must be revised or revoked to assure compliance with the applicable requirements.

(B) Proceedings to reopen and issue a permit shall follow the same procedures as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists. Such reopening shall be made as expeditiously as practicable.

(C) Reopenings shall not be initiated before a notice of such intent is provided to the part 70 source by the Department at least 30 days in advance of the date that the permit is to be reopened, except that the Department may provide a shorter time period in the case of an emergency.

~~Section~~ Reg. 26.1012 Reopenings for cause by EPA

(A) If the Administrator finds that cause exists to terminate, modify, or revoke and reissue a permit, the Administrator shall notify the Department and the permittee of such finding in writing.

(B) The Department shall, within 90 days after receipt of such notification, forward to EPA a proposed determination of termination, modification, or revocation and reissuance, as appropriate. The Administrator may extend this 90-day period for an additional 90 days if he finds that a new or revised permit application is necessary or that the Department must require the permittee to submit additional information.

(C) The Administrator will review the proposed determination from the Department within 90 days of receipt.

(D) The Department shall have 90 days from receipt of an EPA objection to resolve any objection that EPA makes and to terminate, modify, or revoke and reissue the permit in accordance with the Administrator's objection.

(E) If the Department fails to submit a proposed determination pursuant to this subsection, or fails to resolve any objection pursuant to this subsection, the Administrator will terminate, modify, or revoke and reissue the permit after the following actions:

(1) Providing at least 30 days' notice to the permittee in writing of the reasons for any such action.

(2) Providing the permittee an opportunity for comment on the Administrator's proposed action and an opportunity for a hearing.

Reg. 26.1013 Permit Flexibility

The Department may grant an extension to any testing, compliance or other dates in the permit. No extensions shall be authorized until the owner and/or operator of the facility receives written

approval from the Department. The Department may grant such a request, at its discretion, in the following circumstances:

(A) The owner and/or operator of the facility makes such a request in writing at least 15 days in advance of the deadline specified in the facility's permit;

(B) The extension does not violate a federal requirement;

(C) The owner and/or operator of the facility demonstrates the need for the extension; and

(D) The owner and/or operator of the facility documents that all reasonable measures have been taken to meet the current deadline and documents reasons the current deadline cannot be met.

The Department may grant a request to allow temporary emissions and/or testing that would otherwise exceed a permitted emission rate, throughput requirement or other limit in a facility's permit. No such activities shall be authorized until the owner and/or operator of the facility receives written approval from the Department. The Department may grant such a request, at its discretion, in the following circumstances:

(A) The owner and/or operator of the facility makes such a request in writing at least 30 days in advance of the date that temporary emissions and/or testing that would otherwise exceed a permitted emission rate, throughput requirement or other limit in a facility's permit;

(B) Such a request does not violate a federal requirement;

(C) Such a request is temporary in nature;

(D) Such a request will not result in a condition of air pollution;

(E) The request contains such information necessary for the Department to evaluate the request, including but not limited to, quantification of such emissions and the date and time such emission will occur;

(F) Such a request will result in increased emissions less than five tons of any individual criteria pollutant, one ton of any single HAP and 2.5 tons of total HAPs; and

(G) The owner and/or operator of the facility maintains records of the dates and results of such temporary emissions and/or testing.

The Department may grant a request to allow an alternative to the monitoring specified in a facility's operating permit. No such activities shall be authorized until the owner and/or operator of the facility receives written approval from the Department. The Department may grant such a request, at its discretion, in the following circumstances:

(A) The owner and/or operator of the facility makes such a request in writing at least 30 days in advance of the first date that the monitoring alternative will be used at the facility;

(B) Such a request does not violate a federal requirement;

(C) The monitoring alternative provides an equivalent or greater degree of actual monitoring to the requirements in the facility's operating permit; and

(D) Any such request, if approved by the Department, is incorporated into the next permit modification application by the owner and/or operator of the facility.

CHAPTER 11: PERMIT FEES

~~Section~~ Reg. 26.1101 Fee requirement

In accordance with 40 CFR 70.9, as promulgated July 21, 1992 and last modified November 27, 2001, the owners or operators of part 70 sources shall pay initial and annual fees that are sufficient to cover the permit program costs. The Department shall ensure that any fee required by these regulations will be used solely for permit program costs.

~~Section~~ Reg. 26.1102 Fee schedule

The fee schedule for part 70 permits is contained in Regulation No. #9.

CHAPTER 12: ACID RAIN SOURCES PROVISIONS

~~Section~~ Reg. 26.1201 Purpose

The purpose of this section is to ensure that acid rain sources located within the state will be permitted in accordance with the regulations promulgated pursuant to title IV of the federal Clean Air Act.

~~Section~~ Reg. 26.1202 Adoption by reference

The Arkansas Pollution Control and Ecology Commission hereby adopts and incorporates by reference those provisions of 40 CFR parts 72 and 76 (including all provisions of parts 73, 74, 75, 77, and 78 referenced therein) as in effect on October 15, 1999, for purposes of implementing an Acid Rain Program that meets the requirements of title IV of the Clean Air Act. The term "permitting authority" shall mean the Arkansas Department of Environmental Quality, and the term "Administrator" shall mean the Administrator of the United States Environmental Protection Agency. If the provisions or requirements of 40 CFR parts 72 or 76 conflict with or are not included in Regulation No. #26, the part 72 or 76 provisions and requirements shall apply and take precedence.

CHAPTER 13: EFFECTIVE DATE

Reg. 26.1301 Effective Date

This regulation is effective ten (10) days after filing with the Secretary of State, the State Library and the Bureau of Legislative Research.

QUESTIONNAIRE FOR FILING PROPOSED RULES AND REGULATIONS WITH THE ARKANSAS LEGISLATIVE COUNCIL AND JOINT INTERIM COMMITTEE

DEPARTMENT/AGENCY Arkansas Department of Environmental Quality
DIVISION Air Division
DIVISION DIRECTOR Mike Bates, Chief
CONTACT PERSON Deborah Pitts, Attorney
ADDRESS 5301 Northshore Drive, North Little Rock, AR 72118-5317
PHONE NO. (501) 682-0883 **FAX NO.**(501) 682-0891 **E-MAIL** pitts@adeq.state.ar.us
NAME OF PRESENTER AT COMMITTEE MEETING Karen Bassett or Mike Bates
PRESENTER E-MAIL bassett@adeq.state.ar.us or bates@adeq.state.ar.us

INSTRUCTIONS

A. Please make copies of this form for future use.
B. Please answer each question completely using layman terms. You may use additional sheets, if necessary.
C. If you have a method of indexing your rules, please give the proposed citation after "Short Title of this Rule" below.
D. Submit two (2) copies of this questionnaire and financial impact statement attached to the front of two (2) copies of the proposed rule and required documents. Mail or deliver to:

Donna K. Davis
Administrative Rules Review Section
Arkansas Legislative Council
Bureau of Legislative Research
Room 315, State Capitol
Little Rock, AR 72201

****

1. What is the short title of this rule?
Regulation 26

2. What is the subject of the proposed rule?
Arkansas Pollution Control and Ecology Commission Regulation 26, Regulations of the Arkansas Operating Air Permit Program

3. Is this rule required to comply with a federal statute, rule, or regulation? Yes___ No__X__

If yes, please provide the federal rule, regulation, and/or statute citation.

4. Was this rule filed under the emergency provisions of the Administrative Procedure Act? Yes_____ No__X___

If yes, what is the effective date of the emergency rule?_____N/A_____

When does the emergency rule expire? _____N/A_____

Will this emergency rule be promulgated under the permanent provisions of the Administrative Procedure Act? Yes_____ No__X___

EXHIBIT B

5. Is this a new rule? Yes_____ No__X__ If yes, please provide a brief summary explaining the regulation.

Does this repeal an existing rule? Yes_____ No__X__If yes, a copy of the repealed rule is to be included with your completed questionnaire. If it is being replaced with a new rule, please provide a summary of the rule giving an explanation of what the rule does.

Is this an amendment to an existing rule? Yes__X__No___If yes, please attach a mark-up showing the changes in the existing rule and a summary of the substantive changes. **Note: The summary should explain what the amendment does, and the mark-up copy should be clearly labeled "mark-up."**

See the attached Petition to Initiate Rulemaking for a summary and Exhibit A for a mark-up copy of the changes.

6. Cite the state law that grants the authority for this proposed rule? If codified, please give Arkansas Code citation.

A.C.A §8-4-201; 8-4-202, and 8-4-311.

7. What is the purpose of this proposed rule? Why is it necessary?

These changes will allow more flexibility for the regulated community so they can better respond to market changes. Additionally, regulatory burden will be reduced on affected businesses. The changes will allow the Department to focus our resources on sources which have a greater potential to impact the environment. The changes are consistent with and allowable under federal programs. The proposed changes are protective of air quality in the state and will not affect attainment goals. The changes also clarify existing regulatory language, correct and update formatting and remove duplicative language from other Arkansas Pollution Control and Ecology Commission regulations.

8. Please provide the address where this rule is publicly accessible in electronic form via the Internet as required by Arkansas Code § 25-19-108(b).

http://www.adeq.state.ar.us/regs/drafts/draft_regs.htm

9. Will a public hearing be held on this proposed rule? Yes__X__ No_____
If yes, please complete the following:
Date: August 4, 2008
Time: Beginning at 2:00 PM
Place: ADEQ Commission Room, 5301 Northshore Drive, North Little Rock, AR

10. When does the public comment period expire for permanent promulgation? (Must provide a date.) 10 business days after the date of the public hearing: on or about August 18, 2008.

11. What is the proposed effective date of this proposed rule? (Must provide a date.)

On or about January 1, 2009.

12. Do you expect this rule to be controversial? Yes_____ No__X__ If yes, please explain.

13. Please give the names of persons, groups, or organizations that you expect to comment on these rules? Please provide their position (for or against) if known.

The Arkansas Environmental Federation has expressed interest and provided input in the development of this regulation. Their comments are expected to be positive. Environmental groups may also comment and their positions on these changes were not known at the time this document was prepared.

FINANCIAL IMPACT STATEMENT

PLEASE ANSWER ALL QUESTIONS COMPLETELY

DEPARTMENT Arkansas Department of Environmental Quality
DIVISION Air Division
PERSON COMPLETING THIS STATEMENT Elizabeth Sartain
TELEPHONE NO. (501) 682-0719 **FAX NO.** (501) 682-0753 **EMAIL:** sartain@adeq.state.ar.us

To comply with Act 1104 of 1995, please complete the following Financial Impact Statement and file two copies with the questionnaire and proposed rules.

SHORT TITLE OF THIS RULE
Regulation 26

1. Does this proposed, amended, or repealed rule have a financial impact?
   Yes _____ No X

   The proposed changes will not have an economic impact on entities subject to this regulation. The economic impact to the Arkansas Department of Environmental Quality (ADEQ) will be a minor decrease to ADEQ revenue of less than one-half of one percent.

2. Does this proposed, amended, or repealed rule affect small businesses?
   Yes _____ No X

   If yes, please attach a copy of the economic impact statement required to be filed with the Arkansas Economic Development Commission under Arkansas Code § 25-15-301 et seq.

   We believe the proposed changes will not adversely affect small business.

3. If you believe that the development of a financial impact statement is so speculative as to be cost prohibited, please explain.

   N/A

4. If the purpose of this rule is to implement a federal rule or regulation, please give the incremental cost for implementing the rule. Please indicate if the cost provided is the cost of the program.

Current Fiscal Year		**Next Fiscal Year**	
General Revenue	N/A	General Revenue	N/A
Federal Funds	N/A	Federal Funds	N/A
Cash Funds	N/A	Cash Funds	N/A
Special Revenue	N/A	Special Revenue	N/A
Other (Identify)	N/A	Other (Identify)	N/A
Total	N/A	Total	N/A

The Department does not expect to incur additional expenses as a result of the amendments.

EXHIBIT C

5. What is the total estimated cost by fiscal year to any party subject to the proposed, amended, or repealed rule? Identify the party subject to the proposed rule and explain how they are affected.

Current Fiscal Year	**Next Fiscal Year**
$ 0	$ 0

6. What is the total estimated cost by fiscal year to the agency to implement this rule? Is this the cost of the program or grant? Please explain.

Current Fiscal Year	**Next Fiscal Year**
$ 0	$ 0

The Department does not expect to incur additional expenses as a result of the amendments.

ECONOMIC IMPACT STATEMENT
OF PROPOSED RULES OR REGULATIONS
Act 143: Regulatory Flexibility

Department	Arkansas Department of Environmental Quality
Division	Air Division
Contact Person	Technical: Mike Bates; Formatting: Mike Porta
Date	June 13, 2008
Contact Phone	Mike Bates: 501.682.0750; Mike Porta: 501.682.0752
Contact Email	Mike Bates: bates@adeq.state.ar.us; Mike Porta: porta@adeq.state.ar.us
Title or Subject:	Amendment to the Arkansas Pollution Control and Ecology Regulation 26, Regulations of the Arkansas Operating Air Permit Program

Benefits of the Proposed Rule or Regulation

1. Explain the need for the proposed change(s). Did any complaints motivate you to pursue regulatory action? If so, Please explain the nature of such complaints.

   These changes will allow more flexibility for the regulated community so they can better respond to market changes. Additionally, regulatory burden will be reduced on affected businesses. The changes will allow the Department to focus our resources on sources which have a greater potential to impact the environment. The changes are consistent with and allowable under federal programs. The proposed changes are protective of air quality in the state and will not affect attainment goals. The changes also clarify existing regulatory language, correct and update formatting and remove duplicative language from other Arkansas Pollution Control and Ecology Commission regulations.

2. What are the top three benefits of the proposed rule or regulation?
   - *The proposed changes will allow more flexibility to the regulated community so they can better respond to market changes.*
   - *The proposed changes are protective of the state's air quality.*
   - *The proposed rule will reduce the regulatory burden on affected sources including small businesses.*

3. What, in your estimation, would be the consequence of taking no action, thereby maintaining the status quo?

   Inflexibility would remain in the air permitting program and current levels of regulatory burden would continue to affect businesses in Arkansas. In addition, industry would be expected to propose similar rule changes should these changes not proceed.

4. Describe market-based alternatives or voluntary standards that were considered in place of the proposed regulation and state the reason(s) for not selecting those alternatives.

   None. There are no market-based alternatives.

Impact of Proposed Rule or Regulation

5. Estimate the cost to state government of collecting information, completing paperwork, filing recordkeeping, auditing and inspecting associated with this new rule or regulation.

   No additional costs are anticipated as a result of these changes.

6. What types of small businesses will be required to comply with the proposed rule or regulation? Please estimate the number of small businesses affected.

   All businesses that meet permitting thresholds that require they apply for, receive and comply with terms in an air permit under Regulation 26. The estimated number of small businesses is zero.

7. Does the proposed regulation create barriers to entry? If so, please describe those barriers and why those barriers are necessary.

   The proposed regulation will create no barriers to entry.

EXHIBIT D

8. Explain the additional requirements with which small business owners will have to comply and estimate the costs associated with compliance.

There are no additional requirements for small business owners.

9. State whether the proposed regulation contains different requirements for different sized entities, and explain why this is, or is not, necessary.

There are not different requirements for different sized entities. The proposed changes are based on air emissions, not the size of the affected business.

10. Describe your understanding of the ability of small business owners to implement changes required by the proposed regulation.

Small businesses are not required to implement any changes.

11. How does this rule or regulation compare to similar rules and regulations in other states or the federal government?

Other states have similar regulations and some of the proposed changes are being made to comply with federal rules and regulations. Federal rules and regulations allow and/or require the proposed changes.

Provide a summary of the input your agency has received from small business or small business advocates about the proposed rule or regulation.

The Arkansas Environmental Federation whose members include businesses of various sizes provided input and suggestions on the proposed changes. They support the suggested changes.

ECONOMIC IMPACT/ENVIRONMENTAL BENEFIT ANALYSIS

Answer to best of the proponent's ability, as required by ADPCEC Regulation 8, Chapter 3.5

STEP 1: DETERMINATION OF ANALYSIS REQUIREMENT (to be included in petition to initiate rulemaking)

APC&EC REGULATION NO. 26
Regulations of the Arkansas Operating Air Permit Program
June 2008

1A. Is the proposal expressly addressed by a Federal requirement?

No. Economic Impact/Environmental Benefit Analysis is not required.

1B. If 1A is YES, is proposed regulation equivalent, or more stringent, or less stringent than federal requirement?

- If equivalent – Economic Impact/Environmental Benefit Analysis is not required
- If more stringent - Economic Impact/Environmental Benefit Analysis is required
- If less stringent - Economic Impact/Environmental Benefit Analysis is not required, but does require federal agency approval prior to adoption if the proposal is part of an authorized state program.

STEP 2: THE ANALYSIS (to be included in petition to initiate rulemaking, if required)

2A. ECONOMIC IMPACT

Not Required.

2B. ENVIRONMENTAL BENEFIT

Not Required.

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

SUBJECT: Petition to Initiate Rulemaking - Regulation No. 26

Docket No. 08- -R

MINUTE ORDER NO. 08 -

On June 13, 2008, The Arkansas Department of Environmental Quality ("Department") filed a Petition to Amend Regulation No. 26, Regulations of the Arkansas Operating Air Permit Program ("Petition"). The Petition has been designated as Docket No. 08- -R.

The Commission's Regulations Committee met on June 27, 2008, to review the Petition. Having considered the Petition, the Regulations Committee recommends the Commission institute a rulemaking proceeding to consider adopting the proposed revisions to Regulation No. 26 contingent upon the initiation of rulemaking for Regulation 18 and Regulation 19.

1. The Department shall file an original and two (2) copies and a computer disk in Word of all materials required under this Minute Order.

2. Persons submitting written public comments shall submit their written comments to the Department. Within ten (10) business days following the adoption or denial of the proposed rule, the Department shall deliver the originals of all comments to the Commission Secretary.

3. A public hearing shall be conducted on August 4, 2008, beginning at 2:00 p.m. in the ADEQ Commission Room, 5301 Northshore Drive, North Little Rock, AR 72118-5317.

4. The period for receiving all written comments shall conclude ten (10) business days after the date of the public hearing pursuant to Regulation No. 8, Part 3, Section 3.2.3, unless an extension of time is granted.

5. The Department shall file, not later than 14 days before the Commission meets to consider adoption of the proposed rule, a Statement of Basis and Purpose as required by Regulation No. 8, Part 3, Section 3.6.2(1), (2) and (3).

6. The Department shall file, not later than 14 days before the Commission meets to consider adoption of the proposed rule, a proposed Minute Order deciding this matter.

7. The Department shall seek review of the proposed rule from the Joint Interim Committee on Public Health and Welfare and/or from the Joint Interim

Committee on Administrative Rules and Regulations.

8. The Regulations Committee will consider this matter at its October 24, 2008, meeting. Members of the Regulations Committee may ask questions of the Department and any person that made oral or written comments. The Regulations Committee will make a recommendation to the Commission.

9. At its regularly scheduled October 24, 2008, meeting, the presentation of oral statements and legal arguments shall be regulated as follows:

a. The Chair of the Commission will permit members of the public to make a statement to the Commission. No more than three (3) minutes will be allowed for each statement. The period for statements will close at the end of one (1) hour, or sooner if all interested persons have completed their statements. The Chair, in his discretion, may extend the one (1) hour public comment period.

b. At the discretion of the Chair, an attorney representing one or more individuals, a corporation or other legal entity may be permitted five (5) minutes in which to address the Commission.

c. Department legal counsel or other designated Department employee will be permitted ten (10) minutes in which to address the Commission.

d. At the conclusion of all comments, the Chairman will call on each Commissioner for the purpose of asking the attorneys or persons sponsoring comments who are present, any questions they may have. Attorneys will not be permitted to respond or ask follow-up questions of any person questioned by a Commissioner.

After each Commissioner has had an opportunity to ask questions, the Chair will entertain a motion on the matter, allow discussion, and call for a vote of the Commission members.

10. The Commission finds the proposed regulation does not affect small businesses and therefore concludes that Act 143 of 2007 is not applicable.

The Commission accepts the recommendation of the Regulations Committee and initiates the rulemaking proceeding in Docket No. 08 - - R effective June 27, 2008. The Commission adopts, without modification, the procedural schedule set forth above.

COMMISSIONERS

_____ L. Bengal
_____ S. Henderson
_____ D. Hendrix
_____ C. McGrew
_____ D. Samples
_____ T. Schueck
_____ J. Shannon
_____ L. Sickel
_____ J. Simpson
_____ W. Thompson
_____ E. Valdez
_____ B. White
_____ R. Young

_____ SUBMITTED BY: Mike Bates PASSED: June 27, 2008

EXHIBIT F

BEFORE THE ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF PROMULGATING NEW REGULATION NO. 33, MOTOR VEHICLE RACING FACILITY REGULATIONS	)))	DOCKET NO. 08-____-R

PETITION TO INITIATE RULEMAKING TO PROMULGATE A NEW REGULATION NO. 33, MOTOR VEHICLE RACING FACILTY REGULATIONS

The Arkansas Department of Environmental Quality (hereinafter "ADEQ" or "the Department"), for its Petition to Initiate Rulemaking to promulgate a new Regulation 33, Motor Vehicle Racing Facility Regulations, states:

1. A.C.A . §§ 8-10-302, 8-10-303, and 8-10-304 (hereinafter "the motor vehicle racing facility statutes") establish the requirements for the construction and permitting of motor vehicle racing facilities. The Arkansas Legislature (hereinafter "Legislature") authorized the Arkansas Pollution Control & Ecology Commission (hereinafter "Commission") to promulgate rules and regulations to implement the motor vehicle racing facility statutes. In addition, the Legislature authorized the Commission to set a permit fee to recover the cost of issuing a motor vehicle racing facility permit.

2. ADEQ issued permits to four motor vehicle racing facilities that met the requirements of the motor vehicle racing facility statutes. The ADEQ proposes these regulations to streamline the permitting process, to codify existing law, to define key, undefined terms, to clarify applicable administrative procedures, and to establish a fee schedule.

3. Mike Porta or Deborah Pitts from ADEQ will be available to answer questions concerning this proposed rulemaking. A copy of the proposed

regulation is attached as Exhibit “A” and is hereby incorporated by reference. A copy of the Legislative Questionnaire is attached as Exhibit “B”, and a copy of a financial impact statement for the proposed revision is attached as Exhibit “C”, both of which are incorporated by reference. An analysis of the impact to small business required pursuant to Act 143 of 2007 (formerly Executive Order 05-04), is attached as Exhibit “D” and hereby incorporated by reference. A copy of the Economic Impact/Environmental Benefit Analysis is attached hereto as Exhibit “E” and is hereby incorporated by reference. A proposed minute order is attached as Exhibit “F” and is hereby incorporated by reference.

WHEREFORE, ADEQ requests that the Commission initiate the rulemaking process, adopt the proposed Minute Order, and promulgate the proposed Regulation No. 33.

Respectfully Submitted,
ARKANSAS DEPARTMENT OF
ENVIRONMENTAL QUALITY
5301 Northshore Drive
N. Little Rock, Arkansas 72118-5317

By: _____
Mike Bates

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

REGULATION NO. 33

MOTOR VEHICLE RACING FACILITY REGULATIONS

Submitted to the PC&E Commission
In June, 2008 DRAFT

TABLE OF CONTENTS

CHAPTER 1 TITLE, INTENT AND PURPOSE 1-1
- Reg. 33.101 Title 1-1
- Reg. 33.102 Purpose 1-1
- Reg. 33.103 Applicability 1-1
- Reg. 33.104 Severability 1-1

CHAPTER 2 DEFINITIONS 2-1

CHAPTER 3 PERMIT REQUIREMENTS 3-1
- Reg.33.301 Initial Annual Permit Pre-Application Requirements 3-1
- Reg. 33.302 Initial Annual Permit Application Requirements 3-2
- Reg.33.303 Public Participation 3-3
- Reg. 33.304 Final Action on Permit 3-4
- Reg. 33.305 Transfer of Permits 3-4
- Reg. 33.306 Permit Renewals 3-5
- Reg. 33.307 Permit Fees 3-6

CHAPTER 4 EFFECTIVE DATE 4-1
- Reg. 33.401 Effective Date 4-1

CHAPTER 1 TITLE, INTENT AND PURPOSE

Reg. 33.101 Title

The following rules and regulations, adopted by authority of and in accordance with the provisions of A.C.A. Sections 8-1-203, 8-10-303(a)(3)(E), and 8-10-304(b)(6) shall be known as the "Motor Vehicle Racing Facility Regulations," hereinafter referred to as Regulation 33.

Reg. 33.102 Purpose

The purpose of this regulation is to implement the provisions of A.C.A. Sections 8-10-302, 8-10-303, and 8-10-304.

Reg. 33.103 Applicability

This regulation shall apply to all motor vehicle racing facilities constructed on or after January 1, 1995. All permits previously issued to motor vehicle racing facilities shall remain in effect for the full period of time for which they were issued. Subsequent applications for permit renewal shall comply with the requirements of this regulation.

Reg. 33.104 Severability

If any provision of this regulation, or the application of such provision to any person or circumstance, is held invalid, the remainder of this regulation, or the application of such provision to persons or circumstances other than those as to which it is held invalid, shall not be affected thereby.

CHAPTER 2 DEFINITIONS

All words, terms, and phrases used in this regulation, unless the context otherwise requires, shall have their usual meaning. In addition, for purposes of this regulation, the following definitions apply:

"annual permit" means the permit issued to a motor vehicle racing facility on an annual basis after the issuance of the initial permit.

"automobiles or trucks modified for racing" means any vehicle designed to be operated with at least four wheels in contact with the ground and a gross dry weight, excluding the driver, of more than 1,000 pounds which is used in competitive racing or public racing demonstrations at a motor vehicle racing facility in Arkansas.

"begin construction" means the initiation of physical on-site construction activities on a motor vehicle racing facility which are of a permanent nature.

"Commission" means the Arkansas Pollution Control and Ecology Commission.

"competitive racing of automobiles or trucks that are modified for racing" means any event in which it is possible to compare the performance of the participants, even if such comparison is not actually done; or any event designed as an exhibition of driving skill.

"constructed" means the completion of physical on-site activities so that a motor vehicle racing facility is capable of hosting competitive racing events.

"**Department"** means the Arkansas Department of Environmental Quality, or its successor. When reference is made in this regulation to actions taken by or with reference to the Department, the reference is to the staff of the Department acting at the direction of the Director.

"designed and used for competitive racing" means any motor vehicle racing facility capable of hosting competitive racing.

"initial annual permit" means the first permit issued to a motor vehicle racing facility.

"material change" or "materially different" means the addition of a new racing venue or other substantial and significant modification to the way the facility is operated.

"motor vehicle racing facility" means any outdoor facility used for competitive racing by automobiles or trucks that are modified for racing.

CHAPTER 3 PERMIT REQUIREMENTS

Reg.33.301 Initial Annual Permit Pre-Application Requirements

(A) The party seeking the motor vehicle racing facility initial annual permit must obtain consent and signatures on a petition that approves the construction of the motor vehicle racing facility. At least 75 percent of the property owners and 75 percent of the registered voters who own property or live within three (3) miles of the outside boundary of the proposed motor vehicle racing facility must consent and sign the petition. For proposed facilities located within three miles of more than one county, at least 75 percent of the property owners and 75 percent of the registered voters within three (3) miles of the outside boundary of the proposed motor vehicle racing facility in each county must consent and sign the petition. The petitions shall include:

(1) A written description of the proposed motor vehicle racing facility including:

(a) The motor vehicle racing facility address or legal description of the property,

(b) A description of the types of motor vehicles proposed for racing at the motor vehicle racing facility,

(c) The maximum projected noise level of the racing vehicles,

(d) A description of the kinds of races and the types of buildings, stands, or other physical plant proposed for the motor vehicle racing facility, and

(e) Estimates of traffic counts and numbers of spectators;

(2) The registered voter's or consenting property owner's name and signature;

(3) The registered voter's or consenting property owner's residence address or the legal description of the property located within the three-mile area; and

(4) The date of the registered voter's or consenting property owner's signature. Signatures become invalid sixty (60) days after signing.

(B) The party seeking the motor vehicle racing facility permit shall file the petition.

(1) For proposed facilities located within the boundaries of any city or town, the party shall file the petition with the city clerk.

(2) For proposed facilities located wholly or partially outside the boundaries of any city or town, the party shall file the petition with the county clerk. For proposed

facilities located within three miles of more than one county, the party shall file the petition with the county clerk for each county.

(C) The city or county clerk, as the case may be, shall verify the petition pursuant to A.C.A. Section 7-9-109.

(1) The clerk shall determine the sufficiency of the signatures and certify the sufficiency or insufficiency of the signatures in writing to ADEQ.

(2) The clerk's decision is not subject to review by the Department or the Commission.

(3) The county or city clerk's certification shall be valid for a period of 18 months from the date of issuance.

(D) Reg.33.301(A) – (C). shall not apply to any motor vehicle racing facilities located north of a navigable waterway that traverses the state and in a county having a population between eighty thousand (80,000) and ninety thousand (90,000) according to the 1990 Federal Decennial Census.

(E) No motor vehicle racing facility shall be permitted or constructed within three (3) miles of the boundary of another county if the proposed motor vehicle racing facility will be located north of a navigable waterway that traverses the state and in a county having a population between eighty thousand (80,000) and ninety thousand (90,000) according to the 1990 Federal Decennial Census.

Reg. 33.302 Initial Annual Permit Application Requirements

(A) All motor vehicle racing facilities constructed after January 1, 1995 shall obtain a permit in accordance with this regulation.

(B) Except as provided in Reg.33.301(D), all initial annual permit applications for a motor vehicle racing facility shall meet the requirements of Reg.33.301(A) – (C). The party must provide the clerk's certification of the signatures on the petition with the motor vehicle racing facility permit application.

(C) Applications shall include a written proposal for the motor vehicle racing facility containing the substance of the proposed motor vehicle racing facility, including:

(1) A description of the types of motor vehicles proposed for racing at the motor vehicle racing facility;

(2) The maximum projected noise level of the racing vehicles;

(3) A description of the kinds of races and the types of buildings, stands, parking areas, or other physical plant proposed for the motor vehicle racing facility;

(4) Estimates of traffic counts and numbers of spectators;

(5) A traffic control plan;

(6) A copy of the city or county clerk's certification of the signatures on the petition as required by Reg.33.301(C);

(7) A sample copy of the petition;

(8) A disclosure statement in accordance with Regulation 8; and

(9) Any other relevant permit information as may be determined necessary for the permit application by the Department.

(D) All permit applications for a motor vehicle racing facility shall be on such forms and contain such information as the Department may reasonably require.

(E) If, while processing an application that has been determined to be complete, the Department determines that additional information is necessary to evaluate or take final action on that application, the Department may request such information in writing and set a reasonable deadline for a response.

(F) Any applicant who fails to submit any relevant facts or who has submitted incorrect information, shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any relevant requirements that become applicable before final action is taken on its application.

Reg.33.303 Public Participation

(A) For the initial annual permit application, the Department shall conduct a public hearing on the proposed motor vehicle racing facility. The Department shall set a date for the public hearing to be held on the proposed motor vehicle racing facility annual initial permit decision which shall not be less than thirty (30) days after the filing of the initial annual permit application. The hearing may be adjourned and continued if necessary. Any interested persons may appear and contest the granting of the approval or renewal of the motor vehicle racing facility permit. Affidavits in support of or against the proposed motor vehicle racing facility or a permit renewal, which may be prepared and submitted, shall be examined by the Department.

(B) Public notice of an initial permit application and notice of public hearing shall be published in a newspaper of general circulation in the county in which the motor vehicle racing facility is proposed to be located. The Department shall provide or approve the format of the notice. The notice shall include:

(1) The motor vehicle racing facility name and business address or legal description of the property;

(2) The type of permit for which the application has been made;

(3) The date the application was deemed administratively complete;

(4) Notice of the Department's proposed decision

(5) The date, time and place of the public hearing; and

(6) A statement that oral public comments will be accepted at the public hearing. To ensure comments are accurately recorded, the Department prefers written comments. The period for written public comments shall extend from the date of the public notice to the date of the public hearing. Comments must be received by the close of the public hearing.

(C) Those sections of Regulation 8 dealing with Public Notice of Permit Application, Request for Public Hearing, Public Notice of Draft Permitting Decision, Public Comment on Draft Permitting Decision, Public Hearings, Public Meetings, and the second paragraph under "Director's Decision," Final Permitting Decision do not apply to initial annual permits issued under this section.

Reg. 33.304 Final Action on Permit

(A) After the hearing for the initial permit or upon application for the renewal of its annual permit, if the Department shall be satisfied that the benefits of the motor vehicle racing facility are sustained by proof and outweigh its impact by the noise, air pollution, and traffic congestion caused by motor vehicle racing facilities, then the Department shall grant the initial permit approving the proposed motor vehicle racing facility or shall renew approval to the permitted or existing motor vehicle racing facility.

(B) The Department may impose special conditions upon the issuance of the permit.

(C) The Department shall notify in writing the owner/operator and any person that submitted public comments on the record of its final permitting decision.

(D) The Department's final decision shall include a response to each issue raised, if any, during the public comment period.

(E) No permit shall be issued unless the applicant has paid all fees assessed.

(F) The Director's final permit decision is subject to review pursuant to Regulation 8.

Reg. 33.305 Transfer of Permits

(A) Permits issued under this regulation shall remain freely transferable provided:

(1) The applicant for the transfer notifies the Director at least thirty (30) days in advance of the proposed transfer date on such forms as the Director may reasonably require, and

(2) Submits a disclosure statement or other such documents as required.

(B) The director may deny the issuance or transfer of any permit, license, certification, or operational authority if he finds, based upon the disclosure statement and other investigation which he deems appropriate, that:

(1) The applicant has a history of noncompliance with the environmental laws or regulations of this state or any other jurisdiction;

(2) An applicant which owns or operates other facilities in the state is not in substantial compliance with, or on a legally enforceable schedule that will result in compliance with, the environmental laws or regulations of this state; or

(3) A person with a history of noncompliance with environmental laws or regulations of this state or any other jurisdiction is affiliated with the applicant to the extent of being capable of significantly influencing the practices or operations of the applicant which could have an impact upon the environment.

(C) Public notice requirements shall not apply to changes in ownership.

Reg. 33.306 Permit Renewals

(A) Applications for an annual permit shall contain a description of any changes to the motor vehicle racing facility since the last permit issuance or a statement that no changes have occurred.

(1) In the event there have been no changes to the motor vehicle racing facility the Department may issue the annual permit without notice to the public.

(2) If any material changes are made to the motor vehicle racing facility:

(a) The permit shall be amended accordingly,

(b) The Department shall provide notice to the public in accordance with the procedures contained in Regulation 8, “Public Notice of Draft Permit Decisions,” and

(c) The Department may reconsider the approval of the permit.

(3) Renewal of an annual permit may also be denied if:

(a) The racing facility is determined to be in violation of any standards under which the permit was issued;

(b) The racing facility is constructed or is being operated in a manner that is materially different than was represented during the petition process;

(c) Fraud, misrepresentation, or false statement of facts was used to obtain signatures for the petition process.

(B) The requirements of Reg. 33.302(C)(9)&(10), (D), (E), and (F) shall apply to permit renewals.

(C) In its discretion, the department may hold public hearings for the renewal of any permits as is necessary.

Reg. 33.307 Permit Fees

(A) Each initial annual permit shall be subject to a fee of $500.

(B) Each annual permit shall be subject to a fee of $200.

(C) The requirements of Chapter 3 of Regulation 9 shall apply to fees collected under this regulation.

CHAPTER 4 EFFECTIVE DATE

Reg. 33.401 Effective Date

This regulation is effective ten (10) days after filing with the Secretary of State, the State Library, and the Bureau of Legislative Research.

ADEQ REGULATIONS TRACKING SHEET

Regulation No. 33 **Common Name:** Motor Vehicle Racing Facility Requirements

1. **Strawman review** of draft regulations by key groups.

	initiated	*completed*	*incorporated*
EPA	N/A	N/A	N/A
ADEQ Legal/Admin.	12/17/07		
Industrial/ Environmental Groups			

Comments: .

2. Proposed regulations presentation to Commission's **Regulations Committee** for approval to proceed to public comment period.

Date: _____ *By:* _____

Comments/Approval: _____

3. **Legal notice** of proposed regulations and public hearing.

publication	*dates of publication*
Arkansas Democrat-Gazette	, /08

4. Provide **Legislative Council** with three copies of proposed regulations and the legislative questionnaire at least ten days prior to the first public hearing.

5. Hold **public hearing(s)** on the proposed regulations.

location	*date*	*hearing chairman*

6. Date of final day of public comment period: _____.

7. **Final proposed regulation** and **response to comments** prepared by Department.

Date initiated: _____ *Date completed:* _____

8. Formal presentation to the **Public Health & Welfare Committee** of the Legislative Council.

Date: _____ *By:* _____

Comments/Approval: _____

9. Formal presentation of proposed final regulation to the **Administrative Rules & Regulations Subcommittee** of the Legislative Council (All Regs).

Date: _____ *By:* _____

Comments/Approval: _____

10. Presentation of proposed final regulation to Commission's **Regulations Committee**.

Date: _____ *By:* _____

Comments/Approval: _____

11. Provide Commission members with copy of proposed final regulation prior to Commission meeting.

Date Delivered: _____

12. Present proposed final regulation to the **Commission** for adoption.

Date: _____ *By:* _____

Comments/Approval: _____

13. Send two copies of adopted regulation to **Secretary of State** (regulation becomes effective twenty days after filing).

Date mailed: _____

14. Formally submit adopted regulation to **EPA**.

Date mailed: N/A

ECONOMIC IMPACT/ENVIRONMENTAL BENEFIT ANALYSIS

Answer to best of the proponent's ability, as required by ADPCEC Regulation 8, Chapter 3.5

STEP 1: DETERMINATION OF ANALYSIS REQUIREMENT (to be included in petition to initiate rulemaking)

APC&EC REGULATION NO. 33
MOTOR VEHICLE RACING FACILITIES
JUNE 2008

1A. Is the proposal expressly addressed by a Federal requirement?

Yes. See 1B.
►No. Economic Impact/Environmental Benefit Analysis is not required

1B. If 1A is YES, is proposed regulation equivalent, or more stringent, or less stringent than federal requirement?

- If equivalent – Economic Impact/Environmental Benefit Analysis is not required
- If more stringent - Economic Impact/Environmental Benefit Analysis is required
- If less stringent - Economic Impact/Environmental Benefit Analysis is not required, but does require federal agency approval prior to adoption if the proposal is part of an authorized state program.

STEP 2: THE ANALYSIS (to be included in petition to initiate rulemaking, if required)

2A. ECONOMIC IMPACT

Not Required.

2B. ENVIRONMENTAL BENEFIT

Not Required.

FINANCIAL IMPACT STATEMENT

PLEASE ANSWER ALL QUESTIONS COMPLETELY

DEPARTMENT _____Arkanas Deprtment of Environmental Quality _____
DIVISION___Air_____
PERSON COMPLETING THIS STATEMENT____Mike Porta_____
TELEPHONE NO.__682-0730_____FAX NO._682-0753_____EMAIL: porta@adeq.state.ar.us

To comply with Act 1104 of 1995, please complete the following Financial Impact Statement and file two copies with the questionnaire and proposed rules.

SHORT TITLE OF THIS RULE

Regulation 33, Motor Vehicle Racing Facility Regulations

---

1. Does this proposed, amended, or repealed rule have a financial impact?
   Yes ____***X***_____ No _____

2. Does this proposed, amended, or repealed rule affect small businesses?
   Yes _____ No _____

   If yes, please attach a copy of the economic impact statement required to be filed with the Arkansas Economic Development Commission under Arkansas Code § 25-15-301 et seq.

   This rule is exempt from A.C.A. § 25-15-301 et seq. because it substantially codifies existing state law.

3. If you believe that the development of a financial impact statement is so speculative as to be cost prohibited, please explain.

4. If the purpose of this rule is to implement a federal rule or regulation, please give the incremental cost for implementing the rule. Please indicate if the cost provided is the cost of the program.

Current Fiscal Year	Next Fiscal Year
General Revenue_____	General Revenue_____
Federal Funds_____	Federal Funds_____

Cash Funds_____	Cash Funds _____
Special Revenue_____	Special Revenue _____
Other (Identify)_____	Other (Identify) _____
Total_____	Total_____

5. What is the total estimated cost by fiscal year to any party subject to the proposed, amended, or repealed rule? Identify the party subject to the proposed rule and explain how they are affected.

Current Fiscal Year	**Next Fiscal Year**
$ 200	$ 200

6. What is the total estimated cost by fiscal year to the agency to implement this rule? Is this the cost of the program or grant? Please explain.

Current Fiscal Year	**Next Fiscal Year**
$ 800	$ 800

These costs are program cost which will be offset from fees collected. These numbers are based on the assumption there will be no new applications submitted.

From: Porta, Mike
Sent: Wednesday, May 28, 2008 3:13 PM
To: 'pbrown@arkansasedc.com'
Subject: Motor Vehicle Racing Facility Regulation


reg33-pn draft.doc (139 KB)


law.doc (57 KB)

Ms. Brown,

The Arkansas Department of Environmental Quality (ADEQ) plans to petition the Arkansas Pollution Control and Ecology Commission (APC&EC), at the Commission's meeting on June 27, 2008, to initiate the rulemaking process in order to establish Motor Vehicle Racing Facilty Regulations. These regulations will substantially codify state law which has been in existence since 1995.

The ADEQ has determined that the attached proposed regulation is exempt from the requirements of Act 143 of 2007 because it substantially codifies existing state law. Attached for your review are the proposed regulation and the state law that is being codifed. Thank you for your assistance on this matter.

Mike Porta, Assistant Chief
Air Division
Arkansas Department of Environmental Quality
5301 North Shore Drive
N. Little Rock, AR 72118
501-682-0730

`

QUESTIONNAIRE FOR FILING PROPOSED RULES AND REGULATIONS WITH THE ARKANSAS LEGISLATIVE COUNCIL AND JOINT INTERIM COMMITTEE

DEPARTMENT/AGENCY ___Arkansas Derartment of Environmental Quality _____
DIVISION ___Air_____
DIVISION DIRECTOR _____Mike Bates_____
CONTACT PERSON _____Mike Porta _____
ADDRESS _5301 Northshore Drive, N. Little Rock, AR 72118 _____
PHONE NO.__682-0730_____FAX NO._682-0753_____E-MAIL porta@adeq.state.ar.us
NAME OF PRESENTER AT COMMITTEE MEETING __Karen Bassett _____
PRESENTER E-MAIL __bassett@adeq.state.ar.us _____

INSTRUCTIONS

A. Please make copies of this form for future use.
B. Please answer each question completely using layman terms. You may use additional sheets, if necessary.
C. If you have a method of indexing your rules, please give the proposed citation after "Short Title of this Rule" below.
D. Submit two (2) copies of this questionnaire and financial impact statement attached to the front of two (2) copies of the proposed rule and required documents. Mail or deliver to:

Donna K. Davis
Administrative Rules Review Section
Arkansas Legislative Council
Bureau of Legislative Research
Room 315, State Capitol
Little Rock, AR 72201

****

1. What is the short title of this rule?

   Motor Vehicle Racing Facility Regulations

2. What is the subject of the proposed rule?

   Motor vehicle racing facilities

3. Is this rule required to comply with a federal statute, rule, or regulation? Yes_____No ___X____

   If yes, please provide the federal rule, regulation, and/or statute citation.

4. Was this rule filed under the emergency provisions of the Administrative Procedure Act? Yes_____ No__X____

If yes, what is the effective date of the emergency rule? _____

When does the emergency rule expire? _____

Will this emergency rule be promulgated under the permanent provisions of the Administrative Procedure Act? Yes___n/a___ No_____

5. Is this a new rule? Yes_X___ No___ If yes, please provide a brief summary explaining the regulation.

This rule will codify existing law; define key, undefined terms; clarify the administrative procedures to be used; and establish a fee schedule.

Does this repeal an existing rule? Yes_____ No__X____ If yes, a copy of the repealed rule is to be included with your completed questionnaire. If it is being replaced with a new rule, please provide a summary of the rule giving an explanation of what the rule does.

Is this an amendment to an existing rule? Yes___No_X__If yes, please attach a mark-up showing the changes in the existing rule and a summary of the substantive changes. **Note: The summary should explain what the amendment does, and the mark-up copy should be clearly labeled "mark-up."**

6. Cite the state law that grants the authority for this proposed rule? If codified, please give Arkansas Code citation.

A.C.A. §§8-10-203, 8-10-303(3)(E) and 8-10-304(b)(6)

7. What is the purpose of this proposed rule? Why is it necessary?

According to A.C.A 8-10-303, any person wishing to build a motor vehicle racing facility must first obtain a permit from ADEQ. Before a facility can submit a permit application they must obtain the consent of 75% of the registers voters and 75% of the property owners within three miles of the outside boundary of the facility. Consent shall be accomplished by signing petitions which shall be filed with the city or county clerk. The clerk is to determine the sufficiency of the signatures and certify the sufficiency or insufficiency of the signatures in writing to the ADEQ. Prior to 2005 a person wishing to construct a motor vehicle racing facility was required to obtain the consent of 75% of adult residents and 75% of the property owners.

ADEQ issued permits to four motor vehicle racing facilities that met the requirements of the motor vehicle racing facility statutes. The ADEQ proposes these regulations to streamline the permitting process, to codify existing law, to define key, undefined terms, to clarify applicable administrative procedures, and to establish a fee schedule.

8. Please provide the address where this rule is publicly accessible in electronic form via the

Internet as required by Arkansas Code § 25-19-108(b).

http://www.adeq.state.ar.us/regs/drafts/draft_regs.htm

9. Will a public hearing be held on this proposed rule? Yes__X___ No_____
If yes, please complete the following:
Date:__August 21, 2008_____
Time:____2pm_____
Place:__5301 North Shore Dr, N. Little Rock, AR 72118_____

10. When does the public comment period expire for permanent promulgation? (Must provide a date.) __

September 5, 2008

11. What is the proposed effective date of this proposed rule? (Must provide a date.)
_____
10 days after filing with the Secretary of State

12. Do you expect this rule to be controversial? Yes_____ No _____ If yes, please explain.

unknown

13. Please give the names of persons, groups, or organizations that you expect to comment on these rules? Please provide their position (for or against) if known.

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

SUBJECT: Petition to Initiate Rulemaking - Regulation No. 33

Docket No. 08-

MINUTE ORDER NO. 08 - **PAGE 1 OF 3**

On June 13, 2008, The Arkansas Department of Environmental Quality ("Department") filed a Petition to establish Regulation No. 33, Motor Vehicle Racing Facility Regulations ("Petition"). The Petition has been designated as Docket No. 08- -R.

The Commission's Regulations Committee met on June 27, 2008, to review the Petition. Having considered the Petition, the Regulations Committee recommends the Commission institute a rulemaking proceeding to consider adopting the proposed Regulation No. 33.

1. The Arkansas Department of Environmental Quality ("Department") shall file an original and two (2) copies and a computer disk in Word of all materials required under this Minute Order.

2. Persons submitting written public comments shall submit their written comments to the Department. Within ten (10) business days following the adoption or denial of the proposed rule, the Department shall deliver the originals of all comments to the Commission Secretary.

3. A public hearing shall be conducted on August 21, 2008, beginning at 2:00 p.m. to 4:00 p.m. in the Commission Room, 5301 Northshore Drive, North Little Rock, Arkansas 72118.

4. The period for receiving all written comments shall conclude ten (10) business days after the date of the public hearing pursuant to Regulation No. 8, Part 3, Section 3.2.3, unless an extension of time is granted.

5. The Department shall file, not later than 14 days before the Commission meets to consider adoption of the proposed rule, a Statement of Basis and Purpose as required by Regulation No. 8, Part 3, Section 3.6.2(1), (2) and (3).

6. The Department shall file, not later than 14 days before the Commission meets to consider adoption of the proposed rule, a proposed Minute Order deciding this matter.

7. The Department shall seek review of the proposed rule from the Joint Interim Committee on Public Health and Welfare and/or from the Joint Interim Committee on Administrative Rules and Regulations.

8. The Regulations Committee will consider this matter at its December 5, 2008, meeting. Members of the Regulations Committee may ask questions of the Department and any person that made oral or written comments. The Regulations Committee will make a recommendation to the Commission.

9. At its regularly scheduled December 5, 2008, meeting, the presentation of oral statements and legal arguments shall be regulated as follows:

a. The Chair of the Commission will permit members of the public to make a statement to the Commission. No more than three (3) minutes will be allowed for each statement. The period for statements will close at the end of one (1) hour, or sooner if all interested persons have completed their statements. The Chair, in his discretion, may extend the one (1) hour public comment period.

b. At the discretion of the Chair, an attorney representing one or more individuals, a corporation or other legal entity may be permitted five (5) minutes in which to address the Commission.

c. Department legal counsel or other designated Department employee will be permitted ten (10) minutes in which to address the Commission.

d. At the conclusion of all comments, the Chairman will call on each Commissioner for the purpose of asking the attorneys or persons sponsoring comments who are present, any questions they may have. Attorneys will not be permitted to respond or ask follow-up questions of any person questioned by a Commissioner.

After each Commissioner has had an opportunity to ask questions, the Chair will entertain a motion on the matter, allow discussion, and call for a vote of the Commission members.

10. The Commission finds the proposed regulation is exempt from Act 143 of 2007 because the proposed rule codifies existing state law

The Commission accepts the recommendation of the Regulations Committee and initiates the rulemaking proceeding in Docket No. 08 - - R effective June 27, 2008**.** The Commission adopts, without modification, the procedural schedule set forth above.

COMMISSIONERS

_____ L. Bengal	_____ L. Sickel
_____ S. Henderson	_____ J. Simpson
_____ D. Hendrix	_____ W. Thompson
_____ C. McGrew	_____ E. Valdez
_____ D. Samples	_____ B. White
_____ T. Schueck	_____ R. Young
_____ J. Shannon	

_____ SUBMITTED BY: Mike Bates PASSED: June 27, 2008

BEFORE THE ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF AMENDMENTS TO REGULATION NO. 11, SOLID WASTE DISPOSAL FEES; LANDFILL POST-CLOSURE TRUST FUND; AND RECYCLING GRANTS PROGRAM	)))))	DOCKET NO. 08- R

2008 JUN 13 PM 2:21
AR. POLLUTION CONTROL & ECOLOGY COMMISSION FILED BY

PETITION TO INITIATE RULEMAKING TO AMEND REGULATION NO.11, REGULATIONS FOR SOLID WASTE DISPOSAL FEES; LANDFILL POST-CLOSURE TRUST FUND; AND RECYCLING GRANTS PROGRAM

The Arkansas Department of Environmental Quality (hereinafter ADEQ or the Department), for its Petition to Initiate Rulemaking to Amend Regulation No. 11, the Regulations for Solid Waste Disposal Fees; Landfill Post-Closure Trust Fund; and Recycling Grants Program, states:

1. Regulation No. 11.303 is updated to conform to Section 47 of Act 1281 of 2007, which passed special language that requires the Arkansas Pollution Control and Ecology Commission to prioritize and authorize the expenditures of all funds in excess of $50,000 per site from the Landfill Post-Closure Trust Fund for corrective action. Expenditures of funds pursuant to this section may only be authorized for sites that were permitted and operated in accordance with state law.

2. Anne Weinstein and/or Mike Robinson from ADEQ will be available to answer questions concerning this proposed rulemaking. A red-lined version of the regulation showing the proposed changes is attached as Exhibit "A" and is hereby incorporated by reference. A copy of the Legislative Questionnaire is attached as Exhibit "B", and a copy of a Financial Impact Statement for the proposed revision is attached as Exhibit "C", both of which are incorporated by reference. A memorandum explaining why the Arkansas Economic Development Commission approval is not needed is attached as Exhibit "D" and

hereby incorporated by reference. A copy of the Economic Impact/Environmental Benefit Analysis is attached hereto as Exhibit "E" and is hereby incorporated by reference. A proposed minute order is attached as Exhibit "F" and is hereby incorporated by reference.

WHEREFORE, ADEQ requests that the Commission initiate the rulemaking process, adopt the proposed Minute Order, and adopt the proposed amendments to Regulation No. 11.

Respectfully Submitted,

Arkansas Department of
Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72218-5317
(501)682-0743



BY: Anne Weinstein

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

REGULATION NO. 11

REGULATIONS FOR SOLID WASTE DISPOSAL FEES; LANDFILL POST-CLOSURE TRUST FUND; AND RECYCLING GRANTS PROGRAM

Initial Draft

Submitted to the
Arkansas Pollution Control and Ecology Commission in
June 2008

REGULATION NUMBER 11
SOLID WASTE MANAGEMENT FEES, FUNDS AND GRANTS

TABLE OF CONTENTS

PAGE

CHAPTER ONE: GENERAL PROVISIONS

Reg.11.101 Purpose 1-1

Reg.11.102 Short Title 1-2

Reg.11.103 Definitions 1-2

CHAPTER TWO: SOLID WASTE MANAGEMENT LANDFILL AND OUT-OF-STATE TRANSPORTER DISPOSAL FEE SYSTEM

Reg.11.201 Authority to Administer Disposal Fee System 2-1

Reg.11.202 Applicability 2-1

Reg.11.203 Short Title 2-1

Reg.11.204 Disposal Fee Plan 2-2

Reg.11.205 Fee Schedule and Collection of Fees 2-3

Reg.11.206 Record Keeping and Reporting 2-5

Reg.11.207 Payment of Fees 2-8

Reg.11.208 Late Payment Charge and Notice 2-8

Reg.11.209 Adjustments 2-9

Reg.11.210 Termination of Fees 2-9

Reg.11.211 Petitioning Director for Review of Fees 2-9

Reg.11.212 Appeals 2-10

Reg.11.213 Penalties 2-10

Reg.11.214 Audit 2-11

Reg.11.215 Right of Entry and Access 2-11

Reg.11.216 Fund Establishment 2-11

CHAPTER THREE: LANDFILL POST-CLOSURE TRUST FUND PROGRAM

Reg.11.301 Authority to Administer Trust Fund Program 3-1

Reg.11.302 Short Title 3-1

Reg.11.303 Availability of Landfill Post-Closure Trust Funds 3-1

Reg.11.304 Department Responsibilities 3-1

Reg.11.305 Applicability 3-2

Reg.11.306 Eligible Projects and Activities 3-2

Reg.11.307 Owner or Other Responsible Party Obligations 3-3

Reg.11.308 Projects and Activities Not Eligible 3-4

Reg.11.309 Disbursement of Funds 3-4

Reg.11.310 Reporting and Oversight Requirements 3-4

Reg.11.311 Appeals of Funding Decisions 3-5

CHAPTER FOUR: SOLID WASTE MANAGEMENT AND RECYCLING GRANTS PROGRAM

Reg.11.401 Authority to Administer Grants Program 4-1

Reg.11.402 Short Title 4-1

Reg.11.403 Applicant Eligibility 4-1

Reg.11.404 Responsibilities of District Board 4-1

Reg.11.405 Grant-Eligible Activities and Projects 4-3

Reg.11.406 Existing Equipment or Facilities 4-4

Reg.11.407 Departmental Responsibilities 4-4

Reg.11.408 Disbursement of Funds 4-6

Reg.11.409 Reporting and Oversight Requirements 4-6

Reg.11.410 Condition of Grant 4-8

Reg.11.411 Appeals of Grant Decisions 4-8

CHAPTER FIVE: SEVERABILITY AND EFFECTIVE DATE

Reg.11.501 Severability 5-1

Reg.11.502 Effective Date 5-1

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION REGULATION NUMBER 11

CHAPTER ONE: GENERAL PROVISIONS

Reg.11.101 Purpose

(A) Purpose

It is the purpose of this regulation, pursuant to the provisions of the Solid Waste Management and Recycling Fund Act, Arkansas Code Annotated (A.C.A.) § 8-6-601 et seq.; the Landfill Post-Closure Trust Fund Act, A.C.A. § 8-6-1001 et seq.; and the Regional Solid Waste Management Districts and Boards Act, A.C.A. § 8-6-701 et seq, to develop and implement systems for:

(1) The collection of fees for waste received at landfill facilities within the State of Arkansas, and the collection of fees for waste generated within the State and transported to landfill facilities in other states;

(2) The administration of a landfill post-closure trust fund program; and

(3) The administration of a solid waste management planning and recycling grants program.

(B) Recycling Grant Fund Usage

Fees collected, in accordance with A.C.A. § 8-6-601 et seq., will be used to fund a solid waste management planning and recycling grants program for local governments for integrated waste management planning and construction. The fund will also be used for administrative costs incurred by Regional Solid Waste Management Districts, as well as for waste management compliance and enforcement activities by the Department of Environmental Quality.

(C) State Marketing Board for Recyclables

An apportionment of fees collected from landfills where private industry bears the expenses of operating and maintaining a landfill solely for the disposal of wastes generated by the industry, in accordance with A.C.A. § 8-6-601 et seq., shall be used by the Arkansas State Marketing Board for Recyclables in the administration and performance of its duties.

(D) Landfill Post-Closure Trust Fund Usage

Fees collected for waste received at landfills, in accordance with A.C.A. § 8-6-1001 et seq., will provide a trust fund to be used for landfill post-closure corrective actions pursuant to statutory provisions.

(E) Fees Encourage Recycling

These laws and this regulation encourage the recycling of wastes by applying fees to solid waste which is received at Arkansas landfills or to solid waste which is generated within Arkansas but transported to disposal facilities in other states.

(F) Waste Amount Determinations

These laws and this regulation provide a means, through reporting and record keeping systems, to monitor waste amounts generated within the State and, in turn, provide information to the Department and local governments which helps ensure that adequate solid waste management systems are available to the citizens of the State of Arkansas.

Reg.11.102 Short Title

This regulation shall be known and may be cited by the short title, Regulation 11: Solid Waste Management Fees, Funds and Grants.

Reg.11.103 Definitions

All terms used in this regulation, unless the context otherwise requires, or unless specifically defined in the enabling legislation, shall have their usual meanings. In addition, for purposes of this regulation, the following definitions apply, unless otherwise noted:

"Agent of the Grantee" means any corporation, "profit or nonprofit", or any person rendering services to the grantee under the terms of this regulation and under the terms of a written agreement with the grantee for the stated purpose of implementing the grantee's solid waste programs.

"Applicant" means a District as defined in A.C.A. § 8-6-702, a local government, or a delegated authority or agent of such District or government that makes application for a grant pursuant to this regulation.

"Board" means a Regional Solid Waste Management Board formed under A.C.A. § 8-6-701 et seq.

"Commission" means the Arkansas Pollution Control and Ecology Commission.

"Compacted Cubic Yard of Waste" means a volume equal to 3' x 3' x 3' of solid waste which has received any amount of mechanical compaction.

"Department" means the Arkansas Department of Environmental Quality.

"Director" means the Director of the Arkansas Department of Environmental Quality or the Director's designee.

"District" means a Regional Solid Waste Management District formed under A.C.A. § 8-6-701 et seq.

"Facility" means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal, treatment or processing of solid waste.

"Fund Decisions" means final administrative decisions by the Director on applications for or disbursement of funds pursuant to the Department's administration of fund programs represented under this regulation and the final decision of the Director on any disputes arising under any such fund.

"Grant Decisions" means final administrative decisions by the Director on all applications for grants pursuant to the Department's administration of grant programs represented under this regulation and the final decision of the Director on any disputes arising under any such grant.

"Grant Round" means a single grant cycle that the Department opens with the acceptance of new applications for funding and ends with the disbursement of grant awards from funds available for the grant cycle.

"Grantee" means the grant applicant awarded funding for a grant proposal.

"In-Kind Contribution" means a contribution to a grant or fund project, which is not cash, but has value, such as real estate, goods or services, which is provided by the grantee or another contributor.

"Landfill " means a solid waste management landfill facility subject to permitting requirements provided under Regulation 22.

"Landfill" means, for purposes of the Landfill Post-Closure Trust Fund Program, landfills permitted under the Arkansas Solid Waste Management Act, A.C.A. §8-6-201 et seq. and subject to permitting requirements provided under Regulation 22, and applies to all landfills which, upon receipt of solid waste at the landfill gate, are required to participate in the fee system for landfill disposal, except those landfills where a private industry bears the expense of operating and maintaining the landfill solely for the disposal of waste generated by the industry or wastes of a similar kind or character.

"Landfill Gate" means the entry point at a solid waste management landfill facility at which the waste is received from the landfill customer, the waste is weighed or measured, waste receipt fees are determined, and waste tickets are issued, except those landfills where a private industry bears the expense of operating and maintaining the landfill solely for the disposal of waste generated by the industry or wastes of a similar kind or character.

"Material Recovery Facility" means a facility, not subject to permitting requirements under Regulation 22, which is engaged in the storage, processing, and resale of recovered materials and receives source-separated recyclable materials.

"Municipal Landfill" means a permitted solid waste management landfill facility, except for those where private industry bears the expense of operating and maintaining the landfill solely for the disposal of wastes generated by the industry. Such a facility is subject to requirements provided under Regulation 22.

"Owner" means the person or any other responsible party who owns a facility or any part of a facility.

"Operator" means an individual or individuals charged with the responsibility of managing or operating a solid waste management facility, including the responsibility for assuring the operations of said facility is in accordance with the provisions of this regulation and other applicable regulations.

"Permittee" means any individual, corporation, company, firm, partnership, association, trust, local solid waste authority, institution, County, City, town or municipal authority or trust, venture or other legal entity holding a solid waste disposal permit, as provided in the Arkansas Solid Waste Management Act, A.C.A. § 8-6-201 et seq.

"Post-Closure Corrective Action" means any measures deemed necessary by the Director to prevent or abate contamination of the environment from any landfill which has been approved as properly closed by the Department, pursuant to Regulation 22.

"Private Industry Landfill" means a solid waste management landfill facility, subject to permitting requirements under Regulation 22, where private industry bears the expense of operating and maintaining the landfill solely for the disposal of wastes generated by the industry.

"Recycling" means the systematic collection, sorting, decontamination, and return of waste materials to commerce as commodities for use or exchange.

"Regional Solid Waste Management Board" means Regional Solid Waste Management Board formed under A.C.A. § 8-6-701 et seq.

"Regional Solid Waste Management District" means Regional Solid Waste Management District established pursuant to A.C.A. § 8-6-701 et seq.

"Solid Waste" means any garbage, refuse, or sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

"Solid Waste Disposal Permit" means a permit, subject to requirements provided under Regulation 22, issued by the State of Arkansas under provisions of the Arkansas Solid Waste Management Act, A.C.A. § 8-6-201 et seq., for the construction and operation of a solid waste landfill facility.

"Solid Waste Management" means management activities including, but not limited to, the storage, collection, transfer, transportation, treatment, utilization, processing, and final disposal of solid waste including, but not limited to, the prevention, reduction, or recycling of wastes.

"Solid Waste Management Plan" means a plan, subject to requirements provided under Regulation 22, which is developed according to the provisions of the Arkansas Solid Waste Management Act, A.C.A. § 8-6-201 et seq., and guidelines of the Department, and which is subject to written approval by the Department.

"Solid Waste Management System" means the entire process of source reduction, storage, collection, transportation, processing, waste minimization, recycling, and disposal of solid wastes by any person engaging in the process as a business or by any municipality, authority, trust, county, or by any combination thereof.

"Solid Waste Material Recovery Facility" means a solid waste handling facility, subject to permitting requirements under Regulation 22, that provides for the extraction from mixed solid waste of recoverable materials, materials suitable for use as a fuel or soil amendment, or any combination of such materials.

"Solid Waste Services Area" means Solid Waste Services Area as described in the Regional Solid Waste Management Districts and Boards Act, A.C.A. § 8-6-701 et seq.

"Tipping Fee" means a charge made by a landfill or a transporter to its customers for waste received and may or may not include the disposal fees imposed under this regulation.

"Ton" means a short ton consisting of a net weight measure of two thousand pounds (2000 lbs.).

"Transfer Station" means any facility, subject to permitting requirements under Regulation 22, that is used to manage the removal, compaction, or transfer of solid waste from collection vehicles and containers, or from other private and commercial vehicles to greater capacity transport vehicles.

"Transporter or Solid Waste Transporter or Hauler" means any individual, corporation, company, firm, partnership, association, trust, local solid waste authority, institution, County, City, town, municipal authority or trust, venture or other legal entity transporting solid waste and licensed pursuant to the Regional Solid Waste Management Districts and Boards Act, A.C.A. § 8-6-701 et seq.

"Uncompacted Cubic Yard of Waste" means a volume equal to a 3' x 3' x 3' of solid waste which has received no amount of mechanical compaction.

CHAPTER TWO: SOLID WASTE MANAGEMENT LANDFILL AND OUT-OF-STATE TRANSPORTER DISPOSAL FEE SYSTEM

Reg.11.201 Authority to Administer Disposal Fee System

Statutory Authority - Pursuant to the Solid Waste Management and Recycling Fund Act, A.C.A. § 8-6-601 et seq., and to the Landfill Post-Closure Trust Fund Act, A.C.A. § 8-6-1001 et seq., the Commission is given the authority to promulgate regulations and the Department is given the authority to implement Commission regulations, to issue administrative policies and procedures, and to administer the Solid Waste Management Disposal Fee System.

Reg.11.202 Applicability

(A) Fee Applicability

(1) Landfill fees established by this regulation shall be applicable to all landfills receiving solid waste under the provisions of the Arkansas Solid Waste Management Act, A.C.A. § 8-6-201 et seq., except those landfills operated by a regulated public utility for ash generated by the combustion of coal to produce electric energy.

(2) Transporter fees established by of this regulation shall be applicable for any solid waste transporter who is transporting solid waste generated within the State that is to be disposed of out of the State.

(B) Onset of Landfill Fees

The collection of landfill fees pursuant to A.C.A. § 8-6-601 and § 8-6-1001 et seq., and imposed herein, commenced October 1, 1989, for public and privately owned and operated municipal landfills and on July 16, 1991, for applicable private industry owned and operated landfills.

(C) Onset of Transporter Fees

The collection of transporter fees on solid waste that is generated and transported within Arkansas that is to be disposed of outside the State pursuant to A.C.A. § 8-6-601 et seq., and imposed herein, commenced September 1, 1993.

(D) Fee Responsibility

It is the responsibility of a landfill permittee or a transporter to insure that all fees are submitted in accordance with the provisions of this regulation.

Reg.11.203 Short Title

The fee systems, described herein, shall be known and may be cited by the short title: Disposal Fees.

Reg.11.204 Disposal Fee Plan

(A) Required Disposal Fee Plan

Each landfill and each transporter, required under this regulation to pay disposal fees, shall provide a written Disposal Fee Plan to the Department that establishes an accurate method of quantifying the amount of solid waste received and a suitable means of calculating the amount of disposal fees payable to the Department pursuant to A.C.A. §8-6-606 and §8-6-1003, et seq., and this regulation.

(B) Landfill's Disposal Fee Plan

If the existing Operating Plan and Narrative, required under Regulation 22, does not adequately address waste and recycle stream accounting, the landfill permittee shall update the Operating Plan and Narrative to conform to the requirements of this regulation. The Department will provide a format for permittees to follow when establishing the disposal fee plan portion of the Operating Plan and Narrative. The Disposal Fee Plan shall be considered an integral part of the Operating Plan required under Regulation 22. The Disposal Fee Plan shall not be subject to permit modification fee charges required under Regulation 9.

(C) Transporter's Disposal Fee Plan

The Department will provide a format for each transporter to follow when establishing a Disposal Fee Plan.

(D) Initiation Date

New or revised Disposal Fee Plans will be effective on the first day of the first quarterly reporting cycle after written approval, by the Department, of the Disposal Fee Plan or Operational Plan.

(E) Submittal Date

(1) Landfills

Landfills, with Operating Plans which do not adequately address disposal fee accounting, shall submit a Disposal Fee Plan to the Department no later than ninety (90) days following the effective date of this regulation.

(2) Transporters

A Disposal Fee Plan shall be submitted to the Department no later than ninety (90) days following the effective date of this regulation.

(F) Resubmittal Date

Any Disposal Fee Plan that is not approved must be rewritten and resubmitted for approval within thirty (30) days of the date of the written disapproval notice from the Department. Disapproval of a submitted Disposal Fee Plan is a decision of the Director and may be appealed under Regulation 8, Administrative Procedures.

(G) Request for Extension

A landfill or a transporter may, in writing, request an extension from the Department at least two (2) weeks prior to the Disposal Fee Plan due date. If the request is approved, the Department will issue a written extension agreement.

Reg.11.205 Fee Schedule and Collection of Fees

(A) Fee Schedule for Municipal Landfills and for Out-of-State Transporters

The following fee schedule for fees imposed under the provisions of the Solid Waste Management and Recycling Fund Act, A.C.A. § 8-6-601 et seq., shall be effective, based on the following methods of measure, for each landfill, except as specified herein, and for each out-of-state transporter:

(1) Twenty-five cents (25¢) for each uncompacted cubic yard of solid waste received at a landfill or transported out of state for disposal; and

(2) Forty-five cents (45¢) for each compacted cubic yard of solid waste received at a landfill or transported out of state for disposal; or

(3) One dollar and fifty cents ($1.50) for each ton of solid waste received at a landfill or transported out of state for disposal.

(B) Fee Schedule for Municipal Landfills

The following fee schedule for fees imposed under the provisions of the Landfill Post-Closure Trust Fund Act, A.C.A. § 8-6-1001 et seq., shall be effective, based on the following methods of measure, for each permitted landfill, except as specified herein:

(1) Fifteen cents (15¢) for each uncompacted cubic yard of solid waste received at a landfill;

(2) Thirty cents (30¢) for each compacted cubic yard of solid waste received at a landfill; or

(3) One dollar ($1.00) for each ton of solid waste received at a landfill.

(C) Fee Schedule for Private Industry Landfills

The following fee schedule for fees imposed under the provisions of the Solid Waste Management and Recycling Fund Act, A.C.A. § 8-6-601 et seq., shall be effective, based on the following methods of measure for each applicable landfill facility where private industry bears the expense of operating and maintaining the landfill solely for the disposal of wastes generated by the industry, except for those landfills operated by a regulated public utility for ash generated by the combustion of coal to produce electric energy:

(1) Ten cents (10¢) for each uncompacted cubic yard of solid waste received at a landfill; and

(2) Twenty cents (20¢) for each compacted cubic yard of solid waste received at a landfill; or

(3) Fifty cents (50¢) for each ton of solid waste received at a landfill.

(D) Scales and Weight Reporting Requirements

(1) (a) Pursuant to A.C.A. § 8-6-606(d), by January 1, 2004, all permitted facilities identified by regulation of

the Arkansas Pollution Control and Ecology Commission as Class 1 and Class 3C landfills, except those permitted landfills that shall comply with closure requirements before January 1, 2005, shall install scales and commence weighing all solid waste received at the landfill.

(b) This requirement may be satisfied utilizing an alternative weighing system approved by the Director of the Arkansas Department of Environmental Quality.

(2) Class 1 and Class 3C landfills shall be required to weigh all loads in excess of one ton (2,000 pounds), unless otherwise authorized in writing by the Arkansas Department of Environmental Quality. This provision authorizes Class 1 and Class 3C landfills to estimate weights for residential and other similar loads weighing less than one ton (2,000 pounds).

(3) Class 1 and Class 3C landfills shall install and operate scales for the purpose of weighing solid waste received at the landfill gate and shall maintain and operate the scales in accordance with the U.S. Department of Agriculture standards.

(4) Beginning January 1, 2004, except as provided in (D)(1) and (D)(2) above:

(a) All quarterly reports required herein to be submitted by Class 1 and Class 3C landfill permittees to the Arkansas Department of Environmental Quality shall accurately state the total weight of solid waste received at the landfill and the total weight of solid waste received at the landfill shall be based upon the recorded weight scale measurements; and

(b) The recorded weight scale measurements of solid waste received at Class 1 and Class 3C landfills shall be used to calculate the solid waste disposal fees payable to the Arkansas Department of Environmental Quality by Class 1 and Class 3C landfill permittees.

(E) Fee Collection

Fees imposed pursuant to the provisions of the Solid Waste Management and Recycling Fund Act, A.C.A § 8-6-601 et seq., or the Landfill Post-Closure Trust Fund Act, A.C.A. § 8-6-1001 et seq., or both, whichever is applicable, shall be assessed and collected as follows:

(1) Fees shall be assessed and collected based upon solid waste amounts received at landfill facilities within the State and on solid waste that is generated and transported within the State that is to be disposed outside the State.

(a) Fees for solid waste received at landfill facilities within Arkansas shall be submitted to the Department by the landfill.

(b) Fees for solid waste that is generated in Arkansas but transported out of state shall be submitted to the Department by the transporter.

(2) Fees shall be due and payable quarterly and shall be based upon solid waste amounts received or transported during the previous quarter and shall be calculated in accordance with procedures set forth in an approved disposal fee plan submitted by the landfill or transporter, pursuant to the provisions of this regulation.

(3) Fees for a newly permitted landfill or fees for a new transporter shall begin at the onset of operation.

(E) Unreported Fees May Be Estimated

When the information on the quarterly report is incomplete, or when the quarterly report is not submitted by the due date, or when the Department has determined that a landfill facility or a transporter has misreported the amount of waste received or transported, the Department may estimate the fee amounts due based on one or more of the following sources of information:

(1) Projected waste amounts, as defined in a landfill operating permit or a transporter license;

(2) Waste amounts as determined by applying current service area population and per capital solid waste multipliers;

(3) Waste amounts as determined by a Department audit; or

(4) Waste amounts as reflected in previously submitted quarterly reports or in a survey.

(5) Waste amounts reflected by any other reasonable means, as determined by the Department, to measure or weigh the solid waste.

(F) Quarterly Report Forms

The Department shall mail quarterly reporting forms to each landfill permittee and to each transporter prior to the calendar quarters ending the last day of December, March, June, and September, respectively. Failure to receive this form does not relieve a landfill facility permittee or a transporter from fee liability.

Reg.11.206 Record Keeping and Reporting

(A) Adequate Record Keeping

(1) The owner, operator or any other responsible party of any permitted landfill facility and each out-of-state transporter or any other responsible party shall establish and maintain adequate records in order to facilitate the reporting process and to assure accurate waste net weight or amounts and fee determinations.

(2) At a minimum, each facility or transporter shall have in place a waste ticket system, whereby a ticket is provided to the customer and the facility or transporter retains a duplicate of the ticket.

(3) These records shall be maintained on a daily basis, as the solid waste is received at a landfill gate, and shall include, at a minimum, the customer name, the geographic source of the waste, by county at the least, the type or kind of solid waste, defined herein, received or transported, and the net weight or amounts (compacted and uncompacted) of the waste.

(B) Fee Determination

Quarterly reports shall relate the total net weight or amounts of solid waste either received at a landfill facility gate within Arkansas or generated within the state and transported out of state for disposal.

(1) Waste net weight or amounts and fee amounts shall be determined utilizing one or more of the following methods, or another method that has received written approval by the Department, and shall be calculated in accordance with procedures set forth in an approved disposal fee plan, pursuant to this regulation:

(a) If the waste has received any amount of mechanical compaction, such as in the delivery vehicle, upon receipt at a landfill gate, the waste amounts on the quarterly report shall be reported in compacted cubic yards with the respective fee amounts as calculated and as set forth herein and in the approved disposal fee plan;

(b) If the waste has not received any amount of mechanical compaction, such as in the delivery vehicle, upon receipt at a landfill gate, the waste amounts on the quarterly report shall be reported in uncompacted cubic yards with the respective fee amounts calculated as set forth herein and in the approved disposal fee plan; or

(c) If the landfill operates on a weight basis, the waste net weight reported on the quarterly report shall be reported in tons with the respective fee amounts calculated as set forth herein and in the approved disposal fee plan.

(2) Each landfill facility landfill permittee or owner, operator or any other responsible party shall provide and maintain an adequate means of recording the amount of waste that is received by the landfill, as required under Regulation 22. Such records shall be used by the landfill to calculate disposal fees submitted quarterly to the Department and shall be available to the Department for inspection.

(3) Each transporter shall provide and maintain an adequate means of recording the amount of waste that is collected from its customers and transported to a landfill disposal facility out of state. At a minimum, the transporter retains a copy of each ticket or receipt received from the landfill. The ticket received from the landfill shall be used by the transporter to calculate disposal fees to be submitted quarterly to the Department. Such records shall be available to the Department for inspection.

(C) Waste Reduction

If a landfill or transporter chooses to remove recyclable materials from the solid waste suitable for marketing or beneficial reuse, disposal fee credit, to be reflected on the quarterly reports to the Department, may be received for such materials, provided that the following conditions are met:

(1) Suitable materials, approved by the Department as recyclable and marketable, pursuant to Regulation 28, or that can otherwise be put to a beneficial reuse, may be set-aside from the waste that has been received and ticketed, but prior to disposal.

(2) Materials set aside for recycling shall have been completely removed from the premises for marketing, or otherwise put to a beneficial reuse that has been approved by the Department, before credits for such materials shall be approved by the Department.

(3) Records showing types, descriptions and net weight or amounts of materials removed for marketing or beneficial reuse, and the final destination of such materials, shall be maintained by the landfill or transporter. Such records shall be available to the Department for inspection.

(4) Credit shall be applied solely to materials that were previously included in the solid waste net weight or amounts and fee calculations submitted to the Department, as specified in this regulation.

(5) In order for any waste reduction means or methodology to be utilized by a landfill or a transporter that involves the setting aside, prior to disposal, of materials from waste that has been received, such a means or methodology shall be a part of the approved disposal fee plan, as specified in this regulation.

(D) Not Allowed in Fees Calculation

For purposes of the assessment of fees under this regulation, net weight or amounts calculations shall be determined on waste upon receipt at the landfill gate. This prohibits, at the least, the following:

(1) Calculating the net weight or amounts for fees after marketable or beneficially reusable materials have been removed from the waste stream;

(2) Calculating the net weight or amounts for fees after the waste has been tipped and baled at a landfill facility;

(3) Calculating the net weight or amounts for fees after the waste has been placed in a landfill cell; or

(4) Calculating the net weight or amounts for fees based on landfill cell capacities.

(E) Quarterly Reporting Dates

Each landfill and each transporter shall submit to the Department on or before January 15, April 15, July 15, and October 15 of each year, a quarterly report which accurately states the total net weight or amounts of solid waste received at or transported to a landfill facility during the previous quarter.

(F) Determining Vehicle Capacity

For record keeping and reporting purposes, under this regulation, commercial waste transportation vehicles and trailers, shall be presumed to be full to vehicle capacity upon being received at a landfill facility gate, unless otherwise demonstrable.

(G) Records Availability

Any records, reports, or information obtained under this regulation and any permits, permit applications, and related documentation shall be available to the Department for inspection and copying during normal business hours, unless otherwise deemed necessary by the Department, and any records obtained by the Department shall be available to the public for inspection and copying during normal business hours.

(H) Records Location

The landfill facility owner, operator or any other responsible party shall maintain records at the facility and a transporter or any other responsible party shall maintain records at the quarterly reporting address, unless an alternative location is required and has been requested in writing and approved by the Department.

(I) Record Confidentiality

Upon a satisfactory showing to the Director that the records, reports, permits, documentation, or information, or any part thereof, if made public, would divulge methods, processes, or customer lists entitled to protection as trade secrets, then the Director shall consider, treat, and protect such records, reports, or information as confidential.

(J) Restriction of Confidentiality

As necessary to carry out the provisions of this regulation, information afforded confidential treatment may be transmitted under a continuing restriction of confidentiality to other officers, employees, or authorized representatives of this state or of the United States, if the landfill permittee, owner, operator or any other responsible party, or the transporter, or any other responsible party, to which the information pertains is informed at least two (2) weeks prior to the transmittal, and if the information has been acquired by the Department under the provisions of this regulation.

Reg.11.207 Payment of Fees

Fees imposed pursuant to the separate provisions of this subchapter shall be collected as follows:

(A) Fee Submission

On or before January 15, April 15, July 15, and October 15 of each year, each landfill facility permittee and each transporter shall pay to the Department the full fee amount owed for the preceding quarter. Payment shall be made by check or money order payable to the Department.

(B) Timely Payments

A landfill permittee or a transporter shall be deemed to have made a timely payment and shall avoid a late payment charge if the permittee or transporter complies with both of the following:

(1) The payment enclosed is for the full amount owed for the preceding quarter and no further Departmental action is required for collection; and

(2) The payment is received by the Department or is postmarked by the United States Postal Service on or before the final day on which the payment is due, or the payee presents a receipt indicating the payment was mailed by registered or certified mail on or before the final day on which the payment is due.

Reg.11.208 Late Payment Charge and Notice

(A) Late Payment Charges

A late payment charge of ten percent (10%) of the quarterly fee amount will be added to the net amount due if full payment is not received by the Department within fifteen (15) days after the due date. An additional five percent (5%) of that quarterly fee amount will be added to the net amount for each additional month or fraction thereof during which such failure continues past the first fifteen (15) days, not to exceed a total of twenty-five percent (25%).

(B) Late Payment Charge Notification

If the Department determines that any landfill permittee or transporter has not made a timely payment of the fee, a notification will be sent. Failure of the Department to send such notice shall not operate as a waiver of a late payment charge.

Reg.11.209 Adjustments

Report or Fee Adjustments - Upon written approval by the Department, any adjustments to any previous quarterly report or fee payment, found upon review or as the result of an audit by the Department, and any unpaid late payment charges may be reflected on the next quarterly report and fee payment .

Reg.11.210 Termination of Fees

(A) Stopped Operation

In the event a landfill or a transporter permanently ceases receiving or transporting waste, the permittee or transporter shall immediately submit a final quarterly report, along with final fee payment, for the quarter during which the landfill closed or the landfill or transporter stopped operation and shall indicate on the report the final date upon which the landfill or transporter ceased receiving waste.

(B) Refunds

After operations have ceased, a landfill permittee or a transporter may seek a refund of any fee overpayment.

Reg.11.211 Petitioning Director for Review of Fees

(A) Petition Filing

Any landfill permittee or transporter, who disagrees with the fee amount due, may file a petition for review with the Director within twenty (20) days following the payment or payment due date. The petition must contain:

(1) A statement of the fee amount the landfill permittee or transporter admits is due and payable;

(2) A statement of the fee amount the landfill permittee or transporter contests; and

(3) Documentation of the amount of solid waste received during the contested payment period including, but not limited to, daily gate or transporting receipts showing the geographic source of waste, the type or kind of waste, defined in this regulation and in Regulation 22, received, and the net weight or amounts of the waste.

(B) Petition Review

The Director shall review the petition and make a final determination of the amount of the contested fee. Such notice shall contain:

(1) The name, business address, and permit or transporter billing identification number of the landfill permittee or transporter;

(2) The Director's decision and date of decision; and

(3) A statement that the landfill permittee or transporter may request an adjudicatory hearing and Commission review on whether the decision of the Director should be modified and that such a request shall be in the form and manner required of Regulation 8: Administrative Procedures.

(C) Late Fee Due and Payable

If the a landfill permittee or a transporter files a petition for review, the full amount of the contested fee and the adjustment the permittee or transporter admits is due and payable shall be paid by the date the petition for review is due. Any late payment charges shall also be due and payable by the date the petition for review is due.

(D) Procedures Stayed

Upon the filing of a petition for review, the timely payment procedures and late payment charges contained in this regulation are automatically stayed for the amount of the fee which is contested. Payment of the full amount of the fee, as determined by the Director following a petition for review, shall be due within thirty (30) days of issuance of the Director's decision and late payment charges shall then begin to accrue on that amount.

(E) Petition Determination

Notwithstanding the preceding, the filing of a petition for review, which is deemed by the Director to be frivolous and completely without merit, shall not operate as a stay of the timely payment procedures and late payment charges. If the Director determines that the petition for review is frivolous and completely without merit, the notice of the Director's decision, as described in this regulation, shall so state.

(F) Subsequent Quarterly Fees

Filing a petition for review of a fee does not affect the application of the timely payment procedures or late payment charges for any subsequent quarterly fee or adjustment.

Reg.11.212 Appeals

Appeal Procedures -Fees imposed under this regulation shall constitute a specific condition imposed on a landfill permittee or on a transporter. Provided a landfill permittee or a transporter disagrees with the final decision of the Director following a petition to review fees, the permittee or transporter may appeal such decision by requesting a Commission review, in accordance with Regulation 8: Administrative Procedures, and with the Arkansas Solid Waste Management Act, A.C.A. § 8-6-201 et seq.

Reg.11.213 Penalties

Fee Penalty Procedures - A landfill permittee or transporter failing or refusing to pay the fee required under the provisions of this regulation in a timely manner shall be subject to late payment procedures and charges as established in this regulation. Refusal to pay the required fees shall constitute grounds for legal action by the Department, which may result in assessment of civil penalties, as provided in the Arkansas Solid Waste Management Act, A.C.A. § 8-6-201 et seq., or the revocation of a landfill permit, issued pursuant to A.C.A. § 8-6-201 et seq., or both.

Reg.11.214 Audit

Department Audit - At the discretion of the Department, an audit of ~~the~~ a landfill permittee's or a transporter's records or the operation of the landfill or transporter, or both, may be performed to assure compliance with this regulation. An audit by the Department may include, but shall not be limited to, an unannounced on-site visit to monitor the operation and operating procedures of a landfill or a transporter, or a requirement that additional records be submitted for review, or both.

Reg.11.215 Right of Entry and Access

Department Entry Rights - The Department or any authorized employee or agent shall have right of entry during normal business hours, unless otherwise deemed necessary by the Department, to any public or private property for the purpose of obtaining information or conducting investigations, examining or copying any books, papers, records, or memoranda pertaining to the operation of the facility or transporter necessary or appropriate for the purpose of this regulation.

Reg.11.216 Fund Establishment

Funds Affected - Fees collected under this regulation, pursuant to the Solid Waste Management and Recycling Fund Act, A.C.A. § 8-6-601 et seq., shall be deposited into the State Treasury and shall be credited to the Solid Waste Management and Recycling Fund and to the Marketing Board Fund. Fees collected under this regulation, pursuant to the Arkansas Landfill Post-Closure Trust Fund Act, A.C.A. § 8-6-1001 et seq., shall be deposited into the State Treasury and shall be credited to the Landfill Post-Closure Trust Fund.

CHAPTER THREE: THE LANDFILL POST-CLOSURE TRUST FUND PROGRAM

Reg.11.301 Authority to Administer Trust Fund Program

Statutory Authority - Under the Landfill Post-Closure Trust Fund Act, A.C.A. § 8-6-1001 et seq., the Commission is given the authority to promulgate regulations and the Department is given the authority to implement Commission regulations, to issue administrative policies and procedures, and to administer the Landfill Post-Closure Trust Fund Program.

Reg.11.302 Short Title

This program shall be known and may be cited by the short title: Post-Closure Fund.

Reg.11.303 Availability of Landfill Post-Closure Trust Funds

(A) Funding Specificity

Landfill Post-Closure Trust Funds are to be made available on specific individual corrective action cases from post-closure landfill disposal fees imposed under this regulation.

(B) Funding Guidelines and Mechanisms

This regulation and Regulation 22 provide compliance guidelines for a landfill to follow in order to be eligible for funding consideration by the Landfill Post-Closure Trust Fund Program. Disposal fees, collected in accordance with A.C.A. § 8-6-1001 et seq., and with this regulation, provide the funding mechanism for the Landfill Post-Closure Trust Fund.

(C) Funding Cap

In the event that the total amount in the Landfill Post-Closure Trust Fund equals or exceeds twenty-five million dollars ($25,000,000), no additional fees shall be collected until the total amount in the fund equals or is less than fifteen million dollars ($15,000,000), at which time such collection of fees shall resume.

(D) Funding Availability

(1) Landfill Post-Closure Trust Fund moneys are to be made available, upon written approval from the Director, for specific landfill post-closure corrective action cases and activities as set forth herein, pursuant to A.C.A. § 8-6-1001 et seq., and to Regulation 22.

(2) Any expenditures in excess of $50,000.00 per site from the Landfill Post-closure Trust Fund, for corrective action for remedy to environmental impacts of closed disposal sites previously operated as a landfill pursuant to state law, will be prioritized and authorized by the Commission, by adoption of a Minute Order, after addressing corrective actions needed to address environmental impacts from permitted landfills closed properly.

Reg.11.304 Department Responsibilities

(A) Use of Funds

In accordance with the provisions of A.C.A. § 8-6-1001 et seq., of Regulation 22, and with this regulation, the Landfill Post-Closure Trust Fund shall be used by the Department for landfill post-closure corrective action, which is defined as any measures deemed necessary by the Director to prevent or abate contamination of the environment from any landfill which has been certified as properly closed by the Department.

(B) Project Evaluation

The Department shall evaluate for funding those projects which comply with the requirements and the intent of A.C.A. § 8-6-1001 et seq.

(C) Project Selection and Administration

Unless allowed elsewhere in this regulation or in Regulation 22, corrective action measures shall be selected by the Department and corrective action work shall be monitored by the Department or its agent.

Reg.11.305 Applicability

The provisions and benefits of the Landfill Post-Closure Trust Fund shall apply to landfill facility classifications as determined in Regulation 22 and in this regulation.

Reg.11.306 Eligible Projects and Activities

(A) Applicability

The Landfill Post-Closure Trust Fund Program applies to all landfills subject to permitting requirements provided under Regulation 22, which, upon receipt of solid waste at the landfill gate, are required to participate in the fee system for landfill disposal and which otherwise comply with the provisions set forth herein and in Regulation 22, except for those landfills where a private industry bears the expense of operating and maintaining the landfill solely for the disposal of waste generated by the industry or wastes of a similar kind or character.

(B) Funding Determination

The fund shall be used if the Director determines that:

(1) **Closed Landfill** - A landfill, which is no longer receiving waste and has received an approved closure from the Department, pursuant to Regulation 22, regardless of when it ceased operating, is causing groundwater contamination or is causing other contamination that, in the determination of the Director, is a hazard to public health or endangers the environment; and

(2) **Owner Obligation Met or Emergency Exists** - The landfill permittee, owner, operator or any other responsible party of the landfill site has expended at least ten thousand dollars ($10,000) toward corrective

action, unless the landfill permittee or owner or any other responsible party, cannot be located or the Director determines an emergency exists necessitating immediate corrective action, in which case the Department shall take action to recover the ten thousand dollars ($10,000) from the owner or any other responsible party.

(C) Owner/Other Responsible Party Unavailable

If, after proper closure of a landfill, the Department determines that the landfill permittee, owner, operator or any other responsible party cannot be located or cannot otherwise satisfy, in whole or part, post-closure maintenance obligations, the Department is authorized to expend the necessary funds from the Post-Closure Trust Fund to satisfy the requirements of State and federal law and to prevent or abate releases to the environment.

(D) Refunds

In the event that preliminary studies are required before implementation of a corrective measure to confirm or deny the existence of suspected contamination and those studies indicate that contamination is not present, the Department shall refund any moneys, in excess of ten thousand dollars ($10,000), the landfill permittee, owner, operator or any other responsible party contributed to the studies.

Reg.11.307 Owner or Other Responsible Party Obligations

(A) Financial Assurance

A landfill permittee, owner, operator or any other responsible party of a landfill shall establish, and at all times maintain, financial assurance for the post-closure maintenance of said landfill, pursuant to Regulation 22.

(B) Owner/Other Responsible Party Contribution

The landfill permittee, owner, operator, or any other responsible party shall make the initial contribution, required herein, to the Department for use in the corrective action work after the measure has been selected in accordance with Regulation 22.

(C) Owner/Other Responsible Party Failed Obligation

If the Department is required to expend funds from the Post-Closure Trust Fund due to the failure of an landfill permittee, owner, operator or any other responsible party to meet the requirements of the subsection, the Department may pursue collection and recovery of the funds.

Reg.11.308 Projects and Activities Not Eligible

(A) Third Party Compensation

The fund shall not be used to compensate third parties for damages to property caused by the contamination. However, projects or studies that address an alternate potable water supply system for affected residences or other entities may be considered eligible.

(B) Areas Adjacent to Existing Landfill

Closed areas or operational phases are not eligible for funding when the areas or phases are contiguous to any landfill which is receiving solid waste when the Director determines that corrective action is necessary.

(C) Routine Activities

Except as provided herein, funds shall not be used by a landfill permittee in the performance of routine post-closure care and monitoring activities, pursuant to Regulation 22.

Reg.11.309 Disbursement of Funds

(A) Contracting

The Department may, at its discretion, enter into a contract or another written agreement with a Regional Solid Waste Management District, or any other responsible public or private party, for corrective action services.

(B) Distribution of Funds

Depending upon the specific corrective action project, periodic payments will be made to a fund recipient during the corrective action process or upon final inspection by the Department, or both.

Reg.11.310 Reporting and Oversight Requirements

(A) Record Keeping

A fund recipient shall maintain an orderly accounting system to document that expenditures are made in accordance with the project budget.

(B) Reporting

A fund recipient shall comply with reporting conditions specified in the contract documents or other written agreements.

(C) Expense Documentation

A fund recipient shall, when requested, submit copies of bids, invoices on equipment or services, canceled checks, or other documentation relative to the project.

(D) Right of entry and access

Department personnel shall have the right of entry to the premises of a fund recipient and shall have the right of access to all records relative to a funded project or activity.

(E) Modifications

After the Department has approved funding for a project, modifications may be made to the project provided documentation of the proposed changes has received written approval from the Department.

(F) Notice of Irregularities

It shall be the responsibility of a fund recipient to immediately notify the Department in the event that conditions set forth in the contract or Commission regulations cannot be or have not been met. Funding for a project that does not meet such conditions may be terminated by the Department. Funds set aside, but not utilized, for a specific project shall be returned to the Landfill Post-Closure Trust Fund.

Reg.11.311 Appeals of Funding Decisions

A funding decision may be appealed by requesting an adjudicatory hearing and Commission review, in accordance with Regulation 8: Administrative Procedures.

CHAPTER FOUR: SOLID WASTE MANAGEMENT AND RECYCLING GRANTS PROGRAM

Reg.11.401 Authority to Administer Grants Program

Under the Solid Waste Management and Recycling Fund Act, A.C.A. § 8-6-601 et seq., the Commission is given the authority to promulgate regulations and the Department is given the authority to implement Commission regulations, to issue administrative policies and procedures, and to administer the Solid Waste Management and Recycling Grants Program.

Reg.11.402 Short Title

This program shall be known and may be cited by the short title: Recycling Grants.

Reg.11.403 Applicant Eligibility

Pursuant to the provisions of A.C.A. § 8-6-609, the following entities are considered eligible to apply for and to receive grants:

(A) **Cities and Counties:** Duly incorporated cities and towns and County governments of the State of Arkansas.

(B) **Solid Waste Authorities:** Authorities incorporated under A.C.A. §14-233-101 et seq.

(C) **Regional Solid Waste Management Boards:** Boards formed pursuant to A.C.A. § 8-6-701 et seq., which have entered into agreements pursuant to A.C.A. § 8-6-701 et seq., and are empowered to administer a grant award pursuant to the requirements of A.C.A. § 8-6-601 et seq.

(D) **Subordinate Service Districts:** Subordinate Service Districts which are formed pursuant to A.C.A. § 14-14-708 et seq., and are empowered to administer a grant award pursuant to the requirements of A.C.A. § 8-6-601 et seq.

(E) **Multi-County or Multi-Regional Projects**, provided that concurrent resolutions regarding the joint application have been adopted by participating Regional Solid Waste Management District Boards and that a joint application is signed by the Board Chairman for each Regional Solid Waste Management District.

(F) **Partnerships Between Public Entities and Private Recycling Interests:** Public entities identified herein partnered with private recycling interests to provide recycling services, provided that the public entity maintains ownership of facilities and equipment purchased with grant funds and that the public entity assumes responsibility for meeting the requirements of this regulation.

Reg.11.404 Responsibilities of District Board

(A) Regional Plan

Unless otherwise excused by the Director, each District shall have a solid waste management plan. The plan must meet the solid waste planning requirements of A.C.A. § 8-6-201 et seq., and of Regulation 22: The Arkansas Solid

Waste Management Regulation, and must have been reviewed and approved by the Department prior to the opening of the grant round. All projects approved by Regional Solid Waste Management Boards for funding in that District must be compatible with the approved District plan on file with the Department or must document to demonstrate why a deviation is necessary.

(B) Application Prioritization

Each Board is responsible for the grant application process and acceptance of grant applications from within its District. Each District shall prioritize and select grant projects from within District boundaries for submission to the Department, such selection being in the sole discretion of the District. To ensure that every grant approved by the Boards meets the intent and requirements of A.C.A. § 8-6-609, Boards shall submit a list and brief description of planned projects to the Department sixty (60) days prior to each grant round for written pre-approval by the Department.

(C) Administrative Allocation

Each Board shall ensure that no more than twenty-five percent (25%) of the annual allocation of grant funds be used for administrative purposes. However, total funds for administrative purposes for all Districts shall not exceed five hundred thousand dollars ($500,000). To determine if the five hundred thousand dollar ($500,000) cap is exceeded, the Department shall multiply the annual allocation of grant funds in any given grant round by twenty-five percent (25%). If such product is equal to or less than five hundred thousand dollars ($500,000), Districts may then use up to twenty-five percent (25%) of that year's allocation for administrative purpose. In the event that twenty-five percent (25%) of the funds available in a given grant round exceeds five hundred thousand dollars ($500,000), the Department shall determine the administrative allocation for each District by utilizing the following formula to ensure the five hundred thousand dollar ($500,000) cap is not exceeded:

(1) Divide five hundred thousand dollars ($500,000) by the total amount of funds available in the grant round to derive the percentage to be used in determining the amount of administrative funds available for each District.

(2) Multiply the percentage derived in part (1) above by the amount allocated to each District to determine each District's administrative allotment for a given grant round.

(D) Distribution within District

Boards shall make distribution of grant funds to approved grant projects within their District as scheduled in the grant application and subject to the grantee's compliance with all grant conditions. Funds shall not be disbursed by the Boards prior to the start of the project.

(E) Adequate Revenues

Boards shall ensure that the grantee show that adequate revenues are being collected to support the long-term operation and maintenance of a grant-funded project prior to the disbursal of any grant funds.

(F) Permits and Licenses

Boards shall ensure that grantee has obtained all applicable federal, State, and local permits and licenses prior to disbursement of funds.

(G) Equipment and Facility Purchasing

Boards shall conform to, and ensure that all applicants conform to all State laws that are applicable to the purchase, use or sale of equipment and facilities secured with State funding including, but not limited to, State laws on commodity purchases and bids for construction by local governments.

(H) Equipment Usage

Boards shall ensure that facilities or equipment purchased with grant funds disbursed by the Boards be used exclusively for the general purposes specified in the grant application. Facilities or equipment purchased with grant funds shall not be sold, traded, or transferred except for the purpose of upgrading recycling facilities or improving recycling programs within the State, with the Department's written consent.

Reg.11.405 Grant-Eligible Activities, Projects and Programs

The following activities, projects or programs in addition to other activities that support the objectives of increasing and improving recycling as a waste-management strategy, consistent with the intent of A.C.A. § 8-6-601, et seq., are eligible for grant funding:

(A) Solid Waste Planning

Planning studies are eligible for funding if an applicant's proposed study meets the solid waste planning requirements of A.C.A. § 8-6-201 et seq., § 8-6-1901 et seq., Regulation 22: Solid Waste Management, and the Minimum Requirements for Regional Solid Waste Management District Plans as set forth in the Statewide Solid Waste Management Plan. The funded planning study must include goals for the diversion of recyclable materials from disposal at landfills or incinerators and must set out methods for increasing recycling in the study area. Only first-year costs for planning staff are eligible. Boards may expend an amount equal to no more than ten percent (10%) of their administrative allocation for plan updates.

(B) Recycling or Composting Equipment and Material Recovery Facilities (MRF's)

Recycling equipment and recycling facilities are eligible for funding if existing facilities and equipment do not provide adequate and efficient service for the project area. The facilities must meet the objectives of the solid waste management plan for recycling facilities. Composting facilities and equipment are also eligible.

(C) Solid Waste Education and Public Awareness Programs

Education and public awareness activities and materials are eligible if, in accordance with the legislative intent of A.C.A. § 8-6-601 et seq., they are part of a plan for introducing or promoting recycling, composting, or other solid waste management practices that divert wastes from landfills.

(D) Transfer Stations

Waste transfer stations which accept three or more recyclable materials, as identified in Regulation 28, are eligible for funding.

Reg.11.406 Existing Equipment or Facilities

Grant assistance shall not be provided for the purpose of purchasing equipment or facilities if existing equipment and facilities efficiently and adequately serve the relevant area, unless the Department determines that the equipment or facility is indispensable to the otherwise eligible project.

Reg.11.407 Departmental Responsibilities

(A) Departmental Approval

Once grant project applications are submitted to the Department, the Department shall approve of those projects which comply with the requirements and intent of A.C.A. § 8-6-601 et seq., and this regulation.

(B) Funding Cycle for Grant Rounds

At least once per year the Department will accept and review applications for funding. The Department will determine the amount of funds available for the current grant round. Funds collected under the provisions of A.C.A. § 8-6-607 and deposited in the State Treasury to the credit of the Solid Waste Management Recycling Fund, less up to twenty-five percent (25%) for administrative support for the Department, shall annually be allocated to each of the approved Districts, utilizing a combination of two (2) methods referred to as Method A and Method B. Fifty percent (50%) of set aside funds will be determined by using Method A and fifty percent (50%) will be determined using Method B. The total figures obtained from each method will be combined to arrive at each District's fund distribution.

Method A:

(1) The Department shall determine the amount of funds within each Planning and Development District, organized under A.C.A. § 14-166-201 through §14-166-205 and recognized by the Governor based upon the same distribution as general revenue support is distributed to the Planning and Development Districts in the current fiscal year.

(2) The Department shall adjust the distribution within the Planning and Development Districts to coincide with the boundaries of the Regional Solid Waste Management Districts (Districts) by determining each County's share of the funds available within each Planning and Development District. Each County's share shall be based upon the proportion that each County's population bears to the total population in the Planning and Development District to which the County is assigned, multiplied by the amount of funds determined to be available within the Planning and Development District. The County's proportional share, as determined, shall be added to all other counties' shares within the same District.

Formula for Method A:

(1) Begin with fifty percent (50%) of the total remaining grant funds.

(2) Divide equally by the eight (8) Planning and Development Districts.

(3) Multiply this result by the most recent federal decennial census population of each County.

(4) Divide this result by the ADD Planning and Development District population in which the County is located. (This determines the portion per County.)

(5) Individual County portions are grouped and totaled by each District to give the District's allocation under Method A.

Method B:

The remaining fifty percent (50%) of set-aside funds in a grant round shall be based upon the ratio of the current decennial Regional Solid Waste Management District's population divided by the most recent federal decennial State population.

Formula for Method B:

(1) Begin with each District's total population.

(2) Divide by the State's most recent federal decennial census population. (This determines the District's percentage.)

(3) Multiply by the total remaining grant funds.

(4) Equals each District's allocation under Method B.

(C) Fund Rollover

Funds set aside for each District in a grant round that are not awarded to the District will be rolled over to the next round and become a part of the total funds available for all Districts in that grant round.

(D) Combined Funds

Funds set aside for two or more Districts in a grant round may be combined to fund a joint application provided that concurrent resolutions regarding the joint application have been adopted by participating Boards and provided that the joint application has been signed by the Board Chairman for each District.

(E) Forms Provided

The Department shall provide the forms necessary for the application process.

(F) Estimated Funds Available

The Department shall provide an estimate of funds available to each District along with notification of pre-approved projects. Notification shall be made at least thirty (30) days prior to each grant round.

Reg.11.408 Disbursement of Funds

Disbursement of Funds - The Department shall disburse grant funds to Districts following written approval of grant applications in a given grant round if all requirements from the previous round are complete.

Reg.11.409 Reporting and Oversight Requirements

(A) Record Keeping

Boards shall require grantees to maintain an orderly accounting system to document that grant expenditures are made in accordance with the project budget.

(B) Reporting

(1) Until all grant funds have been expended on a project, regional solid waste management boards shall provide the Department with an annual report summarizing:

(a) Progress in the project; and

(b) Expenditures from the grant award.

(2) For a period of five (5) years after a grant recipient's receipt of grant funds, regional solid waste management boards shall provide the Department with an annual report summarizing:

(a) Tonnage of materials collected by the grant recipient; and

(b) Revenues produced by the sale of materials collected.

(3) Reporting requirements described herein became effective as of the July 1, 2003, grant reporting period. The reports shall be filed annually on or before September 1.

(4) Failure by a board to file the required reports shall provide grounds for the department to withhold disbursement of grant funds for subsequent grant rounds.

(C) Submittal Required

Boards must submit an annual expense itemization for each grant, including date of purchase, item purchased, vendor, purchase price, and invoice or purchase order number. When equipment is purchased, Boards shall submit serial numbers, vehicle identification numbers or other identifiers. These requirements became effective as of the July 1, 2003, grant reporting period. Funds for the next grant round will not be disbursed until these requirements for the previous round, and the requirements in this regulation are complete.

(D) Right of Entry and Access

(1) Department personnel shall have the right of entry during normal business hours, unless otherwise deemed necessary by the Department, to the premises of a grant-funded facility and the right of access to all records pertaining to a grant-funded project or activity.

(2) Boards shall maintain, or have access to, copies of all bids, paid invoices on equipment or services, and canceled checks pertinent to the project. Upon request, such records shall be made available for inspection by the Department or for submittal to the Department. These requirements became effective as of the July 1, 2003, grant reporting period.

(E) Modifications

After the Department has approved a grant, modifications may be made to the grant project if the grantee submits adequate documentation of the proposed changes and receives written approval by the Board and the Department. Modifications that alter the grant category or materially change the project must be public-noticed under the provisions of this regulation.

(F) Notice of Irregularities

It shall be the responsibility of the Boards to immediately notify the Department in the event that the grantee has not met conditions of the Department approved grant application. A grant may be terminated by the Board or the Department, if either the Board or the Department determines that the grantee is unable or unwilling to complete or meet the conditions of the grant as set forth in the grant application. If a grant is terminated, grant funds shall be reimbursed in accordance with A.C.A. § 8-6-610(C). Funds returned may be used to fund the next prioritized project with written approval from the Department. Funds not reallocated within one hundred twenty (120) days shall be returned to the Department for allocation in the next grant round.

(G) Forms

The Department shall provide forms to be used by the Districts in the reporting process.

(H) Audit Requirements

Each Regional Solid Waste Management Board shall procure an annual financial audit.

(1) Such audits shall be conducted following each District's fiscal year end.

(2) Such audits shall, at the minimum define recycling grant funds received separate from other District revenues, delineating interest and/or other receipts received as a result of the funds and documenting their expenditure. Such audits shall also identify project or contractual costs separate from administrative costs.

(3) Such audits shall be conducted by accountants in good standing with the Arkansas State Board of Public Accountancy and in accordance with the Governmental Auditing and Reporting Standards issued by the Comptroller General of the United States.

(4) Copies of each Regional Solid Waste Management District's annual audit report shall be filed with the Department, the Division of Legislative Audit and shall be available for public inspection with the books and records of the District.

(5) Failure to provide the Department and the Division of Legislative Audit with a full and complete annual audit report within nine (9) months of the District's fiscal year ending date shall be cause to suspend or terminate any and all Solid Waste Management and Recycling Grant Funds.

Reg.11.410 Conditions of Grant

(A) Funds Forfeited

Funds for any grant project not started prior to the date that pre-applications for the next grant round are submitted to the Department will be forfeited and become a part of the total funds available for all Districts in the next grant round unless the project delay receives written approval by the Board and the Department. District administrative grants are excluded from this requirement.

If, within a three-year period beginning on the date that the Department awards a grant, the grantee does not meet the conditions of the grant prescribed under A.C.A. § 8-6-610(b) and this regulation, the Department may order the grantee to reimburse the grant award in accordance with A.C.A. § 8-6-610(c), plus interest monies earned from the holding of grant funds by grant recipient. Grantees will be ineligible for further grant awards until reimbursement is made. Reimbursed monies will become a part of the total fund available for all Districts in the next grant round.

(B) Earned Interest on Grant Awards

Interest monies earned from the holding of grant funds by grant recipients or Districts shall be used exclusively for recycling programs consistent with the District's Solid Waste Management Plan. It shall be the responsibility of grantees to monitor the collection of earned interest and direct interest monies to the project supported by the grant award or to other recycling program(s) consistent with the applicable District's Solid Waste Management Plan.

(C) Project Deadlines

All grantees shall develop recycling programs, as outlined in the grant application, and expend all grant funds within three (3) years following the date of disbursement of funds by the Department unless a written extension is granted by the Department.

(D) Markets Sought

All grantees shall seek to market or reuse the materials diverted under the recycling program from deposition in landfill or incinerators in the period of three (3) years following the grant award.

(E) Notice Published

Thirty (30) days prior to submission of a grant application, the applicant shall be required to insert in a newspaper of general circulation in the area affected a notice describing the applicant's grant request and soliciting written comments from the public for a twenty-day period. Proof of publication of the notice and copies of the comments shall accompany the grant application.

Reg.11.411 Appeals of Grant Decisions

(A) Appeals

The following persons shall have the right to appeal any grant decisions as defined herein made by the Department:

(1) A grant applicant;

(2) A grantee;

(3) Provided the matter to be appealed is subject to a public comment period, any person who submitted written comments on the contested matter within the comment period;

(4) A Regional Solid Waste Management District Board; or

(5) Any other person entitled by law to contest the Director's decision.

(B) Review

Any such person may appeal a grant decision by requesting an adjudicatory hearing and Commission review in accordance with Regulation 8: Administrative Procedures, provided however that the definition of "grant decisions" contained herein will apply instead of the definition of "grant decisions" contained in Regulation 8. Such request shall be in the form and manner required by Regulation 8.

CHAPTER FIVE: SEVERABILITY AND EFFECTIVE DATE

Reg.11.501 Severability

If any provision of this regulation or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications of this regulation which can be given effect without the invalid provision or application, and to this end provisions of this regulation are declared to be severable.

Reg.11.502 Effective Date

This regulation is effective ten (10) days after filing with the Secretary of State, the State Library, and the Bureau of Legislative Research.

EXHIBIT B

QUESTIONNAIRE FOR FILING PROPOSED RULES AND REGULATIONS WITH THE ARKANSAS LEGISLATIVE COUNCIL AND JOINT INTERIM COMMITTEE

DEPARTMENT/AGENCY Arkansas Department of Environmental Quality
DIVISION Solid Waste Management Division
DIVISION DIRECTOR Mike Robinson, Chief
CONTACT PERSON Anne Weinstein
ADDRESS 5301 Northshore Drive, North Little Rock, AR 72218-5317
PHONE NO. 501-682-0743 **FAX NO.** 501-682-0891
E-MAIL weinstein@adeq.state.ar.us

INSTRUCTIONS

A. Please make copies of this form for future use.
B. Please answer each question completely using layman terms. You may use additional sheets, if necessary.
C. If you have a method of indexing your rules, please give the proposed citation after "Short Title of this Rule" below.
D. Submit two (2) copies of this questionnaire and financial impact statement attached to the front of two (2) copies of the proposed rule and required documents. Mail or deliver to:

Donna K. Davis
Subcommittee on Administrative Rules and Regulations
Arkansas Legislative Council
Bureau of Legislative Research
Room 315, State Capitol
Little Rock, AR 72201

****

1. What is the short title of this rule? Regulation No. 11: Regulations for Solid Waste Disposal Fees; Landfill Post-Closure Trust Fund; and Recycling Grants Program

2. What is the subject of the proposed rule? Landfill Post-Closure Trust Fund

3. Is this rule required to comply with federal statute or regulations? Yes X No _____

   If yes, please provide the federal regulation and/or statute citation.

   Section 47 Act 1281 of 2007

4. Was this rule filed under the emergency provisions of the Administrative Procedure Act?
   Yes _____ No X

   If yes, what is the effective date of the emergency rule?

When does the emergency rule expire?

Will this emergency rule be promulgated under the permanent provisions of the Administrative Procedure Act? Yes_____ No_____

5. Is this a new rule? Yes_____ No__X__ If yes, please provide a brief summary explaining the regulation.

Does this repeal an existing rule? Yes_____ No__X__ If yes, a copy of the repealed rule is to be included with your completed questionnaire. If it is being replaced with a new rule, please provide a summary of the rule giving an explanation of what the rule does.

Is this an amendment to an existing rule? Yes__X__ No_____If yes, please attach a mark-up showing the changes in the existing rule and a summary of the substantive changes. **Note: The summary should explain what the amendment does, and the mark-up copy should be clearly labeled "mark-up."**

6. Cite the state law that grants the authority for this proposed rule? If codified, please give Arkansas Code citation.

Section 47 of Act 1281 of 2007.

7. What is the purpose of this proposed rule? Why is it necessary? The amendment incorporates legislative changes requiring the Arkansas Pollution Control and Ecology Commission to prioritize and authorize by Minute Order expenditures from the Landfill Post-closure Trust Fund, in excess of $50,000 per site, for corrective action to remedy environmental impacts closed disposal sites previously operated as a landfill pursuant to state law.

8. Will a public hearing be held on this proposed rule? Yes__X__ No_____

If yes, please complete the following:
Date: August 21, 2008
Time: 2:00 p.m.
Place: APC&EC Commission Room, 5301 Northshore Drive, North Little Rock, AR

9. When does the public comment period expire for permanent promulgation? September 3, 2008

10. What is the proposed effective date of this proposed rule? October 24, 2008

11. Do you expect this rule to be controversial? Yes_____ No__X____ If yes, please explain.

12. Please give the names of persons, groups, or organizations that you expect to comment on these rules? Please provide their position (for or against) if known.

FINANCIAL IMPACT STATEMENT

PLEASE ANSWER ALL QUESTIONS COMPLETELY

DEPARTMENT Arkansas Department of Environmental Quality
DIVISION Solid Waste Management Division
PERSON COMPLETING THIS STATEMENT Anne Weinstein
TELEPHONE NO. 682-0743 **FAX NO.** 682-0891
EMAIL: weinstein@adeq.state.ar.us

To comply with Act 1104 of 1995, please complete the following Financial Impact Statement and file two copies with the questionnaire and proposed rules.

SHORT TITLE OF THIS RULE Regulation No. 11: Regulations for Solid Waste Disposal Fees; Landfill Post-Closure Trust Fees; Illegal Dumps Program; and Recycling Grants Program

1. Does this proposed, amended, or repealed rule or regulation have a financial impact?
   Yes _____ No ___X_____

2. If you believe that the development of a financial impact statement is so speculative as to be cost prohibitive, please explain.

3. If the purpose of this rule or regulation is to implement a federal rule or regulation, please give the incremental cost for implementing the regulation. Please indicate if the cost provided is the cost of the program. Not applicable.

Current Fiscal Year	**Next Fiscal Year**
General Revenue_____	General Revenue_____
Federal Funds	Federal Funds
Cash Funds_____	Cash Funds_____
Special Revenue_____	Special Revenue_____
Other (Identify)_____	Other
(Identify)_____	
Total_____	Total _____

4. What is the total estimated cost by fiscal year to any party subject to the proposed, amended, or repealed rule or regulation? Identify the party subject to the proposed regulation, and explain how they are affected.

Current Fiscal Year	**Next Fiscal Year**
None	None

5. What is the total estimated cost by fiscal year to the agency to implement this regulation?

Current Fiscal Year	**Next Fiscal Year**
$ 0	$ 0

EXHIBIT D

MEMORANDUM

TO: MIKE ROBINSON
CHIEF, SWM DIVISION

THROUGH: MARK FERGUSON MJF
CHIEF, LEGAL DIVISION

FROM: ANNE WEINSTEIN AW
STAFF ATTORNEY, LEGAL DIVISION

DATE: JUNE 11, 2008

RE: ANALYSIS OF PROPOSED CHANGES
FOR REGULATION NO. 11

Pursuant to Act 143 of 2007, a determination must be made whether or not the proposed changes to Regulation No. 11 will affect small business.

The proposed amendment incorporates legislative changes requiring the Arkansas Pollution Control and Ecology Commission to prioritize and authorize by Minute Order expenditures from the Landfill Post-closure Trust Fund, in excess of $50,000 per site, for corrective action to remedy environmental impacts closed disposal sites previously operated as a landfill pursuant to state law.

This provision will not have an affect on small business. Further, Act 143 of 2007 exempts from the required analysis rules that "substantially codify existing state or federal law." Since the change proposed in this rulemaking codifies into the regulation new state law as outlined above, this rulemaking should be exempt from the analysis required in Act 143 of 2007.

ECONOMIC IMPACT/ENVIRONMENTAL BENEFIT ANALYSIS

Answer to best of the proponent's ability, as required by APC&EC Regulation 8, Chapter 3.5

STEP 1: DETERMINATION OF ANALYSIS REQUIREMENT (to be included in petition to initiate rulemaking)

APC&EC REGULATION NO. 11
REGULATIONS FOR SOLID WASTE DISPOSAL FEES; LANDFILL POST-CLOSURE TRUST FEES; ILLEGAL DUMPS PROGRAM AND RECYCLING GRANTS PROGRAM
JUNE 2008 UPDATE

1A. Is the proposal expressly addressed by a Federal requirement? No.

If yes, see 1B.
If no, an Economic Impact/Environmental Benefit Analysis is not required.

1B. If 1A is YES, is proposed regulation equivalent, or more stringent, or less stringent than federal requirement? **N/A**

- If equivalent – Economic Impact/Environmental Benefit Analysis is not required
- If more stringent - Economic Impact/Environmental Benefit Analysis is required
- If less stringent - Economic Impact/Environmental Benefit Analysis is not required, but does require federal agency approval prior to adoption if the proposal is part of an authorized state program.

STEP 2: THE ANALYSIS (to be included in petition to initiate rulemaking, if required)

2A. ECONOMIC IMPACT

Not Required.

2B. ENVIRONMENTAL BENEFIT

Not Required.

EXHIBIT C

FINANCIAL IMPACT STATEMENT

PLEASE ANSWER ALL QUESTIONS COMPLETELY

DEPARTMENT Arkansas Department of Environmental Quality
DIVISION Solid Waste Management Division
PERSON COMPLETING THIS STATEMENT Anne Weinstein
TELEPHONE NO. 682-0743 **FAX NO.** 682-0891
EMAIL: weinstein@adeq.state.ar.us

To comply with Act 1104 of 1995, please complete the following Financial Impact Statement and file two copies with the questionnaire and proposed rules.

SHORT TITLE OF THIS RULE Regulation No. 11: Regulations for Solid Waste Disposal Fees; Landfill Post-Closure Trust Fees; Illegal Dumps Program; and Recycling Grants Program

1. Does this proposed, amended, or repealed rule or regulation have a financial impact?
   Yes _____ No X

2. If you believe that the development of a financial impact statement is so speculative as to be cost prohibitive, please explain.

3. If the purpose of this rule or regulation is to implement a federal rule or regulation, please give the incremental cost for implementing the regulation. Please indicate if the cost provided is the cost of the program. Not applicable.

Current Fiscal Year	**Next Fiscal Year**
General Revenue_____	General Revenue_____
Federal Funds	Federal Funds
Cash Funds_____	Cash Funds_____
Special Revenue_____	Special Revenue_____
Other (Identify)_____	Other
(Identify)_____	
Total_____	Total _____

4. What is the total estimated cost by fiscal year to any party subject to the proposed, amended, or repealed rule or regulation? Identify the party subject to the proposed regulation, and explain how they are affected.

Current Fiscal Year	**Next Fiscal Year**
None	None

5. What is the total estimated cost by fiscal year to the agency to implement this regulation?

Current Fiscal Year	Next Fiscal Year
$ 0	$ 0

EXHIBIT D

MEMORANDUM

TO: MIKE ROBINSON
CHIEF, SWM DIVISION

THROUGH: MARK FERGUSON MJF
CHIEF, LEGAL DIVISION

FROM: ANNE WEINSTEIN AW
STAFF ATTORNEY, LEGAL DIVISION

DATE: JUNE 11, 2008

RE: ANALYSIS OF PROPOSED CHANGES
FOR REGULATION NO. 11

Pursuant to Act 143 of 2007, a determination must be made whether or not the proposed changes to Regulation No. 11 will affect small business.

The proposed amendment incorporates legislative changes requiring the Arkansas Pollution Control and Ecology Commission to prioritize and authorize by Minute Order expenditures from the Landfill Post-closure Trust Fund, in excess of $50,000 per site, for corrective action to remedy environmental impacts closed disposal sites previously operated as a landfill pursuant to state law.

This provision will not have an affect on small business. Further, Act 143 of 2007 exempts from the required analysis rules that "substantially codify existing state or federal law." Since the change proposed in this rulemaking codifies into the regulation new state law as outlined above, this rulemaking should be exempt from the analysis required in Act 143 of 2007.

ECONOMIC IMPACT/ENVIRONMENTAL BENEFIT ANALYSIS

Answer to best of the proponent's ability, as required by APC&EC Regulation 8, Chapter 3.5

STEP 1: DETERMINATION OF ANALYSIS REQUIREMENT (to be included in petition to initiate rulemaking)

APC&EC REGULATION NO. 11
REGULATIONS FOR SOLID WASTE DISPOSAL FEES; LANDFILL POST-CLOSURE TRUST FEES; ILLEGAL DUMPS PROGRAM AND RECYCLING GRANTS PROGRAM
JUNE 2008 UPDATE

1A. Is the proposal expressly addressed by a Federal requirement? No.

If yes, see 1B.
If no, an Economic Impact/Environmental Benefit Analysis is not required.

1B. If 1A is YES, is proposed regulation equivalent, or more stringent, or less stringent than federal requirement? **N/A**

- If equivalent – Economic Impact/Environmental Benefit Analysis is not required
- If more stringent - Economic Impact/Environmental Benefit Analysis is required
- If less stringent - Economic Impact/Environmental Benefit Analysis is not required, but does require federal agency approval prior to adoption if the proposal is part of an authorized state program.

STEP 2: THE ANALYSIS (to be included in petition to initiate rulemaking, if required)

2A. ECONOMIC IMPACT

Not Required.

2B. ENVIRONMENTAL BENEFIT

Not Required.

EXHIBIT F

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

SUBJECT: Petition to Initiate Rulemaking Regulation No. 11

Docket No. 08- -R

MINUTE ORDER NO. 08-

On the 13th day of June, 2008, the Arkansas Department of Environmental Quality, ("ADEQ") filed a Petition to Initiate Rulemaking to Amend Regulation No.11, Regulations for Solid Waste Disposal Fees; Landfill Post-closure Trust Fees; Illegal Dumps Program; and Recycling Grants Program. Pursuant to Ark. Code Ann. § 8-4-202(c), the Arkansas Pollution Control and Ecology Commission ("Commission") has sixty (60) days in which to either institute rulemaking proceedings or to give written notice denying the petition for rulemaking. The Petition has been designated as Docket No. 08-___-R.

The Commission's Regulations Committee met on the 27th day of June, 2008, to review the Petition and it recommends that the Commission institute a rulemaking proceeding to consider adopting the proposed amendments to Regulation No. 11. The Regulations Committee also recommends adoption of the following procedures and schedule.

1. The Arkansas Department of Environmental Quality ("ADEQ") shall file an original and one (1) copy and a computer disk in Word of all materials required under this Minute Order. This requirement does not apply to transcripts.

2. Persons submitting written public comments shall submit them to ADEQ and ADEQ will deliver the originals of all comments to the Commission Secretary.

3. A public hearing shall be conducted on August 21, 2008 at 2:00 p.m. in the Commission Room at 5301 Northshore Drive, North Little Rock, Arkansas.

4. The period for receiving all written comments shall conclude ten (10) business days after the date of the public hearing, unless an extension of time is granted.

5. ADEQ shall file, not later than 14 days before the Commission meets to consider adoption of the proposed rule, a Statement of Basis and Purpose and Responsive Summary as required by Regulation No. 8, Part 3, Section 3.6.2(1), (2) and (3).

6. ADEQ shall file, not later than 14 days before the Commission meets to consider adoption of the proposed rule, a proposed Minute Order deciding this matter.

7. ADEQ shall seek review of the proposed rule from the Joint Interim Committee on Public Health and Welfare and/or from the Joint Interim Committee on Administrative Rules and Regulations.

8. The Regulations Committee and the Commission may consider this matter at their October 2008 meeting. In the event the appropriate legislative committees do not complete review of the proposed rule by the above date, the Regulations Committee and the Commission will consider the proposed amendments to the regulation after review by the appropriate legislative committees. Members of the Regulations Committee may ask questions of any persons that made oral or written comments and it will make a recommendation to the Commission.

9. At the Commission meeting, the presentation of oral statements and legal arguments will be regulated as follows:

a. The Chair of the Commission will permit members of the public to make a statement to the Commission. No more than three (3) minutes will be allowed for each statement. The period for statements will close at the end of one (1) hour, or sooner if all interested persons have completed their statements. At the discretion of the Chair, the one (1) hour oral statement period may be extended.

b. At the discretion of the Chair, an attorney representing one or more individuals, a corporation or other legal entity may be permitted five (5) minutes in which to address the Commission.

c. Department legal counsel or other designated Department employee shall be permitted ten (10) minutes in which to address the Commission.

d. At the conclusion of all statements, the Chair will call on each Commissioner for the purpose of asking the attorneys or persons sponsoring statements who are present, any questions they may have. Attorneys will not be permitted to respond or ask follow-up questions of any person questioned by a Commissioner.

After each Commissioner has had an opportunity to ask questions, the Chair will entertain a motion on the matter, allow discussion, and call for a vote of the Commission members.

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

SUBJECT: Petition to Initiate Rulemaking Regulation No. 11

Docket No. 08- -R

MINUTE ORDER NO. 08-

10. The Commission finds the proposed regulation is exempt from Act 143 of 2007 because the proposed rule is federally mandated or it codifies existing state law or federal law.

The Commission accepts the recommendation of the Regulations Committee and initiates the rulemaking proceeding in this docket. The Commission adopts, without modification, the procedural schedule set forth above.

COMMISSIONERS:

_____ **L. Bengal**	_____ **L. Sickel**
_____ **S. Henderson**	_____ **J. Simpson**
_____ **D. Hendrix**	_____ **W. Thompson**
_____ **C. McGrew**	_____ **E. Valdez**
_____ **D. Samples**	_____ **B. White**
_____ **J. Shannon**	_____ **R. Young**

_____

Chair, Thomas Schueck

Submitted by: Anne Weinstein DATE PASSED: _____

ARKANSAS WASTEWATER LICENSING COMMITTEE

MEMORANDUM

To: Pollution Control & Ecology Commission

FROM: Cindy Garner, Executive Secretary, AWLC

DATE: June 9, 2008

SUBJECT: Appointment to the AWLC

The Arkansas Wastewater Licensing Committee (AWLC), in a unanimous decision, voted to request that Kelly D. Bryant (Evergreen Packing, Inc.) Pine Bluff, Arkansas be appointed to the AWLC for a three year term.

Therefore, the AWLC respectfully requests that the Pollution Control & Ecology Commission appoint Ms. Bryant to the AWLC. The date of the appointment is August 1, 2008 through July 31, 2011.

Arkansas Licensing Committee

Mark Johnson, Chair
Rogers Water Utilities
479-621-1142
Fax 479-621-1146

Dennis Brunson
Hot Springs Utilities
501-262-1881, ext. 15
Fax 501-262-0339

Jennifer Bouldin, Ph.D
Arkansas State University
State University, AR. 72467
870-972-2570
Fax 870-972-2577

David Gross
Future Fuel Chemical
870-698-5692
Fax 870-698-3025

Michael McDaniel
Batesville Water Utilities
870-698-2442
Fax 870-698-2443

David Thomason
Arkadelphia Water & Sewer
870-246-0697
Fax 870-246-9546

Cindy Garner
ADEQ
501-682-0640

ARKANSAS POLLUTION CONTROL
AND ECOLOGY COMMISSION

LOCATION - SUBJECT
Appointment to the
Arkansas Wastewater
Licensing Committee

Docket No.

MINUTE ORDER NO. 08 -____

PAGE 1 OF 1

The Commission hereby appoints, Kelly D. Bryant, Evergreen Packaging Inc., Pine Bluff, Arkansas to a three year term on the Arkansas Wastewater Licensing Committee to commence August 1, 2008, and to expire July 31, 2011.

COMMISSIONERS

_____ **L. Bengal**	_____ **L. Sickel**
_____ **S. Henderson**	_____ **J. Simpson**
_____ **D. Hendrix**	_____ **W. Thompson**
_____ **C. McGrew**	_____ **E. Valdez**
_____ **D. Samples**	_____ **B. White**
_____ **T. Schueck**	_____ **R. Young**
_____ **J. Shannon**	

_____ SUBMITTED BY: Cindy Garner PASSED: _____

Chair

P.O. Box 2263
Pine Bluff, AR 71613

H: (870) 536-3766
W: (870) 541-5892
M: (501) 626-0660
Email: KB1113@aol.com

Kelly D. Bryant - REM, EI

Objective

To obtain a position in environmental compliance or process engineering that utilizes my educational background and job experience.

Experience

Evergreen Packaging Inc. (formerly International Paper) — **Pine Bluff, Arkansas**

Environmental Group Leader — **December, 2004 - Present**

- Responsible primarily for air (Title V) and solid waste compliance issues
- Prepare and submit quarterly, semi-annual, and annual environmental reports (Title V -Compliance, MACT, Tier II, Solid waste)
- Provide other plant environmental support as necessary
- Oversee ISO 14001 system, monthly reviews, and internal audits
- Served as lead auditor for Risk Management Plan/Process Safety Management audit

Stratcor, Inc. (formerly U. S. Vanadium Corporation) — **Hot Springs, Arkansas**

Environmental Manager/Process Engineer — **March, 1997- January, 2005**

- Responsible for securing and maintaining multi-media environmental permits (SIP/ Title V, NPDES, and mining) and plans (SWPPP, SPCC, RMP, EAP)
- Managed state environmental compliance inspections and supplier audits
- Submit monthly and annual environmental reports (DMR, Tier II, Form R, Waste)
- Provide plant technical and engineering support

Laboratory Manager — **March, 2000 - February, 2001**

- Responsible for scheduling of laboratory analysts, work assignments, review of performance goals, and budgetary targets
- Served as a liaison between the analytical laboratory and customers

Process/Environmental Engineer — **July, 1994 - March, 1997**

- Active in design, pilot testing and troubleshooting for $2.7 MM project to reduce ammonia levels reporting to plant effluent
- Utilized EPA air quality computer models and provided technical support for environmental permit applications

Education

May, 2003 — Webster University — Little Rock, Arkansas

- MS, Environmental Management, GPA: 3.92/4.0

May, 1994 — University of Arkansas — Fayetteville, Arkansas

- BS, Chemical Engineering (ChE) GPA: 3.13/4.0

Certifications/Training

- Registered Environmental Manager
- Engineer-In-Training
- Class I Wastewater Treatment License
- Industrial Wastewater License
- Certified Visible Emissions Evaluator
- Solid Waste License - Master
- DOT Hazardous Materials Course
- Hazardous Waste Course
- ISO 14001 Implementation Course
- OSHA Standards for General Industry 10 Hour Course
- TSCA Compliance Course

P.O. Box 2263
Pine Bluff, AR 71613

H: (870) 536-3766
W: (870) 541-5892
M: (501) 626-0660
Email: KB1113@aol.com

Kelly D. Bryant - REM, EI

Memberships/ Awards

- American Institute of Chemical Engineers – Past Chair, Central Arkansas Section
- American Institute of Chemical Engineers – Past Chair, National Career & Education Operating Council
- Arkansas Environmental Federation Board Member
- Arkansas Environmental Federation Board President, 2005-2006
- Delta Sigma Theta Sorority Incorporated – Chapter Vice President, 2006-2008
- Garland County Industrial Employee of the Year, 2000
- National Registry of Environmental Professionals (NREP)
- National Society of Black Engineers – Arkansas AE Chapter, Chair 2005-2007

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF EL DORADO JOINT PIPELINE GROUP PERMITS	**)** **)**	**CONSOLIDATED DOCKET NO. 07-006-P** **ORDER NO. 9**

RECOMMENDED DECISION

Appearances: Mr. Thomas D. Carruth, for Save the Ouachita and Kent Stegall; Mr. Charles R. Nestrud for El Dorado Water Utilities, Lion Oil Company, Great Lakes Chemical Company, and El Dorado Chemical Company; Ms. Jill M. Witkowski, Mr. Farris DeBoard, and Ms. Bronwen Reichle for Louisiana Environmental Action Network; Mr. Richard Mays, Ms. Megan Terrell, Mr. Ryan Seidemann, and Ms. Latonya L. Ozene for the State of Louisiana; and Mr. Dara Hall, Ms. Jamie Ewing, Mr. Benjamin Jones, and Mr. John Frase for the Arkansas Department of Environmental Quality.

I. INTRODUCTION

On February 28, 2007, the Arkansas Department of Environmental Quality ("ADEQ") issued a number of National Pollution Discharge Elimination System ("NPDES") permits. The first was Permit No. AR0050296 issued to El Dorado Water Utilities, El Dorado Chemical Company, Great Lakes Chemical Corporation, and Lion Oil Company. These four entities will be referred to collectively as the "Joint Pipeline Group" or "JPG." This permit is for a joint pipeline that will transport wastewater for the JPG to the Ouachita River. Second, ADEQ issued Construction Permit No. AR00049743C to El Dorado Water Utilities authorizing construction of the joint pipeline. Third, ADEQ modified each of the following individual NPDES permits: El Dorado Water Utilities Permit No. AR0049743, Lion Oil Company Permit No. AR0000647, Great Lakes Chemical Corporation Permit No. AR0001171, and El Dorado Chemical Company Permit No. AR0000752.

The parties described below seek a hearing on these permits.

II. JURISDICTION

The Arkansas Pollution Control and Ecology Commission ("Commission") has jurisdiction over this matter pursuant to Arkansas Code Annotated §§ 8-1-203(b)(4).

III. STANDARD OF PROOF

The standard of proof in administrative proceedings is the preponderance of evidence standard. *Johnson v. Arkansas Board of Examiners in Psychology, 305 Ark. 451, 455, 808 S.W.2d 766 (1991).*

IV. FINDINGS OF FACT

On November 16, 2004, the JPG submitted an NPDES permit application to ADEQ for the El Dorado Joint Pipeline Project. On the same day, El Dorado Water Utilities ("EDWU") submitted an application to build a pipeline designed to carry its own treated wastewater and that of Lion Oil Company ("Lion"), Great Lakes Chemical Company – Central Plant ("GLCC"), and El Dorado Chemical Company ("EDCC") to the Ouachita River.

On September 20, 2004, Lion submitted an application to modify NPDES Permit Number AR0000647. On October 5, 2004, GLCC submitted an application to modify NPDES Permit Number AR0001171. On October 7, 2004, EDCC submitted an application to modify NPDES Permit Number AR0000752. On November 16, 2004, EDWU submitted an application to modify NPDES Permit Number AR0049743.

On March 22, 2006, ADEQ issued a public notice regarding the draft permits and on May 18, 2006, it held a public hearing to take comments on them. ADEQ extended the deadline for submitting written comments to June 21, 2006, and it received numerous comments.

The joint pipeline will discharge into an unidentified reach in Segment 2D of the Ouachita River. The Thatcher Lock and Dam are located above the discharge point and the Felsenthal Lock and Dam are located below the discharge point on the Ouachita River.

Treated wastewater from Georgia-Pacific and the City of Crossett are discharged from Coffee Creek, which flows into the Ouachita River. The Ouachita River crosses the Arkansas-Louisiana state line a few miles below the Felsenthal Lock and Dam. Louisiana is approximately 60 miles south of the discharge point. The Columbia Lock and Dam are located in the State of Louisiana.

The JPG employed GBM^{c} & Associates ("GBMc"), an environmental consulting firm, to evaluate the water quality impacts of the pipeline discharge on the Ouachita River and Felsenthal. Mr. Greg Phillips did all the modeling for the JPG. His evaluation was performed through the use of the MULTI-SMP, QUAL2K, WASP, and AQUATOX water quality models.

The MULTI-SMP model was used to establish the permit limits for the oxygen demanding pollutants in the pipeline permits. The MULTI-SMP model covered a 20 mile stretch of the Ouachita River where the

impacts of the joint pipeline on dissolved oxygen were predicted to occur.

The QUAL2K model modeled the impacts of nutrients in the Ouachita River, and was used as a comparison to the dissolved oxygen results derived from the MULTI-SMP model. The QUAL2K model extended significantly further downstream than the MULTI-SMP model, covering a 73 mile stretch of the river beginning just upstream of where Smackover Creek joins with the Ouachita River and terminating one mile downstream of the Felsenthal Lock and Dam, which is just upstream of the Georgia-Pacific paper mill discharge at Coffee Creek.

The WASP model was used to understand in-lake nutrient dynamics and their effect on the systems ecology. The model was developed for Crooked-S Slough and field data was collected and used to calibrate the model to dissolved oxygen, nutrients (nitrogen and phosphorus), and chlorophyll-a under summer season conditions, and late winter and early spring conditions.

The AQUATOX model was used because it could simulate the impact the proposed pipeline effluent would have on the growth of rooted aquatic macrophytes in Crooked-S Slough. This issue was addressed because excessive aquatic vegetation is a problem in the Felsenthal National Wildlife Refuge (“Felsenthal”) and there was a concern whether the nutrients from the pipeline might make that problem worse.

Lion operates a 70,000 barrel per day refinery in El Dorado and it discharges treated wastewater into Loutre Creek, which has extremely low flow under normal conditions. Lion is having a problem with meeting zinc and selenium limits that were put in its permit.

EDCC operates an ammonium nitrate, nitric acid and sulfuric acid manufacturing facility. In 2004, EDCC's NPDES permit was renewed, which included more restrictive permit limits for ammonia and nitrate with a three year compliance period. EDCC is authorized to construct its own wastewater pipeline to discharge its treated effluent directly to the Ouachita River. It wants to have the flexibility of other options in the event new permit conditions make discharging into the creek infeasible in the future.

EDWU has two treatment plants. The North Plant discharges into Flat Creek and the South Plant discharges into Bayou D'Loutre Creek. *Reynolds, Tr. 860-861.* In 2003, EDWU received an NPDES permit authorizing it to build its own wastewater pipeline to the Ouachita River. The cost for EDWU to build its own wastewater pipeline to the Ouachita River is between $12 and $16 million. EDWU is participating in the joint pipeline because of the overwhelming capital costs of building its own pipeline.

GLCC operates a chemical manufacturing plant in El Dorado, Arkansas.

EDWU, EDCC, Lion and GLCC face regulatory requirements that have or will impose more restrictive permit limits on them due to their discharging into small streams. For Lion and GLCC, new metal limits are their concern. For EDWU and EDCC, new ammonia criteria are the problem. The joint pipeline is a feasible option for each of them to comply with the permit limits that have been and will be applied to their wastewater discharges.

On February 28, 2007, ADEQ issued the joint pipeline permit which allows the JPG to discharge 20 million gallons of wastewater a day into the Ouachita River. ADEQ also issued modifications to each individual permit allowing the discharge of wastewater to the Ouachita River through the joint pipeline. Finally, ADEQ issued EDWU a construction permit to build the joint pipeline.

On March 26, 2007, Save the Ouachita and Kent Stegall (collectively "STO") filed a Third-Party Request for Commission Review and Adjudicatory Hearing, which was Docket No. 07-006-P.

On March 28, 2007, the JPG filed a Request for Adjudicatory Hearing and Commission Review and Petition for Declaratory Order, which was Docket No. 07-007-P.

On March 29, 2007, the State of Louisiana ("Louisiana") filed a Request for Commission Review and Adjudicatory Hearing, which was Docket No. 07-008-P. Louisiana is made up of Attorney General Charles C. Foti, Jr., the Louisiana Department of Environmental Quality, the

Louisiana Department of Culture, Recreation & Tourism, and the Louisiana Department of Wildlife and Fisheries.

On March 30, 2007, Louisiana Environmental Action Network ("LEAN") filed a Third Party Request for Commission Review and Adjudicatory Hearing, or in the Alternative, Petition for Intervention, which was Docket No. 07-009-P.

On March 30, 2007, the Arkansas Municipal League ("AML") filed a Motion to Intervene in Permittees' Petition for Declaratory Order.

The administrative hearing officer ("AHO") entered Order No. 2 which consolidated these cases under Consolidated Docket No. 07-006-P. Order No. 3 granted AML's request to intervene.

The hearing began on October 29, 2007 and concluded on November 6, 2007, after seven days of testimony and the introduction of 121 exhibits. All post-hearing briefs were submitted by January 28, 2008.

V. DISCUSSION AND CONCLUSIONS OF LAW

A. ISSUES RAISED BY STATE OF LOUISIANA, LOUISIANA ENVIRONMENTAL ACTION NETWORK, AND SAVE THE OUACHITA AND KENT STEGALL

Issue 1 - Review and comment

Louisiana argues it did not have sufficient opportunity to review and comment on the data on which the permits were based and to comment on the terms of the permits. Louisiana made comments that faulted GMBc's methods, findings and statements in GMBc's reports, and it requested that GMBc do more field work or change its reports. Louisiana also points out that it only had five days to review GMBc's

Revised Final Report dated February 20, 2007, before the permits were issued on February 28, 2007. ADEQ's failure to provide Louisiana with the data it requested violated a basis tenant of administrative procedure, which was providing Louisiana with a realistic opportunity to present meaningful comments.

The evidence in this case does not support Louisiana's claim. The record clearly reflects that Louisiana began commenting on GBMc's modeling work in 2005. *Louisiana Exhibit-23 ("LA-").* It requested information on GBMc's modeling work at least seven times and on four occasions asked ADEQ to defer issuance of the pipeline permit. *LA-1, 2, 3, 4, 6, 7, 8, 9, 10, 13, 14, and 23; T. Vol. 1, 70-83.* Louisiana submitted comments and questions to ADEQ regarding the April 13, 2006, Interim Report. *LA-25; Joint Exhibit-12 ("JX-").* It also submitted comments on the draft permits by the extended public comment deadline of June 21, 2006. *JX-7 at 1, 35.*

GMBc's Nutrient Modeling Report ("Final Report") is dated June 1, 2006. *JX-13.* On July 10, 2006, Louisiana commented on the Final Report and asked for more data used in the report and for a 90-day extension of the comment period to make more extensive comments. *LA-7.* On July 17, 2006, Louisiana received three QUAL2K electronic files for the Final Report. *T. Vol. 2, 176, 231.* This information was provided almost seven months before the permits were issued in February 2007.

ADEQ reviewed the June 1, 2006 Final Report and asked GBMc, on December 5, 2006, to address several issues regarding the model geometry. These issues raised by Louisiana. *Joint Pipeline Group Exhibit-130("JPG-").*

On February 13, 2007, GBMc submitted to ADEQ a Revised Nutrient Modeling study regarding the Ouachita River geometry and letter of explanation. *JX-15 and JPG-133.* This revision to the June 2006 Final Report was based on river depth information and it readjusted the reach lengths as recommended by ADEQ and by Louisiana. GMBc ran the model and it showed the impact of the pipeline on water quality was basically the same as in the Final Report of June 1, 2006. *T. Vol.9, 1291-1292.*

On February 15, 2007, ADEQ asked Louisiana to review the Revised Final Report and provide ADEQ with comments by February 20. On February 16, Louisiana told ADEQ it could not review the report and provide comments by February 20. It asked for an electronic copy of the final modeling run and stated that it would not withdraw its objections to the issuance of the permit for the proposed pipeline. *LA-13; T. Vol. 2, 196.* ADEQ issued the joint pipeline permit on February 28, 2007. *JX-1.* Louisiana obtained the electronic version of the modeling for the Revised Final Report on May 9, 2007. *T. Vol. 198.*

Mr. Richard Duerr is an environmental chemical specialist for the Louisiana Department of Environmental Quality ("LDEQ"). *T. Vol. 1, 122, 126.* In August 2006, he announced to the Environmental Protection Agency ("EPA") and ADEQ that he was going to do modeling that would assess the impacts of the pipeline in Louisiana. *JPG-218; T. Vol. 229-230.* He planned to model from Smackover Creek in Arkansas to Columbia Dam in Louisiana. However, LDEQ did not give him permission to do the modeling. Louisiana's objections to GMBc's models address what Louisiana thinks was left out of the models. Duerr admitted he could not make a judgment as to what results he would have gotten had he done his own modeling. *T. Vol. 230, 269-270.*

The AHO finds that Louisiana has participated in the permitting process by obtaining information and commenting on the modeling performed by GMBc and by commenting on the permits. However, Louisiana did no modeling of its own in order to verify or contradict the result in GMBc's modeling reports or to show that the permit limits would have an adverse impact on Louisiana. Based on Louisiana's prior actions, the AHO has no reason to believe that Louisiana would have submitted any meaningful comments on the Revised Final Report had it been given additional time in which to review it. The AHO concludes that Louisiana had sufficient opportunity to make, and it did make, meaningful comments on the modeling reports and the draft permits.

Issue 2 - Response to comments

ADEQ is required to respond to each issue raised in public comments. *Ark. Code Ann. § 8-4-203(d)(2)(A)(i).* Louisiana claims that ADEQ failed to respond to Louisiana's comments on the draft permits.

Louisiana failed to identify any issue to which ADEQ failed to respond. The record reflects that ADEQ prepared a response to all the issues raised in public comments. *JX-7.* The AHO concludes that ADEQ complied with the statute.

Issue 3 - Response to recommendations

Louisiana maintains that ADEQ failed to notify Louisiana of why ADEQ did not accept its recommendations. 33 U.S.C.A. § 1342(b)(5) states:

> To insure that any State (other than the permitting State), whose waters may be affected by the issuance of a permit may submit written recommendations to the permitting State (and the Administrator) with respect to any permit application and, if any part of such written recommendations are not accepted by the permitting State, that the permitting State will notify such affected State (and the Administrator) in writing of its failure to so accept such recommendations together with its reasons for so doing;

There is no evidence that Louisiana made any recommendations that would change the permit. The only recommendation it made was that additional time be given to comment prior to ADEQ making a decision on the permit applications. *Louisiana Post-Hearing at 9 and 16.* ADEQ did not accept this recommendation. Louisiana insists that since ADEQ

failed to give a reason for its decision, it violated 33 U.S.C.A. § 1342(b)(5). Louisiana did not cite any case law that a request for an extension of time is the same as a recommendation.

ADEQ and JPG argue that "recommendation," under the Clean Water Act, must relate to the proposed standards in the permit. *International Paper Co. v. Ouellette,* 479 U.S. 481 (1987). ADEQ and JPG contend that a recommendation to delay the issuance of a permit is not the type of recommendation envisioned by the Clean Water Act.

Mr. Mo Shafii is assistant chief of the water division. *T. Vol. 11, 1854.* He testified that he had several conversations with Louisiana and asked what it recommended for the permit. He asked what loading rate should be in the permit and asked if there was a problem with the phosphorus. Louisiana did not give him any answers. *T. Vol. 11 at 1866-1867, 1910.*

The evidence shows Louisiana did not make any recommendations regarding changes to the draft permit which would have required ADEQ to respond. There is no legal authority cited that supports Louisiana's assertion that an extension of the comment period is the same as a "recommendation." The AHO rejects this argument and concludes that ADEQ did not violate 33 U.S.C.A. § 1342(b)(5).

Issue 4 - Rationale for permitting decision

Louisiana argues that ADEQ did not "provide a written explanation of the rationale that the permits and their effluent standards are

based on generally accepted scientific knowledge and engineering practices." *Post-Hearing Brief at 16.* Arkansas Code Annotated § 8-4-203(d)(2)(B)(i), states:

> In the case of any discharge limit, emission limit, environmental standard, analytical method, or monitoring requirements, the record of the proposed action and the response shall include a written explanation of the rationale for the proposal, demonstrating that any technical requirements or standards are based upon generally accepted scientific knowledge and engineering practices.

Louisiana states that the permits are based upon highly flawed modeling techniques and the information derived is unreliable and useless. GMBc's modeling of the Ouachita River did not rise to the standard of "generally accepted scientific knowledge and engineering practices."

Mr. Duerr testified that the purpose of modeling is to represent the body of water as it actually exists at the time the modeling is done. Dams are important because they turn a free-flowing body of water into a series of pools and slow down the velocity of the water. The absence of dams will decrease the travel time in the model. First, you must get the hydrology correct in putting together a water quality model. If the dams are not included in the model, then the hydrology of the river will not be properly represented and the model will be invalid. Duerr testified the model is used to calculate allocations for dischargers. The allocations probably would be

affected because the model depends on the hydrology of the river. *T. Vol. 2, 201-202.*

Mr. Greg Phillips is employed by GMBc as senior scientist and he did all the modeling for the JPG. *T. Vol. 1208.* He used QUAL2K, WASP, and AQUATOX models in developing the Final Report, dated June 1, 2006. The QUAL2K model covered approximately 73 miles of the Ouachita River, beginning just upstream of the confluence with Smackover Creek and terminating one mile downstream of Felsenthal. Trapezoidal channel geometry for the Ouachita River was developed from field data collected by GBMc from the mid-section of the river which covered 20 miles. HEC-RAS data files from the Corps of Engineers ("COE") for the Ouachita River were used to support the field data collected by GBMc and to confirm its consistency with the channel geometry to specify water surface elevations in the development of channel slope. *JX 13, at 53-54.*

The river depths GMBc used in the QUAL2K model was based on the same field data that it had collected to run the MULTI-SMP model. *T. Vol. 9, 1283-1284*. After issuance of the Final Report on June 1, 2006, Louisiana was concerned that the depths GMBc used didn't match the HEC model that showed the river to be much deeper. GMBc did not think this was a big concern and so it deepened the river three or four feet from start to finish, recalibrated the model and ran it.

The results were pretty much the same as they had been in the Final Report. *T. Vol. 9, 1283-1285.*

On December 5, 2006, ADEQ notified GMBc that it was still concerned about model geometry. GMBc contacted the COE to find out why the HEC model they gave to GMBc predicted depths different than what Louisiana had. The COE did not know why there would be a difference. The river depths contained in the COE HEC-2 model was developed in the early 1980's. *T. Vol. 9, 1286-1288.* Phillips testified that GMBc did not use the HEC model river depths because it had measured the depths of the river and the data was much newer than the 1980 data.

After GMBc received validation from the COE that the HEC-RAS model it had was the right model, GMBc ran the model. This model contained all the COE river depth information and the reaches were readjusted as recommended by ADEQ and Louisiana. The result was the Revised Nutrient Modeling Study dated February 13, 2007. *JX-15. T. Vol. 9, 1291.* The results were pretty much the same as the results in the Final Report of June 1, 2006. GMBc used the HEC modeling reach by reach, so every reach had a different depth. The river became slightly deeper downstream. The model showed it was not sensitive to river depth. *T. Vol. 9, 1292-1293.*

The parties conducted discovery prior to the hearing. During discovery, Louisiana disclosed that the version of the model provided

to GBMc by COE improperly excluded the impact of the Thatcher and Felsenthal dams on river depth. *LA-21; T. Vol. 2, 203-206*. As a result, the river depths that the COE model predicted were off by a few feet in some reaches of the river. GBMc discussed this with the COE and the COE concluded that the model it gave GMBc actually did not represent the dams hydraulically. *T. Vol. 9, 1295.*

In order to respond to the modeling issues raised by Louisiana, Phillips prepared a work plan showing that GMBc would go back to the Ouachita River and do additional transects in each of the reaches. No party objected to the plan. In August 2007, GMBc went to the river and did transect up and down the river from near Smackover Creek down to Felsenthal. It measured the river that it had not measured previously. Phillips compared the new river depth information to what had been used previously and found the depths were slightly deeper in the same reaches that had been measured previously. For the sections of the river it had not done detailed survey work, it found the river depths were deeper than the stretch of the river previously surveyed. The reason was that the COE had done a lot of dredging in the spring and winter of 2007. *T. Vol. 9, 1305-1307; JX-16.* The river depth data Phillips used is contained in: Report of Additional River Depth Field Data ("Revised Report"). Phillips used the field data to run the QUAL2K model and he recalibrated the model to fit what had been found. The depth data did not have much of a bearing because the

results of the model were insignificantly different than what had found before. *T. Vol. 9, 1308.*

Mr. Duerr testified that field data was the most reliable source of river depth inputs for the QUAL2K models. He preferred field data to the COE HEC model because that model is based on field data that is about 20 years old. He thought that collecting additional field data to generate additional river depths "would be a very good idea." He also agreed that once the river depths are worked out through a sufficient number of field measured cross sections, the modeling issues would be resolved. *T. Vol. 2, 234, 237.*

Louisiana did not present any modeling evidence to show that the river depths found by GMBc were so fatally flawed as to be useless. The AHO finds the impacts of the Thatcher and Felsenthal dams were taken into account in the modeling, even though one run of the QUAL2K model used the COE HEC model that produced incorrect river depths. GMBc addressed this concern by taking additional river depth measurements and running the QUAL2K based on the new data and the difference in river depths did not impact the results of the MULTI-SMP or other QUAL2K models. Based on Phillips' modeling results, the AHO finds the modeling of the Ouachita River and Felsenthal clearly meets the standard of "generally accepted scientific knowledge and engineering practice."

Arkansas Code Annotated § 8-4-203(c)(2)(B)(ii) states in part: "For any standard or requirement that is identical to a duly promulgated and applicable regulation, this demonstration may be satisfied by reference to the regulation." The AHO finds that the phosphorus permit limit set out in the joint pipeline permit is identical to the requirements of Regulation No. 6, Section 6.402. The AHO concludes that this permit limit complies with the statutory requirement set out above.

The AHO also finds that ADEQ's Response to Comments references scientific and engineering literature and written studies that supports the permit limits set out in the joint pipeline permit. *JX-7, Response #3 (page 5); Response #6a (page 6); Response #7 (page 7); Response #9a (page 10); Response #10a (page 11); Response #11d (page 13); Response #13a (page 15); Response #14c (page 17); Response #18e,f (page 24); Response #20b, c, e, f, h, i, j (pages 31-33); Response [to Louisiana comment] #21a (page 36); Response #22b, d, f (pages 36-37); and Response #44a-l (pages 64-66).*

The AHO concludes that ADEQ complied with the provisions of Ark. Code Ann. § 8-4-203(d)(2)(B)(i) and (ii).

Issue 5 - Compliance with Louisiana's water quality standards

a. 33 U.S.C. § 1341(a)(2)

The National Pollution Discharge Elimination System ("NPDES") permit was established to control the nature and quantity of the

discharge of pollutants into waters of the United States. *33 U.S.C. §§ 1311(a), 1342.* Louisiana, LEAN and STO argue that ADEQ failed to ensure that the pipeline discharge would not violate Louisiana's water quality standards. The state issuing the permit must consider the effect of the discharge upon the water quality of its own receiving waters and it must determine the potential effect upon the water quality of downstream states that may be affected by the discharge. They rely on 33 U.S.C. § 1341(a)(2), which states, in relevant part:

> Whenever such a discharge may affect, as determined by the Administrator, the quality of the waters of any other State, the Administrator ... shall so notify such other State, the licensing or permitting agency, and the applicant. If, within sixty days after receipt of such notification, such other State determines that such discharge will affect the quality of its waters so as to violate any water quality requirements in such State, and within such sixty-day period notifies the Administrator and the licensing or permitting agency in writing of its objection to the issuance of such license or permit and requests a public hearing on such objection, the licensing or permitting agency shall hold such a hearing. The Administrator shall at such hearing submit his evaluation and recommendations with respect to any such objection to the licensing or permitting agency. Such agency, based upon the recommendations of such State, the Administrator, and upon any additional evidence, if any, presented to the agency at the hearing, shall condition such license or permit in such manner as may be necessary to insure compliance with applicable water quality requirements. If the imposition of conditions cannot insure such compliance such agency shall not issue such license or permit.

ADEQ and JPG argue the responsibility to approve or disapprove a permit that might impact the water quality of a downstream affected state lies with EPA. In *International Paper Co. v. Ouellette*, 479

U.S. 481, 490-491 (1987), the United States Supreme Court stated that an affected state may not block the issuance of a permit, but it may apply to the EPA Administrator, who has the discretion to disapprove the permit. The procedures for resolving disputes between the permitting state and the affected state are set out in 40 CFR 123.44.

The evidence shows that ADEQ relied upon EPA Region 6 to ensure the permit would not violate Louisiana's water quality standards. *T. Vol. 11, 1810.* ADEQ's Memorandum of Agreement with EPA requires ADEQ to submit permits to EPA for review, which it did. *JPG-174-175; T. Vol. 11, 1902.* ADEQ had extensive communications with EPA about the multiple discharges going into the pipeline. EPA initially had some specific objections to the pipeline permit, but it withdrew them and approved the permit. *ADEQ 23; T. Vol. 11, 1647, 1653, 1903*.

The AHO finds no evidence that Louisiana submitted any formal objections to EPA or requested a public hearing. There is no evidence that Louisiana identified any specific water quality standards it wanted ADEQ to examine. There is no evidence that Louisiana made any recommendations to ADEQ or EPA for changes in the joint pipeline permit. ADEQ sought approval of the pipeline permit from EPA and EPA approved it. The AHO concludes that ADEQ did not violate 33 U.S.C. § 1341(a)(2).

b. 40 C.F.R. § 122.4(d)

Louisiana, LEAN and STO argue that federal and state regulations prohibit the issuance of an NPDES permit "[w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States." *40 CFR 122.4(d) and Reg.6.104(A)(3).* They rely on Oklahoma's challenge to an EPA issued NPDES permit that authorized the City of Fayetteville to discharge effluent into the Illinois River which goes into Oklahoma. *Arkansas v. Oklahoma,* 503 U.S. 91, 112 S. Ct. 1046 (1992). The United States Supreme Court held it was a reasonable exercise of EPA's discretion to require Arkansas to comply with Oklahoma's water quality standards.

Louisiana, LEAN and STO assert that ADEQ failed to examine the impact of the pipeline discharges on Louisiana's water quality standards. Phillips' modeling did not go to the Arkansas-Louisiana state line and was limited "to allow predictions" below the Felsenthal Lock and Dam only for a distance of one mile. *T. Vol. 2, 174-175; Vol. 9, 1411-1412, 1418, 1420.* The modeling stopped before the influx of Coffee Creek, which dumps wastewater from a pulp and paper mill into the Ouachita River. *T. Vol. 9, 1406*. ADEQ did not examine what impact of the pipeline discharge combined with the existing discharges from the pulp and paper mill would have on Louisiana's water quality. *T. Vol. 4, 496; Vol. 9, 1413.* ADEQ does not know what impact these

discharges will have on dissolved oxygen and nutrients and therefore it cannot ensure compliance with Louisiana's water quality standards.

i. Dissolved oxygen

The MULTI-SMP and QUAL2K models were used to simulate the impact of the pipeline discharge on the Ouachita River. The MULTI-SMP assessed the impacts of oxygen demanding pollutants on the dissolved oxygen in the receiving stream. *T. Vol. 11, 1766, Vol. 8, 1217*. The MULTI-SMP model covered a 20 mile stretch of the Ouachita River. *T. Vol. 9, 1376.*

Mr. Martin Maner, former chief of the water division, testified the MULTI-SMP model was a conservative model and it was appropriate for establishing the loading rates for the oxygen demanding pollutants. *T. Vol. 11, 1638, 1662,* 1766. The MULTI-SMP model demonstrated that the dissolved oxygen in the Ouachita River would be maintained above the water quality standard of 5.0 mg/L with the pipeline discharge. It also showed that dissolved oxygen levels would return to normal background conditions long before the effluent reached Felsenthal. *T. Vol. 11, 1768.*

Neither Louisiana nor LEAN or STO prepared a MULTI-SMP model to demonstrate that pipeline discharge would violate the dissolved oxygen standard in Louisiana. The AHO finds the MULTI-SMP model prepared by Phillips demonstrates the pipeline discharges will not cause a violation of the dissolved oxygen water quality standard in the

Ouachita River. The AHO finds that the results of the MULTI-SMP model made it unnecessary ADEQ or GMBc to model the pipeline discharge impact on dissolved oxygen into Louisiana. The AHO concludes that ADEQ was not required to impose conditions in the pipeline permit to ensure compliance with Louisiana's water quality standards.

ii. Nutrients

The QUAL2K model evaluated the impacts of nutrients in the Ouachita River and was used as a comparison to the dissolved oxygen results derived from the MULTI-SMP model. The model covered a 73 mile stretch of the river beginning at the discharge point and terminating one mile downstream of the Felsenthal Lock and Dam. *JX-13.* In a letter to ADEQ on April 29, 2005, LDEQ requested that the modeling extend only to the Felsenthal Lock and Dam. *JPG 221; T. Vol. 1, 99*. Consistent with that request, Phillips prepared the work plan for additional modeling. It provided that "data collection and subsequent modeling will be completed on multiple stations," the last of which was station OUA-3, located "just upstream of the Felsenthal Lock and Dam." *JX-10 at 2*. Duerr testified that how far downstream the modeling should extend is a judgment call. *T. Vol. 2, 245.*

The QUAL2K model for the Ouachita River predicted elevated phosphorus and nitrogen levels a few miles above the Arkansas-Louisiana state line. *JX 13, Fig. 6.18 and Fig. 6.26.* ADEQ

acknowledged the model predicted increased nutrients above the Arkansas-Louisiana state line. *T. Vol. 12, 2039*.

The Ouachita River in Louisiana is listed as impaired for dissolved oxygen and is on a court ordered 303d list as impaired due to nutrients. *LEAN-18 at ii*. EPA and Louisiana prepared a Total Maximum Daily Load ("TMDL"). *LEAN-18*. The nutrient modeling done for the Louisiana TMDL shows the water quality of the Ouachita River is not significantly impacted by increased nutrient levels in the Ouachita River. *LEAN-18 at 17*. As a result, no load allocation was prepared for nutrients in the Ouachita River and nutrients are not regulated in NPDES permits that authorize discharges into the Ouachita River in Louisiana. *LEAN-18; T. Vol. 3, 437-438*. Louisiana does not even put nutrient limits in the permits it issues for discharges into the Ouachita River in Louisiana. *T. Vol. 12, 2146; T. Vol. 12, 1936*.

Mr. Michael Corn testified for the JPG. He is a consultant for Aquaeter, an environmental consulting firm. *T. Vol. 1925.* Corn did the modeling work that was a source of information for the Louisiana TMDL. He testified that the Ouachita River actually needs nutrients to have a healthy algae population because without nutrients, the Ouachita River would have lower dissolved oxygen. This is reflected in the TMDL study that was accepted by ADEQ, LDEQ and EPA. *T. Vol. 12, 1933-1934.* Louisiana regulates the oxygen demanding materials in the Ouachita River (CBOD and ammonia) and has found that they do not

need to regulate nutrients in the Ouachita River. Louisiana does not put nutrient limits in their NPDES permits for discharges into the Ouachita River. *T. Vol. 12, 1936.*

The QUAL2K water quality modeling of the Ouachita River showed that the slight increase in nutrients from the pipeline actually raised the dissolved oxygen in the Ouachita River. *JX-16, Fig. 3.13, at 16*. Maner testified that he was not particularly concerned with the impact of nutrients on the Ouachita River because phosphorus is not generally a problem in free flowing streams like the Ouachita River. *T. Vol. 11, 1655.*

There is no evidence that increased nutrients from the joint pipeline discharge will cause a violation of any water quality standard applicable to the Ouachita River in Louisiana. Therefore it was not necessary for ADEQ to impose conditions in the pipeline permit to ensure compliance with Louisiana's water quality standards. The AHO concludes that the joint pipeline permit was not issued in violation of 40 C.F.R. § 122.4(d).

Issue 6 - Mercury

a. Mercury TMDL

LEAN and STO contend the joint pipeline permit and individual permits are illegal because they contain mercury limits that do not comply with the mercury TMDL. 40 C.F.R. § 122.4(i) prohibits the issuance of an NPDES permit "[t]o a new source or a new discharge, if

the discharge from its construction or operation will cause or contribute to the violation of water quality standards." In order for ADEQ to allow the discharge of mercury, the JPG had to show, before the close of the comment period, that there is mercury available under the TMDL to allocate to the individual permits and the joint pipeline permit. Neither the JPG nor ADEQ have shown that the joint pipeline permit or individual permit mercury limits comply with the mercury TMDL.

Mr. Barry Sulkin, an environmental consultant, testified for LEAN and STO that the pipeline permit does not comply with the mercury TMDL because all the mercury in the TMDL has been assigned to other entities. The mercury TMDL allocates to all point sources in the Ouachita River 942 grams per year. This is the mercury budget for all point sources. The joint pipeline permit allows 2400 grams per year in addition to the 942 grams per year. The joint pipeline permit assigned more than all of the pieces of the pie which was a violation of the TMDL regulations. *T. Vol. 3, 347, 364-366.* Sulkin testified that Lion, EDCC, and GLCC should receive a zero allocation until the TMDL is re-written to allocate an amount of mercury to those facilities. *T. Vol. 5, 748*.

EPA employed FTN Associates, an engineering and environmental consulting firm to prepare the mercury TMDL for the Ouachita River. *T. Vol. 5, 618-619.* There was a problem with mercury bioaccumulating,

or building up, in fish tissues in the Ouachita River. The level of mercury in fish flesh exceeded the fish consumption action level of 1 mg/kg, which violated the narrative water quality standard that the waters be fishable. *T. Vol. 5, 628-629*. The major sources of mercury identified in the TMDL are natural (geologic and soils) and atmospheric (air emissions). *T. Vol. 5, 652*. EPA established a TMDL for mercury in the Ouachita River in both Arkansas and Louisiana and it was finalized on December 18, 2002. *JX-8.*

Dr. Kent Thornton of FTN Associates prepared the TMDL for the Ouachita River. *T. Vol. 5, 618-619.* A TMDL looks at the criteria that is established and determines what load reductions are required to be at or below that value. *T. Vol. 5, 626, 634.* The TMDL identified 176 facilities with NPDES permits within the Ouachita River watershed, 43 of which were municipalities. Only one industrial NPDES permit had a mercury limit and none of the municipal treatment plants had a mercury limit. The TMDL allocates 356 grams per year for Ensco and 586 for city wastewater treatment facilities or a total of 942 grams. *T. Vol. 5, 646-647, JX-8 at Table 4-14.* There were more point sources than those included in the allocation but Thornton did not have any information on the other point sources and therefore they were not included in the TMDL. *T. Vol. 5, 647-648.* EPA did not ask Thornton to investigate the other NPDES sources to determine whether

there was mercury in their effluent or how much because EPA's focus was on the predominant sources. *T. Vol. 5, 658*.

Dr. Thornton testified the TMDL does not state that there should be no mercury allowed under NPDES permits. *T. Vol. 5, 637*. It is not the intent of Table 4.14 that industrial sources not included in the TMDL are to have no mercury allocation. *JX-8.* The mercury TMDL for point sources allows the permitting of 12 nanograms per liter as required by Regulation No. 2. *T. Vol. 5, 655, 660; JX-8 at 4-13.* Thornton testified that, as far as the TMDL was concerned, other point sources were not to exceed the water quality standard of 12 nanograms per liter. *T. Vol. 5, 675-676.*

The mercury permit limit was put in the permit because of the fish advisory. *T. Vol. 11, 1757.* It was set to insure that the pipeline discharge remained in compliance with the mercury water quality standard of 12 nanograms per liter. *T. Vol. 11, 1850*. Maner testified that basing a permit limit on 12 nanograms per liter would be protective of bioaccumulation. *T. Vol. 11, 1850.* He also testified there is no mercury in the effluent of any of the pipeline discharges according to the level of detection. *T. Vol. 11, 1850.*

The AHO finds that the mercury TMDL for the Ouachita River does not include all point sources such as Lion, GLCC or EDCC because FTN did not have information that there was mercury in their effluent. The TMDL did not allocate any mercury limit to these and other point

sources. The AHO finds no legal authority that prohibits ADEQ from issuing a permit with a mercury limit for entities that were not included in the TMDL study. The water quality standard of 12 nanograms per liter is protective and it has been adopted in Reg.2.508. The AHO concludes the mercury limits in the pipeline permit and individual permits do not violate the mercury TMDL.

b. Toxic substances

Felsenthal provides ideal conditions for mercury "methylation," which is the changing of metal mercury into methyl mercury. Methyl mercury is toxic to fish, animals, and humans. *T. Vol. 5, 594, 596-597, 599-600.* Once methyl mercury is in the food chain, those higher up the food chain receive exponentially more mercury than those lower in the chain as larger fish consume many small mercury-contaminated fish. *T. Vol. 5, 631.*

LEAN and STO contend the pipeline permit allows the discharge of mercury into the Ouachita River, which will be toxic to humans, animal, plant or aquatic life. This action violates Reg.2.508, which states:

> Toxic substances shall not be present in receiving waters, after mixing, in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of the indigenous aquatic biota.

Mr. Roland McDaniel, a senior scientist at GMBc testified about the toxicity issue. *T. Vol. 1122-1123.* A mixing zone is an area

where an effluent can mix in the receiving stream. T. 1125. Inside the mixing zone is a zone of initial dilution where the concentrations can exceed the water quality standard. In other words, you cannot see dead floating fish. *T. Vol. 8, 1126.*

The Continuing Planning Process ("CPP") uses the third round toxics implementation strategy that comes from EPA. *T. Vol. 8, 1126-1127.* The pipeline permit implements the third round strategy with a monthly monitoring test to assure no toxics are being discharged in toxic amounts. The organisms, a fathead minnow and a water flea, are exposed to the effluent and if you fail, you must determine what is causing the failure and it must be fixed. *T. Vol. 8, 1128-1130.*

The JPG simulated the effluent that would be discharged through the pipeline and evaluated the potential for toxicity using the toxicity testing procedures outlined in the CPP. The toxicity evaluation demonstrated that the pipeline effluent, as simulated during the testing, would not cause a violation of the toxicity water quality standards. *JPG-102; T. Vol. 8, 1133.* The effluent passed toxicity testing at 100% effluent (no mixing) at both the initial and more extensive biomonitoring tests. *JPG-104; T. Vol. 8, 1137*.

The AHO finds no evidence that demonstrates the effluent discharged into the Ouachita River will cause or contribute to a violation of the narrative toxicity standard. The AHO concludes that the pipeline permit does not violate Reg.2.508.

c. pH

The pH water quality standard is set out in Reg.2.504, as follows:

> As a result of waste discharges, the pH of water in streams or lakes must not fluctuate in excess of 1.0 unit over a period of 24 hours and pH values shall not be below 6.0 or above 9.0.

LEAN and STO argue that ADEQ and JPG failed to perform an analysis of the proper pH to determine the effects of mercury on humans. "Standard" pH was used instead of the actual pH for the Ouachita River or Felsenthal. They claim this was error but offered no evidence proving the pH of the river or Felsenthal should have been used for testing toxicity.

The AHO finds the pH limit set out in the joint pipeline permit complies with the pH standard set out in Reg.2.504.

d. Designated uses

LEAN and STO assert the JPG discharge of effluent into the Ouachita River will violate Reg.2.201, which states: "Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." ADEQ is required to protect the designated fishing and swimming uses. LEAN and STO claim the current level of mercury in the river violates the "fishable/swimmable" standard for water quality in Arkansas. The discharge will make the Ouachita River even further unfishable/unswimmable.

Witnesses for STO testified about their and their families' use of the river. They testified that if the discharge were allowed, their uses would be greatly curtailed or eliminated due to health concerns caused by the discharge. *T. Vol. 5, 678, 688, 695, 708.*

The TMDL study identified lakes based upon elevated fish tissue mercury concentrations and determined they were in violation of the narrative standard for toxic substances. *T. Vol. 5, 628-629.* Thornton testified that the narrative standard dealt with the action level for human consumption of fish, not the toxicity of the water from mercury. *T. Vol. 661.*

Mr. Maner testified that there is no known mercury in the effluent of any of the pipeline participants. *T. Vol. 11, 1850.* The pipeline permit sets a permit limit for mercury based on the aquatic toxicity values of 12 nanograms per liter. This is a low number and is appropriate because it is a number EPA determined is applicable in the water column. *T. Vol. 11, 1745-1746.*

The AHO respects the concerns of STO's witnesses. However, the evidence demonstrates that no mercury will be discharged by the joint pipeline and that the mercury limit of 12 nanograms per liter, established by EPA, is protective of bioaccumulation. The AHO concludes that ADEQ has not violated Reg.2.201.

e. Mercury testing method

The pipeline permit and individual permits require the JPG to use EPA Method 245.1 to test for mercury. At the hearing, the JPG and ADEQ agreed to use EPA Method 245.7 to test for mercury. LEAN agrees that Method 245.7 is an appropriate mercury testing method and that it should be used. Louisiana and STO have not stated an objection to the use of Method 245.7.

The AHO remands the pipeline permit and individual permits to ADEQ with instructions that ADEQ reopen the permits and substitute Method 245.7 for Method 245.1.

Issue 7 - Zinc

LEAN and STO state that the Ouachita River is impaired for zinc. The 2004 list of impaired waterbodies shows segments of the Ouachita River above and below the pipeline discharge point are impaired for zinc. *JX-9; T. Vol. 4, 448-449.* However, ADEQ set the pipeline permit limits for zinc after assuming there was no zinc in the Ouachita River. Federal and state regulations prohibit the issuance of a permit that will "cause or contribute to violation of water quality standards." *40 C.F.R. § 122.4(i) and Reg.6.104(A)(3)*. The zinc limits violate these regulations.

Mr. Sulkin testified that ADEQ has a number of water quality monitoring stations and the station at Camden has reported monitoring results for zinc since 1995. This data is posted on ADEQ's website

and is available for use in determining the background concentration of zinc. *T. Vol. 3, 381-382; LEAN Exhibit 6("LEAN-").* In determining the zinc permit limits, ADEQ should have considered the data from monitoring stations above and below the pipeline discharge point. The effect of assuming a zinc background concentration of zero is that a much higher permit limit will be set and it will not comply with the water quality standards. *T. Vol. 3, 385-386.*

LEAN and STO also argue that the CPP directs the permit writer to determine if there are pollutant data available on the receiving stream and that data must be evaluated for appropriateness. Data maintained and published by the state will be considered appropriate. *JX-17 at D-47.* ADEQ failed to do this.

Mr. Vince Blubaugh, a principal in GMBc, testified that the pipeline permit does not specify which reach of the Ouachita River the pipeline discharges into. The reach for the discharge point is not listed on the 303d list. This list shows specific reaches for Segment 2D, but not every river mile in Segment 2D is listed. *T. Vol. 7, 1020-1022.*

Ms. Loretta Reiber, a permit engineer for ADEQ, assumed a background concentration of zero for zinc because she did not find any background levels of zinc for the reach of the river into which the pipeline will discharge. *T. Vol. 4, 540, 543, 546.* She testified that gauging stations are not located in every reach of the river and

that the closest data was from 25 miles upstream of the discharge point. *T. Vol. 4, 543-544.* Reiber did not look at any data upstream or downstream of the discharge point because they were to far away. For zinc, ADEQ determined the background concentration was zero. *JX-1, Attachment 2.*

Mr. Shafii testified the background concentration of zinc was calculated using zero because the station above the discharge point was 25 miles away and that was not a reliable number. He also testified that the reach of the river the pipeline discharge is going to is not impaired for zinc. *T. Vol. 11, 1865-1866.*

Waters listed in Category 5d of Arkansas' 2004 List of Impaired Waterbodies means those waters need data verification to confirm use impairment before a TMDL is scheduled. *JPG-9 at page 1.* The AHO finds the specific reach into which the pipeline discharges is not listed on the 303d list and the reaches listed, in Segment 2D, are not impaired for zinc. The AHO finds ADEQ reasonably declined to consider data that was 25 or miles away because it was not reliable and the 303d list showed the reaches listed, in Segment 2D, were not impaired for zinc. The AHO finds that ADEQ correctly determined a background concentration of zero for zinc. The AHO concludes that ADEQ has not violated any federal or state regulations regarding the zinc permit limits.

Issue 8 - 7Q10 flow rates

When setting the permit limits for zinc and other metals, ADEQ used a background critical flow, or 7Q10, of 750 cubic feet per second. *JX-1, Fact Sheet p. 8.* The 750 cubic feet per second is based on flow data taken from the monitoring station on the Ouachita River near Camden. *JX-7, p. 31, #20b*. The flow data used in the models by GMBc includes years in which the Ouachita River was not regulated. The Ouachita River is considered to be a regulated river because of the Thatcher Lock and Dam and the Felsenthal Lock and Dam which gives the COE the ability to lower the flow level to 600 cubic feet per second. *T. Vol. 3, 387.* GMBc's use of 750 cubic feet per second does not reflect how the Ouachita River looks now. LEAN contends that ADEQ should have used between 600 and 650 cubic feet per second to calculate the permit limits which would have been lower than those set out in the permits.

Mr. Maner testified ADEQ has flexibility in what rate of flow it uses on a regulated system and it used the 7Q10 low flow of 750 cubic feet per second was used. ADEQ looked at a lot of low flows and found no great difference in the low flows that were occurring because of the Thatcher Lock and Dam. *T. Vol. 11, 1685-1687.*

The Thatcher Lock and Dam and the Felsenthal Lock and Dam became operational around 1985. *T. Vol. 2, 210.* The period of record, used by GMBc to produce a 7Q10, was from 1982 to 2001 and this period

includes the two dams for the majority of the time. Duerr testified that Louisiana had no objection to using this period of record and that it would have used the same approach. For this reason, Louisiana did not recalculate the 7Q10. *T. Vol. 2, 193-194, 209-210, 235.*

The AHO finds that LEAN has failed to prove that a flow rate of 600 cubic feet per second was required to be used to ensure compliance with the water quality standards. The AHO finds the 7Q10 flow rate used by GMBc was reasonable in determining the zinc and other metal limits in the permits.

Issue 9 - Existing fishery in Felsenthal

a. Description of Felsenthal

Felsenthal was created with the completion of the Felsenthal Lock and Dam in 1984, which raised the water level and increased the area covered in water from 5,000 to 15,000 acres. The additional 10,000 acres is shallow, less than four feet deep. The shallow water is ideal for the establishment of aquatic vegetation. By the late 1980's, the aquatic vegetation began to expand and cover much of the additional 10,000 acres and it expanded into the original 5,000 acre pool. *T. Vol. 3, 327-328*. In order to control the aquatic vegetation, the Arkansas Game and Fish Commission ("AGFC") has applied herbicides at two to three times the recommended application rates. Fish kills occur every summer in the backwater areas because fish become stranded in oxygen deficient water. The fish kills occur in or near dense

aquatic vegetation that is in the process of decomposing. The macrophytes decompose, consume oxygen and cause pockets of low dissolved oxygen. A slight rise in the reservoir level pushes a slug of deoxygenated water through backwater areas with pockets of fish that become stressed and cannot make it to larger bodies of oxygenated water. *T. Vol. 3, 332-334*. Felsenthal is managed for water fowl. *T. Vol. 1139-1140.*

b. Dissolved oxygen

LEAN and STO again raise the existing uses argument as it relates to the fisheries in Felsenthal. They assert that ADEQ is required to protect existing uses pursuant to Reg.2.201. ADEQ has violated its duty by failing to examine the joint pipeline's impact on minimum dissolved oxygen in the backwater areas of Felsenthal. Therefore the joint pipeline permit is illegal.

The AGFC submitted comments that the joint pipeline discharge would depress dissolved oxygen in Felsenthal and kill the fish. *LEAN-2.* Mr. Jason Olive, AGFC fisheries biologist for South Central Arkansas, which includes Felsenthal, testified for LEAN that low dissolved oxygen leads to fish kills. *T. Vol. 3, 277, 279, 282.* He has observed 15-20 fish kills in the backwater areas of Felsenthal. The backwater areas of Felsenthal are already at least 90% covered by aquatic vegetation, which has made areas of the reservoir inaccessible

for part of the year. Vegetation contributes to low dissolved oxygen levels and that has resulted in fish kills. *T. Vol. 3, 280-282*.

Mr. Phillips ran the WASP model to assess the impact of the pipeline discharge on dissolved oxygen in the backwater areas of Felsenthal. *T. Vol. 9, 1343.* He testified that water quality is calibrated to average conditions, and that the calibration was a good fit for the model. *T. Vol. 10, 1540*. He did not use the "average" dissolved oxygen value for the calibration, but rather a value less than the average, which provided a more conservative calibration. *T. Vol. 10, 1562*. The model was calibrated to simulate the low dissolved oxygen conditions (below 2.0 mg/L) that occur in the backwater areas of Felsenthal. Based on the modeling results, there was no change when the pipeline effluent was added and no impact on dissolved oxygen from the joint pipeline. *JX-7, at p.34-35, Response 20h and Figure 2; T. Vol. 8, 1264-1265*.

GBMc took field measurements of dissolved oxygen which recorded the diurnal dissolved oxygen swing that occurred in the Ouachita River and the backwater areas of Felsenthal at specific monitoring locations. *JX 14*. The diurnal oxygen data that was collected provided an indication of what types of swings the dissolved oxygen levels had in the Ouachita River and in the backwater areas of Felsenthal. In the Ouachita River the diurnal swing is approximately 0.8 mg/L, which means that the oxygen levels dip down during the night

and rise back during the day. The water quality standards allow a diurnal depression of 1.0 mg/L. *T. Vol. 8, 1242-1243; Reg.2.505(C)*. The field measurements showed the diurnal depression was less than 1.0 mg/L, and therefore the water quality standards would be maintained. *T. Vol. 10, 1467*. Phillips testified that dissolved oxygen would actually improve as a result of the pipeline discharge, due to the increase in photosynthesis that the increased nutrients would generate. *T. Vol. 8, 1262-1263*.

Neither LEAN nor STO presented any modeling results in this case. Olive's testimony was informative concerning the types of vegetation and the fish kills in Felsenthal. However, Olive presented no scientific evidence that the discharge from the joint pipeline will have any impact on dissolved oxygen in Felsenthal.

The AHO finds the WASP model does not project any impact on dissolved oxygen and the joint pipeline discharge will not interfere with the existing fishery in the Ouachita River or the backwater areas of Felsenthal. The water quality standard for dissolved oxygen will not be violated after taking into account the allowance for natural conditions and the diurnal swing of 1.0 mg/L. The AHO concludes that ADEQ did not violate its duty of protecting the fisheries in the Ouachita River and Felsenthal.

c. Nutrients

LEAN and STO maintain the joint pipeline discharge will add nutrients to the backwater areas of Felsenthal causing the growth of aquatic vegetation and algae. The WASP model predicts that increased nutrients will cause more algae to grow. *JX-13, Figure 6.32.* Olive testified the nutrient discharge will lead to greater spikes and depressions in dissolved oxygen levels, and the depressions are what kill the fish. *T. Vol. 3, 344-345.* Ms. Amy Beck, ADEQ's modeler, testified the dissolved oxygen levels in Crooked-S Slough are already violating the dissolved oxygen standard of 5.0 mg/L. *T. Vol. 12, 2037-2038.* LEAN and STO argue that further depressing dissolved oxygen fails to maintain water quality necessary to protect the fisheries as required by Reg.2.201.

Felsenthal is located approximately 45 miles downstream of the pipeline discharge. Fish kills already occur in Felsenthal due to the aquatic vegetation and algae which lower dissolved oxygen levels in the backwater areas. The WASP model was run to assess the impact of the pipeline discharge on dissolved oxygen in Felsenthal. *T. Vol. 9, 1343.* When the pipeline discharge was added to the background conditions in the model, there was no difference in dissolved oxygen. *T. Vol. 9, 1343, 1347.*

The AQUATOX model also predicted that the nutrients from the pipeline discharge will have no impact on the growth of aquatic plants

in the Felsenthal. *T. Vol. 9, 1363.* The reason additional nutrients from the pipeline will not cause problems is that the sediments in the backwater areas are already full of phosphorus and nitrogen. Crooked-S Slough had over 600 milligrams per kilogram of phosphorus and 5000 to 6000 milligrams per kilogram of nitrogen in its sediments. Phillips testified that a little bit more phosphorus would not make a difference because it does not need phosphorus for anything. *T. Vol. 8, 1266-1267.*

Another reason the AQUATOX and WASP models do not predict an impact on water quality is that under critical conditions very little, if any of the nutrients in the pipeline discharge make their way to the backwater areas of Felsenthal. The backwater areas of Felsenthal are nearly or completely cut off from the main channel of the Ouachita River under low flow conditions. Field data collected by GBMc demonstrated that during summertime low flow conditions, when the conditions in the backwater areas of Felsenthal were the worst, only a minute amount of flow from the Ouachita River reached those backwater areas. *T. Vol. 8, 1266; Vol. 10, 1482.* When Felsenthal floods for duck hunting, there is a lot of phosphorus already in the river and the amount of phosphorus that would be added by the pipeline is almost undetectable. *T. Vol. 10, 1482.*

The AQUATOX and WASP models do not predict an impact on water quality because the phosphorus that is available to stimulate plant

growth is inorganic phosphorus. The water quality modeling demonstrated that the pipeline discharge will not increase the inorganic phosphorus entering Felsenthal. The inorganic form of phosphorus has been taken up before the pipeline discharge reaches Felsenthal. *JPG-127*.

The fish kills occur in the backwater areas of Felsenthal during low flow, summertime conditions. Under those conditions the flow from the Ouachita River, which would include the pipeline effluent, does not get back into most backwater areas. *T. Vol. 8, 1138.* The pipeline effluent will not contribute to excessive growth of nuisance species because there is already an excess of nutrients in Felsenthal and the plants already have more nutrients than they need to grow. *T. Vol. 8, 1141.* Olive agrees that Felsenthal already has high levels of nutrients. *T. Vol. 3, 322.* Dr. Joe Nix, a retired chemistry professor, testified for STO that if the levels of nutrients in Felsenthal are already high, adding a small amount may not impact the existing conditions. *T. Vol. 5, 588, 613.* LEAN and the other parties offered no modeling results to verify that the addition of nutrients will cause more fish kills than what occurs at the present time.

The AHO finds the nutrient levels in Felsenthal are already high and the amount added by the pipeline discharge will not adversely impact existing conditions. The AHO concludes that the pipeline discharge will not violate the narrative nutrient water quality

standard and that the fisheries will be protected as required by Reg.2.201.

d. Nuisance algae or aquatic vegetation

There are two narrative standards in Regulation No. 2 that address nuisance species and nutrients. "All waters shall be free from substances attributed to man-caused point or nonpoint source discharges in concentrations that produce undesirable aquatic life or result in the dominance of nuisance species." *Reg.2.402.* Reg.2.509 states in pertinent part: "Materials stimulating algal growth shall not be present in concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use of the waterbody." LEAN and STO assert the WASP modeling results indicate the pipeline discharges will encourage algal growth. They also argue that GMBc underestimated the pipeline's effect on algal growth because it overestimated the current nutrient loads in Felsenthal.

When ADEQ issued the draft permit, the phosphorus limit was based on a limit of 1.0 mg/L monthly average that applied year round. *T. Vol. 11, 1656*. Maner selected that limit because it represented the limit of known technology that is available to reduce phosphorus. *T. Vol. 11, 1782.*

AGFC and U.S. Fish & Wildlife Service made comments regarding the impact nutrients could have in Felsenthal. Based on their concerns,

Maner asked GMBc to do nutrient modeling. *T. Vol. 11, 1654-1655.* GBMc used the permit limit proposed in the draft permit as the loading rate of nutrients to be discharged by the pipeline. It employed AQUATOX and WASP to provide some prediction on plants growing in Felsenthal and QUAL2K for nutrients. *T. Vol. 11, 1775.* The modeling showed chlorophyll-a would be elevated at the design flow around 14 micrograms per liter. Typically 10 micrograms per liter of chlorophyll-a is considered an enriched environment. *T. Vol. 11, 1656.* Maner relied on QUAL2K to predict chlorophyll-a because it was simpler that the AQUATOX model. He utilized the QUAL2K model rather than the WASP or the AQUATOX model to set the phosphorus limit in the permit. He decided the phosphorus discharge during the summer months should be .7 milligrams per liter because it would not impair the fisheries in Felsenthal or the Ouachita River. *T. Vol. 11, 1656, 1775, 1852.*

Mr. Maner testified that chlorophyll-a is a good indicator of macrophyte growth because chlorophyll-a is an indicator of algae growth. Algae will respond more quickly to increases in phosphorus than aquatic macrophytes. Any impact on macrophytes in the backwater areas of Felsenthal will be eliminated by controlling chlorophyll-a in the Ouachita River. AFGC and the Fish and Wildlife Service raised the issue of nuisance conditions in Felsenthal. Maner relied on those

agencies when he decided to limit the permit by placing a specific value on phosphorus in the permit. *T. Vol. 11, 1704-1705, 1737, 1748.*

Mr. Corn testified that Maner lowered the inorganic phosphorus down to 10 micrograms per liter, which was close to background. This was a very conservative approach. *T. Vol. 12, 1945-1947.* The modeling demonstrates that at a pipeline discharge of 1 mg/L of phosphorus, inorganic phosphorus in the Ouachita River decreases to close to background well before the Ouachita River reaches Felsenthal. Therefore, reducing the phosphorus loading by another 30% during the critical (summertime) season is not really necessary and is a very conservative approach. *JPG-127*.

LEAN and STO next argue the WASP model underestimated the pipeline's effect on algae in Felsenthal by overestimating the current nutrient load in Felsenthal. GBMc incorrectly used effluent data from upstream of the Hot Springs lakes as an input for the water quality models, without taking into account the retention of nutrients in those lakes. *T. Vol. 12, 468.*

Mr. Phillips testified the data used in the modeling to represent background condition of the nutrients in the river was field data GMBc collected during its study from a portion of the river near Smackover Creek. *T. Vol. 9, 1369-1370, Vol. 10, 1491.* The AHO accepts Phillips testimony on this point since he did the modeling for GMBc and he knew better than anyone what data was used in the models.

The AHO finds that the permit limit for phosphorus is appropriate and will not stimulate algal growth or the growth of nuisance species. The AHO concludes that ADEQ did not violate Reg.2.402 or 2.509.

e. AQUATOX modeling

i. Myriophyllum

LEAN argues that the AQUATOX modeling does not show the impact of the pipeline discharge on nuisance plants in the backwaters of Felsenthal. Before collecting any plant data, GMBc concluded that AQUATOX showed the pipeline discharge would not increase macrophyte growth. *JX-10.* AGFC commented that the plant used in the AQUATOX model is not present in Felsenthal. *LEAN-1.* Phillips agreed the plant, Myriophyllum, is not present in Felsenthal. *T. Vol. 10, 1502-1503.* LEAN contends the plant that should have been used was Cabomba, but ADEQ did not request that it be used in the model. *T. Vol. 11, 1695.*

Dr. Eldon Blancher, a witness for LEAN, testified that AQUATOX includes a plant library. *T. Vol. 4, 480.* The model contains a feature that allows a user to add a new species to the library. Blancher testified that GMBc should have looked up the parameters for Cabomba and used it in the model. *T. Vol. 4, 476, 480-481.* He also testified that Myriophyllum and Cabomba are not interchangeable. *T. Vol. 4, 481.* LEAN claims that the failure to use Cabomba in AQUATOX renders the results invalid.

The AQUATOX model is a calibrated water quality model that predicts the impacts of the pipeline discharge on growth of aquatic macrophytes in the backwater areas of Felsenthal. *T. Vol. 9, 1358-1360.* The purpose of the model was to predict what impact, if any, would occur when additional nutrients from the pipeline discharge were added to the backwater areas of Felsenthal. *T. Vol. 9, 1360, Vol. 10, 1506-1510.*

The AQUATOX model was calibrated to both Hydrilla and Myriophyllum. Hydrilla is an aquatic macrophyte that is present in Felsenthal, and Myriophyllum is the only other aquatic macrophyte that was available in the AQUATOX library. Cabomba is an aquatic macrophyte that is abundant in Felsenthal, but is not a plant species that was supported by AQUATOX. *T. Vol. 9, 1362*. Both Myriophyllum and Cabomba are facultative species that draw nutrients from the water column and/or the sediments. The AQUATOX data library supports Myriophyllum, which was used as a surrogate for Cabomba. *T. Vol. 9, 1362.*

Dr. Blancher testified that Myrophyllum should not have been used as a substitute for Cabomba in the AQUATOX model. GBMc should have attempted to adjust and modify Myriophyllum to make it react like Cabomba in the model. *T. Vol. 4, 480-481.* However, Blancher did not offer any modeling results of his own that refuted any of the AQUATOX modeling results presented by GBMc. In addition, he did not identify

the Cabomba biological plant characteristics that could have been used, or even where they could be obtained. *T. Vol. 4, 482-483.*

Myriophyllum and Cabomba are referred to as macrophytes and nuisance plants. They are aquatic weeds. *T. Vol. 4, 481.* Myriophyllum is one of the aquatic vegetation species that is supported by AQUATOX and Myriophyllum was used as a surrogate for Cabomba. *T. Vol. 8, 1245.* The use of Myriophyllum for the AQUATOX modeling was part of the approved work plan and no one expressed any problem with the use of Myriophyllum. *T. Vol. 8, 1220, 1225.*

Although only Myriophyllum was included in the approved work plan, GBMc added Hydrilla because AQUATOX had added that plant species to its library after the work plan was approved, and Hydrilla is a species known to be present in Felsenthal. *T. Vol. 8, 1245-1246*. Phillips testified he considered replicating Cabomba through a literature search, but there was not sufficient biological plant information available for Cabomba to undertake this task and ensure good results. *T. Vol. 8, 1247.* The two species in the AQUATOX data base that were used, Hydrilla and Myriophyllum, had been verified by EPA as being accurate for modeling, so those two species were used. *T. Vol. 10, 1620-1621*.

Although Blancher testified as to what should have been done to replicate Cabomba and calibrate the AQUATOX model to Cabomba, he did not undertake this task himself. The AHO finds that the AQUATOX model

was appropriately calibrated to Hydrilla and to Myriophyllum as a surrogate for Cabomba. The AHO concludes that the AQUATOX modeling results are valid.

ii. Calibration

LEAN argues that GMBc's failure to appropriately calibrate the AQUATOX model renders the results invalid. LEAN relies on information contained in the nutrient modeling study of June 1, 2006. The AQUATOX calibration used three observed data points of Cabomba biomass to predict how Myriophyllum would grow throughout the year in Felsenthal. The model also used two observed data points of Hydrilla biomass to predict Hydrilla's growth pattern throughout the year. *JX-13, p. 77-78, Figures 6.12, 6.13.* The model calibration for Myriophyllum showed the plant would peak twice, once in October 2005 and once in April 2006. For Hydrilla, the model calibration showed the plant peaked twice, once in October 2005 and again in May 2006. Olive testified that: "Macrophytes don't peak twice in Crooked S or anywhere else in Felsenthal, and they definitely don't peak at the times indicated on this graph." *T. Vol. 12, 2150.* Phillips testified that he had no evidence that the growth of aquatic plants peak in April as the model showed. He admitted that if Olive had seen them peaking in late summer, he was probably right. *T. Vol. 10, 1504.*

LEAN argues that since the AQUATOX model is not calibrated correctly, ADEQ could not rely on it to show what affect the pipeline

discharge will have on nuisance species growth in Felsenthal. Therefore, ADEQ failed to support its conclusions that the joint permit discharges comply with nutrient standards.

Calibration of a water quality model requires collection of field data to document the water quality of the waterbody. The model is "calibrated" by adjusting certain coefficients within prescribed ranges so the model fairly predicts the actual water quality that was measured during the field study. GMBc collected field data from the Ouachita River to calibrate the QUAL2K model and data from Felsenthal to calibrate the WASP and AQUATOX models. *T. Vol. 8, 1229.* The field data for the model calibration was collected in the summer of 2005 and the winter of 2006. *JX-12.* Olive collected dissolved oxygen samples at the same time GMBc took its calibration samples in Felsenthal. *T. Vol. 3, 339.*

After the field data was collected and the models calibrated, GBMc submitted an Interim Calibration Report to ADEQ to document the calibration exercise. The Interim Calibration Report was also distributed for comment. *JX 12*. ADEQ compiled all the comments it received and forwarded them to GBMc in May and June of 2006. ADEQ asked GBMc to finish the nutrient modeling report and submit it by June 1, 2006, which it did. *JX 13; T. Vol. 8, 1239; Vol. 9, 1409*. GBMc responded to the comments on the Interim Calibration Report on June 16, 2006. *JPG-122; T. Vol. 8, 1244*.

Mr. Duerr testified that calibration is a judgment call as to how much field data is sufficient for the particular project. In addition, different modelers will have different opinions as to how to set up and calibrate a model. *T. Vol.2, 219, 242-244.* Duerr had no opinion on the GBMc calibration of the QUAL2K model and stated that he would not offer an opinion without first running the model himself to see what difficulties he had in calibration. *T. Vol.2, 236-237.* Sulkin testified that all modeling includes certain assumptions, and that there are many judgment calls that go into the modeling effort. *T. Vol. 3, 440*. Blancher testified that how a model is calibrated is a judgment call. *T. Vol. 4, 537.* None of these witnesses ran any water quality models to test the calibrations performed by GBMc.

Mr. Maner testified that the WASP and AQUATOX models were calibrated reasonably and he was comfortable with the final values that were used in the model. *T. Vo. 11, 1787.*

QUAL2K, WASP and AQUATOX are all models supported by EPA, which means that EPA has looked at the equations and the algorithms behind those models and thinks they are predicting in a reasonable manner. *T. Vol. 12, 2002.* Beck testified that EPA had no complaints about the calibration of AQUATOX. *T. Vol. 12, 2010.*

Mr. Olive testified that he did not go out and measure the biomass in Crooked S Slough, but that he observed GMBc measuring biomass. *T. Vol. 12, 2154.* AQUATOX predicts the biomass of

underwater aquatic vegetation. To determine biomass, it is necessary to collect the vegetation and take it to the laboratory to measure and weigh it. Olive did not do this to determine biomass and that is why his testimony only addressed the trends in plant growth. He did not do any quantitative measurements of grams per meter squared of the macrophytes and he has no expertise on how AQUATOX projects trends. *T. Vol. 12, 2155-2156.*

The AHO finds that GMBc's biomass measurements represent the best science for calibrating AQUATOX and the results provided by the model are valid. The AHO finds that ADEQ could rely on the modeling results to show the impact the joint pipeline will have on nuisance species growth in Felsenthal.

B. ISSUES RAISED BY THE JPG

The JPG raised 15 issues in their request for Commission review. At trial, JPG and ADEQ entered into a Joint Stipulation that resolved these issues on appeal. *JPG-222.* The other parties objected to all or parts of the terms of settlement and the JPG and ADEQ withdrew the Joint Stipulation and stated that they would present testimony on the issues. *T. Vol. 7, 928.* Although the JPG and ADEQ withdrew their Joint Stipulation, they now request that the terms contained in it be approved. If approved, ADEQ will reopen the permit and revise it to

implement the terms set out in the Joint Stipulation. *Post-Hearing Brief at 39-40.*

Issue 1 - Flow cap

The pipeline permit imposes a total flow cap based on the permitted flows of the individual permittees. Mr. Blubaugh testified that a flow cap was acceptable to the JPG. *T. Vol. 7, 1057.* The JPG offered no other evidence regarding a revision to the flow cap language as set out in the pipeline permit.

The AHO affirms the flow cap limits set out in the pipeline permit.

Issue 2 - Concentration limits for CBOD5 and NH3-N

The JPG did not pursue the issues it raised in the request for review regarding concentration limits for CBOD5 and NH3-NPDES.

Issue 3 - Zinc

The JPG and ADEQ agreed to correct the Fact Sheet for all of the permits to reflect that the segment of the receiving stream into which the pipeline will discharge is “not” on the 303d list for zinc. *T. Vol. 7, 944.*

LEAN objects to revising the permit. The receiving water segment and discharge location is shown as “Segment 2D of the Ouachita River Basin.” *JX-1, page 2 of Fact Sheet, #6.* This segment is listed as being on the 303d list for zinc. *JX-1, page 2 of Fact Sheet, # 7 and JX-9, (Arkansas’ 2004 303d List at 16.* For this reason, LEAN argues

it is incorrect to state that this segment is not impaired for zinc. LEAN asserts the permits cannot be corrected because it would be incorrect to state that Segment 2D is not impaired for zinc.

The AHO addressed the zinc issue above and will not repeat that discussion here. Suffice it to say that the 303d list identifies reaches of the Ouachita River that are in Segment 2D. However, the reaches identified are in Category 5d, which means those waters need data verification to confirm use impairment before a TMDL is scheduled. The AHO finds the reaches listed on the 303d list in Segment 2D are not impaired for zinc and the specific reach into which the pipeline discharges is not listed on the 303d list.

The AHO finds that the language in the Fact Sheet of each permit regarding the 303d list should be revised. The AHO directs ADEQ to revise the language as follows: "The receiving stream for Outfall 010 (the Ouachita River) is not listed on the 303d list for mercury and zinc."

Issue 4 - Monitoring frequencies

The JPG sought review of the level of monitoring required for the pipeline permit. Blubaugh testified that the monitoring was excessive and not necessary to adequately characterize the effluent. *T. Vol. 7, 966.* He also testified that the JPG has agreed to accept the monitoring requirements set out in the pipeline permit. *T. Vol. 7, 971.*

Based on Blubaugh's testimony, the AHO affirms the monitoring frequencies set out in the permits.

Issue 5 - Metals limits

The JPG has agreed to accept the numeric metals limits set out in the pipeline permit. The AHO affirms the numeric metals limits set out in the pipeline permit.

Issue 6 and 7 - Mercury limits

The JPG did not pursue the issues it raised in the request for review concerning the mercury limits as set out in the pipeline permit and the individual permits. The JPG agrees that Method 245.7 with a detection level equal or less than 0.005 micrograms per liter will be used to measure the concentration of mercury in the pipeline permit and will be used to measure the concentration of mercury for the priority pollutant scans for the applications for renewal of all of the permits.

The other parties advocated the use of Method 245.7 and did not object to JPG's agreement that the permits include this method. The AHO directs ADEQ to revise the permits to include Method 245.7.

Issue 8 - Total phosphorus limits

The JPG seeks to remove the concentration discharge limits for total phosphorus and retain the mass discharge limits for total phosphorus at Outfall 010R of the pipeline permit. Blubaugh testified that if you know the concentration and the volume, you can determine

how many pounds for the mass is contained in the effluent. If you have a permit limit on the volume and on the mass, you do not need a permit limit on the concentration. *T. Vol. 7, 931.* One reason for removing the concentration limit is that it could force unneeded treatment because when there are lower flows during the summertime you are being held to a concentration limit that is overly protective. *T. Vol. 7, 933.*

Mr. Phillips testified that the permit limit for phosphorus is the most restrictive in Arkansas. The pipeline permit sets a concentration limit of 1 mg/L for a monthly average for the months of November through June. ADEQ deemed it necessary to lower the phosphorus concentration limit to 0.7 mg/L for a monthly average for the months of July through October. *T. Vol. 10, 1625, JX-1, page 6 of Fact Sheet, 12(B).*

Mr. Maner put an instantaneous flow cap of 20 million gallons per day in the permit. This was done because if there was no instantaneous flow cap, there could be times when the flow would not be 20 million gallons per day and JPG could discharge more phosphorus. *T. Vol. 11, 1702.* He testified it was appropriate to have only a mass limit in the permit if there also is an instantaneous flow cap in the permit and there is an instantaneous flow cap in the pipeline permit. *T. Vol. 11, 1723-1724.*

LEAN supports the inclusion of both mass and concentration limits for phosphorus in the pipeline permit. It argues that ADEQ has not examined the biological effect of allowing a discharge of highly concentrated nutrients into the Ouachita River at one time, which would be possible if the pipeline permit has mass limits but not concentration limits. It also objects because it does not believe this change in the permit would be subject to comment by the public or by federal and state agencies.

The AGFC submitted comments recommending that the concentration limits for phosphorus remain in the permit. *T. Vol. 11, 1716-1717.*

Although Maner explained why a concentration limit for phosphorus may not be needed in this permit, he never recommended that it be removed from the pipeline permit. Blubaugh recommended that it be removed because it would allow JPG, on low flow days, to not have to provide additional treatment.

The addition of phosphorus in the Ouachita River is a significant issue to both Arkansas and Louisiana. The AHO is not persuaded that removing the concentration limit for phosphorus is necessary or required at this time. The AHO affirms ADEQ's decision to include the concentration limit for phosphorus in the pipeline permit.

Issue 9 - Concurrent sampling definition

The JPG did not pursue the issue of concurrent sampling definition that it raised in the request for review.

Issue 10 - Monitoring frequency reduction

The JPG did not pursue the issues it raised in the request for review regarding monitoring frequency reduction.

Issue 11 - Individual permit modification

The JPG sought review of individual permit conditions concerning the procedures to follow in the event one of them needs to divert wastewater from the pipeline to one of the current outfalls. *JX-1 through JX-6*. The JPG wants to have this flexibility during emergency or maintenance events and during non-emergency or non-maintenance events. *T. Vol. 7, 974-975.* If the individual permittees have an operational change requiring a long period of time to complete that would prevent them from using the pipeline, they want to be able to use a current outfall to discharge the effluent. ADEQ, in its discretion, would approve the diversion of wastewater from Outfall 010 to another permitted outfall. *T. Vol. 1009-1010.*

The JPG and ADEQ agreed to the following language regarding this issue.

> Condition 5, Part III, OTHER CONDITIONS of the City Permit; Condition 2, Part III, OTHER CONDITIONS of the Lion Permit; Condition 2, Part III, OTHER CONDITIONS of the GLCC Permit; and Condition 2, Part III, OTHER CONDITIONS of the EDCC Permit should be replaced with the following: *"Once the discharge to the Pipeline has commenced, Permittee shall*

> *notify ADEQ within 24 hours of any emergency or maintenance event that results in diverting wastewater from Outfall 010 to another permitted outfall. For non emergency and non maintenance events that may result in diverting wastewater from Outfall 010 to another permitted outfall, the Permittee must provide notice and an explanation of the anticipated diversion to ADEQ at least two weeks in advance of such event; and ADEQ may, in its discretion, condition the diversion of wastewater from Outfall 010 to another permitted outfall as may be reasonably necessary to protect human health and the environment."*

Louisiana objected to the use of other outfalls during a non-emergency or non-maintenance event. *T. Vol. 7, 924.* Louisiana's objection is not specific and was not addressed in its brief.

The AHO finds the request is reasonable and finds no evidence that supports denying the request. The AHO remands this matter back to ADEQ with instructions to make this change.

Issue 12 - Pipeline permit cancellation

The JPG also seeks to revise the following condition in the pipeline permit:

> This permit must be terminated or modified in the event that, excluding El Dorado Water Utilities, one or more of the entities involved cease discharging to the pipeline." *JX-1, Part III, Other Conditions, Condition 6.*

The JPG and ADEQ agreed to revise Condition 6 to read as follows:

> At the discretion of the Director, this permit may be modified in the event that one or more of the entities involved cease discharging to the pipeline.

Mr. Blubaugh testified that if one of the facilities decided they were not going to discharge to the pipeline, the ADEQ director would have the discretion to modify the permit in whatever manner

appropriate. *T. Vol. 7, 976-977.* Shafii testified that it is not the intent to terminate the permit if one of the permittees ceases discharging into the pipeline. The intent is to modify the permit by reducing the flow. *T. Vol. 1906-1907.*

Louisiana, LEAN and STO object to revising the language because the pipeline permit limits are based on a flow assuming all four entities will be discharging from the pipeline. If one permittee withdraws, the permit limits must be recalculated to ensure compliance with Arkansas' and Louisiana's water quality standards.

They also argue that because the joint permit allows the individual permittees to continue to discharge to their current discharge locations, removing the condition will give the JPG a green light to pull a bait-and-switch. Under the revised language, one or more the dischargers could withdraw from the pipeline without having to go back to public comment.

The AHO finds that revising Condition 6 is not reasonable. Louisiana, LEAN and STO challenged the pipeline permit on the basis of how the permit limits have been set and the impact of those limits on the Ouachita River, Felsenthal, and State of Louisiana. The JPG always has the option of applying to ADEQ for a modification to this condition. The AHO is not persuaded that revising Condition 6 is reasonable or appropriate at this time. The AHO denies the request of ADEQ and the JPG to revise Other Conditions, Part III, Condition 6, in

the pipeline permit. The AHO affirms the existing language in the joint pipeline permit on this issue.

Issue 13 - Construction permit

The construction permit includes a standard general condition which states that construction must commence within one year. The JPG appealed this condition to clarify that extensions may be granted. The JPG and ADEQ agree that extensions of the one year requirement for construction are typically granted, and that the one year limitation may be extended for good cause, such as obtaining financing. *T. Vol. 7, 977-978.* ADEQ and JPG have proposed to add the following alternative language to the Construction Permit:

> The commencement date for construction may be extended due to financing constraints, or for other good cause shown.

Louisiana objected to the proposed language but offered no evidence to support its position.

The AHO finds that the proposed language to authorize extensions of the construction permit as stated above is reasonable and appropriate. The AHO remands this matter back to ADEQ to make this change to the construction permit.

Issue 14 - Concurrent sampling 100 feet from the river

The JPG appealed Condition 5, Part III, in the pipeline permit which requires installation of a sampling station 100 feet from the Ouachita River. That would require setting up an automated sampling system with power, access, flood protection, and other issues that

would have to be addressed. The JPG and ADEQ agreed to an alternative procedure for conducting the comparison testing. The alternative procedure will insure that the sampling is representative. *T. Vol. 7, 986-990.* The alternative procedure is as follows:

> Grab samples may be taken within 100 feet from the Ouachita River for the comparison sampling, provided that the flow measured at the location of the grab sample must be representative of the flow measured by the composite sampler.

The AHO finds the other parties did not object to this revision. The AHO finds the proposed revision to Condition 5, Part III of the pipeline permit as stated above is reasonable and appropriate. The AHO remands this matter back to ADEQ to make this revision to the pipeline permit.

Issue 15 - Typographical error in description of wastewater

The GLCC permit and the EDCC permit contain errors in the description of the wastewater sources. ADEQ and JPG agreed to alternative language that corrects these errors. The description of the wastewater in the GLCC Permit for Outfall 002 should be revised as follows:

> Outfall 002 – stormwater runoff, wastewaters from Outfall 001 and Outfall 002 at Great Lakes Chemical Company's South Plant (NPDES Permit AR0000680).

The description of the wastewater in the EDCC permit for Outfall 001 should be revised as follows:

> Outfall 001 – treated process and contaminated storm water."

The AHO finds the other parties did not object to these revisions. The AHO finds the proposed revisions to the GLCC and EDCC permits as stated above are reasonable and appropriate. The AHO remands this matter back to ADEQ with instructions to make this revision to the permits.

C. ARKANSAS MUNICIPAL LEAGUE

The Arkansas Municipal League filed a Petition for Declaratory Order seeking an order as to whether or not ADEQ has the authority to impose a phosphorus limit. Counsel for the Municipal League is also counsel for the JPG. In the "Ordered" section of the proposed Findings of Fact and Conclusions of Law submitted by ADEQ and JPG, the Municipal League's declaratory order request is dismissed. The AHO accepts this statement and will dismiss the request.

IT IS THEREFORE ORDERED:

1. The joint pipeline permit and individual permits issued by the Arkansas Department of Environmental Quality are affirmed, in part, and reversed and remanded, in part.

2. The following matters are reversed and remanded to the Director with the following instructions:

a. Mercury – Method 245.7 is to be substituted for Method 245.1.

b. Zinc – The language in the joint pipeline permit on Page 2, Paragraph 7(A) of the Fact Sheet shall be revised as follows: "The receiving stream for Outfall 010 (the Ouachita River) is not listed on the 303d list for mercury and zinc." This same sentence also shall be included in the appropriate paragraph in the Fact Sheet of the individual permits.

c. Individual permits - The following language shall be included in the individual permits as follows:

> Condition 5, Part III, OTHER CONDITIONS of the City Permit; Condition 2, Part III, OTHER CONDITIONS of the Lion Permit; Condition 2, Part III, OTHER CONDITIONS of the GLCC Permit; and Condition 2, Part III, OTHER CONDITIONS of the EDCC Permit should be replaced with the following: *"Once the discharge to the Pipeline has commenced, Permittee shall notify ADEQ within 24 hours of any emergency or maintenance event that results in diverting wastewater from Outfall 010 to another permitted outfall. For non emergency and non maintenance events that may result in diverting wastewater from Outfall 010 to another permitted outfall, the Permittee must provide notice and an explanation of the anticipated diversion to ADEQ at least two weeks in advance of such event; and ADEQ may, in its discretion, condition the diversion of wastewater from Outfall 010 to another permitted outfall as may be reasonably necessary to protect human health and the environment."*

d. Construction Permit – It shall be amended by adding a condition that states: "The commencement date for construction may be extended due to financing constraints, or for other good cause shown."

e. Sampling – Condition 5, Part III, shall be amended to state as follows:

Grab samples may be taken within 100 feet from the Ouachita River for the comparison sampling, provided that the flow measured at the location of the grab sample must be representative of the flow measured by the composite sampler.

f. Typographical errors - The GLCC permit and EDCC permit contain errors in the description of wastewater sources. The description of the wastewater in the GLCC Permit for Outfall 002 shall be revised as follows:

> Outfall 002 - stormwater runoff, wastewaters from Outfall 001 and Outfall 002 at Great Lakes Chemical Company's South Plant (NPDES Permit AR0000680).

The description of the wastewater in the EDCC permit for Outfall 001 shall be revised as follows:

> Outfall 001 - treated process and contaminated storm water."

3. The Petition for Declaratory Order filed by the Arkansas Municipal League is dismissed.

4. This docket is closed.

RECOMMENDATION

It is the recommendation of the administrative hearing officer that the Arkansas Pollution Control and Ecology Commission adopt and affirm, without modification, the findings of fact and conclusions of law set out in the above Recommended Decision.

This 8th day of May 2008.

Michael O'Malley

Michael O'Malley
Administrative Hearing Officer

Certificate of Service

I, Patricia Goff, Commission Secretary, hereby certify that a copy of the foregoing Order No. 9, In The Matter Of El Dorado Joint Pipeline Group Permits, Consolidated Docket No. 07-006-P, has been mailed by certified mail or by first class mail, postage prepaid, to the following parties of record, this 8th day of May 2008.

Certified Mail 7007 1490 0003 3819 9603
T. David Carruth
PO Box 91
Clarendon, AR 72029
(870) 787-3839
(870) 787-5695

Certified Mail 7007 1490 0003 3819 9597
Charles R. Nestrud
Chisenhall, Nestrud & Julian, P.A.
400 W. Capitol, Ste 2840
Little Rock, AR 72201
(501) 372-5800
(501) 372-4941

Certified Mail 7007 1490 0003 3819 9580
Jill M. Witkowski/Farris DeBoard
Bronwen Reichle
6329 Freret Street
New Orleans, LA 70118
(504) 862-8814
(504) 787-8721

Certified Mail 7007 1490 0003 3819 9573
Richard H. Mays
2000 Hwy 25 E. North, Ste A-2
Heber Springs, AR 72543
(501) 362-0055
(501) 362-0059

Certified Mail 7007 1490 0003 3819 9566
Ryan M. Seidemann/Megan K. Terrell
Latonya L. Ozene
Assistant Attorneys General
Civil Division/Lands & Natural Resources
Post Office Box 94005
Baton Rouge, LA 70804-9005
(225) 326-6085
(225) 326-6099

Certified Mail 7007 1490 0003 3819 9559
Carolyn O. Bryant, Legal Division
Louisiana Department of Environmental Quality
PO Box 4302
Baton Rouge, LA 70821-4302

Certified Mail 7007 1490 0003 3819 9542
Mark R. Hayes
Arkansas Municipal League
PO Box 38
N. Little Rock, AR 72115
(501) 978-6102
(501) 978-6560

Dara Hall/Jamie Ewing
Benjamin Jones
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72218
(501) 682-0886
(501) 682-8891

Patricia Goff
Commission Secretary
Arkansas Pollution Control and Ecology Commission
101 East Capitol, Suite 205
Little Rock, Arkansas 72201
(501) 682-7890
Fax: 682-7891

BEFORE THE
ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF	**CONSOLIDATED DOCKET**
EL DORADO JOINT PIPELINE	**NO. 07-006-P**
GROUP PERMITS	

REQUEST FOR ORAL ARGUMENT ON RECOMMENDED DECISION
AND
REQUEST FOR EXTENSION OF TIME
ALLOWED FOR ORAL ARGUMENT

Comes The State Of Louisiana, ex rel. James D. "Buddy" Caldwell, Attorney General, by and through the Louisiana Department Of Environmental Quality ("LDEQ"), the Louisiana Department Of Culture, Recreation, and Tourism ("LDCRT"), and the Louisiana Department Of Wildlife And Fisheries ("LDWF") (hereinafter collectively referred to as "The State Of Louisiana" or simply, "Louisiana," and, pursuant to Regulation 8, Section 2.5.19 of the Regulations of the Commission, submits its Request for Oral Argument on the Recommended Decision of the Administrative Hearing Officer in the above entitled and numbered matter dated and entered May 8, 2008.

In support of its Request, the State of Louisiana hereby submits its factual objections and legal issues to be raised at such Oral Argument:

FACTUAL OBJECTIONS

1. Louisiana Objects To The Finding Of The Administrative Hearing Officer That Louisiana Was Provided With A Realistic Opportunity To Provide Meaningful Comments To The Arkansas Department Of Environmental Quality ("ADEQ") Prior To The Issuance Of The Permits In This Case By ADEQ On February 28, 2007.

Findings of the AHO

The AHO found that Louisiana began commenting on the modeling work of the Joint Permit Applicants' environmental consultant, GBMc, as early as 2005; that it requested additional information on that work at least seven times; and on four occasions requested ADEQ to defer issuance of the Permits until it received additional information upon which to base substantive comments. However, the AHO found that he had no reason to believe that Louisiana would have submitted any meaningful comments on the Revised Final Report had it been given additional time to review it.

Louisiana's Objections to AHO's Findings

The AHO's findings fail to acknowledge that the comments of Louisiana and those of other participating agencies pointed out errors in a large number of methods, findings and statements in GBMc's "Interim Report" dated March 2005; made several requests that GBMc conduct additional field work to verify or change information in the Interim Report believed to be erroneous by the commenting parties; and continuously requested copies of GBMc's modeling data. GBMc never complied with the requests for additional field work or information. Instead GBMc proceeded to finish its Final Report dated June 1, 2006, and its Revised Final Report of February 15, 2007, in complete disregard of those agency's comments.

A "Final Report" was submitted by GBMc to ADEQ on June 1, 2006, which was submitted to Louisiana. Louisiana, in turn, raised issues regarding the computer model used by GBMc, which produced results that were inconsistent with known data. ADEQ submitted those comments to GBMc to address on December 5, 2006. However, GBMc failed to respond or produce their models to Louisiana. Instead, it submitted a "Revised Final Report" to ADEQ on February 13, 2007, which in turn, submitted it to Louisiana on February 15 with a request that Louisiana provide comments on the Revised Final Report by February 20 – ***five days later***. This, Louisiana was unable to do. Even GBMc's computer modeler, Greg Phillips, agreed that this was an unreasonably short period of time.

ADEQ issued the permit in February 28, 2007 – 13 days after submitting the Revised Final Report to Louisiana. The computer model upon which

the Revised Final Report was based was not submitted to Louisiana until May 9, 2007, and Louisiana's modeling expert immediately determined, as he had suspected, that the model was defective in that the two dams (Thatcher and Felsenthal) that were in the stretch of river modeled by GBMc were missing from the model.

If ADEQ had not unreasonably rushed to issuance of the permit, and GBMc had provided the computer versions of its models upon request by Louisiana, the non-presence of the two dams would have been promptly detected, and this would not be an issue.

It is a well-established and simple matter of administrative due process that opportunity for comment in an administrative proceeding must be a *meaningful* opportunity. An agency's action based on information that was not in the public record at the time the decision was made, and upon which the public had not been given an opportunity to comment, requires a remand of the matter to the agency. If the public is informed of the rationale only after the close of the comment and hearing period, then the agency cannot be said to have provided a realistic opportunity for public hearings or meaningful comments.

2. The Finding Of The Administrative Hearing Officer That The Permits Were Based Upon Generally-Accepted Scientific Knowledge and Engineering Practices Was Erroneous Because The Water Quality Model Relied Upon A Model That Was Programmed To Not Recognize Two Dams (The Thatcher Dam and the Felsenthal Dam) That Were Present In The Modeled Portion Of The River, And That Did Not Represent The River As It Exists.

Findings of the AHO

The AHO found that, after the Permits had been issued and during discovery for the hearing on the appeals before the AHO, Louisiana discovered that the version of the HEC-RAS computer model used by GBMc to determine hydrology of the river was the wrong version, and did not reflect the presence of the Thatcher and Felsenthal Dams. **(RD 15-16)** The AHO further found that GBMc conducted further data-gathering in August 2007, and found that the river was deeper than GBMc's previous data had indicated. **(RD 16)** The AHO further found that GBMc reran its QUAL2K model using the new data, and found that the new data did not make a significant difference in the results. **(RD 17).** Based upon this, the AHO found that "the modeling of the Ouachita River and Felsenthal clearly meets the standard of 'generally accepted scientific knowledge and engineering practice.'" **(RD 17)**

Louisiana's Objections to AHO's Findings

It is undisputed that GBMc, the Joint Permit Applicants' environmental consultant, used a version of a computer model (the HEC-RAS model) that did not show the presence of two major dams in the Ouachita River. This, in effect, turned the river from a series of slow-flowing, deep pools into a free-flowing shallower river. All modeling experts in the case testified that in modeling a body of water, the hydrology (*i.e.*, depth, width, flow, slope) must be correct. If not, the results will be wrong.

GBMc admits that it did not get the hydrology correct before the permits were issued because the modeling upon which the permits were based was faulty. Due to ADEQ's failure to review the data and haste in issuing the permit, the faulty modeling was not discovered by Louisiana until it was provided the GBMc computer model in May 2007.

After the permit was issued, GBMc gathered additional data from the Ouachita River, in a *post hoc* rationalization to shore-up the permit, which found that the river was substantially deeper than its previous modeling assumptions. However, not surprisingly, GBMc then found that the deeper depths did not make much difference in the results. The AHO seized upon this new information to find that that the use of the faulty HEC-RAS model did not matter, and that "the modeling of the Ouachita River and Felsenthal clearly meets the standard of 'generally accepted scientific knowledge and engineering practice.'" GBMc's consistent record of errors in this case makes this "finding" suspect as well.

The modeling experts testified that in conducting the QUAL and HEC-RAS modeling, it was critical to get the hydrology (*i.e.*, the flow, depth and width) of the river correct. The modeling of the Ouachita River conducted by GBMc clearly did not rise to the standard of "generally accepted scientific knowledge and engineering practice."

The Permits themselves state that they are based upon the GBMc Final Report of June 1, 2006 and Revised Final Report of February 2007, which included the fatally-flawed modeling. ADEQ's witnesses – Mr. Martin Maner and Mr. Mo Shafii – testified that it was important that the dams be reflected in the GBMc models. Mr. Maner's testimony shows that he did not believe that the permits were based on sound science and engineering practice. Mr. Maner's testimony also shows that ADEQ issued the permits without waiting for Louisiana's comments on the Revised Final Report – which would have disclosed the flaws in GBMc's modeling. His testimony indicated that since El Dorado Chemical was under an administrative order, ADEQ was in a hurry to issue the permits.

It is further important to note that GBMc's post-permit work – relied upon by the AHO to justify the permits – has never been subjected to public notice and opportunity for comment upon its soundness. The scientific basis for these permits is so dubious and questionable that the permits should be returned to ADEQ for republication of the permits and their scientific basis and for obtaining additional public comment. The integrity of ADEQ and the permitting process requires that this republication be done.

3. The Findings Of The Administrative Hearing Officer Are Erroneous That ADEQ Complied With The Requirements Of 33 U.S.C. §1341(a)(2), 40 C.F.R. §122.4(d) and Arkansas Pollution Control & Ecology Commission Regulation 6.104(A)(3) By Ensuring Compliance With Applicable Water Quality Requirements Of Louisiana In Issuing The NPDES Permits.

Findings of the AHO

The AHO found that ADEQ adequately "ensured" that the discharges from the proposed Pipeline would not adversely affect applicable water quality requirements of Louisiana. This finding is completely without basis in the administrative record.

Louisiana's Objections to AHO's Findings

All of the experts who testified on the subject stated that, as the modeling of the effect of the pipeline effluent on water quality of the Ouachita River did not extend beyond one mile downstream of the Felsenthal Dam (a point approximately five miles upstream of the Arkansas-Louisiana line), it was impossible to determine the effect of the discharge on the waters of Louisiana.

Modeling of the river was terminated one mile downstream of the Felsenthal Dam because GBMc and its clients did not want to have to deal with the complication of the wastewater effluent of Georgia-Pacific's industrial complex and the City of Crossett that are discharged into the Ouachita River only slightly further downstream.

GBMc's modeler, Greg Phillips, acknowledged that he could not say what the impact of the pipeline discharge would be on the State of Louisiana. **(R. 1413)**. Mr. Dick Duerr, Louisiana's modeling expert, testified **(R. 166, 174-175, 184)** that without modeling to the state line, there was no way to predict the potential impact of the discharges from the proposed pipeline on Louisiana's waters. Mr. Duerr further testified that the Ouachita River in Louisiana is currently heavily impacted with low dissolved oxygen, and that nutrients and phosphorous that promote algae growth are a major concern. **(R. 166, 2123-2126)**

GBMc's Revised Final Report **(JX 15)** clearly shows that elevated levels of nutrients and phosphorous attributable to the pipeline will enter Louisiana's waters. **(Duerr R. 173, 2125)**. There is no assurance based on evidence in the administrative record that Louisiana's water quality will not be impacted.

Findings of the AHO

The AHO, citing an exhibit submitted by the Joint Pipeline Group, states in his Recommended Decision that "[i]n a letter to ADEQ on April 20, 2005, LDEQ requested that the modeling extend only to the Felsenthal Lock and Dam." (**RD 23)** This is a false statement and is without basis in the administrative record; thus, the AHO's reliance on same is inherently flawed.

Louisiana's Objections to AHO's Findings

Nowhere in the comments to ADEQ dated April 29, 2005, does LDEQ request that the model extend only to the Felsenthal Lock and Dam. *See*, JPG 221. In fact, JPG 221 is actually only one page of a three page document. The missing two pages include the letter from LDEQ to ADEQ to which the comments dated April 29, 2005, were attached. LA 1 contains the complete exhibit, which includes a letter from LDEQ to ADEQ, dated June 16, 2005, transmitting the comments found in JPG 221. **(LA 1) (R. 55).** This letter states, in pertinent part,

> …LDEQ believes that more extensive modeling should be done to include nutrient cycle modeling and to examine the effect on the water quality of the Ouachita River down to the state line. The existing model did not examine nutrients and only examined the reach of the Ouachita River upstream of the Felsenthal Reservoir…

(LA 1) (R. 55). Furthermore, such a misinterpretation of LDEQ's request is in stark contrast to the numerous occasions in which LDEQ very clearly expressed its concerns about the proposed pipeline discharge on Louisiana's waters and the lack of modeling between Felsenthal Dam and the state line. LDEQ requested, on no less than four occasions, that the modeling be extended to the state line. (**LA 1; 2; 4; 12) (R. 55; 69; 73-74; 80-82);** *see also* (**LA 23**) (**R. 61)**.

LEGAL ISSUES

1. **Whether Louisiana Must Be Provided With A Realistic Opportunity To Provide ADEQ With An Opportunity To Present Meaningful Comments On The Permit Application.**

2. **Whether Permit Limitations Based Upon Water Quality Modeling That Does Not Accurately Reflect Conditions Of The River Comply With The Requirement Of Ark. Code Ann. §8-4-203(2)(B)(i) That Discharge Limits In Permits Be Based Upon Generally-Accepted Scientific Knowledge and Engineering Practices?**

2. **Whether ADEQ And The Permit Applicants Have An Obligation Under Federal And State Laws And Regulations To Assure That The Proposed Permit Will Ensure Compliance With The Water Quality Requirements Of Louisiana.**

RELIEF SOUGHT

The State of Louisiana requests that the Commission reverse the Administrative Hearing Officer on his Findings as set forth above, and remand the Permits to ADEQ for additional water quality modeling in accordance with generally-accepted scientific knowledge and engineering practices; for additional opportunity on the part of the State of Louisiana and the public to comment upon the modeling of the Joint Permit Applicants; and to enable ADEQ and the Joint Permit Applicants to ensure that the proposed Permits will ensure water quality requirements of the State of Louisiana.

REQUEST FOR EXTENSION OF TIME ALLOWED FOR ORAL ARGUMENT

Also pursuant to Regulation 8, Section 2.5.19(h) of the Regulations of the Commission, the State of Louisiana requests that the time for the making of oral argument to the Commission be extended from fifteen (15) minutes to thirty (30) minutes per side, with Louisiana, Save the Ouachita and the Louisiana Environmental Action

Network sharing one thirty-minute period, and the Joint Permit Applicants and ADEQ sharing another thirty-minute period. This request is made for the following reasons:

1. This appeal is generally considered to involve the most complex permit issued by ADEQ, and involves multiple issues requiring additional time for meaningful presentation;
2. This is the first permit in the State of Arkansas in which four dischargers have been permitted to discharge through a common point source;
3. The Felsenthal Wildlife Management Area is downstream of the discharge point, and there is a significant potential that the discharge will affect that Area;
4. The permit is based upon multiple computer models that require time for explanation and discussion; and,
5. There are numerous parties, and imposing a fifteen minute limitation per side would render oral argument virtually meaningless.

WHEREFORE, The State of Louisiana ex rel. James D. “Buddy” Caldwell, Attorney General, by and through the Louisiana Department Of Environmental Quality, the Louisiana Department Of Culture, Recreation, and Tourism, and the Louisiana Department Of Wildlife And Fisheries, requests that it be granted opportunity for oral argument on the factual and legal issues set forth above; and that the time for oral argument be extended to thirty (30) minutes per side, with Louisiana, Save the Ouachita and the Louisiana Environmental Action Network sharing one thirty-minute period, and the Joint Permit Applicants and ADEQ sharing another thirty-minute period.

Respectfully submitted,

RICHARD H. MAYS LAW FIRM

By: __//Richard Mays //_____

Richard H. Mays (AR Bar #61043)
115 South Third Street – Suite 2
P.O. Box 1450
Heber Springs, AR 72543
(501) 362-0055
e-mail: rhmays@ix.netcom.com

JAMES D. "BUDDY" CALDWELL
ATTORNEY GENERAL OF
THE STATE OF LOUISIANA

Megan K. Terrell (LA #29443)
Ryan M. Seidemann (LA #28991)
Assistant Attorney General
Civil Division/Lands & Natural Resources
Post Office Box 94005
Baton Rouge, Louisiana 70804-9005
TEL: (225) 326-6085
FAX: (225) 326-6099

Carolyn Bryant, Esq.
Legal Division
Louisiana Department of Environmental Quality
Post Office Box 4302
Baton Rouge, LA 70821-4302

CERTIFICATE OF SERVICE

I, Richard H. Mays, do hereby certify that on the date set forth below, I did forward a copy of the above and foregoing document to counsel of record by depositing the same in the U.S. Postal Service with sufficient postage to arrive at its destination, addressed to:

Charles R. Nestrud, Esq.
Chisenhall, Nestrud & Julian, P.A.
400 W. Capitol – Suite 2840
Little Rock, AR 72201

Dawn Guthrie, Esq. / Jamie Ewing, Esq.
Arkansas Department of Environmental Quality
8001 National Drive
Little Rock, AR 72219-8913

T. David Carruth, Esq.
P. O. Box 91
Clarendon, AR 72029

Mark R. Hayes, Esq.
Arkansas Municipal League
P. O. Box 38
North Little Rock, AR 72115

Ryan M. Seidemann, Esq.
Megan K. Terrell, Esq.
Assistant Attorneys General
Civil Division – Lands & Natural Resources
P. O. Box 94005
Baton Rouge, LA 7080409005

Carolyn Bryant, Esq.
Legal Division
Louisiana Department of Environmental Quality
P. O. Box 4302
Baton Rouge, LA 70821-4302

Jill M. Witkowski, Esq.
Matthew Fraser, Esq.
6329 Freret Street
New Orleans, LA 70118

DATED: May 28, 2008.

_____
Richard H. Mays

BEFORE THE ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF:

DOCKET NO. _____

STATE OF LOUISIANA

VERSUS

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

PERMIT NOS. AR0050296, AR0000752, AR0049743, AR0001171, AR0000647

STATE OF LOUISIANA'S REQUEST FOR COMMISSION REVIEW AND ADJUDICATORY HEARING

NOW BEFORE THE COMMISSION, through undersigned counsel, comes Intervenor, THE STATE OF LOUISIANA, EX REL. CHARLES C. FOTI, JR., ATTORNEY GENERAL, BY AND THROUGH THE LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY ("LDEQ"), THE LOUISIANA DEPARTMENT OF CULTURE, RECREATION, AND TOURISM ("LDCRT"), and THE LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES ("LDWF") (hereinafter collectively referred to as "the State of Louisiana" or "Petitioner"), and respectfully requests that the Arkansas Pollution Control and Ecology Commission ("the Commission") review a final permitting action of the Arkansas Department of Environmental Quality ("ADEQ") as described in more detail herein. Petitioner files this appeal as the State agency designated as public trustee of the environment and the natural resources of the State of Louisiana in order to protect the rights and interests of the State and its citizens and to ensure that the State's valuable natural resources are protected in accordance with the health, safety, and welfare of the people. The State also requests that an adjudicatory hearing be held on the matters stated as follows:

PARTIES

1.

The State of Louisiana brings this action on behalf of the above-noted agencies, which are all arms of the State, and its adversely affected citizens. The Attorney General of Louisiana is designated, pursuant to La. Const. Art. IV, Sec. 8, as the chief legal officer and primary trustee for bringing litigation on behalf of the state agencies to protect the State's natural resources.

2.

The Louisiana Department of Environmental Quality is the primary agency of the State designated as trustee for the protection, preservation, and regulation of the environment and natural resources of the State. As such, LDEQ has a direct and substantial interest in ensuring that ADEQ adheres to the laws and regulations governing water quality standards and environmental quality.

3.

The Louisiana Department of Culture, Recreation, and Tourism is the primary agency of the State responsible for the development and implementation of cultural, recreational, and tourism programs and activities throughout the State and for greater development of the State's cultural and physical potential. As such, LDCRT is concerned by ADEQ's decision to issue the discharge permits because of the potential of the discharges to contribute to the environmental degradation of the Ouachita River, thereby increasing the damaging effects of increased pollution on Louisiana's tourism and cultural resources.

4.

The Louisiana Department of Wildlife and Fisheries is the primary agency in the State responsible for the management, protection, conservation, and replenishment of wildlife, fish,

and aquatic life, including the conservation and management of all renewable resources on all scenic rivers. Thus, LDWF has a direct and substantial interest in ensuring that the proposed discharge(s) will not have an adverse effect on the upper Ouachita River in Louisiana, which is designated as a Natural and Scenic River.

5.

Therefore, the State of Louisiana hereby appeals from an ADEQ final permitting decision pursuant to Arkansas Code §8-4-205. Specifically, Petitioners challenge the February 28, 2007, issuance of NPDES permit number AR0050296 for the proposed "El Dorado Project," a Joint Pipeline to the following applicants/permittees:

El Dorado Water Utilities (operator)
1119 Victor Dumas Drive
P.O. Box 1587
El Dorado, AR 71731

Great Lakes Chemical Company—Central Plant
2226 Haynesville Hwy
P.O. Box 7020
El Dorado, AR 71731-7020

Lion Oil Company—El Dorado Refinery
1000 McHenry Ave
El Dorado, AR 71730

El Dorado Chemical Company.
4500 North West Avenue
P.O. Box 231
El Dorado, AR 71731-0231

This is a new permit for which the permittees submitted a permit application on November 16, 2004.

6.

Petitioner also challenges, under Arkansas Code §8-4-205, the issuance of the following NPDES permit renewals: AR0000752 to El Dorado Chemical Company, AR0049743 to El Dorado Water Utilities, AR0001171 to Great Lakes Chemical Corporation – Central Plant, and AR0000647 to Lion Oil Company – El Dorado Refinery. For purposes of this challenge, Petitioner will hereinafter collectively refer to the new permit, cited above, and the modification

and renewal of the four existing permits as one final agency action or decision – the NPDES permits.

7.

As indicated above, the State of Louisiana has a substantial interest in this matter and is potentially adversely affected and damaged by ADEQ's final decision to issue the aforementioned NPDES permits, as alleged below. The State of Louisiana is an aggrieved person who is entitled to appeal ADEQ's final permit action pursuant to Arkansas Code §8-4-205.

8.

The ADEQ is an agency of the State of Arkansas with the power to sue and be sued and took the final permit action in this matter.

9.

Louisiana's Petition for Review and Hearing is made under Commission Regulation No. 8. This Commission has jurisdiction to hear this matter and it is ripe to be heard.

BACKGROUND

10.

On November 16, 2004, the permittees submitted an application for a new NPDES permit for the El Dorado Project. The individual permitees submitted their applications for modification of their existing permits as follows:

a) Lion Oil Company – El Dorado Refinery, Permit No. AR0000647 – 9/20/04

b) Great Lakes Chemical Corporation, Permit No. AR0001171 – 10/05/04

c) El Dorado Chemical Company, Permit No. AR0000752 – 10/07/04

d) El Dorado Water Utilities, Permit No. AR0049743 – 11/16/04

11.

On or about February 14, 2005, LDEQ was contacted by the Environmental Protection Agency ("EPA"), Region 6, whereby the EPA requested certain information related to the ADEQ proposed El Dorado project.

12.

On May 2, 2005, LDEQ transmitted an email to the EPA notifying same that the Multi-SMP Model of the Ouachita River for the El Dorado discharges would not be adequate to predict the potential impact from nutrient loading to a system as complex as the Ouachita River.

13.

In a letter dated June 16, 2005, LDEQ transmitted to ADEQ its comments on the El Dorado Pipeline Model. Specifically, LDEQ noted that more extensive modeling should be done to include nutrient cycle modeling and to examine the effect on the water quality of the Ouachita River down to the Arkansas-Louisiana state line.

14.

On March 22, 2006, ADEQ issued a public notice on the draft permit and scheduled a public meeting and a public hearing on the draft permit for May 18, 2006, to receive public comment on the permits. The deadline for submittal of comments on the draft permit was extended to June 21, 2006.

15.

In an email dated May 4, 2006, ADEQ transmitted to LDEQ an electronic copy of the "Interim Report Ouachita River and Felsenthal System Water Quality Modeling – Calibrated Model Inputs (QUAL2K, WASP, AQUATOX)." The Interim Report had no projection

modeling results that could be used to identify any impacts on the Ouachita River or the State of Louisiana.

16.

In a letter to ADEQ dated May 17, 2006, LDEQ stated its concern about the potential impact of the combined discharges to the Ouachita River in Louisiana. Due to the lack of sufficient information to determine whether the discharge will have an adverse impact on Louisiana's waters, LDEQ requested that ADEQ extend the public comment period 30 days past the date that the final modeling report is made available for review in order to ensure adequate time to review and comment on the final modeling report.

17.

On May 18, 2006, LDEQ submitted comments during the public hearing on the draft permit. The comments stated among other things, that "[w]e are concerned about the potential impact with the nutrient loading in the Ouachita River in Louisiana...we feel like we have inadequate information upon which to make detailed comments. Therefore, we are asking for an extension of the comment period. We will reserve our judgment until we see the final modeling report..."

18.

In a letter dated May 22, 2006, LDCRT stated its concern about the potential impacts of the combined discharge into the Ouachita River north of the Louisiana border. LDCRT again requested that ADEQ extend the public comment period for 30 days after the final modeling report is submitted so that LDEQ could properly determine whether the proposed discharge will have an adverse impact on Louisiana waters and the adjacent riparian economy and cultural resources.

19.

In a letter dated May 22, 2006, LDWF stated that the upper Ouachita River in Louisiana is designated as a Natural and Scenic River which has prompted that agency's concern regarding the proposed pipeline and the draft permit. LDWF stated that in order for them to formulate and submit meaningful comments on the project, they must determine whether the proposed activity poses significant potential for ecological degradation to a river system. Thus, LDWF objected to this proposal due to the limited information provided regarding the project. LDWF requested that they be provided with a final and complete modeling report and ample time to review and comment on such report.

20.

On June 13, 2006, LDEQ received an email from ADEQ transmitting an electronic copy of the Final Nutrient Study Report.

21.

In a letter dated June 20, 2006, LDEQ requested that the draft pipeline permit not be issued in order to allow adequate time for all interested parties to review and comment on the final nutrient modeling report. LDEQ stated that it anticipated that the modeling report would provide information that would enable a more accurate determination of the potential impact of the discharge on the Felsenthal Reservoir and the lower Ouachita River. Alternatively, LDEQ requested that ADEQ extend the comment period at least 30 days past the date that the final modeling report becomes available for review.

22.

In a letter dated July 10, 2006, LDEQ sent an email to ADEQ commenting on the Final Nutrient Study Report. The letter expressed LDEQ's concerns about the projected increases in

total nitrogen and chlorophyll A in the Ouachita River below the Felsenthal Dam. LDEQ also requested a 90 day extension on the comment period to allow further time for an adequate review of the report.

23.

In a letter dated July 26, 2006, the State of Louisiana, through its Attorney General Charles C. Foti, Jr., expressed its concern about the proposed pipeline discharges on the Ouachita River below the Arkansas state line, and the lack of sufficient information for LDEQ to make a determination of the impact of such a proposal. The Attorney General's Office supported LDEQ's request for a 90 day extension of the comment period to ensure that LDEQ could discharge its legal duty to ensure the safety of Louisiana's environment and natural resources.

24.

In an email dated July 26, 2006, ADEQ declined to extend the comment period beyond July 21, 2006.

25.

On or around the period of July 31, 2006 through February 14, 2007, LDEQ sent several emails to ADEQ transmitting their comments on the El Dorado project and proposed permits.

26.

In an email dated February 15, 2007, ADEQ submitted to LDEQ the revised Final Modeling Report and Appendix A and requested that comments be submitted by February 20, 2007. The revised Final Modeling Report and Appendix A did not include the necessary information for the LDEQ to perform a considered review of the results. LDEQ has requested the information from the ADEQ, but have not to date received such information.

27.

On February 16, 2007, LDEQ responded to ADEQ's comment request and stated that LDEQ would be unable to perform an adequate review of the revised report within the five-day time frame allowed and thus LDEQ was unable, at this time, to withdraw their objections to the issuance of permits for the proposed pipeline on the grounds that there was insufficient information on which to base an adequate and reasoned determination on the effect of the proposed discharges; thus, ADEQ lacked sufficient information to have a complete record of decision.

28.

On February 28, 2007, ADEQ notified LDEQ that the discharge permits had been signed, with an effective date of April 1, 2007.

APPLICABLE LAW

29.

Arkansas Code Section 8-4-203 states that the ADEQ final permitting decision "shall include a response to each issue raised in any public comments..." and that "[s]uch response shall manifest reasoned consideration of the issues raised by the public comments and shall be supported by appropriate legal, scientific, or practical reasons for accepting or rejecting the substance of the comment in the department's permitting decision."

30.

Arkansas Code Ann. §8-4-207 states that the Director of the Arkansas Pollution Control and Ecology Commission "is authorized to require conditions in permits...regarding the achievement of effluent limitations based upon the application of such levels of treatment technology and processes as are required under the federal act or *any more stringent effluent*

limitations necessary to meet water quality criteria...established pursuant to any state or federal law or regulation." Ark. Code Ann. §8-4-207(1)(A). Emphasis added.

31.

Arkansas law further states, "the director shall not issue a permit...if the discharge of any term of the permit would violate the provisions of any federal law or rule or regulation promulgated thereunder." Ark. Code Ann. §8-4-207(2).

32.

Section 301 of the Clean Water Act ("CWA") requires an NPDES permit to impose any effluent limitations necessary to comply with water quality standards established pursuant to any State law or regulation. CWA § 301(b)(1)(C), 33 U.S.C. § 1311(b)(1)(C).

33.

Section 402 of the CWA authorizes Arkansas to establish "its own permit program for discharges into navigable waters within its jurisdiction." CWA § 402(b), 33 U.S.C. § 1342(b). The CWA also requires Arkansas, when classified as an upstream state, to satisfy the CWA procedural protections for Louisiana, the downstream state, including providing notice and the opportunity to comment on a permit application. CWA §§ 402(b)(3), (5), 33 U.S.C. §§ 1342(b)(3), (5).

34.

Moreover, the Environmental Protection Agency has promulgated regulations pursuant to the CWA. These regulations provide that an NPDES permit shall not be issued, "[w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected states." 40 C.F.R. § 122.4(d) (2007), *see also*, 40 C.F.R. § 122.44(d)

(2007). This restriction applies to permits issued by Arkansas, an approved state APDES program. *See*, 40 C.F.R. § 123.25 (2007).

35.

In *Arkansas v. Oklahoma*, 503 U.S. 91 (1992), the United States Supreme Court upheld EPA's statutory discretion to impose permit conditions to ensure compliance with the applicable water quality standards of all affected states, noting that its regulations require it to do so. *Id.* at 105-107.

ASSIGNMENTS OF ERROR

36.

ADEQ failed to ensure that the discharge(s) under the challenged permits would not violate the provisions of federal law, rules, or regulations requiring that permit conditions be established to ensure compliance with Louisiana's water quality standards.

37.

ADEQ's Basis for Decision fails to examine environmental impacts from the project specifically noted by Petitioner in its comments and by comments submitted to ADEQ on the draft Permit by other interested persons.

38.

ADEQ failed to adequately respond to LDEQ's comments and to comments submitted by other persons, and to the extent that ADEQ did respond, such responses did not adequately include sufficient reasoned consideration of the issues raised by Petitioner and other commentors, nor were they supported by appropriate legal, scientific, or practical reasons, insofar as ADEQ did not possess adequate information to make such a determination.

39.

ADEQ failed to adequately respond to LDWF's comments and to comments submitted to ADEQ by other persons, and to the extent that ADEQ did respond, such responses did not adequately include sufficient reasoned consideration of the issues raised by Petitioner and other commentors, nor were they supported by appropriate legal, scientific, or practical reasons, insofar as ADEQ did not possess adequate information to make such a determination.

40.

ADEQ failed to adequately respond to LDCRT's comments and to comments submitted to ADEQ by other persons, and to the extent that ADEQ did respond, such responses did not adequately include sufficient reasoned consideration of the issues raised by Petitioner and other commentors, nor were they supported by appropriate legal, scientific, or practical reasons, insofar as ADEQ did not possess adequate information to make such a determination.

41.

In issuing the NPDES permits, ADEQ failed to perform sufficient analyses to determine whether adverse environmental impacts have been minimized or avoided as much as possible consistently with the public welfare and citizens of affected downstream states.

42.

ADEQ's granting of the NPDES permit number AR0050296, authorizing the permittees to discharge to the joint pipeline and into the Ouachita River, is erroneous as a matter of law and represents an arbitrary and capricious decision and is not otherwise in accordance with the law.

43.

ADEQ's renewal of the NPDES permit numbers AR0000752, AR0049743, AR0001171, and AR0000647 is erroneous as a matter of law and represents an arbitrary and capricious decision and is not otherwise in accordance with the law.

44.

ADEQ's granting and renewal of the NPDES permits violates ADEQ's duty to ensure compliance with the applicable water quality standards of all affected states, including Louisiana, in violation of Arkansas law and federal law. The failure to ensure such compliance represents an arbitrary and capricious decision that is not in accordance with the law.

45.

ADEQ'S granting and renewal of the NPDES permits violates ADEQ's duty under Ark. Code Ann. §8-4-207 because ADEQ failed to adequately consider and address potential and real adverse environmental effects of the proposed project, including the effect on the water quality standards of Louisiana, the downstream state.

46.

ADEQ's granting and renewal of the NPDES permits is in violation of Ark. Code Ann. §8-4-20 because ADEQ failed to accept and/or adequately respond to public comments on its environmental analysis. This action was arbitrary and capricious and not in accordance with the law.

47.

ADEQ's granting and renewal of the NPDES permits violates ADEQ's duty under Arkansas and federal law because the issued decision is not rationally supported by the record and evidence. Thus, the decision to grant the permits was arbitrary and capricious and not in accordance with the law.

48.

ADEQ's granting and renewal of the NPDES permits is arbitrary and capricious, an abuse of discretion, manifestly erroneous, and not supported by a preponderance of the evidence because

ADEQ disregarded the potential detrimental impact of the project on the affected downstream state.

49.

Any detrimental impact of the project on the affected downstream state was indeed disregarded. None of the modeling performed considered the impact of the pipeline discharge any farther downstream than the Felsenthal Dam in Arkansas.

a) An attempt was made to project the model to immediately below the Felsenthal Dam, but no data was gathered below the dam for calibration. This leaves the model with two problems regardless of the validity of the model hydrology and/or water quality.

b) There is no projection of dissolved oxygen at the state line. ADEQ cannot say that the model projects that LA DO criteria will be met at the state line.

c) No attempt was made to address the question of whether the pipeline discharge will cause a detrimental impact on the affected downstream state.

50.

ADEQ's granting and renewal of the NPDES permits has prejudiced substantial rights of Petitioner as defined by ADEQ rules and regulations because ADEQ's decision is in violation of Arkansas statutory provisions, regulatory provisions, and federal law; is in excess of the statutory authority of the agency; is made upon unlawful procedure; is affected by other error of law; is arbitrary and capricious or characterized by abuse of discretion or clearly unwarranted exercise of discretion; and is not supported and sustainable by a preponderance of the evidence.

RESERVATION OF RIGHT TO AMEND

51.

The State reserves its right to amend this petition.

WHEREFORE, Petitioner, the State of Louisiana, respectfully requests an adjudicatory hearing on this matter and further requests an opportunity for oral argument. The State of Louisiana also respectfully requests that this Commission:

a. Find that ADEQ acted arbitrarily, capriciously, and contrary to law through its issuance of NPDES Permit No. AR0050296;

b. Find that ADEQ acted arbitrarily, capriciously, and contrary to law through its modification and renewal of NPDES Permit Nos. AR0000752, AR0049743, AR0001171, and AR0000647;

c. Vacate NPDES Permit Nos. AR0050296, AR0000752, AR0049743, AR0001171, and AR0000647 and remand the matter to ADEQ in order that the agency can comply with the law;

d. Stay the effectiveness of the NPDES permits pending final resolution of this appeal;

e. Assign all costs in this matter to ADEQ; and

f. Award all other relief this Commission finds equitable.

Respectfully Submitted,

Richard H. Mays (AR #61043)
Richard H. Mays Law Firm
2000 Hwy 25 E North
Suite A-2
Heber Springs, AR 72543

Local Counsel Representing the State of Louisiana

CHARLES C. FOTI, JR.
ATTORNEY GENERAL

Megan K. Terrell (LA #29443)
Ryan M. Seidemann (LA #28991)
LaTonya L. Ozene (LA # 30284)
Assistant Attorneys General
Civil Division/Lands & Natural Resources
Post Office Box 94005
Baton Rouge, Louisiana 70804-9005
TEL: (225) 326-6085
FAX: (225) 326-6099

Mazie Doomes (LA # 01338)
Legal Division
La. Department of Environmental Quality
Post Office Box 4302
Baton Rouge, LA 70821-4302

CERTIFICATE OF SERVICE

I HEREBY certify that a copy of the foregoing Third-Party Request for Commission Review and Adjudicatory Hearing was on this date served, in accordance with Arkansas Regulation 8, upon all necessary parties, by certified mail, return receipt requested, postage prepaid, and sent to their last known address, as follows:

Teresa Marks
Director
Arkansas Department of Environmental Quality
Legal Division
P.O. Box 8913
Little Rock, AR 72219-8913

El Dorado Water Utilities (operator)
1119 Victor Dumas Drive
P.O. Box 1587
El Dorado, AR 71731

Great Lakes Chemical Company—Central Plant
2226 Haynesville Hwy
P.O. Box 7020
El Dorado, AR 71731-7020

Lion Oil Company—El Dorado Refinery
1000 McHenry Ave
El Dorado, AR 71730

El Dorado Chemical Company.
4500 North West Avenue
P.O. Box 231
El Dorado, AR 71731-0231

Dated: March 29, 2007.

Richard H. Mays

STATE OF LOUISIANA
COMMENTS
TO DRAFT PERMIT

CHARLES C. FOTI, JR.
ATTORNEY GENERAL

State of Louisiana
DEPARTMENT OF JUSTICE
P.O. BOX 94005
BATON ROUGE
70804-9005

July 26, 2006

Doug Szenher, Chief
Public Outreach and Assistance Division
Arkansas Department of Environmental Quality
P.O. Box 8913
Little Rock, AR 72219-8913

VIA FACSIMILE AND U.S. MAIL
(501) 682-0880

RE: El Dorado Pipeline Discharge - Modeling Analysis of the Ouachita River/Felsenthal Reservoir System

Dear Mr. Szenher:

The Louisiana Department of Environmental Quality (LDEQ) has requested an extension from your office of 90 days from July 18, 2006, in order to facilitate their review of the GBM^c modeling study that it received from you on July 17, 2006. Because the State of Louisiana has a great interest in the quality of its waterways and has a constitutional and statutory duty to protect its environment and the public health, I am writing to you today to request that you grant said extension to LDEQ to permit them to discharge their legal duties. As the State has noted to your office in numerous comment letters thus far, there is reason for concern, certainly in the absence of an independent verification of the GBM^c results, that the proposed El Dorado discharges into the Ouachita River will have adverse effects on downstream environments, both in Louisiana and Arkansas. Thus, as it will take some time for LDEQ's staff to thoroughly review the model and modeling results. As such, the Louisiana Attorney General's Office supports LDEQ's request that you extend the comment period for another 90 days in order that LDEQ may discharge its legal duties and assist in ensuring the safety of Louisiana's environment and public health.

I appreciate your consideration of this request. If you wish to discuss any concerns, please contact Ryan M. Seidemann at 225-326-6085.

Sincerely,

CHARLES C. FOTI, JR.
ATTORNEY GENERAL

By: _____
Ryan M. Seidemann
Assistant Attorney General

cc: Marcus C. Devine, Director, ADEQ
Martin Maner, Water Division Chief, ADEQ
Mo Shafii, Permits Manager, ADEQ
Amy Cotter, Water Division, ADEQ
Mike D. McDaniel, Secretary, LDEQ
Wilbert Jordan, LDEQ
Barbara Romanowsky, LDEQ
Dick Duerr, LDEQ
Kirk Cormier, LDEQ
Miguel Flores, EPA

MITCHELL J. LANDRIEU
LIEUTENANT GOVERNOR

State of Louisiana
OFFICE OF THE LIEUTENANT GOVERNOR
DEPARTMENT OF CULTURE, RECREATION & TOURISM
OFFICE OF THE SECRETARY

ANGÈLE DAVIS
SECRETARY

May 22, 2006

Doug Szenher, Chief
Public Outreach and Assistance Division
Arkansas Department of Environmental Quality
P.O. Box 8913
Little Rock, AR 72219-8913

RE: Proposed El Dorado Pipeline Discharge Permit

Dear Mr. Szenher:

The Louisiana Department of Culture, Recreation, and Tourism (LCRT) appreciates the opportunity to comment on the proposed El Dorado Pipeline Discharge Permit and the consideration of our concerns. LCRT is concerned about the potential impacts of the combined discharge into the Ouachita River north of the Louisiana border. However, at this time, due to the fact that our State has not been provided with complete scientific analyses of the potential impact from the discharge, it is impossible to reasonably gauge the effects of that discharge on Louisiana. In light of the insufficient information currently available to Louisiana to determine whether the proposed discharge will have an adverse impact on our State's waters and the adjacent riparian economy and cultural resources, we wish to reserve our right to further comment pending the review by the Louisiana Department of Environmental Quality (LDEQ) of the final modeling report on the Ouachita River/Felsenthal Reservoir System by GBM^c and Associates.

Although we are aware that LDEQ is in possession of an interim modeling report, we are also aware that that agency is unable to assess the ultimate impacts of the proposed discharge due to the lack of final modeling results in the interim report. It is our understanding that a final report is expected on or about June 1, 2006. LCRT joins in LDEQ's request that the public comment period be extended for at least thirty (30) days past the date that the final modeling report is available for review. This extension should allow sufficient time for interested agencies and parties to review and comment on the final modeling report. It is the position of LCRT that no meaningful interpretation of the impacts of the proposed discharge can be made until this final report is complete and has been reviewed by numerous qualified parties.

As the Ouachita River crosses the border into Louisiana, it becomes part of Louisiana's Scenic Rivers System, raising our concerns about the impacts of the Arkansas discharges on tourism as well as cultural resources in the Ouachita watershed. Because tourism is a

significant industry in the State of Louisiana, we are ever-sensitive to both in-state and out-of-state activities that may affect that resource. The volume of tourism revenues generated in the five rural parishes that surround the Ouachita River once it enters Louisiana are not insignificant, totaling $219,630,000.00 for the year 2004.[1] Indeed, the major city that sits on the Ouachita River in Louisiana, Monroe, received approximately 702,000 visitors in 2004.[2] These numbers, when coupled with the realization that increased pollution has been shown to have a detrimental impact on tourism activity,[3] represent a substantial cause for concern within Louisiana.

The damaging effects of increased pollution on cultural resources have also been well documented in the scientific literature of late.[4] We bring to your attention the fact that, along the Ouachita River from the Arkansas state line to the river's confluence with the Black River, there are 92 known and documented archaeological and historic sites, ranging from prehistoric to historic and including National Register listed and eligible sites and cemeteries. This number only includes sites that are situated directly adjacent to the riverbank or partly in the river itself.[5] The Ouachita River Valley is also situated in the center of the prehistoric region known for the Poverty Point culture, one of the oldest civilizations in North America. It is of no coincidence that our concern regarding the integrity of cultural resources along the Ouachita River coincides with the fact that the Poverty Point peoples often constructed their sites "along stream levees, on terrace edges, at stream-lake junctions, and in coastal environments,"[6] which also happens to be

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[1] Travel Industry Association of America (TIA), THE ECONOMIC IMPACT OF TRAVEL ON LOUISIANA PARISHES (TIA 2005).

[2] Kevin Wang, Brenda Bradrick, and Suzanne D. Cook, 2004 TRAVELSCOPE PROFILE OF U.S. TRAVELERS TO LOUISIANA (TIA 2005).

[3] J. Burger, *Assessing Environmental Attitudes and Concerns About a Contaminated Site in a Densely Populated Suburban Environment*, 101(1-3) ENVIRONMENTAL MONITORING AND ASSESSMENT 147 (2005) (noting that, among recreationists and sportsmen, pollution is a great concern in areas known to have environmental problems). See also, C.W. Finkl and R.H. Charlier, *Sustainability of Subtropical Coastal Zones in Southeastern Florida: Challenges for Urbanized Coastal Environments Threatened by Development, Pollution, Water Supply, and Storm Hazards*, 19(4) JOURNAL OF COASTAL RESEARCH 934 (2003) (noting that increased nutrient loads in waterways will have a detrimental impact on tourism-related activities on those waterways); D.T. Tudor and A.T. Williams, *Public Perception and Opinion of Visible Beach Aesthetic Pollution: The Utilization of Photography*, 19(4) JOURNAL OF COASTAL RESEARCH 1104 (2003) (noting levels of offense identified by potential tourists to varying types of pollution in an aqueous environment, of which "sewerage related debris" was found to be the most offensive type of pollution).

[4] Anders G. Nord, Kate Tronner, Elnar Mattsson, Gunnar Ch. Borg, and Inga Ullén, *Environmental Threats to Buried Archaeological Remains*, 34(3) AMBIO 256 (2005) (noting the degradational impacts of increased acidity, sulfur, nitrogen, chlorides, salt, and oxygen on metal artifacts and the impacts of increased acidity, bacteria, and fungi on the preservation of bone remains). See also Osman A. El-Rayis, Engy I. Hemeda, Amany M. Ismael, and K. Jammo, *Approaches to Environmental Restoration of a Polluted Harbour with Submerged Archaeology: The Alexandria Case Study*, 47 MARINE POLLUTION BULLETIN 193 (2003) (noting the generally deleterious impacts of water pollution from wastewater discharges on submerged archaeological resources).

[5] Source: Louisiana Division of Archaeology Site Files, data collected May, 2006.

[6] Robert W. Neuman, AN INTRODUCTION TO LOUISIANA ARCHAEOLOGY 90 (LSU Press 1984).

precisely the sorts of areas that may be affected by potential pollution from the proposed discharge permit.

In summation, we are concerned that, without a complete understanding of the impacts of the proposed discharge on downstream water quality, the issuance of the proposed permit at this juncture is premature. LCRT believes that a complete analysis of all downstream effects of the proposed discharge is necessary in order to evaluate the impacts, not only on the environmental integrity of Louisiana's waters, but also on its economic and historic resources. Thus, while we reserve our right to comment on the final modeling report, once it is available, we also request that ADEQ withhold the issuance of the permit until such time as the interested parties are in receipt of the report and have had a reasonable time to analyze its findings.

Again, LCRT appreciates your consideration of our concerns, and we look forward to working with ADEQ on this and other issues affecting our shared waters in the future. If you wish to discuss this matter further, we request that you contact Ryan M. Seidemann in the Lands & Natural Resources Section of the Louisiana Department of Justice at 225-326-6085 or seidemannr@ag.state.la.us.

Sincerely,



Angèle Davis
Secretary

AD/RMS

cc: Marcus C. Devine, Director, ADEQ
Martin Maner, Water Division Chief, ADEQ
Mo Shafii, Permits Manager, ADEQ
Mike D. McDaniel, Ph.D., Secretary, LDEQ
Wilbert Jordan, LDEQ
Dugan Sabins, LDEQ
Barbara Romanowski, LDEQ
Dick Duerr, LDEQ
Kirk Cormier, LDEQ
Ryan M. Seidemann, LDOJ
Fred C. Whitrock, LDWF
Kyle Balkum, LDWF
Julia George Moore, LCRT

DEPARTMENT OF ENVIRONMENTAL QUALITY
KATHLEEN BABINEAUX BLANCO
GOVERNOR
MIKE D. McDANIEL, Ph.D.
SECRETARY

June 20, 2006

Doug Szenher, Chief
Public Outreach and Assistance Division
Arkansas Department of Environmental Quality
P.O. Box 8913
Little Rock, AR 72219-8913

RE: El Dorado Pipeline Discharge Permit

Dear Mr. Szenher:

The Louisiana Department of Environmental Quality (LDEQ) had previously requested an extension of the public comment period for the proposed El Dorado Pipeline Discharge Permit, pending our review of the final modeling report on the Ouachita River/Felsenthal Reservoir System by GBM^c and Associates. The ADEQ did agree to extend the comment period to June 21. At this time, we would like to request that the draft permit for the El Dorado Pipeline Discharge not be issued in order to allow adequate time for all interested parties to review and comment on the final nutrient modeling report. We anticipate that the modeling analysis will provide information that will enable a more accurate determination of the potential impact of the discharge on the Felsenthal Reservoir and the lower Ouachita River. Additionally, the nutrient modeling analysis may provide a more sound scientific basis for the proposed permit limitations.

LDEQ reviewed the interim report, and sent comments on the interim report. The ADEQ sent an electronic copy of the draft final modeling report prepared by GBM^c and Associates to LDEQ on June 13, indicating that this draft did not address all of the comments received concerning the interim modeling report and requesting comments by July 21. Given this, it appears that a final modeling analysis report that takes into consideration all of the comments on the interim and draft reports will not be available until some time later than July 21. Therefore, LDEQ requests that the ADEQ not issue the pipeline permit pending receipt of the final modeling analysis.

OFFICE OF THE SECRETARY
: PO BOX 4301, BATON ROUGE, LA 70821-4301
P:225-219-3953 F:225-219-3971
WWW.DEQ.LOUISIANA.GOV

Alternatively, we request that ADEQ extend the current public comment period at least 30 days past the date that the final modeling report becomes available for review. We have requested a complete, color hard copy of the draft final report, and we will complete our review as soon as possible after we receive it.

LDEQ appreciates your consideration of our request, and we look forward to working with the ADEQ on this and other issues affecting our shared waters.

If you wish to discuss this in more detail, please contact Mrs. Barbara Romanowsky of my staff at 225-219-3557.

Sincerely,

Mike D. McDaniel

Mike D. McDaniel, Ph.D.
Secretary

esc

c: Marcus C. Devine, Director, ADEQ
Martin Maner, Water Division Chief, ADEQ
Mo Shafii, Permits Manager, ADEQ
Wilbert Jordan, LDEQ
Barbara Romanowsky, LDEQ
Dick Duerr, LDEQ
Kirk Cormier, LDEQ
Ryan Seidemann, LDJ
Miguel Flores, EPA

COMPILATION OF LDEQ COMMENTS AND GBMc RESPONSES
08/16/2006

LDEQ COMMENTS OF
07/10/2006

The report concerns the impact on the Ouachita River and the Felsenthal National Wildlife Refuge of the discharge from a pipeline proposed to be built by a group of 3 El Dorado, Arkansas, industries and the City of El Dorado. Since the primary interest of LDEQ in this study lies in the impact of the proposed discharge on the Ouachita River in Louisiana, our comments will be confined to the modeling study of the Ouachita River. We will have no comments on the simulation of the impact on the Wildlife Refuge.

Summary of Comments

We have conducted an initial review of the report but have not yet taken the time to set-up and run the model. We request at least a 90 day extension of the comment period, electronic copies of the input data sets used, and copies of all raw data/samples results/ measurements collected in support of this modeling project. We are concerned about the projected increases in total nitrogen and chlorophyll a in the Ouachita River below the Felsenthal Dam. Ambient data for the Ouachita River in Louisiana indicate that it may be nitrogen limited, and Louisiana is therefore especially concerned with nitrogen loading and the resulting impact on levels of phytoplankton. Our standard steady state modeling protocol requires projections to be made at critical conditions of stream flow and temperature, and anthropogenic point sources to be modeled at long term average discharge rate and permitted pollutant concentrations.

Figure 6.26, the total nitrogen predictions at critical stream conditions and full permitted discharge load (with a 750 cfs Ouachita River critical flow and without the customary margin of safety for the pipeline point source), show about an 85% increase in TN below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline. Figure 6.22, the chlorophyll a predictions at the same conditions, show about a 62% increase in chlorophyll a below the Dam - the concentration of phytoplankton apparently reacting to the increased nutrient load. The impact of the proposed pipeline discharge on dissolved oxygen levels in Louisiana would have to be determined by monitoring and additional modeling but the state is definitely concerned about the projected increase in nutrient that will be flowing into Louisiana.

A more detailed discussion of our concerns follows:

Page 1 – The possibility of the El Dorado pipeline discharge increasing the phosphorus load downstream of the Felsenthal dam is mentioned as a concern that has been expressed. The ratio of TN to TP for the Ouachita has varied from 4.8 to 7.4 depending on the site and the data year, indicating that nitrogen may be a limiting nutrient. Louisiana is therefore also concerned with nitrogen loading.

RESPONSE: Page 1 Comment. Data collected in the lower half of the Ouachita River (Stations OUA-2, OUA-2.5 and OUA-3) during the field study (August-September 2005) revealed TN:TP ratios ranging from 5 to 32. The results are inconclusive as to the limiting nutrient in the Ouachita.

Page 7 – The anticipated load used in the projections is identified in Appendix D as associated with a combined pipeline discharge of 13.5 mgd. The Arkansas permit AR0050296 for the discharge from the pipeline includes a summer season monthly average load limitation for CBOD5 of 2,923.2 lb/d and a monthly average concentration limitation of 17.5 mg/l. This is consistent with a monthly or long term average discharge of 20 mgd. Louisiana standard steady state modeling protocol requires projections to be made at critical conditions of stream flow and temperature, and anthropogenic point sources to be modeled at long term average discharge rate and permitted pollutant concentrations. We can think of no justification for using a projection model discharge of less than the monthly average in this case, and therefore insist that the model projections be made at monthly average flow and concentration. This condition is identified by GBM^C & Associates as the full permitted discharge load.

In addition, the Louisiana DEQ makes all water quality projections using a 20% margin of safety for point sources at the insistence of EPA Region 6. Thus the pipeline discharge should be modeled at the monthly average loading limitation of 2,923.2 lb/d * 1.25 = 3,665.25 lb/d for the summer months.

RESPONSE: Page 7 Comment. In regards to the request that the discharge be modeled at long term average discharge rate and permitted concentration; modeling scenario 2 (critical stream conditions using anticipated loads) meets this criteria for all constituents except total phosphorus. The more conservative Scenario 1 model run was completed at 7Q10 river flow (750 cfs) and at design pipeline flow of 20 mgd as is required by the Arkansas Department of Environmental Quality.

There is a sizable margin of safety for dissolved oxygen in the model. The remaining assimilative capacity under the Scenario 1 predictions is approximately 25% for oxygen demanding wastes (ammonia and CBOD). In addition, several conservative assumptions are built into the model which provides an additional margin of safety.

Page 8 – Concerning critical conditions for projection, the U.S. Fish and Wildlife Service has commented that the Ouachita River critical (7Q10) flow at Camden, Arkansas should be 648 cfs rather than the 750 cfs reported in the permit and used by the model. The Louisiana DEQ generally makes water quality model projections at the annual 7Q10 flow and the summer season 90 percentile temperature. We have not checked the critical flows for the Ouachita and Saline Rivers or the critical temperature for the Ouachita used by GBM^C. If USF&W is correct, however, the model should be reprojected at an upstream Ouachita River flow of 648 cfs (18.35 cms).

RESPONSE: Page 8 Comment. The 7Q10 of 750 cfs used in the draft permit for the Joint Pipeline discharge and in the nutrient modeling study is accurate for the period of record utilized (climatic data years 1982-2001), and is the same flow utilized by ADEQ in their desktop model completed for this project in its early stages. The actual 7Q10 calculated for the Camden gauge (No. 07362000) was 745 cfs and it was rounded up to 750 cfs to account for additional inflows between the Camden gauge and the Thatcher Lock and Dam (GBMc Memorandum dated March 16, 2005). The 1982-2001 period of record was chosen as it reflected the most current 20 years of USGS approved flow data (no preliminary data was used) available from the Camden gauge at the time the original dissolved oxygen model was run for the project in late 2002. In addition, the 1982 beginning data year approximated the time that the Thatcher Lock and Dam and the Felsenthal Lock and Dam were constructed, so the time period selected more accurately reflects current operational conditions in the river reach of concern. Both the Thatcher and Felsenthal lock and dams currently operating in the lower Ouachita River were not completed until 1984 (personal communication with USACE Vicksburg District personnel). Lastly, the 7Q10 of 750 cfs at the Camden gauge is consistent with the 7Q10 calculated at the state line (802 cfs) and used in the Ouachita River TMDL completed by LDEQ (LDEQ, 2002, 2006).

The 7Q10 flow of 648 cfs proposed by the AG&FC and the USFWS in their comments on the draft permit was calculated by the USGS using a different period of record to that calculated by GBMc. The USGS 7Q10 was based on data dating back to 1970 and extending to 2004. That time frame predates the construction of the Thatcher and Felsenthal lock and dams as they exist today.

Based on this documentation the 750 cfs is an appropriate 7Q10 flow for the reach of the Ouachita River of concern, and should continue to be utilized.

Pages 83 to 92 – Figure 6.26, the total nitrogen predictions at critical stream conditions and full permitted discharge load (with a 750 cfs Ouachita River critical flow and without a MOS for the pipeline point source), show about an 85% increase in TN below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline. As mentioned above, it is quite possible that nitrogen is a limiting nutrient for the Ouachita in Louisiana. Additional nitrogen loading is therefore of concern, and an 85% increase can reasonably be expected to increase phytoplankton growth and the corresponding trophic index of the Ouachita River in Louisiana.

Figure 6.18, the total phosphorus predictions at critical stream conditions and full permitted discharge load, show a 17% increase in TP below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline. Considering the existing ratio of TN to TP in the Ouachita River in Louisiana, this additional phosphorus may not be a problem.

Figure 6.22, the chlorophyll a predictions at critical stream conditions, show about a 62% increase in chlorophyll a below the Felsenthal Dam for the projection with the

pipeline discharge compared to the projection without the pipeline. The concentration of phytoplankton is apparently reacting to the increased nutrient load.

Figure 6.14, the dissolved oxygen predictions at critical stream conditions, show no change in dissolved oxygen below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline. We will need additional time to investigate the simulation of dissolved oxygen before commenting on the dissolved oxygen projections.

RESPONSE: Pages 83 to 92 Comments. The 85% increase in TN, the 18% increase in TP and the 62% increase in chlorophyll-a calculated by LDEQ is consistent with the model predictions. However, the limiting nutrient in the Ouachita River is uncertain (See first response above.)

We agree that dissolved oxygen levels predicted by the model under critical conditions, below the Felsenthal Dam, show little to no difference with the pipeline discharge as compared to without the pipeline discharge.

ADDITIONAL LDEQ COMMENTS OF
08/01/2006

These comments are a continuation of the LDEQ review of the GBMC modeling study and report. Our comments of July 10, 2006 concerned the report. As we progress in our analysis of the modeling study, there will be further comments.

The Ouachita River and Felsenthal National Wildlife Refuge Modeling Study was conducted to predict the impact on the Ouachita River and the Felsenthal National Wildlife Refuge of the discharge from a pipeline proposed to be built by a group of 3 El Dorado, Arkansas, industries and the City of El Dorado. Since the primary interest of LDEQ in this study lies in the impact of the proposed discharge on the Ouachita River in Louisiana, our comments will be confined to the modeling study of the Ouachita River. We will have no comments on the simulation of the impact on the Wildlife Refuge.

<u>Comments to date on the modeling study</u>

1. The study of the main stem of the Ouachita River utilized data from four collection events conducted between August 17 and September 22, 2005. The Ouachita was sampled at 6 sites and the Saline River at one site. Samples and in-situ measurements were taken at a depth of 1 foot. Calibration Ouachita River flow was reported as 1200 cfs. No full depth in-situ profiles were taken to see if the river was fully mixed top to bottom. We suspect that the dissolved oxygen measurements do not represent the average DO of the water column.

RESPONSE: **1.** Dissolved oxygen depth profiles were measured at three locations (OUA-B, OUA-0.5 and OUA-3) in the river on August 17, 2006. The river dissolved

oxygen levels were found to vary insignificantly (less than 1.0 mg/L) at depths up to approximately 15 feet, which is deeper than the overall average river depth. Only near the river bottom in its deepest reaches (20 ft- 25 ft) did the dissolved oxygen variation exceed the 1.0 mg/L level. Based on this information and on the desired focus of the model, which was eutrophication, the shallower routinely measured values were determined to be an adequate representation of the system.

2. The version of QUAL2K used (there is no version number – it is probably the original version made available for general use) allows the waterbody to be divided into reaches of any length, and a steady state flow balance is calculated for each reach. In other words, each reach is simulated as a completely back-mixed portion of the waterbody. The model consists of 12 reaches ranging from 0.16 to 52.3 kilometers in length. Seven of these reaches are more than 10 times longer than their top width. One reach is 574 times longer than its width. This is an unacceptable modeling practice. Version 2.04 of QUAK2K allows the division of each reach into any number of completely back-mixed elements. We request that the Ouachita River be remodeled in version 2.04 or, if available in time, 2.05.

RESPONSE: **2.** There is no stated limit to the acceptable reach length in the QUAL2K model. The new QUAL2K version 2.04 does divide each reach into multiple computational elements and allows for more reach specific coefficient inputs, but it was not available when the workplan was written and approved and when the modeling process was began in late 2005 early 2006. Use of QUAL2K version 2.04 is unnecessary to provide accurate water quality predictions. The existing QUAL2K input data files cannot be used directly in QUAL2K version 2.04 without major new data entry and calibration. The time required to set-up version 2.04, recalibrate the model, and report results would greatly hinder the permitting process and provide little to no new information. In addition, LDEQ had an opportunity to comment on the study workplan which included the models intended for use and at that time LDEQ agreed that QUAL2K was "...appropriate to the task."

3. Because of the excessive length of some of the reaches, model numerical dispersion is unacceptably large, greatly exceeding longitudinal dispersion. This can be checked against the output because when the numerical dispersion exceeds the longitudinal dispersion, the bulk dispersion coefficient, E', is calculated solely from the numerical dispersion. Longitudinal dispersion is calculated from bottom trapezoidal width and trapezoidal depth. Although they are not shown in the model output, we have determined that the calculated values of longitudinal and numerical dispersion and E' for each reach are:

Longitudinal dispersion (m^2/s)	Numerical dispersion (m^2/s)	Model input longitudinal dispersion (m^2/s)	Bulk dispersion coefficient E' (m^3/s)
1.88	8.49	0.00	17.00
1.88	8.49	0.00	0.20
1.87	1,436.51	0.00	33.19
2.96	42.44	0.00	13.15
2.96	67.84	0.00	3.21
2.96	653.24	0.00	6.55
2.96	2,757.17	0.00	31.73
7.43	210.66	0.00	13.48
7.43	337.07	0.00	13.35
7.43	547.78	0.00	32.55
7.43	42.15	0.00	17.54
7.43	42.10	0.00	17.51
7.43	42.15	0.00	17.53

RESPONSE: **3.** Dispersion was calculated internally by the QUAL2K model. Model numerical dispersion does exceed longitudinal dispersion in some cases and the model then assigns a zero for dispersion. As noted in the QUAL2K guidance manual the effect this discrepancy has on concentration gradients is "...negligible."

4. GBM^C & Associates reports that the model was calibrated to phytoplankton, dissolved oxygen, total nitrogen, and total phosphorus. It appears that an attempt was also made to calibrate organic nitrogen and ammonium. However organic phosphorus, inorganic phosphorus, nitrates, and fast CBOD were apparently not calibrated. LDEQ requests that the model be completely, and not just partially, calibrated. If unfiltered CBOD was run, UCBOD should also be calibrated. There is, of course, no point in recalibrating in the version of QUAL2K that was used.

RESPONSE: **4.** The focus of the model calibration was chlorophyll-a, dissolved oxygen, total phosphorus and total nitrogen. In addition to these an effort to calibrate the model to inorganic phosphorus, dissolved organic phosphorus, ammonium, dissolved organic nitrogen and CBODu (at the request of LDEQ in their comments on the workplan) was also completed satisfactorily.

5. In addition to the concerns of Item 4, there was no calibration site below the Felsenthal Dam and although nutrients and BOD may be assumed to be unaffected by the dam the same is not true of phytoplankton. Lacking calibration

below the dam, we think that even though LDEQ insists that the modeling effort extend below the dam, this model cannot reasonably do that.

RESPONSE: **5.** Data collection in the Ouachita River was restricted to reaches above the Felsenthal dam. There was no calibration point in the river below the dam. However, the model was set-up to allow predictions below the dam for a distance of 1 mile. Predictions were restricted to only one mile below the dam as the oxygen demand had already been exerted by this point and so as not to complicate the model with inflows from Coffee Creek.

6. The 7Q10 numbers used in the model are higher than the available information from USGS. We do think, however , that some adjustment for the drainage area between the USGS gage sites and the point of application is appropriate. We propose the following:

   Ouachita River at Camden: 7Q10 = 648 cfs Drainage area = 5357 sq mi
   Ouachita River below the mouth of
   Smackover Creek: Drainage area = 6367 sq mi
   Smackover Creek at mouth: Drainage area = 541 sq mi
   Ouachita River above Smackover Creek: Drainage area = 6367-541 = 5826 sq mi
   Ouachita River above Smackover Creek: 7Q10 ≈ 648*5826/5357 = 705 cfs

   Saline river at Rye: 7Q10 = 12.0 cfs Drainage area = 2102 sq mi
   Saline River at mouth: Drainage area = 3250 sq mi
   Saline river at mouth: 7Q10 ≈ 12.0*3250/2102 = 18.6 cfs

   The 7Q10 flows at the Camden and Rye gages are from the U.S. Geological Survey office in Little Rock. The 7Q10s are based on a climatic year (April through March) with a period of record of 1970 through 2004. The adjustment for intervening drainage area is by LDEQ.

RESPONSE: **6.** See previous comment concerning 7Q10 calculation. Use of the drainage area method proposed by LDEQ to account for additional flow entering the Ouachita and Saline Rivers below the gauging stations is an acceptable practice. However, use of this method with the 7Q10 low flows calculated from the 1982-2001 period of record would provide 7Q10 flows in excess of that being used currently in the modeling.

7. We will not know what effect these problems have had on the projections until the model is recalibrated and reprojected. We have not yet checked the U.S. Army Corps of Engineers model of the Ouachita for a confirmation of geometry and surface slope, but plan to do so.

RESPONSE: **7.** No response

8. Questions to facilitate further review/calibration/projection

a. I did not find in the report any mention that the BODs were filtered as recommended in the manual. Were they filtered?
b. Were unfiltered BODs run? If so would you please forward the results.
c. Please confirm the statement in the report that the Ouachita River samples and in-situ measurements were taken at a depth of 1 foot.
d. Were any full depth profiles of the river taken to see if the river was well mixed top to bottom at the calibration depth?
e. In calculating the 7Q10s, was the drainage area between the gages and the point of application taken into account?

RESPONSE: **8.** Analytical analysis of CBODu was completed using SM5210C as requested by LDEQ in their workplan comments. All CBOD5 samples were analyzed according to SM5210B.

Samples collected during the field study were collected from approximately 1 foot below the water surface as stated in the workplan. Collectors generally took samples at an elbows depth which is typically about 1 foot deep, but could be as much as 1.5 feet in depth.

ADDITIONAL LDEQ COMENTS ON
08/14/2006

Comments on the modeling study

1. The GBM model did not closely mirror the U.S. Army Corps of Engineers model of the Ouachita River. The model input was developed for HEC-2 and converted to HEC-RAZ format for GBM. LDEQ ran the original dataset in HEC-2. The COE model was run at the calibration flows to calculate average parameters for the GBM modeled reaches. A comparison of the COE and the GBM calibration output values is shown below.

	Cross Sectional Area	Maximum/ Trapezoidal Depth	Average Depth = c.s.area/top width	Velocity	Time of Travel
COE average values for reaches 1-12	542 m^2	8.08 m	5.46 m	0.069 mps	16.76 days
Range of GBM calibration	322-334 m^2	4.39-4.52 m	3.57-3.67 m	0.10-0.11 mps	12.91 days

output for reaches 1-12					

The GBM report states that channel geometry was based on field data collected between river mile 260 and 280 and confirmed by the COE model. We do not agree that the geometry is confirmed by the COE model. The discrepancies in depth, velocity, and travel time affect reaeration and dissolved oxygen levels.

2. The 7Q10 numbers used in the model are higher than the available information from USGS. We do think, however , that some adjustment for the drainage area between the USGS gage sites and the point of application is appropriate. We think, however, that the adjustment proposed in our July 31 comments is too generous, and propose the following revision:

   Ouachita River at Camden: 7Q10 = 648 cfs Drainage area = 5357 sq mi

   Ouachita River at Arkansas-Louisiana State Line: 7Q10 = 780 cfs Drainage area =10,835 sq mi

   Additional Ouachita River 7Q10 ≈ (780-648)/(10,835-5357) ≈ 24 cfs/1000 sq mi

   Ouachita River below the mouth of

   Smackover Creek: Drainage area = 6367 sq mi

   Smackover Creek at mouth: Drainage area = 541 sq mi

   Ouachita River above Smackover Creek: Drainage area = 6367-541 = 5826 sq mi

   Ouachita River above Smackover Creek: 7Q10 ≈ 648+(5,826-5,357)*(24/1,000) = 659 cfs

   Saline river at Rye: 7Q10 = 12.0 cfs Drainage area = 2102 sq mi

   Saline River at mouth: Drainage area = 3250 sq mi

   Saline river at mouth: 7Q10 ≈ 12.0*3250/2102 ≈ 18 cfs

   The 7Q10 flows at the Camden and Rye gages are from the U.S. Geological Survey office in Little Rock. The 7Q10s are based on a climatic year (April through March) with a period of record of 1970 through 2004. The Ouachita River annual 7Q10 at the Arkansas-Louisiana State Line is used by Louisiana as a basis for TMDL projections.

3. We will not know what effect these problems have had on the projections until the model is recalibrated and reprojected.

December 12, 2006

LDEQ COMMENTS ON ADDITIONAL MODELING REQUESTED BY ADEQ

Concerning a Ouachita River and Felsenthal National Wildlife Refuge
modeling study conducted by GBM^C for the El Dorado Joint Pipeline Group

1. We request that GBM^C perform any additional modeling using version 2.04 of Qual2K and divide each reach (of 10 miles maximum length) into elements such that no element is unreasonably long. In the Qual2K version that GBM^C used, each reach is completely back-mixed, and some reaches are unacceptably long. Version 2.04 allows each reach to be divided into many back-mixed elements, and thus avoids the problem of very long, completely back-mixed, reaches.
2. In addition to adjusting the channel geometry to be consistent with the USACE HEC-2 model, we request that GBM^C adhere to the Mannings coefficients used in the COE model and recalculate surface slopes from the COE model. A comparison of GBM^C and COE slopes and Mannings coefficients for the current GBM^C reaches is shown below.

GBMC versus COE slopes and Mannings coefficients

Reach	GBM slope	COE slope	GBM Mannings n	COE Mannings n
Hdwtr	5.30 E-5	5.18E-7	0.160	0.030
1	5.30 E-5	5.18E-7	0.160	0.030
2	5.30 E-5	6.28E-7	0.101	0.030
3	2.10 E-5	6.28E-7	0.101	0.030
4	2.10 E-5	6.28E-7	0.101	0.030
5	2.10 E-5	6.28E-7	0.101	0.030
6	2.10 E-5	6.28E-7	0.101	0.026 (avg)
7	3.0 E-6	6.28E-7	0.039	0.025
8	3.0 E-6	6.28E-7	0.039	0.025
9	3.0 E-6	6.28E-7	0.039	0.025
10	3.0 E-6	6.28E-7	0.039	0.025
11	3.0 E-6	3.99E-7	0.039	0.025
12	3.0 E-6	3.99E-7	0.039	0.025

3. We request that the model be calibrated as well as possible to all constituents.
4. We request that the origin/calculation of the critical flows used in the projections be fully documented, as were the values given in our comments of 8/14/06.
5. We request that all data, especially laboratory data, be identified as to preparation and test method. For example:
   "20 day BOD ultimate"
   a. Was it filtered or unfiltered?
   b. Is it a 20 day BOD, a 20 day CBOD, or was UBOD or UCBOD projected from a 20 day BOD series?
   c. Indicate the test method (in a response to comments you indicated that the method for UCBOD was SM5210C – please put this sort of information in the report).

BEFORE THE ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF:
EL DORADO JOINT PIPELINE GROUP PERMITS

CONSOLIDATED
Docket No. 07-006-P

PERMIT NOS. **AR 0050296**
AR 0049743C
AR 0049743
AR 0000647
AR 0000752
AR 0001171

POST-HEARING BRIEF BY THE STATE OF LOUISISNA, LOUISIANA ENVIRONMENTAL ACTION NETWORK, SAVE THE OUACHITA, AND KENT STEGALL

The State of Louisiana, Louisiana Environmental Action Network ("LEAN"), Save the Ouachita ("STO") and Kent Stegall ("Petitioners") respectfully submit this Post-Hearing Brief pursuant to Judge O'Malley's Oral Order on November 7, 2007. This joint brief accompanies the Petitioners' Proposed Findings of Fact.

I. INTRODUCTION

This case is about whether or not ADEQ complied with federal and state law when it issued five permits—the Joint Permit, AR 0050296, and Individual Permits AR0000647 (Lion Oil), AR0001171 (Great Lakes), AR0049743 (El Dorado Water) and AR0000752 (El Dorado Chemical)—allowing El Dorado Water Utilities, El Dorado Chemical Company, Great Lakes Chemical Company, and Lion Oil (collectively the "Joint Pipeline Group" or "JPG") to discharge 20 million gallons of wastewater per day into the Ouachita River through a joint pipeline (the "Joint Pipeline").

Mr. Mo. Shafii, Chief of the Permits Branch of the Water Division, has characterized these permits as the "most complex" that ADEQ has ever issued. Hr'g Tr. vol. 11, 1722:23 – 1723:1. These permits are complex both because the Joint Permit involves four separate dischargers, but also because of the unique characteristics of the receiving waterbody. The Joint Pipeline discharges into Segment 2D of the Ouachita River above the ecologically-sensitive Felsenthal National Wildlife Refuge (herein the "Felsenthal Reservoir"), which 500,000 people a year use for fishing or duck hunting. JX 1 (Joint Permit) at 2, Hr'g Tr. vol. 8, 1174:17-24; STO Ex. 3. Approximately two miles downstream of that dam is the confluence of the Ouachita River with Coffee Creek, from which wastewater effluent from the Georgia-Pacific industrial complex and the City of Crossett is discharged. Hr'g Tr. vol. 9, 1406:2-18. The Ouachita River then crosses the Arkansas-Louisiana state line. JX 13 (Final Modeling Report), Fig. 6.2.

As the Ouachita River crosses into Louisiana, the River is a designated natural and scenic river. JX 7 (Response to Comments) p 35. The River in Louisiana is impaired for mercury, dissolved oxygen, and nutrients. LEAN's Ex. 17, 18. The Ouachita River is impaired in Arkansas for mercury and zinc. JX 9 (ADEQ's 2004 303(d) list). The Ouachita River is also unique because it contains several dams, including Thatcher Lock and Dam above the discharge point, Felsenthal Lock and Dam below the discharge point, and Columbia Lock and Dam further below the discharge point in Louisiana. JX 1 (Joint Permit) Page 2 of Fact Sheet; Hr'g Tr. vol. vol. 1, 146:14-15; Hr'g Tr. vol. 1, 134:18 – 135:1.

Furthermore, as it enters Louisiana, the Ouachita River carries oxygen demanding waste and excess nutrients and other contaminants discharged by other Arkansas sources. Hr'g Tr. vol 2, 166-167, vol. 12, 2123-2125. The February, 2007 Revised Final Report of GBMc shows that contaminants in the form of nutrients and phosphorous from the proposed pipeline discharge

may reasonably be expected to enter and affect Louisiana waters, adding to the present adverse impact of Louisiana's waters. Hr'g Tr. vol. 2, 173, vol. 12, 2125.

II. SUMMARY OF THE ARGUMENT

ADEQ failed to comply with federal and state law when it issued the permits. More specifically, the State of Louisiana contends that, by issuing the Joint Permit, ADEQ violated the Clean Water Act's procedural protections by failing to give the State of Louisiana a meaningful opportunity to comment on the permits and failing to provide written explanation to Louisiana of why ADEQ failed to accept Louisiana's recommendations.

ADEQ also violated federal and state law because the permits:

1) are not based on sound science because ADEQ relied on hydrological models of the Ouachita River that exclude the river's dams (La., LEAN, STO);

2) fail to ensure compliance with Louisiana's water quality standards (La., LEAN, STO);

3) fail to comply with the mercury budget in the Ouachita River (LEAN, STO);

4) violate Arkansas' toxic substances and designated uses regulations by allowing the JPG to discharge mercury into the Ouachita River (LEAN, STO);

5) fail to require a testing method sensitive enough to ensure compliance with the mercury water quality standard (LEAN, STO);

6) contribute to a violation of the zinc water quality standard (LEAN, STO);

7) fail to protect the existing fishery use in the Ouachita River and Felsenthal Reservoir (LEAN, STO; and

8) are not supported by scientific and engineering literature or written studies conducted by ADEQ that demonstrate the Joint Permit's discharges comply with Arkansas' nutrient standards (LEAN, STO).

First, ADEQ failed to provide the State of Louisiana with a meaningful opportunity to comment on the Joint Permit, as mandated by the Clean Water Act. *See* 33 U.S.C. §1342(b)(3), (b)(5). ADEQ's failure to ensure that Louisiana could submit meaningful written recommendations to ADEQ on the permits and to explain in writing to Louisiana why ADEQ refused to delayed permit issuance until Louisiana had a meaningful opportunity to review the data upon which the permits were based violated Clean Water Act Sections 402(b)(3) and 402(b)(5).

Second, ADEQ relied on modeling by the JPG's consultants – GBMc & Associates – that ignored Thatcher Dam and Felsenthal Dam. ADEQ's failure to adequately review the models to ensure that they were based on sound science violates their duty and responsibility under the Clean Water Act. Furthermore, ADEQ's reliance on GBMc's flawed modeling, that ignored the Ouachita River dams, when setting permit limits renders the permit issuance arbitrary and capricious.

Third, when issuing the Joint Permit, ADEQ failed to "ensure compliance" with Louisiana's water quality standards, as federal and state regulations require. 40 C.F.R. 122.4(d); APC&EC Reg. 6.104(A)(3). ADEQ relied on modeling that failed to examine the impacts of the Joint Pipeline discharge downstream of the Felsenthal Dam; therefore, ADEQ could not know the Joint Pipeline's impact at the state line. Further, the flawed modeling indicated elevated levels of nitrogen, phosphorus, and chlorophyll-a above the Arkansas-Louisiana state line, but ADEQ failed to determine the biological impact of the additional nutrients or examine Louisiana's water quality standards to determine whether the elevated nutrient and chlorophyll-a levels would violate Louisiana's water quality standards. ADEQ's failure to use a model that extends all the way to the Arkansas-Louisiana state line, and includes the Thatcher and

Felsenthal Dams and then to examine whether those impacts are consistent with Louisiana's water quality standards renders the Joint Permit illegal.

Fourth, the Joint Permit and Individual Permits are illegal because they are inconsistent with the Mercury Total Maximum Daily Load ("TMDL") for the Ouachita River. The Joint Permit allows the JPG to discharge approximately 2,400 g/yr of mercury into the Ouachita River even though the Mercury TMDL only allocates 942 g/yr of mercury to all point sources in the Ouachita River basin and allocated no mercury to the Joint Pipeline. The Individual Permits fail to include a mercury mass limit consistent with the Mercury TMDL. Furthermore, regulations require that once a TMDL is completed, the permittee must show, prior to the close of the comment period, that the permit is consistent with the TMDL. 40 C.F.R. § 122.4(i); APC&EC Reg. 6.104(A)(3). The JPG failed to show that the mercury limits in the Joint Permit or the Individual Permits are consistent with the Mercury TMDL. Therefore, ADEQ violated 40 C.F.R. 122.4(i) and APC&EC Regulation 6.104(A)(3) by issuing the Joint Permit and Individual Permits.

Fifth, ADEQ violated Arkansas' toxic substances regulation, 2.508, and the designated uses regulation, 2.201, by allowing the JPG to discharge more mercury into the Ouachita River, where Arkansas already advises people not to eat the fish because they are contaminated with mercury.

Sixth, ADEQ erred by requiring the JPG to measure mercury with EPA Method 245.1, even though that method does not measure low enough levels of mercury to comply with the Joint Permit limits and there were other EPA-approved mercury test methods available when ADEQ issued the Joint Permit. The Joint Permit violates 40 C.F.R. 122.4(d) and APC&EC

Regulation 6.104(A)(3) by failing to require a test method that would ensure compliance with the permit limits.

Seventh, ADEQ erroneously assumed a background concentration of zero when setting metals permit limits in the Joint Permit, even though ADEQ has years' worth of data collected above and below the proposed discharge point showing background concentrations greater than zero and the Ouachita River is impaired for zinc. By assuming a background concentration of zero for all metals, ADEQ set the metals permit limits too high to protect Arkansas' water quality, as required under 40 C.F.R. § 122.4(d) and APC&EC Regulation 6. 104(A)(3).

Eighth, ADEQ's failure to examine the Joint Pipeline's impact on minimum dissolved oxygen in the backwater areas of Felsenthal Reservoir, particularly in areas that are already violating the dissolved oxygen standard, violated ADEQ's duty to protect and maintain the existing fishery use in the Felsenthal Reservoir and the dissolved oxygen levels necessary to maintain the fishery. Maintaining dissolved oxygen is critical to protecting the existing fishery use in Felsenthal, and fish die when dissolved oxygen gets too low for too long. By only examining how the Joint Pipeline discharges impact average dissolved oxygen levels, ADEQ turned a blind eye to its duty to protect the existing fishery use and water quality necessary to protect that use according to APC&EC Regulation 2.201.

Finally, ADEQ failed to demonstrate that the Joint Permit's discharges comply with Arkansas' nutrient standards using scientific and engineering literature or written studies conducted by ADEQ, in violation of APC&EC Regulation 8 § 2.1.10(a)(2). The WASP nutrient modeling shows increased nutrient levels and increased chlorophyll-a levels, indicating increased algae blooms, even though the WASP modeling underestimated the Joint Pipeline's nutrient impact. The AQUATOX modeling used data from a plant that actually grows in the Felsenthal

Reservoir—*Cabomba*—to calibrate the model to predict the growth response of a plant that does not grow in the Felsenthal Reservoir—*Myriophyllum*. The *Myriophyllum* calibration was not reasonably close to the *Cabomba* data, nor did it reflect that aquatic plants growing in the Felsenthal peak once per year around August or September. ADEQ therefore failed to ensure that the Joint Pipeline discharges comply with APC&EC Regulations 2.402 and 2.509.

For all these reasons, the Joint Permit and the Individual Permits must be vacated.

III. STANDARD OF REVIEW

When reviewing ADEQ's permitting decisions, the Commission reviews the director's decision de novo. Ark. Code. § 8-4-205(c)(4). The Commission's decision must be supported by substantial evidence in the record. *See Pine Bluff for Safe Disposal v. Ark. Poll. Control and Ecology Comm'n*, 354 Ark. 563, 572 (Upon reviewing the Commission's decisions, the Arkansas Supreme Court will "ascertain whether the decision is supported by relevant evidence that a reasonable mind might accept as adequate to support the conclusion.").

The standard of review in an adjudicatory hearing is the preponderance of the evidence. APC&EC Reg. 8 § 2.5.16(b). Preponderance of the evidence means "the greater weight of the evidence." The greater weight of the evidence is not necessarily established by the greater number of witnesses testifying to any fact or state of facts. It is the evidence which, when weighed with that opposed to it, has more convincing force and is more probably true and accurate. Ark. Model Jury Instruction 202.

Consequently, in order to prevail, the Petitioners must show by a mere preponderance of the evidence that their claims have more convincing force and are more probably true and accurate than those of ADEQ and the Joint Pipeline Group. As will be seen, the record that has

been accumulated in this case clearly supports the claims and arguments submitted by the Petitioners by a preponderance of the evidence.

. IV. DISCUSSION AND CONCLUSIONS OF LAW

THE STATE OF LOUISIANA'S ARGUMENT:

Louisiana is an "affected state" for the purposes of the Joint Permit because the Permit's receiving waterbody, the Ouachita River, flows into Louisiana approximately 60 miles south of the discharge point. JX 13 (Final Modeling Report), Fig. 6.2. Thus, the State of Arkansas, acting through ADEQ, has certain obligations to the State of Louisiana. Under both applicable Federal and Arkansas law, ADEQ was obligated to notify Louisiana of the application for the Permits; to permit Louisiana a meaningful opportunity to comment upon and make recommendations regarding the proposed permits; to advise Louisiana of ADEQ's proposed action on the Permit applications; and to permit discharges of pollutants to ensure compliance with the applicable water quality requirements of Louisiana, an affect state.

Several Federal statutes apply to these facts:

(1) Section 402(b)(3) of the Clean Water Act, 33 U.S.C. §1342(b)(3), provides that the Arkansas water permitting program must ensure that the public, and any other State, the waters of which may be affected, receive notice of each application for a permit and to provide an opportunity for public hearing before a ruling on each such application.

(2) Section 402(b)(5), 33 U.S.C. §1342(b)(5), also requires that: (a) ADEQ insure that Louisiana, as a downstream state, may submit written recommendations to ADEQ with respect to any permit application, and (b) if any part of such written recommendations are not accepted by ADEQ,

> that ADEQ will notify Louisiana in writing of ADEQ's failure to so accept such recommendations and its reasons for so doing.

As will be discussed, the evidence shows that ADEQ fulfilled only the first of those requirements – notifying Louisiana of the application for the Permits – but failed to comply with the requirements of insuring that Louisiana could submit meaningful written recommendations to ADEQ regarding in the Permit applications, and providing written explanation to Louisiana of why ADEQ failed to accept Louisiana's recommendation that the issuance of the permits be delayed until additional opportunity was provided for additional review of the data upon which the permits were based. The evidence further shows that ADEQ withheld certain crucial data and information from Louisiana and the public until well after the Permits were issued.

Further, the U.S. Environmental Protection Agency has promulgated regulations to implement these statutory protections of downstream states. 40 C.F.R. § 122.4 (Prohibitions), provides as follows:

> No permit may be issued:
>
> …
>
> (d) When the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States;

This regulation is applicable to State NPDES programs. *See* Sec. 123.25.

The evidence in this case is uncontradicted that the only studies and modeling that were done in this case were conducted solely by GBMc, and that those studies and modeling were terminated at a point approximately one (1) mile downriver of the Felsenthal Dam. Hr'g. Tr. vol. 12, 2122, vol. 9, 1419. The significance of this stopping point is that it is immediately upriver of the confluence of the Ouachita River with Coffee Creek, the latter of which is the discharge point for the combined wastewaters from Georgia-Pacific's industrial complex in Crossett, Arkansas,

and the City of Crossett. Hr'g. Tr. vol. 2, 166-167, vol. 9, 1412-1213. The wastewaters from G-P and Crossett contain many substances that affect water quality, and GBMc – and the Joint Permit Group – had no desire to attempt to model the reach of the Ouachita River containing the Coffee Creek effluent to the state line because it would "complicate" the modeling. Hr'g. Tr. vol. 9, 1412-1413.

Nevertheless, the Joint Permit Applicants and ADEQ, are obligated under 40 C.F.R. § 122.4 to ensure that the proposed discharge will not further impact the water quality of Louisiana below the State Line. As the following analysis will show, they failed to meet that burden.

A. ADEQ FAILED TO PROVIDE LOUISIANA WITH SUFFICIENT OPPORTUNITY TO REVIEW THE DATA ON WHICH THE PERMIT WAS BASED, AND TO COMMENT UPON SUCH DATA.

ADEQ failed to provide Louisiana with a meaningful opportunity to review the data upon which the Permits were based, and to comment upon that data or the terms of the Permits themselves.

It is well-established and a simple matter of administrative due process that opportunity for comment in an administrative proceeding must be a *meaningful* opportunity. *See Gerber v. Norton*, 294 F.3d 173 (C.A.D.C.,2002); *American Med. Ass'n v. Reno,* 57 F.3d 1129, 1132-33 (D.C.Cir.1995); *Engine Mfrs. Ass'n v. EPA,* 20 F.3d 1177, 1181 (D.C.Cir.1994); *Connecticut Light & Power Co. v. Nuclear Regulatory Comm'n,* 673 F.2d 525, 530-31 (D.C.Cir.1982).

In *National Wildlife Federal v. Marsh*, 568 F.Supp. 985 (D.C.D.C.,1983), the Court held that an agency's decision for a proposed action based on information that was not in the public record at the time the decision was made, and upon which the public had not been given an opportunity to comment, required a remand of the matter to the agency. In so ruling, the Court stated:

> Even in an informal adjudicatory setting, if the public is not apprised of the rationale behind a proposed decision, or if the public is informed of the rationale only after the close of the comment and hearing period, then the agency cannot be said to have provided a realistic opportunity for public hearings or meaningful comments.
>
> The requirements that an agency ... provide initial notices of proposed action, ... disclose internal reports, and ... state its reasons for acting as it did, all rest on the fundamental proposition that *the right to comment or the opportunity to be heard on questions relating to the public interest is of little or no significance when one is not apprised of the issues and positions to which argument is relevant.* (Italics added)
>
> Only when the public is adequately informed can there be any exchange of views and any real dialogue as to the final decision. And without such dialogue any notion of real public participation is necessarily an illusion. *U.S. Lines v. Federal Maritime Commission,* 584 F.2d 519, 540 (D.C.Cir.1978) (footnotes omitted). … *See Portland Cement Association v. Ruckelshaus,* 486 F.2d 375, 392-93, 393 n. 67 (D.C.Cir.1973), *cert. denied,* 417 U.S. 921, 94 S.Ct. 2628, 41 L.Ed.2d 226 (1974).

568 F.Supp. at 993. *See also*, *Fla. Power & Light Co. v. U.S.*, 846 F.2d 765 (D.C. Cir. 1988) (Notice must not only give adequate time for comments, but also must provide sufficient factual detail and rationale for the rule to permit interested parties to comment meaningfully); *Grand Canyon Air Tour Coal. v. F.A.A.,* 154 F.3d 455 (D.C. Cir. 1998) (An agency is required to provide a meaningful opportunity for comments, which means that the agency's mind must be open to considering them); *Conn. Light & Power Co. v. NRC,* 673 F.2d 525, 530-31 (D.C. Cir.), *cert. denied,* 459 U.S. 835, 103 S.Ct. 79, 74 L.Ed.2d 76 (1982); *Home Box Office, Inc. v. FCC,* 567 F.2d 9, 35 (D.C. Cir.), *cert. denied,* 434 U.S. 829, 98 S.Ct. 111, 54 L.Ed.2d 89 (1977); See also, *Honeywell Intern., Inc. v. E.P.A*., 372 F.3d 441 (C.A.D.C., 2004).

This case is remarkable in that there is a well-documented trail of requests from Louisiana to ADEQ for (i) additional data that had been developed by GBMc in its modeling of the river to support the permit applications, but that apparently had never been requested by

ADEQ; and (ii) additional time to review the data and other supporting documentation that was eventually submitted to Louisiana only a few days before ADEQ issued the Permits on a "quick-turnaround" basis.

The Record shows that Louisiana submitted some seven (7) requests to ADEQ for additional information, particularly in the form of the electronic version of the models that had been prepared by GBMc, and upon which the Permits are entirely based. *See* LA Ex 3, 4, 6, 7, 8, 9, 10 and 14, as introduced by the testimony of Ms. Barbara Romanowsky of LDEQ, Hr'g. Tr. vol. 1, 70-83.

These requests for information are important because of GBMc's reaction to comments made jointly by ADEQ, Louisiana, Arkansas Game & Fish Commission and the U.S. Fish & Wildlife Service on GBMc's "Interim Report" dated March, 2005. JX 12 (Interim Report). Those comments are found in LA Ex. 25, and accompanied a letter from Ms. Amy Cotter Beck of ADEQ to Greg Phillips of GBMc dated May 26, 2005. LA Ex. 25, Hr'g. Tr. vol. 9, 1383. The comments found fault with a large number of methods, findings and statements in GBMc's Interim Report, and made several requests that GBMc conduct additional field work to verify or change information in the Interim Report believed to be erroneous by the commenting parties. GBMc never complied with the requests for additional field work or information contained in LA Ex. 25 (*See* Hr'g. Tr. vol. 9, 1396, 1404-1406)**,** but instead GBMc proceeded to finish its Final Report (JX 13) dated June 1, 2006, and its Revised Final Report, dated February 13, 2007, (JX 15) in complete disregard of those agency's comments.

Because GBMc failed to cooperate with the agencies who submitted those comments, and because of the potentially serious errors in GBMc's Interim Report, Louisiana believed it

highly important to review GBMc's data and other documentation of its modeling before approving the issuance of the permit.

The Record also shows that Louisiana also requested ADEQ to defer issuance of the Permits on four (4) separate occasions until GBMc's final modeling report could be reviewed. (*see* LA Ex. 3, 6, 7 and 13) Notwithstanding these most reasonable requests, ADEQ e-mailed GBMc's Revised Final Report to LDEQ on February 15, 2007 (*see* LA Ex. 13 and 14), and requested comments from Louisiana by February 20, 2007 – a turnaround period of only five days. The document that was e-mailed to LDEQ did not contain a readable version of the appendices to the narrative report, which appendices contain much of the data needed by Louisiana's modelers to check the input data and assumptions used by GBMc in conducting the modeling. Consequently, the Revised Final Report provided to Louisiana on February 20 was virtually useless to Louisiana. The complete electronic version of the GBMc modeling was not provided to Louisiana until May 9, 2007 (Hr'g. Tr. vol. 2, 198), long after the permit had been issued on February 28, 2007.

Martin Maner, then the Chief of the Water Division at ADEQ, testified that five days was not a sufficient time to enable Louisiana to review the Revised Final Report[1]. Even Greg Phillips of GBMc agreed that a five-day review period for LDEQ was not adequate. Hr'g. Tr. vol. 9, 1415-1416.

ADEQ's failure to provide Louisiana that data, particularly after it was requested by LDEQ on no less than seven occasions, and to give Louisiana a reasonable opportunity to

[1] *See* testimony of Martin Maner, Hr'g Tr. vol. 11, 1619.

> Q. [Mr. Mays] Would five days be enough time for commenting on a report before a permit is issued by another agency?
>
> A. No.

analyze and comment upon it, is a violation of the basic tenants of administrative procedure as well as a violation of Federal law and ADEQ's own procedures.

The Permits were issued by ADEQ on February 28, 2007 (JX 1), some eight days after ADEQ's arbitrary deadline to Louisiana for submission of comments on the Revised Final Report, indicating that ADEQ's request for comments from Louisiana was simply a pro forma request, and that ADEQ had long before made its permitting decision and prepared the Permits.

The record is crystal clear that Louisiana never approved the issuance of the Permits, and in fact, explicitly objected to their issuance (Hr'g. Tr. vol. 1, 83; LA Ex. 13 ("We are unable to perform an adequate review in such a short time period, and are therefore unable at this time to withdraw our objections to the issuance of a permit for the proposed pipeline.")**;** Hr'g. Tr. vol. 2, 196. To the contrary, Louisiana recommended that additional review be conducted of the modeling results submitted to ADEQ by the Permit Applicant's contractor, GBMc. (LA Ex. 25).

Notwithstanding such objection and recommendation, ADEQ proceeded to summarily issue the Permits on February 28, 2007, without notifying Louisiana in writing of ADEQ's failure to so accept Louisiana's recommendations and of ADEQ's reasons for so doing. This is a blatant violation of the requirements of Section 402(b)(5) of the CWA and 40 C.F.R. § 122.4.

B. ADEQ FAILED TO RESPOND TO LOUISIANA'S COMMENTS, AND TO NOTIFY LOUISIANA OF WHY IT FAILED TO ACCEPT LOUISIANA'S RECOMMENDATIONS

Pursuant to 33 U.S.C.A. § 1342 (b)(5), ADEQ is required to (i) respond to the comments that Louisiana made on the draft permits and the accompanying information and to the recommendations that Louisiana made regarding the draft permits, and (ii) to notify Louisiana in writing of why ADEQ failed to accept Louisiana's recommendations.

In addition, Ark. Code Ann. 8-4-203(2)(A)(i) requires that ADEQ's final decision shall include a response to each issue raised in any public comments received during the public comment period, and that such response set forth "reasoned consideration" of the issues raised by the public comments and be supported by appropriate legal, scientific, or practical reasons for accepting or rejecting the substance of the comment in the department's permitting decision.

An agency must demonstrate the rationality of its decision-making process by substantively responding to those comments that are relevant and significant. *See McLouth Steel Products Corp. v. Thomas,* 838 F.2d 1317 (D.C. Cir. 1988) (Consideration of comments as a matter of grace is not enough); *Professional Pilots Fed'n v. FAA,* 118 F.3d 758, 763 (D.C.Cir.1997); *Home Box Office, Inc. v. FCC,* 567 F.2d 9, 35 (D.C.Cir.1977); *see also*, *Blanco v. Burton*, 2006 WL 2366046 at 20 (E.D. La. 2006) (noting that "[i]ndeed, compliance with federal law can be a costly and bothersome proposition. This Court's responsibility, however, despite these adumbrations, is ensuring compliance with the statutory expressions of the United States Congress.").

C. ADEQ FAILED TO PROVIDE A GENERALLY-ACCEPTED RATIONALE FOR ITS PERMITTING DECISION

33 U.S.C.A. §1342(b)(5) requires that Arkansas insure that any other State whose waters may be affected by the issuance of a permit may submit written recommendations to Arkansas with respect to any permit application and, if any part of such written recommendations are not accepted by Arkansas, that Arkansas notify Louisiana (and the Administrator) in writing of its failure to so accept such recommendations together with its reasons for so doing.

Ark. Code Ann. §8-4-203(2)(B)(i) also provides that in the case involving any discharge limit or analytical method, the record of the proposed permit must include a written explanation by ADEQ of the rationale for the proposal, demonstrating that any technical requirements or

standards are based upon *generally accepted scientific knowledge and engineering practices*. The department must provide its own justification with appropriate reference to the scientific and engineering literature or written studies conducted by the department.

The Record is completely devoid of any notification from ADEQ to Louisiana (and the Administrator) in writing of ADEQ's failure to so accept Louisiana's recommendations that additional time be given prior to a decision on the permit applications to enable commentors – specifically Louisiana – to further review the data and other information provided by GBMc to ADEQ, or, alternatively, ADEQ's reasons for its failure to so do.

Nor did ADEQ provide a written explanation of the rationale that the permits and their effluent standards are based upon generally accepted scientific knowledge and engineering practices. ADEQ provided no references to scientific and engineering literature or written studies conducted by the department to support the Permits. To the contrary, the evidence preponderates that the Permits are based upon highly flawed modeling techniques practiced by GBMc.

If ADEQ had provided the information and data on the Final Report of GBMc dated June 1, 2006 (JX 13), or GBMc's Revised Final Report dated February, 2007 (JX 15), that were requested by Louisiana, or had directed GBMc to provide that information (as it ultimately did after the Permits were issued), Louisiana would have quickly been able to determine that GBMc was using a version of the Corps of Engineers' HEC-RAS model that was wholly inapplicable, and therefore useless, for the modeling that was needed in this case. Instead, ADEQ rushed to issue the permits prematurely, leading to this litigation.

The modeling of the Ouachita River conducted by GBMc clearly did not rise to the standard of "generally accepted scientific knowledge and engineering practice." The modeling

experts testified that in conducting the QUAL-2 and HEC-RAS modeling, it was critical to get the hydrology (i.e., the flow, depth and width) of the river correct. Hr'g. Tr. vol. 2, 201 ("It is just a matter of consensus among modelers that first you must get the hydrology correct, is the first thing that is done in putting together a water quality model. Make sure the hydrology is correct."); Hr'g. Tr. vol. 12, 2131 ("[T]he first thing you have to do with any model, any water quality model, is to make sure that the model is hydraulically calibrated. If it – if its not, it's over at that point."); Hr'g. Tr. vol. 4, 501 ("[T]he first basis of a model is the hydrologic portion of it. … [I]f you get the hydrology wrong, then nothing else matters."); Hr'g. Tr. vol. 9, 1383 (Depth, flow, width, slope of the river are all important to get accurate in modeling; "your objective is to get the river geometry as close to real life as possible.").

Mr. Duerr of LDEQ further testified that, without the Thatcher and Felsenthal Dams being represented in the HEC-RAS and QUAL-2 models that were used by GBMc, the models "would be invalid simply because the hydrology of the river was not properly represented." (Hr'g. Tr. vol. 2, 202), and that the modeling was "not believable." Hr'g. Tr. vol. 2, 186. Mr. Duerr – an expert with 25 years experience in water quality modeling, and to whom Mr. Phillips admitted he would have to defer to his greater expertise in these models – testified that a permit such as the one in this case, based on faulty modeling, was not based on good science. Hr'g. Tr. vol. 12, 2131.

Mr. Duerr was joined in this opinion by Dr. Eldon Blancher, who testified as follows (Hr'g. Tr. vol. 4, 516):

> Q. What is your opinion about the validity of a model that purports to model a river that has two dams in it that does not include the dams in the model; that is, they have been, so to speak, keyed out?
>
> A. It can't be properly calibrated.

Q. Is that a valid model?

A. No, it's an invalid model.

Q. Would a permit that is based on that model, would that be a flawed permit?

A. If it's based on the output from that model, yet, it would be a flawed permit.

The JPG attempts to rationalize the faults in the GBMc HEC-RAS and QUAL-2 modeling by claiming, through the testimony of Mr. Phillips and Mr. Mike Corn, that notwithstanding the omission of the two dams from the models, the models were not "not that sensitive" to the differences in the depth of the river in making its predictions about the effect of the proposed pipeline's discharges. This rationalization is itself flawed.

First, Messrs. Phillips' and Corn's testimony about the "insensitivity" of the HEC-RAS and QUAL-2 models to the depth of the river is nothing more than conjecture on their parts, and a blatant effort by hired consultants to salvage the GBMc work for their clients. All persons involved in this case agree that modeling is the most accurate way to predict the effect of the introduction of a new waste stream into a river. (See, for example, Martin Maner's testimony stating that modeling is the best tool we have to determine the effect of the introduction of a new contaminant on a water body.) Hr'g. Tr. vol. 11, 1820. ADEQ surely would not have required the JPG to conduct such extensive modeling to obtain its permits if ADEQ were not convinced that properly-conducted modeling is the best way to determine issue of water quality. If we are to rely upon conjecture – even the conjecture of experts – in making permit decisions, then there is no point in conducting modeling in the first place. That is particularly true when the work of one of the experts – GBMc – has been found to be consistently wrong in this case.

While everyone concedes that modeling is the most accurate way to predict future water quality, it is only, as here, where serious inaccuracies have been found in the modeling, that the

Joint Permit Group suddenly claims that it is really not important that the modeling be accurate after all, and that the permits should be affirmed based on the conjecture of their experts.

The second problem with the JPG's attempt to justify the permits based on the explanation that the models were not "sensitive" to the fact that the dams were not reflected in the models, is that it is a "post hoc rationalization," which cannot be used to support an agency action based upon other reasons.

"Post hoc rationalizations" have been addressed on numerous occasions by Federal courts. Those courts have held that a "post hoc rationalization," which means a new rationale for a past agency action, is precluded, whereas a "post hoc explanation," which is an agency's discussion of the previously-articulated rationale for the challenged action, is not precluded. *Citizens to Preserve Overton Park v. Volpe,* 401 U.S. 402, 420, 91 S.Ct. 814, 825, 28 L.Ed.2d 136 (1971)). *National Oilseed Processors Ass'n v. Browner***,** 924 F.Supp. 1193 (D. D.C.,1996). See also, *Independence Min. Co., Inc.. v. Babbitt,*105 F.3d 502 (9th Cir. 1997). "The rule barring consideration of *post hoc* agency rationalizations operates where an agency has provided a particular justification for a determination at the time the determination is made, but provides a different justification for that same determination when it is later reviewed by another body. *See Industrial Union Dep't, AFL-CIO v. American Petroleum Inst.,* 448 U.S. 607, 631 n. 31, 100 S.Ct. 2844, 2858 n. 31, 65 L.Ed.2d 1010 (1980); *Securities and Exchange Comm'n v. Chenery Corp.,* 318 U.S. 80, 95, 63 S.Ct. 454, 462, 87 L.Ed. 626 (1943).

The testimony provided by Messrs. Phillips and Corn in their feeble attempts to salvage the modeling that supports the permits were classic examples of post hoc rationalizations. The Permits themselves state that they are based upon the GBMc Final Report of June 1, 2006 and Revised Final Report of February, 2007, which included the fatally-flawed modeling. JX 1,

Pages 16-19 of Fact Sheet. No amount of "smoke and mirrors" explanations, excuses or ad hoc rationalizations by the JPG's experts can make that modeling scientifically acceptable. There is no scientifically acceptable basis for the permits.

ADEQ's witnesses – Mr. Maner and Mr. Shafii – both testified that they believed that it was important that the dams be reflected in the GBMc models. Mr. Maner testified that, in modeling a river containing dams to determine the impact of a new discharge into that river, it would be important that the presence of the dams be included in the model, and that if the dams are not so included, it does not represent the system appropriately. Hr'g. Tr. vol. 11, 1690.

Further, Mr. Maner was asked by the JPG's counsel, Mr. Nestrud, about whether, after the analysis that was done by ADEQ, did he (Maner) feel that the "loading rate for phosphorus for this permit is based on sound science and good engineering practice." Mr. Maner paused for a significant period of time, and then responded that he thought that "It was based on, I think, appropriate science and engineering practice." Hr'g. Tr. vol. 11, 1783. On cross-examination, Mr. Maner was asked about his hesitation in answering that question, and testified as follows (Hr'g. Tr. vol. 11, 1826):

> Q. Mr. Nestrud asked you whether, in your opinion, this permit was based upon sound science and engineering practice. And you hesitated for a few seconds, and then you said you believed it was issued on appropriate, based on appropriate science and engineering practice. Why do you think that the permit was not based on sound science?
>
> A. … [I]t's so complex, to say that the modeling that was done on that is sound science, gets into the whole aspect of how much resource you want to put into it. … There could have been more science. There could have been more effort. There could have been more samples taken in Felsenthal reservoir to see what's happening in the backwater in such a complex system.
>
> This permit had gone on for at least two years. We were wanting to move forward with the permit, because one of the permit applications were

under a consent administrative order. I was trying to move forward with things. …

This testimony tells us two things. One, Mr. Maner did not believe that the permits were based on sound science and engineering practice. Second, the reason why ADEQ issued the permits without waiting for Louisiana's comments on the Revised Final Report – which would have disclosed the flaws in GBMc's modeling – was that ADEQ was in a hurry to issue the permits because El Dorado Chemical was under an administrative order – not because ADEQ believed that the modeling was based on sound science and good engineering practice.

Finally, we need look only to the testimony of Mr. Mo Shafii, who was the person at ADEQ who had the primary responsibility for reviewing and approving the permits and the data upon which they were based, to see that he has no confidence in the modeling upon which the permits are based. Mr. Shafii testified succinctly as follows (Hr'g. Tr. vol. 11, 1880)**:**

Q. If you had known before you issued the permit that the two dams were not included or accounted for in the HEC-RAS model that GBMc ran, would you have issued the permit without them having to rerun the model?

A No.

This testimony is an indictment of the scientific inadequacies of the modeling. ADEQ's two top officials involved in the issuance of these permits do not appear to be willing to testify that the permits are based on modeling that is based on sound science and engineering practice. Even GBMc's modeler, Greg Phillips, admitted that the omission of the two dams from the models was a serious flaw. Mr. Phillips testified on this issue as follows (Hr'g. Tr. vol. 9, 1453):

Q. I'm not trying to mince words with you, but the model treated the river as if those dams were not present in the river, as if they didn't exist?

A. That's right. …

Q. Alright. Now, that's really -- that's a serious flaw in your modeling, isn't it?

A. Of the HEC model?

Q. Yes.

A. Yeah. Of course, I don't contest that that's our modeling. We got that from the Corps and were told it's good. I did not construct that model.

The undisputed omission of the two dams from the HEC-RAS and QUAL-2 models, which was not detected by GBMc until after the Permits were issued, is a fatal flaw to the permits because they are not based upon *generally accepted scientific knowledge and engineering practices* as required by Ark. Code Ann. §8-4-203(2)(B)(i).

There are few cases that address the issue of the effect of faulty modeling on the validity of a permit. One case that does so is *State of Ohio v. U.S. Environmental Protection Agency*, 784 F. 2d 224 (6th Cir. 1986), in which computer modeling was used to predict the effects of proposed emissions from a manufacturing plant pursuant to a new air permit. The opponents to the proposed permits complained that the modeling (referred to as "the CRSTER model") did not reflect actual conditions at the plant. The Court of Appeals for the Sixth Circuit, in agreeing with the opponents, stated:

> The first issue presented is whether EPA has demonstrated the CRSTER model to be sufficiently accurate to be used in setting emissions limits for the plants. In other words, is the CRSTER model accurate enough that EPA's reliance on this model was reasonable rather than arbitrary? 42 U.S.C. § 7607(d)(9)(A). We are asked to assess the model's accuracy even though we are limited by a lack of information in the record demonstrating how reliably the model predicts the diffusion of sulfur dioxide in the region around the plants. No on-site study has been performed on the CRSTER model, as was done on the Urban RAM model, comparing the model's predictions of sulfur dioxide concentration for the areas surrounding the plants with actual monitored concentrations in these areas. No one has empirically tested the model or cross-checked its predictions against reality at the locations of the company's power plants. …

> EPA's reliance on the CRSTER model without testing the model against any monitored emissions from the plants and ambient air quality data from the area around the plants is arbitrary under these circumstances.
> …
> No matter how sophisticated or involved the methods employed by EPA in reaching its decisions, in order to uphold those decisions under the Clean Air Act we must be able to see that the agency's actions were not arbitrary. In the absence of a record supporting the trustworthiness of agency decision-making tools as they were applied, we cannot uphold those tools' application. EPA has failed to provide such a record.

As long as an agency reveals the data and assumptions upon which a computer model is based, allows and considers public comment on the use or results of the model, and ensures that the ultimate decision rests with the agency, not the computer model, then the agency use of a computer model to assist in decision making is not arbitrary and capricious. *Natural Res. Defense Council, Inc. v. Herrington,* 768 F.2d 1355, 1391 (D.C.Cir.1985) (quoting *Sierra Club v. Costle,* 657 F.2d 298, 334-35 (D.C.Cir.1981)). *See also Connecticut v. E.P.A.,* 696 F.2d 147, 158-59 (2d Cir.1982) (agency's use of computer model not arbitrary or capricious if the agency recognized the limitations of the computer model and explained the agency decision); *Sierra Club v. U.S. Forest Service,* 878 F.Supp. 1295 (D.S.D. 1993); *Carroll v. Litton Systems, Inc*., 1990 WL 312969 (W.D. N.C. 1990). However, where the agency relies upon a model that, in retrospect, was admittedly flawed, the permit is not based upon sound science and engineering practice, and such reliance is arbitrary, capricious and not in accordance with law.

In this case, ADEQ blindly accepted GBMc's modeling results without doing anything more than reading the reports submitted by GBMc. ADEQ failed to conduct any modeling of its own, or to even review the electronic version of the models, nor did it compare GBMc's modeling results with other data on the hydrology of the Ouachita River that had been compiled by other agencies, such as the Corps of Engineers. It was left to Louisiana to question the data that was presented by GBMc, and to eventually determine – after the electronic copies of the

models prepared by GBMc had finally been provided to Louisiana by GBMc – that the modeling was based upon a very serious and fatal flaw.

ADEQ and the Joint Permit Applicants are attempting to defend the indefensible – to put lipstick on a pig. It may make the pig look better, but it is still a pig. The simple and inescapable fact is that two of the principal models used by GBMc to determine the characteristics of the Ouachita River were fatally flawed, and that the information derived from those models is unreliable and, therefore, useless.

D. ADEQ FAILED TO ENSURE THAT THE DISCHARGES UNDER THE CHALLENGED PERMITS WOULD NOT VIOLATE FEDERAL LAW, RULES AND REGULATIONS REQUIRING THAT THE PERMITS ENSURE COMPLIANCE WITH LOUISIANA'S WATER QUALITY STANDARDS.

The Federal Clean Water Act establishes a system of permits ("the National Pollution Discharge Elimination System, or NPDES") to control the nature and quantity of the discharge of pollutants into waters of the United States. Under the NPDES System, not only must a state issuing a permit consider the effect of the discharge under the proposed permit upon the water quality of its own receiving waters, but it must also determine the potential effect upon the water quality of downstream states that may be affected by the proposed discharge.

This requirement is embodied in Section 401(a)(2) of the Federal Clean Water Act, 33 U.S.C. § 1341(a)(2), which provides, in relevant part:

> Whenever such a discharge may affect, as determined by the Administrator, the quality of the waters of any other State, the Administrator ... shall so notify such other State, the licensing or permitting agency, and the applicant. If, within sixty days after receipt of such notification, such other State determines that such discharge will affect the quality of its waters so as to violate any water quality requirements in such State, and within such sixty-day period notifies the Administrator and the licensing or permitting agency in writing of its objection to the issuance of such license or permit and requests a public hearing on such objection, the licensing or permitting agency shall hold such a hearing. The Administrator shall at such hearing submit his

> evaluation and recommendations with respect to any such objection to the licensing or permitting agency. Such agency, based upon the recommendations of such State, the Administrator, and upon any additional evidence, if any, presented to the agency at the hearing, shall condition such license or permit in such manner as may be necessary to insure compliance with applicable water quality requirements. ***If the imposition of conditions cannot insure such compliance such agency shall not issue such license or permit.*** 33 U.S.C. § 1341(a)(2). (Italics and bold added)

Since 1973, EPA regulations have provided that an NPDES permit shall not be issued "[w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States." 40 CFR § 122.4(d) (1991); see also 38 F.R.13533 (1973); 40 CFR § 122.44(d) (1991). This restriction applies whether the permit is issued by the EPA or by an approved state program. See 40 CFR § 123.25 (1991).

In this case, the evidence shows that ADEQ failed to meet its obligation to ensure compliance with the applicable water quality requirements of the State of Louisiana. The only modeling or other assessment of the effect of the proposed discharge on the Ouachita River was conducted by the Permittees' consultant, GBMc. Mr. Greg Phillips, who was in charge of the modeling effort for GBMc, testified in his deposition that the modeling that was conducted did not attempt to measure the effect of the proposed discharge upon the water quality of Louisiana, stating (Hr'g. Tr. vol. 9, 1411-1412, 1420) that GBMc's modeling was limited "to allow predictions" below the Felsenthal Dam only for a distance of one mile, because GBMc and its clients, the JPGs, did not want to have to deal with the complication of the wastewater effluent of Georgia-Pacific and the City of Crossett that are discharged from Coffee Creek, which flows into the Ouachita River only slightly further downstream.

More significantly, Mr. Phillips acknowledged that, because GBMc did not model the river to and beyond its confluence with Coffee Creek, he could not say what the impact of the

pipeline discharge would be on the State of Louisiana. Hr'g. Tr. vol. 9, 1413. Mr. Dick Duerr of LDEQ testified (R. 166, 174-175, 184) that the models run by GBMc could not reasonably be projected below the Felsenthal Dam, and that there was no way to predict the potential impact of the discharges from the proposed pipeline on Louisiana's waters without the modeling being extended to the Arkansas-Louisiana state line. Hr'g. Tr. vol. 2, 166, 174-175, 184. Mr. Duerr further testified that the Ouachita River in Louisiana is currently heavily impacted with low dissolved oxygen, and that nutrients and phosphorous that promote algae growth are a major concern. Hr'g. Tr. vol. 2, 166-167.

The burden is on ADEQ and the JPGs – not the State of Louisiana – to ensure that the water quality of Louisiana will not be impacted by the discharge from the proposed pipeline. The evidence that has been introduced in the form of charts taken from GBMc's Revised Final Report (JX. 15), derived from the modeling conducted by GBMc, clearly shows that elevated levels of nutrients and phosphorous attributable to the pipeline will enter Louisiana's waters. Hr'g. Tr. vol. 2, 173, vol. 12, 2125. There is no testimony, based on modeling or anything other than conjecture, that provides any assurance that Louisiana's water quality will not be impacted. Consequently, ADEQ and the JPG have failed in their affirmative obligation to – in the words of 40 CFR §122.4(d) – "ensure compliance with the applicable water quality requirements of all affected States."

LEAN AND STO/KG'S ARGUMENT:

A. ADEQ FAILED TO ENSURE COMPLIANCE WITH LOUISIANA'S WATER QUALITY STANDARDS AND THEREFORE ISSUED THE JOINT PERMIT IN VIOLATION OF 40 C.F.R. 122.4(D) AND APC&EC REGULATION 6.104(A)(3).

ADEQ failed to include conditions in the Joint Permit that would ensure compliance with Louisiana's water quality standards. Neither ADEQ nor the JPG could point to substantial evidence

in the record that the Joint Permit would ensure compliance with Louisiana's water quality standards. ADEQ violated 40 C.F.R. § 122.4(d) by failing to examine the impact of the Joint Pipeline discharge on Louisiana, failing to model, or require Permittees to model, the impact of the discharge into Louisiana, and failing to consider Louisiana's water quality standards.

1. FEDERAL AND STATE LAW REQUIRE THAT ADEQ ENSURE THE JOINT PERMIT COMPLIES WITH LOUISIANA'S WATER QUALITY STANDARDS.

Federal and state regulations prohibit ADEQ from issuing an NPDES permit unless the permit can "***ensure*** compliance with the applicable water quality of all affected States," 40 C.F.R. §122.4(d); APC&EC Reg. 6.104(A)(3) (emphasis added). In this case, Louisiana is clearly an "affected state" because the Joint Permit discharges into the Ouachita River, which flows into Louisiana. JX 1. ADEQ can only issue the Joint Permit if it contains conditions which ensure compliance with Louisiana's water quality standards, including numeric and narrative criteria. *See* Arkansas v. Oklahoma, 503 U.S. 91 (1992) (holding that EPA's requiring Arkansas to comply with Oklahoma's water quality standards was a reasonable exercise of EPA's discretion).

In order to ensure compliance with Louisiana's water quality standards, ADEQ must: (1) understand how the Joint Pipeline discharges will change the water quality at the Arkansas-Louisiana state line, (2) examine water quality standards applicable to the Ouachita River in Louisiana, and (3) show that the quality of water that will be entering Louisiana once the Joint Permit discharges commence comply with Louisiana's water quality standards for the Ouachita River. *See in re NPDES Permit for the City of Fayetteville, AR,* 2 E.A.D. 704 (Dec. 22, 1988)(finding that the permit should be upheld only if the record shows that the authorized discharges would not cause a violation of Oklahoma's water quality standards).

ADEQ failed to examine the impact of the Joint Pipeline discharges on the water quality at the Arkansas-Louisiana state line. ADEQ instead relied on modeling performed by GBMc,

consultants hired by the JPG, that did not extend to the state line. The flawed modeling showed increased levels of nutrients and chlorophyll-a above the state line, but ADEQ failed to examine the biological impact of that increase to determine whether such nutrient increase would violate Louisiana's nutrient standard. ADEQ also ignored the fact that Louisiana has the Ouachita River at the state line listed as impaired for nutrients, biological oxygen demand, and dissolved oxygen and failed to ensure that the Joint Pipeline discharges comply with the Total Maximum Daily Load ("TMDL") Louisiana adopted to address the impairment. For these reasons, ADEQ's issuance of the Joint Permit violated 40 C.F.R. 122.4(d) and APC&EC Regulation 6.104(A)(3) and therefore was illegal.

2. ADEQ DID NOT MODEL OR REQUIRE THE JPG TO MODEL THE JOINT PERMIT'S WATER QUALITY IMPACTS AT THE ARKANSAS-LOUISIANA STATE LINE.

ADEQ failed to determine the effect the Joint Pipeline discharges will have on the Ouachita River at the Arkansas-Louisiana state line. ADEQ did not model or require the JPG to model the impact of the Joint Pipeline discharges from the discharge point all the way to the Arkansas-Louisiana state line. Hr'g Tr. vol. 9, 1418:7-10. Instead, the only modeling performed on the discharges stopped a few miles short of the state line, before the influx of Coffee Creek, which dumps wastewater from a pulp and paper mill into the Ouachita River. Hr'g Tr. vol. 9, 1406:2-8. ADEQ did not examine the impact that the Joint Pipeline discharges, along with the existing discharges from the pulp and paper mill, will have on Louisiana's water quality. Hr'g Tr. vol. 4, 496:12-20; Hr'g Tr. vol. 9, 1413:12-17. Without knowing the impact of the Joint Pipeline on the water quality at the Arkansas-Louisiana state line, ADEQ cannot conclude that the Joint Permit ensures compliance with Louisiana's water quality standards. Hr'g Tr. vol. 4, 496:12-20.

3. ADEQ FAILED TO EXAMINE THE BIOLOGICAL EFFECT OF INCREASED NUTRIENT LEVELS PREDICTED BY THE JPG'S MODELING OR WHETHER THOSE INCREASED NUTRIENT LEVELS WERE CONSISTENT WITH LOUISIANA'S WATER QUALITY STANDARDS.

The QUAL2K modeling GBMc performed for the Ouachita River predicted elevated phosphorus and nitrogen levels a few miles above the Arkansas-Louisiana state line. JX 13 (June 1, 2006 Final Modeling Report), Fig. 6.18 (QUAL2K Phosphorus Predictions); Fig. 6.26 (Nitrogen Predictions). While the modeling does not show what nutrients levels will be at the state line, LEAN's expert Dr. Blancher opined that the elevated nutrient levels at the end of GBMc's modeling indicate that it is almost certain that the post-pipeline nitrogen levels in the Ouachita River at the Arkansas-Louisiana state line would be almost double baseline, or pre-pipeline, conditions, and that doubling would have an impact on Louisiana. Hr'g Tr., vol. 4, 507:23 – 508:11.

Amy Beck, the ADEQ employee responsible for reviewing GBMc's modeling, acknowledged that GBMc's modeling predicted increased nutrients above the Arkansas-Louisiana state line. Hr'g Tr. vol. 12, 2039:11-18. However, Ms. Beck testified that she does not know the biological effect of the increased nutrients. Hr'g Tr. vol. 12, 2039:19-22. Therefore, Ms. Beck could not know whether the predicted nutrient increases would violate Louisiana's narrative criteria for nutrients. *See* La. Admin. Code § 1113B.8 ("Nutrient conditions that produce aquatic growth to the extent that it creates a public nuisance or interferes with designated water uses shall not be added to any surface waters.")

In addition to having a state-wide narrative nutrient standard, Louisiana adopted a TMDL to address the fact that the Ouachita River below the Louisiana state line is impaired for nutrients and biological oxygen demand. *See* LEAN's Ex. 17, 18. Neither ADEQ nor GBMc examined the TMDL to see what nutrient load Louisiana expects to receive from Arkansas and whether the

increased nutrient load from the Joint Pipeline was consistent with the TMDL. Hr'g Tr. vol.9, 1404:21-25; Hr'g Tr. vol. 11, 1845:1-4.

ADEQ's failure to model the impacts of the Joint Pipeline to the Arkansas-Louisiana state line and failure to examine Louisiana's water quality standards to ensure the Joint Permit discharges comply with those standards violates 40 C.F.R. 122.4(d) and APC&EC Reg. 6.104(A)(3)

B. THE MERCURY LIMITS IN THE JOINT PERMIT AND THE INDIVIDUAL PERMITS FAIL TO COMPLY WITH THE OUACHITA RIVER MERCURY TMDL AND THEREFORE ARE ILLEGAL UNDER 40 C.F.R. § 122.4(I) AND APC&EC REGULATION 6.104(A)(3).

The Joint Permit and Individual Permits are illegal because they fail to comply with the EPA-approved Mercury TMDL, or budget and allocation of mercury in the system. Hr'g Tr. vol. 3, 357:9-18. Both Arkansas and Louisiana have identified the Ouachita River as having a problem with too much mercury. *See* Ex. JX 9; LEAN's Ex. 17. After finding a problem with mercury bioaccumulating, or building up in fish tissues, EPA established a TMDL for mercury in the Ouachita River in both Arkansas and Louisiana. *See* Ex. JX 8. A TMDL is basically a determination of the total amount of a pollutant that a waterbody can accept, and that amount is split between individual dischargers, background or natural sources, a margin of safety, and sometimes future dischargers. Hr'g Tr. vol. 3, 358:17 – 359:5. The Mercury TMDL for the Ouachita River, admitted as Exhibit JX 8, was finalized on December 18, 2002. *See* LEAN's Ex. 5. From that day forward, any permits issued in Arkansas or Louisiana that would discharge into the Ouachita River must comply with the TMDL. Hr'g Tr. vol. 3, 360:22 – 361:7. Therefore, ADEQ was bound to comply with the Mercury TMDL when issuing the Joint Permit. Hr'g Tr. vol. 3, 361:21-23.

ADEQ permit writer Loretta Reiber agreed that once there is an approved TMDL, she would need to use it when writing a permit. Hr'g Tr. vol. 4, 577:2-4. Ms. Reiber testified that

she did not consult the Mercury TMDL when setting the mercury limits in the Joint Permit. Hr'g Tr., vol. 4, 547:15-19.

1. ADEQ CANNOT ISSUE THE JOINT PERMIT OR INDIVIDUAL PERMITS THE MERCURY LIMITS IN THE PERMITS COMPLY WITH THE MERCURY TMDL.

Two federal regulations address permit issuance once a TMDL has been established. Federal regulation 40 C.F.R. § 122.4(i) generally prohibits an agency from issuing a discharge permit that will "cause or contribute to an impairment of a waterbody." Once a TMDL has been established to address the problem, Federal and state law prohibit ADEQ from issuing a permit for a new discharge unless ADEQ shows the waterbody can handle the additional discharge. *See* 40 C.F.R. §122.4(i); APC&EC Reg. 6.104(A)(3). Regulations provide that any permittee who wants to discharge into a waterbody for which there is a TMDL must show, before the close of the public comment period, that: ***1)*** "there are sufficient remaining pollutant load allocations to allow the discharge…" and ***2)*** "the existing discharges into the segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards." 40 C.F.R. 122.4(i); *see Friends of Pinto Creek v. EPA*, 504 F.3d 1007, 1012 (9th Cir. 2007) (noting that the exception in 40 C.F.R. §122.4(i) allowing discharges into an impaired water where a TMDL has been created only applies where the "owner or operator demonstrates that *before the close of the comment period* two conditions are met, which will assure that the impaired waters will be brought into compliance with the applicable water quality standards." (emphasis in original)).

Federal regulations also provide that permit limits must be "consistent with assumptions and requirements" of any applicable TMDL. *See* 40 C.F.R. § 122.44(d)(vii)(B) ("When developing water quality-based effluent limits… the permitting authority shall ensure that

Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge….”). Therefore, in order for ADEQ to allow the JPG to discharge mercury from the Joint Pipeline or from their Individual Permits, the JPG was required to show, before the close of the comment period, that there is mercury available under the TMDL to allocate to the Individual Permits and the Joint Permit. Neither the JPG nor ADEQ have shown that the Joint Permit or Individual Permit mercury limits comply with the Mercury TMDL.

2. NEITHER THE JOINT PERMIT NOR THE INDIVIDUAL PERMITS COMPLY WITH THE MERCURY TMDL.

The Mercury TMDL determined the total amount of mercury the Ouachita River can handle and then divided it up among different mercury sources—point sources, non-point sources, background, and margin of safety. JX 8 (Mercury TMDL) Tbl 4.14. The Mercury TMDL allocates 942 grams/year total to all point sources in the Ouachita River Basin in both Arkansas and Louisiana, JX 8, Tbl 4.14. That 942 grams/year acts as a budget of mercury that can be divided up between point sources. Hr’g Tr. vol. 3, 364:22-25; 365:24 -366:3. The Mercury TMDL allocates 356 grams/year mercury to one NPDES point source, ENSCO, and allocates 586 grams/year total mercury to several City Waste Water Treatment plants. JX 8, Tbl 4.14; Hr’g Tr. 365:11-23. The Mercury TMDL did not allocate any mercury to the Joint Pipeline. JX 8, Tbl. 4.14.

The Joint Permit allows the JPG to discharge a daily maximum mercury discharge of 0.032 lbs/day and a monthly average mercury discharge of 0.015 lbs/day. Ex. JX 1 (Joint Permit), Page 1 of Part IA. This means that the Joint Permit allows the JPG to discharge approximately 2,400 grams/year of mercury into the Ouachita River. Hr’g Tr. vol. 3, 366:10-17.

This is inconsistent with the Mercury TMDL, which has only allocated 942 grams/year to all point sources that were existing at the time the TMDL was created in 2002. Hr'g Tr. vol. 3, 366:18-24. The Mercury TMDL pie handed out all the slices, or mercury allocation, for the Ouachita River, and there was none left to give the Joint Permit. Hr'g Tr. vol. 3, 364:11-21. Because the Mercury TMDL does not provide a wasteload allocation for the Joint Permit, JX 8, Table 4.14, ADEQ may not allocate any mercury to the Joint Permit without reopening the Mercury TMDL and reshuffling the allocations. Hr'g Tr. vol. 5, 746:13-19. However, the allocations can only be reshuffled if one or more of the sources allocated mercury in the TMDL has reduced their mercury discharge so that there is room for more mercury in the system. Hr'g Tr. vol. 5, 748:2-11. There is no evidence that any of the sources of allocated mercury in the Mercury TMDL have reduced their discharges since the Mercury TMDL was finalized. Hr'g Tr. vol. 5, 649:2-8.

Neither the JPG nor ADEQ can show how allowing the JPG to discharge 2,400 grams/year of mercury into the Ouachita River is consistent with the Mercury TMDL, which only allocates 942 grams/year to all point sources. As Mr. Sulkin explained, a TMDL is "like selling tickets to the theatre; if there are a hundred seats in that theatre, you can only sell a hundred tickets." Hr'g Tr. vol. 5, 722:10-12. Because the Mercury TMDL does not allocate any mercury to the Joint Permit, ADEQ cannot authorize the JPG to discharge mercury from the Joint Pipeline.[2]

Likewise, each individual permit allows each discharger to discharge up to 0.2 ug/L of mercury into the Joint Pipeline. *See* JX 3, JX 4, JX 5, JX 6; *see also* Hr'g. Tr. vol. 3, 366:24 – 367:5. These limits do not comply with the Mercury TMDL and do not add up to the amount

[2] This result should not cause problems for the JPG because witnesses for the JPG testified that the JPG does not intend to discharge mercury from the Joint Pipeline. Hr'g Tr., vol. 9, 1178:4-9; *See also* Hr'g Tr., vol. 9, 1084: 21 – 1085:1.

the JPG can discharge out of the Joint Pipeline. Hr'g Tr. vol. 3, 367:6-16. This means that each member of the JPG could be discharging according to the limits of its individual permit, but that the group together would be exceeding the limits in the Joint Permit. Further, 40 C.F.R. § 122.44(i)(1)(i), requires discharge permits to contain mass limits for each pollutant limited. *See* 40 C.F.R. § 122.44(i)(1)(i) ("To assure compliance with permit limitations" [permits must contain "requirements to monitor the mass… of each pollutant limited in the permit."). By including only a concentration limit, 0.2 ug/L, instead of a mass limits, the individual NPDES issued to the members of the JPG violate federal and state regulations. *See* APC&EC Reg. 6.104(A)(3) (adopting 40 C.F.R. § 122.44).

C. BY ALLOWING THE DISCHARGE OF MERCURY, THE JOINT PERMIT VIOLATES REGULATION 2.508'S PROHIBITION OF TOXIC SUBSTANCES AND REGULATION 2.201'S REQUIREMENT TO PROTECT EXISTING USES.

1. ALLOWING THE JPG TO DISCHARGE TOXIC MERCURY INTO THE OUACHITA RIVER VIOLATES ARKANSAS' PROHIBITION ON TOXIC SUBSTANCES.

EPA established the Mercury TMDL after finding that mercury was bioaccumulating, or building up in fish tissue. *See* Ex. JX 8. That is because, regardless of the source of mercury (whether "point" or "non-point" source), the effect on the river is the same. Mercury in methyl form, i.e. methyl mercury, is toxic to fish, animals, and humans. Hr'g Tr. vol. 5, 591-93. Methyl mercury bioaccumulates. Hr'g Tr. vol. 5, 599-600; 629 to 631. Once methyl mercury is in the food chain, those higher up the food chain receive exponentially more mercury than those lower in the chain as larger fish consume many small mercury-contaminated fish. Hr'g Tr. vol. 5, 594-95. Because of the dangers mercury bioaccumulation in fish pose to fish and humans, EPA created the Mercury TMDL to reduce the amount of mercury present in the Ouachita River and in turn, reduce the amount of methyl mercury in fish. Hr'g Tr. vol. 5, 637.

The mercury problem is particularly troubling in the Felsenthal Reservoir because the Felsenthal provides ideal conditions for mercury "methylation," changing metal mercury into methyl mercury. Hr'g Tr. vol. 5, 594, 596-97. Mercury methylation is effected by the amount of nutrients, the pH level, and anaerobic conditions (low dissolved oxygen in the sediments). Hr'g Tr. vol. 5, 597, 603:25 – 604:3. Because Felsenthal Reservoir is an ideal mercury methylation system, Hr'g Tr. vol. 5, 594, 596-97, the level of toxic, methyl mercury is much higher than other parts of the Ouachita River.

Regulation 2, section 2.508 prohibits the discharge of toxic substances beyond the zone of initial dilution at a level that will be harmful to animals or humans. The text of that regulation reads, in pertinent part, as follows:

> **Reg. 2.508 Toxic Substances**
> Toxic substances shall not be present in receiving waters, after mixing, in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of the indigenous aquatic biota. Acute toxicity standards may not be exceeded outside the zone of initial dilution. Within the ZID acute toxicity standards may be exceeded but acute toxicity may not occur. Chronic toxicity and chronic numeric toxicity standards shall not be exceeded at, or beyond, the edge of the mixing zone. Permitting of all toxic substances shall be in accordance with the toxic implementation strategy found in the Continuing Planning Process. For non permit issues and as a guideline for evaluating toxic substances not listed in the following tables, the Department may consider No Observed Effect Concentrations (NOECs) or other literature values as appropriate.

Without question, any mercury discharged into the river via the joint pipeline will be toxic to humans, animal, plant or aquatic life. Yet the Joint Permit allows the JPG to discharge 0.32 pounds per day of mercury into the Ouachita River, regardless of how much mercury the JPG representatives guess they might be discharging. *See* JX 1 (Joint Permit), Page 1 of Part IA. Also, it was established that Joint Pipeline Group members would mix clean Sparta Aquifer water with Ouachita River water and discharge the mix into the joint pipeline. Hr'g Tr. vol. 8,

1200. Therefore, even the "background" or "naturally occurring" mercury will be toxic because it is already at toxic levels leading to advisories for certain persons not to eat fish caught from the waters of the lower Ouachita. Hr'g Tr. vol. 5, 625:18-21.

Further, Regulation 2.508 makes no distinction as to the source of the mercury. It completely prohibits the discharge of toxic levels of mercury into the surface waters of Arkansas. In the case of the Ouachita River between Thatcher Dam and Felsenthal Dam, toxicity is as much (or more) a function of the river system's ability to methylate mercury as it is the amount of mercury in the river available for methylation. Once mercury discharged by the Joint Pipeline reaches the Felsenthal Reservoir, it will be converted into toxic form, i.e. methyl mercury and bioaccumulated into the fish and animal tissue. It is exactly this type of water chemistry that Regulation 2, §2.508 was intended to prohibit and the permit should be denied on this basis.

Because Felsenthal Reservoir is an ideal mercury methylation system, Hr'g Tr. vol. 5, 594, 596-97, the level of toxic, methyl mercury is much higher than other parts of the Ouachita River. The JPG and ADEQ have ignored this fact. Roland McDaniel testified that while tests were conducted on the effects of mercury on aquatic life, the mercury used was metal mercury and not methyl mercury. Hr'g Tr. vol. 8, 1200. Additionally, neither GBMc, nor the JPG, nor ADEQ performed an analysis of the proper pH for such tests. "Standard" pHs were used instead of the actual pH of the river and Felsenthal Reservoir. This was error because pH has a direct effect on methylation. Hr'g Tr. vol. 5, 597. Therefore, the JPG's opinion (from GBMc's work) adopted by ADEQ, that the discharge of mercury from the joint pipeline would have no effect on humans is completely invalid.

Likewise, ADEQ and the JPG ignored the fact that the Joint Pipeline discharges will actually make conditions in Felsenthal Reservoir even more favorable for methylation. First,

Joint Permit will add nutrients needed for methylation. JX 1 (Joint Permit), Page 1 of Part IA. The added nutrients will also act like fertilizer and encourage plant growth. Hr'g Tr. vol. 2, 344:16-24. When those plants die, they will decompose and reduce oxygen levels in the sediments, contributing to anaerobic soil conditions necessary for methylation. Hr'g Tr. vol. 5, 606:2-18. Because the Joint Permit will provide more favorable methylation conditions, it exacerbates the mercury problem and violates Regulation 2.508.

2. ALLOWING THE JPG TO DISCHARGE MERCURY INTO THE OUACHITA RIVER VIOLATES 2.201, WHICH REQUIRES THAT ADEQ PROTECT THE RIVER'S DESIGNATED USES—FISHING AND SWIMMING.

Arkansas regulations require ADEQ to "maintain and protect" "existing instream uses and the water quality necessary to protect existing uses." APC&EC Reg. 2.201. ADEQ has determined that the subject section of the Ouachita River is used for primary and secondary body contact activities such as swimming, and for fishing. See Regulation 2, Appendix "A", page 28. The current level of mercury violates the narrative, "fishable/swimmable" standard for water quality in Arkansas. Hr'g Tr. vol. 5, 623.

Regulation 2, §2.106 defines "fishable/swimmable" as:

> **Fishable/swimmable:** Refers to one of the national goals of the Clean Water Act as stated in Section 101(a)(2), "...provides for the protection and propagation of fish, shellfish and wildlife and provides for recreation in and on the water."

Kent Stegall, Sam Russell, Ronnie Greer and Joey Haile all testified as to their and their families' uses of the river for both fishing and swimming. Hr'g Tr. vol. 5. They all also testified that if the discharge were allowed, their uses of fishing and swimming in the river would be greatly curtailed or eliminated due to health concerns, odor or taste caused by the discharge. Hr'g Tr. vol. 5, 678, 688, 695, 708.

Given that the Ouachita River is not currently fishable/swimmable due to mercury contamination, and, given that the proposed discharge of the joint pipeline would render the river even further unfishable/unswimmable, the permit violates Regulation 2.201 by allowing the JPG to discharge more mercury into the Ouachita River when the river is already suffering from mercury problems.

D. ADEQ VIOLATED 40 C.F.R. §§ 122.4(D) BY FAILING TO REQUIRE A TESTING METHOD SENSITIVE ENOUGH TO COMPLY WITH THE PERMIT LIMITS FOR MERCURY AND THE MERCURY WATER QUALITY STANDARDS.

The Joint Permit and the Individual Permits require the JPG to use EPA Method 245.1 to test for mercury. JX 1 (Joint Permit) Page 3 of Part III; *see* JX 3, JX 4, JX 5, JX 6. The lowest amount of mercury Method 245.1 can detect is 0.2 ug/L, and according to Mr. Sulkin, Method 245.1 is an older method only appropriate for testing higher levels of mercury. Hr'g Tr. vol. 3, 368: 12-16. Method 245.1 is not an appropriate mercury testing method because the Joint Permit mercury limits were calculated based on a mercury concentration of 0.9 ug/L for daily average, which is much lower than Method 245.1 can detect. Hr'g Tr. vol. 3, 368:17-18; Hr'g Tr. vol. 3, 369:10-17. This means that the Joint Pipeline discharge could be exceeding the mercury permit limit, but the JPG could report the discharge as zero as long as it was less than 0.2 ug/L, the detection limit for Method 245.1. Hr'g Tr. vol. 3, 371:13-19. Although there were other EPA-approved mercury testing methods, such as Method 1631, available when ADEQ issued the Joint Permit, *see* LEAN's Ex. 21, ADEQ permit-writer Loretta Reiber did not consult 40 CFR Part 136, the regulation containing EPA-approved testing methods, when selecting the mercury testing method for the Joint Permit. Hr'g Tr. vol. 4, 371:23 -372:3.

Federal and state regulations prohibit ADEQ from issuing NPDES permits unless permit conditions can "ensure compliance" with water quality requirements of all affected states. *See*

40 C.F.R. § 122.4(d); APC&EC Reg. 6.104(A)(3). Method 245.1 is not sensitive enough to ensure the JPG complies with the Joint Permit's mercury limits. Therefore, had the mercury limits complied with the Mercury TMDL and otherwise been valid, ADEQ still violated 40 C.F.R. § 122.4(d) when issuing the Joint Permit because Method 245.1 cannot test low enough levels of mercury to "ensure compliance with the applicable water quality of all affected States." 40 C.F.R. §122.4(d); APC&EC Regulation 6.104(A)(3).

Recent EPA guidance from supports this conclusion. In an August 23, 2007 memo, EPA stated that "in light of existing regulatory requirements for NPDES permitting, only the most sensitive methods, such as Method 1631E and 245.7, are appropriate… for sampling and analysis of mercury pursuant to the monitoring requirements within the permit." LEAN's Ex. 20. The EPA recognized the inability of Method 245.1 to detect mercury at low enough levels to match the permit limits and expects "the permitting authority to require the use of a sufficiently sensitive EPA method for monitoring under the permit." LEAN's Ex. 20. Therefore, Method 245.1 is not an appropriate mercury testing method for the Joint Permit.

E. THE JOINT PERMIT DISCHARGES WILL CONTRIBUTE TO THE OUACHITA RIVER'S ZINC IMPAIRMENT IN VIOLATION OF 40 C.F.R. 122.4(I) BECAUSE ADEQ SET ZINC LEVELS ASSUMING THERE IS NO ZINC IN THE OUACHITA RIVER DESPITE HAVING DATA SHOWING ZINC IN THE OUACHITA RIVER AND THE OUACHITA RIVER BELOW THE DISCHARGE POINT IS ALREADY IMPAIRED FOR ZINC.

The Joint Permit contains metals limits, including zinc, that fail to protect water quality in the Ouachita River. When setting permit limits, ADEQ assumed that there are no metals currently present in the Ouachita River, was zero, Hr'g Tr. vol. 4, 543:10-13, despite having several years of ADEQ-collected data from upstream and downstream of the discharge point showing metal levels, including zinc levels, greater than zero. *See* LEAN's Ex. 6. Also, portions of the Ouachita River, both above and below the discharge point are impaired for zinc. *See* JX 9

(Arkansas' 303(d) list). Furthermore, ADEQ used assumed a higher level of flow in the Ouachita River than is reflected by the most recent data available at the time the permit limits were being set. For these reasons, the metals limits fail to ensure compliance with Arkansas water quality standards for metals.

1. ADEQ ERRONEOUSLY ASSUMED ZINC BACKGROUND WAS ZERO EVEN THOUGH ADEQ'S OWN DATA SHOWS ZINC PRESENT IN THE OUACHITA RIVER.

When calculating permit limits for metals, ADEQ uses pollutant background concentrations, background flow of the river, the discharger's proposed discharge volume, and the water quality criteria to set permit limits that comply with Arkansas' water quality standards. *See* JX 1 (Joint Permit), Pages 9-10 of Fact Sheet; Hr'g Tr. vol. 3, 385:8-17. The greater the background concentration of the pollutant in the river, the less of that pollutant the discharger can safely put into the water without violating the water quality standards. For example, a permit would contain a greater zinc limit if ADEQ assumes the background concentration of zinc in the Ouachita River is zero than if ADEQ assumes a zinc background concentration of something greater than zero. Hr'g Tr. vol. 4, 574:7-11.

When setting permit limits for zinc and all other metals in the Joint Permit, ADEQ assumed a background concentration of zero, meaning they assumed that there are no metals present in the Ouachita River. Hr'g Tr. vol. 4, 543:10-13; JX 1 (Joint Permit), Attach. 2 ("Cb = 0"). ADEQ has been collecting water quality data in the Ouachita River, both above and below the proposed discharge point, for years. LEAN's Ex. 6. ADEQ posts this data on its website, making it available to the public. Hr'g Tr. vol. 3, 381:8-20.

Arkansas' Continuing Planning Process, a guidance document ADEQ uses when writing permits, directs the permit writer to determine if there are pollutant data available on the

receiving stream, specifies that "all available data" will be considered, and further clarifies that "[d]ata typically maintained and published by the state … will be considered appropriate" data to use in determining background concentrations. *See* JX 17, page D-47-48; *see also* Hr'g Tr. vol. 4, Page 544. ADEQ had adequate information to calculate background levels of metals at the discharge point because it had several years' worth of water quality data from the Ouachita River above and below the proposed discharge point that ADEQ itself had maintained and published. *See* Hr'g Tr. vol. 3, 383:8-15. ADEQ could have determined the background concentration of metals in the Ouachita River at the discharge point by using the data ADEQ had already collected, either by averaging the data or by using a more complicated statistical method. Hr'g Tr. vol. 3, 383:2-7.

ADEQ could not provide a persuasive explanation as to why it failed to use all available data to calculate reasonable background concentrations for each metal for which ADEQ set a limit in the Joint Permit, particularly when ADEQ used data from the upstream water quality monitoring station at Camden to estimate the background flow in the Ouachita River at the discharge point. *See* JX 1 (Joint Permit), Page 8 of Fact Sheet ("The 7Q10 of 750 cfs is based on flow data taken from the monitoring station on the Ouachita River near Camden."). By assuming that the Ouachita River has no zinc in it when really the background level is greater than zero, the Joint Permit allows the JPG to discharge more metals than would protect the water quality. Hr'g Tr. vol. 3, 385:18-23. Because ADEQ set the metals limits in the permit too high to protect water quality, the Joint Permit violates 40 C.F.R. 122.4(d)'s requirement that permits contain conditions to ensure compliance with water quality requirements of all affected states.

2. THE JOINT PERMIT'S ZINC LIMITS VIOLATE 40 C.F.R. 122.4(I) BECAUSE ADEQ SET ZINC PERMIT LIMITS ASSUMING THERE WAS NO ZINC ALREADY IN THE OUACHITA RIVER EVEN THOUGH ARKANSAS HAS LISTED STRETCHES ABOVE AND BELOW THE DISCHARGE POINT AS IMPAIRED FOR ZINC.

Under Section 303(d) of the Clean Water Act, each state must "identify waters within its boundaries for which the effluent limitations required… are not stringent enough to implement any water quality standards applicable to such waters." 33 U.S.C. § 131(d)(1)(A). Arkansas has identified these waters that are not meeting the water quality standards—often referred to as "impaired waters"—on ADEQ's 303(d) list of impaired waterbodies. *See* JX 9 (ADEQ's 2004 303(d) list). When calculating permit limits, it is important to know whether the receiving water is impaired for any pollutant because federal and state regulations prohibit ADEQ from issuing a permit that will "cause or contribute to violation of a water quality standards." 40 C.F.R. 122.4(i); APC&EC Reg. 6.104(A)(3). On a practical level, if a river is already violating the water quality standard for a particular pollutant, it is inappropriate to use the same calculations to determine permit limits for that pollutant as those you would use to determine permit limits for pollutants for which a river was not impaired. Hr'g Tr., vol. 11, 1713:15-19.

Arkansas has formally acknowledged in ADEQ's 2004 303(d) list of impaired waterbodies that reaches of the Ouachita River above and below the Joint Pipeline's proposed discharge point are impaired for zinc. *See* JX 9. However, when setting permit limits for zinc, ADEQ assumed there was no zinc in the Ouachita River. Hr'g Tr. vol. 4, 543:10-13. Because the Ouachita River is impaired for zinc above the proposed discharge point, ADEQ could not legitimately assume that there was no background levels zinc in the Ouachita River when setting the permit limits in the Joint Permit. Hr'g Tr. vol. 3, 384:11-14.

Furthermore, by assuming zero zinc in the river and ignoring the fact that downstream of the discharge the river is already violating the water quality standard for zinc, ADEQ will allow the JPG to discharge 73.52 lbs/day of zinc into the Ouachita River. JX 1 (Joint Permit). ADEQ has failed to show how adding 26,834.8 lbs/year of zinc into the Ouachita River directly above where the river is already violating zinc water quality standards will not "contribute to the violation" of zinc water quality standards. *See* 40 C.F.R. 122.4(i). Therefore, the Joint Permit violates federal and state regulations and is illegal. 40 C.F.R. 122.4(i); APC&EC Reg. 6.104(A)(3).

3. ADEQ Assumed A Higher Flow In The Ouachita River When Calculating Permit Limits Than Reflected in the Most Recent Data Available When ADEQ Was Setting Permit Limits in the Joint Permit.

When setting permit limits for zinc and the other metals, ADEQ used a background critical flow, or 7Q10,[3] of 750 cubic feet per second (cfs). JX 1 (Joint Permit), Page 8 of Fact Sheet ("The 7Q10 of 750 cfs is based on flow data taken from the monitoring station on the Ouachita River near Camden."). ADEQ obtained this number from GBMc, who obtained it in 2002 from U.S. Geological Survey using data from 1982-2001. JX 7 (Response to Comments) p. 31, #20b. The dams on the Ouachita River became active in 1985, Hr'g Tr. vol. 2, 210:5-7, and authorize a minimum flow in the river of 600 cfs. LEAN's Ex. 2. Because the U.S. Army Corps of Engineers control Thatcher Lock and Dam and the Felsenthal Lock and Dam to maintain a 9 foot navigation channel, the Ouachita River is considered a "Regulated-flow stream" under Regulation 2: "those streams restricted by structures which have the ability to control stream flow." APC&EC Reg. 2.106. Regulated-flow streams Because the Corps can lower the flow

[3] The 7Q10, or Q7-10, is "A flow volume equal to or less than the lowest mean discharge during 7 consecutive days of a year which, on average, occurs once every 10 years."

level in the Ouachita River to 600 cfs, ADEQ should have used 600 cfs when calculating permit limits. Hr'g Tr. vol. 3, 387:10-14.

At the very least, ADEQ should have obtained the most recent 7Q10 data available from U.S.G.S. when calculating permit limits, starting from 1985 when the dams were put into service. Hr'g Tr. vol. 2, 265:24 – 266:4. Recent data from U.S.G.S. shows that the 7Q10 from April 1985 to September 2005 was 708 cfs. LEAN's Ex. 4; Hr'g Tr. 387:4-9. If ADEQ had used the lower flow data when calculating the permit limits in the Joint Permit, the permit limits would have been lower. JX 1 (Joint Permit), Fact Sheet Page 9-10. Therefore, by using a higher flow when calculating the permit limits, ADEQ failed to "ensure compliance" with Arkansas' water quality standards, in violation of 40 C.F.R. § 122.4(d) and APC&EC Regulation 6.104(A)(3).

F. ADEQ VIOLATED ITS DUTY UNDER REGULATION 2.201 TO MAINTAIN THE EXISTING FISHERY USE IN FELSENTHAL RESERVOIR.

Arkansas regulations require ADEQ to "maintain and protect" "existing instream uses and the water quality necessary to protect existing uses." APC&EC Reg. 2.201. Existing uses of the Ouachita River and Felsenthal Reservoir include fisheries. *See* APC&EC Reg. 2, App. A-29; Hr'g Tr. vol. 11, 1707:15-22. Therefore, ADEQ could not issue the Joint Permit without "provid[ing] its own justification with appropriate reference to the scientific and engineering literature or written studies conducted by the Department" showing that the Joint Permit protects the existing fishery use and water quality necessary to protect the fishery. *See* APC&EC Reg. 8 2.1.10(a)(2). ADEQ's failure to do so renders the Joint Permit illegal.

1. ADEQ FAILED TO EXAMINE THE JOINT PIPELINE'S IMPACT ON MINIMUM DISSOLVED OXYGEN IN FELSENTHAL RESERVOIR.

Throughout the permitting process, Arkansas Game and Fish Commission (AGFC) voiced its concern that the Joint Pipeline discharges would threaten Felsenthal Reservoir's fishery by depressing dissolved oxygen and ultimately killing fish. LEAN's Ex. 2. AGFC aquatic biologist Jason Olive explained that maintaining dissolved oxygen is critical to protecting the existing fishery use in Felsenthal because low dissolved oxygen leads to fish kills and fish kills impair fishing. Hr'g Tr. vol. 2, 282:6-12; *see* LEAN Ex. 10 & 11. ADEQ failed to examine or require the JPG to examine the Joint Pipeline's impact on low dissolved oxygen. Indeed, the only dissolved oxygen modeling performed on the backwater areas Felsenthal Reservoir was WASP. GBMc modeler Greg Phillips testified that the WASP dissolved oxygen modeling he performed was trying to answer the question: "Will the joint pipeline discharge change those ***average*** dissolved oxygen levels?" Hr'g Tr. vol. 10, 1540:13-14 (emphasis added).

But as ADEQ employees admit, fish don't care about *average* dissolved oxygen levels. Martin Maner, former chief of ADEQ's water division, testified that examining average dissolved oxygen would not show whether the dissolved oxygen was getting low enough to lead to fish kills. Hr'g Tr. vol. 11, 1708:14-17. ADEQ employee Amy Beck likewise admitted that the dissolved oxygen modeling for the Joint Permit only examined average dissolved oxygen levels but that when one is concerned about dissolved oxygen to avoid fish kills, one should look at how low dissolved oxygen gets and for how long it stays depressed. Hr'g Tr. vol. 20, 2040:12-24.

Further, Arkansas' dissolved oxygen standard, which acknowledges the correlation between dissolved oxygen levels and sustaining a fishery,[4] is not based on ***average*** dissolved oxygen; it is based on ***minimum*** dissolved oxygen. *See* APC&EC Reg. 2.505; *see* Hr'g Tr. vol. 3, 407:17-19 ([Mr. Sulkin] "Dissolved o[xygen] criteria or sometimes called standards are always based on how low it goes, the minimum."). Average dissolved oxygen "becomes unimportant if you're looking at highs and lows that balance out." Hr'g Tr. vol. 3, 407:22 -408:6. So modeling how the Joint Pipeline discharge affects ***average*** dissolved oxygen says nothing about whether or not the Joint Pipeline discharge complies with the dissolved oxygen standard and protects fisheries. Hr'g Tr. vol. 4, 467:6-10. ADEQ's failure to examine the Joint Pipeline's impact on minimum dissolved oxygen in the backwater areas of Felsenthal Reservoir violated ADEQ's duty under Regulation 2.201 to protect and maintain the existing fishery use in the Felsenthal Reservoir and the dissolved oxygen levels necessary to maintain the fishery.

2. THE EVIDENCE SHOWS THAT THE JOINT PIPELINE DISCHARGES WILL LOWER MINIMUM DISSOLVED OXYGEN IN BACKWATER AREAS OF FELSENTHAL RESERVOIR.

The Joint Pipeline discharges will add nutrients to the backwater areas of Felsenthal Reservoir. The Joint Permit authorizes the JPG to discharge monthly average phosphorus of 116.7 lbs/day from July through October and 166.8 from November to June along with monthly average ammonia-nitrogen of 1328.6 lbs/day from May through October and 3230 lbs/day from November through April. *See* JX 1 (Joint Permit), Page 1 of Part 1A. Mr. Olive testified that the added nutrients, acting like fertilizer, will cause more aquatic plants to grow. Hr'g Tr. vol. 2, 344:16-24. GBMc's WASP modeling predicts that the increased nutrients will cause more algae to grow. JX 13 (June 1, 2006 Final Modeling Report), Fig. 6.32 (Chlorophyll-a predictions).

[4] *See, e.g.,* APC&EC Reg. 2.205 ("they are assumed to provide sufficient water to support a perennial fishery and, therefore, must meet the dissolved oxygen standards of the next size category of streams.").

Both Aquatic plants and algae affect daily dissolved oxygen levels in two ways. First, aquatic plants and algae perform photosynthesis and respiration. Hr'g Tr. vol. 3, 396:12-20. When the sun shines on aquatic plants during the day, the plants perform photosynthesis and add dissolved oxygen to the water. When the sun stops shining, either on a cloudy day or at night, the aquatic plants respire, taking up oxygen and lowering the dissolved oxygen levels in the water. Hr'g Tr. vol. 3, 396:21 – 397:2. This daily roller coaster fluctuation in dissolved oxygen is called a "diurnal cycle." The more plants and algae in a reservoir, the taller and deeper the daily dissolved oxygen diurnal cycle. Second, aquatic plants and algae consume oxygen when they die and decompose. Hr'g Tr. vol. 3, 334:8-10. The more plants and algae the grow, the more die, and the more consume oxygen when decaying.

By encouraging the growth of either aquatic plants or algae, the Joint Permit's nutrient discharge will lead to "greater spikes and depressions in dissolved oxygen levels, and it is the depressions [in dissolved oxygen] that cause fish kills." Hr'g Tr. vol. 3, 345:8-15. These greater spikes and lower depressions are problematic because areas of Felsenthal Reservoir, such as Crooked-S Slough, are already violating Felsenthal's dissolved oxygen standard, 5.0 mg/L. *See* APC&EC Reg. 2.505; Hr'g Tr. vol. 12, 2037:13 – 2038:1.

As part of its data collection, GBMc measured continuous oxygen levels in several areas of the Felsenthal and the Ouachita River from September 8, 2005 to September 14, 2005. The results, contained in part in Figures 4.4 and 4.5 from GBMc's June 1, 2006 Final Modeling report, JX 13, and in their entirety in Appendix D of the Appendices to the June 14, 2006 modeling report, JX 14, reflect the daily roller coaster, or diurnal swing, of oxygen levels in the river and reservoir. The diurnal oxygen measurements for Crooked-S Slough show dissolved oxygen levels ranging from 0.5 mg/L up to 5.0 mg/L during the week-long period, with averages

between approximately 1.0 mg/L and 2.0 mg/L. JX 13 (June 1, 2006 Final Modeling Report) Fig. 4.4. ADEQ employee Amy Beck admitted that GBMc's data show that dissolved oxygen levels in Crooked-S Slough are already "down to two, and… already [are] violating the water quality standard." Hr'g Tr. vol. 12, 2037:13 – 2038:1.

Thus, because Crooked-S Slough is already violating the dissolved oxygen standard, to further depress the dissolved oxygen fails to maintain the water quality necessary to protect the designated fisheries use as Reg. 2.201 requires. *See* APC&EC 2.201 ("Existing instream uses and the water quality necessary to protect the existing uses shall be maintained and protected.")

G. ADEQ FAILED TO SHOW WITH SCIENTIFIC AND ENGINEERING LITERATURE OR WRITTEN STUDIES CONDUCTED BY THE DEPARTMENT THAT THE JOINT PIPELINE DISCHARGES WILL COMPLY WITH ARKANSAS' NUTRIENT STANDARDS.

Arkansas has two narrative standards that directly address nutrients and nuisance growth. Regulation 2.402 provides that "[a]ll waters shall be free from substances attributed to man-caused point or nonpoint source discharges in concentrations that produce undesirable aquatic life or result in the dominance of nuisance species." APC&EC Reg. 2.402 Regulation 2.509 provides that " nutrients stimulating algal growth shall not be present in quantities sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use of the waterbody." APC&EC Reg. 2.509. Therefore, ADEQ could not issue the Joint Permit without "provid[ing] its own justification with appropriate reference to the scientific and engineering literature or written studies conducted by the Department" showing that the Joint Permit keeps the Felsenthal Reservoir free from concentrations of nutrients that would produce undesirable aquatic life, result in the dominance of nuisance species, cause objectionable algal densities, cause nuisance vegetation or impair the Felsenthal's uses. *See* APC&EC Reg. 8 2.1.10(a)(2). ADEQ's failure to do so renders the Joint Permit illegal.

1. LARGE PORTIONS OF FELSENTHAL RESERVOIR ARE ALREADY SUFFERING FROM NUISANCE AQUATIC VEGETATION.

The Felsenthal Reservoir is already suffering from extensive growth of aquatic plants, also called macrophytes. LEAN Ex. 7, 8 & 9. Currently the Felsenthal Reservoir is approximately 90% covered with aquatic plants. Hr'g Tr. vol. 2, 281:16-22. The extensive aquatic plant coverage inhibits access by sportsmen, anglers, hunters, and recreationalists, and lowers dissolved oxygen in the backwater areas. Hr'g Tr. vol. 2, 281: 23 –282:5. Low dissolved oxygen leads to fish kills and thereby impairs fishing. Hr'g Tr. vol. 2, 281:23 -282:5.

AGFC has tried various methods, including herbicide treatment to control plant growth and a radio telemetry study on plant-eating grass carp, over the past several years in an attempt to combat the spread of aquatic vegetation in the Felsenthal Reservoir. Hr'g Tr. vol. 3, 282:16 – 283:24. The most recent attempt, a radio telemetry study, cost AGFC, and ultimately Arkansas taxpayers, approximately $100,000. Hr'g Tr. vol. 2, 284:4-14. Despite AGFC's best efforts, aquatic plants cover in Felsenthal Reservoir has been increasing. Hr'g Tr. vol. 2, 284:15-18.

AGFC voiced concern throughout the permitting process that the Joint Pipeline's increased nutrient load would ultimately lead to expanded plant growth in the backwater areas of the Felsenthal. *See* LEAN's Ex. 2; Hr'g Tr. vol. 3, 305:25 – 306:16. In response, ADEQ directed the JPG to examine the issue further. Hr'g Tr. vol. 11, 1694:8-24. GBMc proposed to run two models—WASP and AQUATOX—to determine the effect of the Joint Pipeline's nutrient discharge on the Felsenthal. *See* JX 9 (Work Plan). WASP looked at baseline levels of dissolved oxygen, phosphorus, nitrogen, and chlorophyll-a in Crooked-S Slough and tried to predict the Joint Pipeline's impact on each of those factors. *See* JX 13 (June 1, 2006 Final Modeling Report), p 68. The AQUATOX modeling examined baseline amounts of plant

biomass in Crooked-S Slough and then attempted to determine the Joint Pipeline's impact on plant biomass in Crooked-S Slough. *See* JX 13 (June 1, 2006 Final Modeling Report), p. 76.

The WASP modeling results indicate that the Joint Pipeline discharges will encourage algal growth, JX 13, p 96, causing objectionable algal densities, even though GBMc underestimated the Joint Pipeline's effect on algal growth by overestimating current nutrient loads to the Felsenthal Reservoir. Hr'g Tr. vol. 4, 472:17-24. The AQUATOX modeling results were useless because the AQUATOX model was not reasonably calibrated to simulate current conditions in Felsenthal Reservoir.

2. WASP NUTRIENT MODELING SHOWING INCREASED LEVELS OF NUTRIENTS AND CHLOROPHYLL-A INDICATES PROBLEMATIC NUTRIENTS.

GBMc's WASP modeling predicted that chlorophyll-a levels with the Joint Pipeline discharge will reach up to 20.9 ug/L. JX 13 (June 1, 2006 Final Modeling Report), p 94. Levels of chlorophyll-a WASP predicts indicates "the biomass of algae increasing in the reservoir" and increases that high are "problematic particularly in a lake." Hr'g Tr. vol. 4, 488:4-14. Dr. Blancher testified that chlorophyll-a levels of 20ug/L indicate an "algal-dominated system, which is very poor for fishing." Hr'g Tr. vol. 4, 489:3-20. Indeed, former water division chief expressed concern at chlorophyll-a levels of 14 ug/L and testified that chlorophyll-a levels of 10ug/L "is typically considered an enriched environment," or eutrophic. Hr'g Tr. vol. 11, 1656:2-16.

Furthermore, WASP under-predicted the Joint Pipeline's effect on algae in the Felsenthal Reservoir by overestimating the current nutrient load into the Felsenthal. To estimate current nutrient load into the backwater areas of the Felsenthal Reservoir, GBMc developed a complete list of all point source discharges in the entire watershed that were likely to reach any portion of

the Ouachita River or Saline River. JX 13 (June 1, 2006 Final Modeling Report), p 20-21. GBMc recognized that "many of the point source dischargers in the upper Ouachita River watershed discharge into or above the three lake system located on the Ouachita River (Lake Ouachita, Lake Hamilton, and Lake Catherine) or above Lake Degray located on the Caddo River which empties into the Ouachita River at Arkadelphia." JX 13 (June 1, 2006 Final Modeling Report), p 21. However, GBMc assumed that "**all** of N[itrogen] and P[hosphorus] loads from discharges above or within the lakes are passed through the lakes." *Id*. at 22.

By assuming no nutrient assimilation in upstream lakes, GBMc overestimated the current nutrient loading level into the Felsenthal Reservoir. Hr'g Tr. vol. 4, 468:10 -469:16. By overestimating the amount of nutrients that are currently reaching the Felsenthal, GBMc artificially lessened the relative impact from the Joint Pipeline discharges directly into the Ouachita River. Hr'g Tr. vol. 4, 469:9-16. Therefore, any conclusions that GBMc may have made regarding the difference between current effects of nutrient loading and projected effects of the Joint Pipeline's nutrient load, are unconvincing.

GBMc used its WASP modeling results as inputs for Carlson's Trophic Index in order to measure how much "worse" the Joint Pipeline discharges will make the Felsenthal Reservoir through showing how much more enriched the system will become. GBMc's analysis shows that the Felsenthal Reservoir will be more enriched and therefore covered in more plant or algae growth because of the Joint Pipeline discharge. JX 13 (June 1, 2006 Final Modeling Report), p 97-98. This increase indicates objectionable algal densities in violation of Regulation 2.509. Hr'g Tr. vol. 4, 472:17-24.

3. THE AQUATOX MODELING DOES NOT SHOW THE JOINT PIPELINE'S IMPACT ON NUISANCE PLANTS.

The AQUATOX modeling does not show the Joint Pipeline discharge's impact on nuisance plants in backwater areas of Felsenthal Reservoir because GBMc determined the modeling results before collecting plant data, GBMc modeled a plant that does not grow in Felsenthal Reservoir, and the model calibration does not reasonably reflect current conditions in backwater areas of Felsenthal Reservoir.

a. *GBMc Pre-determined The AQUATOX Results Before Collecting Any Plant Data.*

GBMc's AQUATOX modeling was intended to show the impact of the Joint Pipeline on nuisance plant growth in the Felsenthal Reservoir, Hr'g Tr. vol. 9, 1360:15-18, in response to AGFC's concern that the Joint Pipeline's nutrient discharge would exacerbate nuisance plant growth. Hr'g Tr. vol. 11, 1694:8-24. LEAN's Ex. 2. In its June 29, 2005 Modeling Work Plan, before collecting any plant data in the Felsenthal Reservoir or inputting any data on plant biomass, Hr'g Tr. vol. 10, 1473:6-11, GBMc had already concluded that AQUATOX showed that the discharge from the Joint Pipeline would not increase macrophyte growth. JX 10 (June 29, 2005 Work Plan) ("AQUATOX predicted that the discharge would not result in increased growth of macrophytes."). GBMc based this conclusion on a modeling run of AQUATOX in which the plant biomass numbers it used for the baseline conditions were "not real data." Hr'g Tr. vol. 10, 1471:9 – 1472:23.

b. *GBMc Used A Plant That Does Not Grow in The Felsenthal Reservoir To Predict The Joint Pipeline's Impact on Nuisance Species in Felsenthal Reservoir.*

After reviewing GBMc's Interim Modeling Report, AGFC commented that the plant GBMc used in the AQUATOX modeling is not a plant that is actually present in Felsenthal

Reservoir. LEAN Ex. 1. Greg Phillips from GBMc agreed that the aquatic plant used in the AQUATOX modeling, *Myriophyllum*, is not present in Felsenthal. Hr'g Tr. vol. 10, 1502:23 - 1503:2. However, ADEQ did not request that GBMc actually use *Cabomba* instead of *Myriophyllum* in the AQUATOX modeling. Hr'g Tr. vol. 11, 1695:5-7.

Ms. Beck was the ADEQ employee responsible for passing AGFC comments on to GBMC, even though she is not an expert in AQUATOX. Hr'g Tr. vol. 12, 2005:11 – 2006:6; Hr'g Tr. vol. 12, 2029:12 – 2030:1. Ms. Beck did not personally look to see if it was possible to put *Cabomba* in AQUATOX, nor did she open the AQUATOX library to see what source materials the AQUATOX authors used to create the *Myriophyllum* record. Hr'g Tr. vol. 12, 2030:1-19. AQUATOX's *Myriophyllum* record contains several parameters, and next to each parameter lists the source in which AQUATOX's authors found the information. Hr'g Tr. vol. 12, 2091:19 – 2092:14. Ms. Beck did not examine the source materials listed for the *Myriophyllum* parameters to see if they contained parameters for *Cabomba*. Hr'g Tr. vol. 12, 2092:5-14. Instead, she "just kind of did a Google search… and didn't come back with any results," so she concluded that "it seem[ed] like the data might be hard to find." Hr'g Tr. vol. 12, 2095:5-8.

Dr. Eldon Blancher, an AQUATOX expert called by LEAN,[5] testified that GBMc should have used *Cabomba* in the AQUATOX modeling. Hr'g Tr. vol. 4, 480:9-11. AQUATOX itself includes a plant library "as examples" and cautions that "it is the responsibility of the user to verify their applicability for specific application." Hr'g Tr. vol. 12, 2091:24 – 2091:4.

[5] Dr. Eldon Blancher holds a bachelor's degree in biology, a master's degree in zoology and physiology, and a PhD in environmental engineering sciences. Hr'g Tr. vol. 4, 458:10-18. Dr. Blancher specializes in studying the effects of adding nutrients such as nitrogen or phosphorus into a water body, which is known as eutrophication. Hr'g Tr. vol. 4, 457:20 – 458;7. Dr. Blancher started working with the AQUATOX model when it was developed in 2002 and has been working with it ever since. Hr'g Tr. vol. 4, 463:4-12.

AQUATOX contains a feature that allows a user to add a new species to the library, Hr'g Tr. vol. 12, 2093: 17-23, and Dr. Blancher explained that Mr. Phillips should have looked up parameters for *Cabomba* and made a new record in AQUATOX to use *Cabomba* in GBMc's modeling. Hr'g Tr. vol. 4, 480:25 -481:7.

Dr. Blancher also testified that *Myriophyllum* and *Cabomba* are not interchangeable. Hr'g Tr. vol. 4, 481-4:7. In addition to the fact that *Cabomba* grows in the Felsenthal Reservoir while *Myriophyllum* does not, Hr'g Tr. vol. 4, 481:22-25, "the two plants grow in different ways"; *Cabomba* "obtains a lot of nutrients from the water column," while *Myriophyllum* "almost exclusively obtains its nutrients from the sediments." Hr'g Tr. vol. 4 481:13-16. Dr. Eldon Blancher testified that for these reasons, GBMc's failure to use *Cabomba* in the AQUATOX modeling renders the results were invalid. Hr'g Tr. vol. 12, 2092:5-14.

c. *GBM'c AQUATOX Calibration Did Not Reasonably Reflect The Felsenthal Reservoir and Therefore Renders The Results Invalid.*

GBMc's failure to appropriately calibrate the AQUATOX model renders the results invalid. The purpose of a calibration run during modeling is for the modeler to set the background conditions for the system to be modeled and to get the model to reflect as close to reality as possible. Hr'g Tr. vol. 2, 39:19-23. Dr. Blancher testified that "if you can't come close to predicting what's actually going on in the system during the calibration run, then the rest of the modeling exercise is basically invalid." Hr'g Tr. vol. 4, 484:18-21.

In its AQUATOX calibration, GBMc used three observed data points of *Cabomba* biomass to predict how *Myriophyllum* would grow throughout a year in Felsenthal, and used three observed data points of *Hydrilla* biomass to predict *Hydrilla*'s growth pattern throughout the year. *See* JX 13 (June 1, 2006 Final Modeling Report) p 77-78, Figs. 6.12, 6.13. The *Cabomba* observed data points were taken in August and September 2005 and March 2006. *See*

JX 13 (June 1, 2006 Final Modeling Report) p 78, Fig. 6.12. The *Hydrilla* observed data points were collected in August and September 2005. *See* JX 13 (June 1, 2006 Final Modeling Report) p 78, Fig. 6.13.

The *Myriophyllum* calibration shows observed *Cabomba* data of approximately 125 g/m2 in August 2005, 25 g/m2 in September 2005, and 50 g/m2 in March 2006. *See* JX 13 (June 1, 2006 Final Modeling Report) p 78, Fig. 6.12. The model calibration for those same dates predicted 125 g/m2, 100 g/m2, and 250 g/m2, respectively. Id. The *Myriophyllum* calibration peaked twice, once at nearly 250 g/m2 in October 2005 and again at 350 g/m2 in April 2006.

The *Hydrilla* calibration shows observed *Hydrilla* data of approximately 25 g/m2 in August 2005 and 75 g/m2 in September 2005. *See* JX 13 (June 1, 2006 Final Modeling Report) p 78, Fig. 6.13. The *Hydrilla* calibration for August and September 2005 matches the observed data, but the calibration peaks twice, once in October 2005 at 150 g/m2 and again in May 2006 at 250 g/m2. Id.

Jason Olive, a biologist for AGFC, testified that GBMc's calibration of the AQUATOX modeling did not match reality because the trends in the system—when and how many times during the year plant growth peaks in the Felsenthal. Hr'g Tr. vol. 12, 2150:21 – 2151:11. Mr. Olive testified that, from his experience in Felsenthal Reservoir generally and Crooked-S Slough in particular, "macrophytes do not peak twice in Crooked-S Slough or anywhere else in Felsenthal, and they definitely don't peak at the times indicated" on GBMc's AQUATOX calibration graphs. Hr'g Tr. vol. 12, 2150:3-5; JX 13 (June 1, 2006 Final Modeling Report) p 78, Figs. 6.12, 6.13. Instead, the plants peak once in late summer or early fall and then die back to the general levels they were in the previous winter. Hr'g Tr. vol. 12, 2150:10-18. Mr. Olive testified that the way plants actually grow in Felsenthal is "truly nothing like what's shown here"

in GBMc's calibration. Hr'g Tr. vol. 12, 2150:18-20; *See* JX 13 (June 1, 2006 Final Modeling Report) p 78, Figs. 6.12, 6.13. Mr. Phillips admitted that he had no evidence that the growth of aquatic plants in Felsenthal peaks in April as the AQUATOX calibration showed, Hr'g Tr. vol. 10, 1504:4-10, and ultimately deferred to Mr. Olive's testimony as to when aquatic plants growing in Felsenthal Reservoir reach their peak. Hr'g Tr. vol. 10, 1504:11-17.

Dr. Blancher testified that the fact that the plant biomass peaks predicted in the calibration do not coincide with the times when the plants actually peak in the Felsenthal, combined with the way the models "drift" and do not represent the observed data show that the "model is not running appropriately." Hr'g Tr. vol. 4, 483:6 – 484:1. Dr. Blancher ultimately opined that one cannot "interpret anything out of the model as giving you any information for a permit decision" because "to ask questions of a model when you know that the calibration is not being performed properly is a futile exercise." Hr'g Tr. vol. 4, 485:1-3. Because GBMc failed to reasonably calibrate the AQUATOX models, ADEQ could not rely on that modeling to show what affect the Joint Pipeline discharge will have on nuisance species growth in Felsenthal Reservoir. Therefore, ADEQ failed to fulfill its duty under Regulation 8 §2.1.10 to support its conclusions with written studies conducted by the Department showing that the Joint Permit discharges comply with Arkansas' nutrient standards.

V. CONCLUSION AND PRAYER FOR RELIEF

Upon review of the evidence, ADEQ violated the Clean Water Act's procedural protections by failing to provide the State of Louisiana with a meaningful opportunity to comment on the permit applications and failing to provide written, reasoned responses to Louisiana's comments. Furthermore, ADEQ failed to base the permit limits on generally accepted scientific knowledge and engineering practices. ADEQ also violated Federal and State

law by not ensuring compliance with Louisiana's water quality standards and by failing to examine the impact of the proposed pipeline discharge downstream of the Felsenthal Dam and to the Arkansas-Louisiana state line.

By including mercury in the Joint Permit, ADEQ failed to comply with the mercury budget in the Ouachita River, violated Arkansas' toxic substances and designated uses regulations. ADEQ also failed to require a sensitive enough mercury testing method to comply with the permitted limits and allowed the JPG to discharge too much zinc and metals to protect water quality in the Ouachita River. By allowing the Joint Permit to discharge large amounts of nutrients in the Ouachita River, ADEQ failed to protect existing fishery use. ADEQ also failed to show that the Joint Permit's nutrient discharges comply with Arkansas' nutrient standards. For these reasons, the Joint Permit and Individual Permits are illegal and must be vacated. Likewise, because the Joint Permit is illegal and must be vacated, the Joint Pipeline construction permit, JX 2, must also be vacated.

Respectfully Submitted,

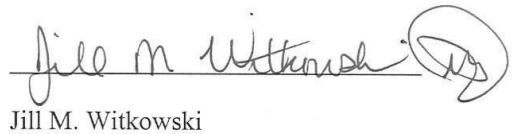
RICHARD H. MAYS LAW FIRM

By: Richard H. Mays
Richard H. Mays (AR Bar #61043)
Cornerstone Square – Suite A-2
2000 Highway 25B North
P.O. Box 1450
Heber Springs, AR 72543
(501) 362-0055
e-mail: rhmays@ix.netcom.com

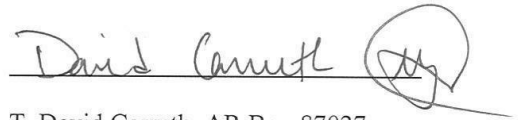
CHARLES C. FOTI, JR.
ATTORNEY GENERAL OF
THE STATE OF LOUISIANA
Megan K. Terrell (LA #29443)

Ryan M. Seidemann (LA #28991)
LaTonya L. Ozene (LA # 30284)
Assistant Attorney General
Civil Division/Lands & Natural Resources
Post Office Box 94005
Baton Rouge, Louisiana 70804-9005
TEL: (225) 326-6085
FAX: (225) 326-6099

Carolyn Bryant, Esq.
Legal Division
LDEQ
Post Office Box 4302
Baton Rouge, LA 70821-4302



Jill M. Witkowski
Tulane Environmental Law Clinic
6329 Freret Street
New Orleans, LA 70118
Phone: (504) 862-8814
Fax: (504) 862-8721
On Behalf of Louisiana Environmental Action Network



T. David Carruth, AR Bar. 87027
P. O. Box 91
Clarendon, AR 72029
Phone: (870) 787-3839
Fax: (870) 787-5695
On Behalf of Save the Ouachita and Kent Stegall

CERTIFICATE OF SERVICE

The undersigned does hereby certify that on the date set forth below, I did serve a copy of the above and foregoing document upon counsel for the parties by depositing a copy of the same with the U.S. Postal Service, addressed to the persons at the addresses listed below with sufficient postage to arrive at its destination:

Representing the Permittees
Charles R. Nestrud
Chisenhall, Nestrud, and Julian, P.A.
400 W Capitol Ave., Suite 2840
Little Rock, AR 72201

Arkansas Dept. of Environmental Quality
Benjamin T. Jones and Jamie Ewing
5301 Northshore Drive
North Little Rock, AR 72118

Mark Hayes
Arkansas Municipal League
P.O. Box 38
N. Little Rock, AR 72115



1/7/08
Date

BEFORE THE ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF:
EL DORADO JOINT PIPELINE
GROUP PERMITS

CONSOLIDATED
Docket No. 07-006-P

PERMIT NOS. **AR 0050296**
AR 0049743C
AR 0049743
AR 0000647
AR 0000752
AR 0001171

PETITIONERS' PROPOSED FINDINGS OF FACT

The State of Louisiana, the Louisiana Environmental Action Network ("LEAN"), and Save the Ouachita and Kent Stegall ("STO/KS") ("Petitioners"), through the undersigned attorneys, do hereby submit Proposed Findings of Fact as follows:

GENERAL BACKGROUND

1. On November 16, 2004, El Dorado Water Utilities, Great Lakes Chemical Company – Central Plant, Lion Oil Company, and El Dorado Chemical Company (the "Joint Pipeline Group" or "JPG") submitted an application for a new NPDES permit for the El Dorado Joint Pipeline Project. JX 1 (Joint Permit), Page 2 of Fact Sheet.

2. The individual permittees submitted their applications for modification of their existing permits as follows:

a) Lion Oil Company – El Dorado Refinery, Permit No. AR0000647 – 9/20/04, JX 5;

b) Great Lakes Chemical Corporation, Permit No. AR0001171 – 10/05/04, JX 6;

c) El Dorado Chemical Company, Permit No. AR0000752 – 10/07/04, JX 4;

d) El Dorado Water Utilities, Permit No. AR0049743 – 11/16/04, JX 3;

3. In a letter dated June 16, 2005, LDEQ transmitted to ADEQ its comments on the El Dorado Pipeline Model. Specifically, LDEQ noted that more extensive modeling should be done to include nutrient cycle modeling and to examine the effect on the water quality of the Ouachita River down to the Arkansas-Louisiana state line. La. Ex. 1.

4. On June 29, 2005, GBMc, consultants hired by the JPG, submitted a Workplan for Eutrophication Modeling of the Ouachita River and Felsenthal Reservoir to ADEQ. JX 10 (Workplan).

5. Pursuant to the Workplan, GBMc prepared four different modeling studies: ***1)*** Multi-SMP, a simplified model which examines dissolved oxygen levels from the discharge point to 30 miles below; ***2)*** QUAL2K, which examined levels of phosphorus, nitrogen, average dissolved oxygen, and chlorophyll-a for 80 miles of the Ouachita River, from above the discharge point to approximately 2 miles above the Arkansas-Louisiana state line; ***3)*** WASP, which examined phosphorus, nitrogen, and chlorophyll levels in Crooked S Slough in Felsenthal Reservoir; and ***4)*** AQUATOX, which examined the response of aquatic plants in Crooked S Slough to the increased nutrient discharges from the Joint Pipeline. JX 13 (June 1, 2006 Final Modeling Report).

6. GBMc submitted an Interim Modeling Report to ADEQ on April 13, 2006, JX 12 (Interim Report) and a Final Modeling Report and Appendices to ADEQ on June 1, 2006, JX 13 (Final Modeling Report) and JX 14 (Appendices).

7. ADEQ issued a public notice announcing the draft permits on March 22, 2006, held a public hearing on the draft permits on May 18, 2006, and accepted written comments on the draft permits until July 21, 2006. Petitioners submitted comments on the permits during the public comment period. JX 7 (Response to Comments).

8. On February 13, 2007, GBMc submitted a Revised Nutrient Modeling Study to ADEQ. JX 15 (Revised Modeling Report).

9. On February 28, 2007, ADEQ issued the Joint Pipeline Permit – AR0050296 – allowing the Permittees to discharge 20 million gallons of wastewater a day into the Ouachita River. ADEQ also modified each Permittees' Individual Permit to allow them to discharge wastewater to the Ouachita River through the Joint Pipeline, JX 3, JX 4, JX 5, JX 6, and issued El Dorado Water Utilities a construction permit to building the Joint Pipeline, JX 2. The Joint Pipeline will discharge into Segment 2D of the Ouachita River above the Felsenthal National Wildlife Refuge (referred to herein as "Felsenthal Reservoir"), where 500,000 people a year use for fishing or duck hunting. JX 1 (Joint Permit) at 2, Hr'g Tr. vol. 8, 1174:17-24; STO Ex. 3.

10. The Ouachita River then crosses the Arkansas-Louisiana state line a few miles below the Felsenthal National Wildlife Refuge. JX 13 (Final Modeling Report), Fig. 6.2.

11. As the Ouachita River crosses into Louisiana, the river is a designated natural and scenic river. JX 7 (Response to Comments) p 35.

12. The Ouachita River contains several dams, including Thatcher Lock and Dam above the discharge point, Felsenthal Lock and Dam below the discharge point, and Columbia Lock and Dam further below the discharge point in Louisiana. JX 1 (Joint Permit) Page 2 of Fact Sheet; Hr'g Tr. vol. vol. 1, 146:14-15; Hr'g Tr. vol. 1, 134:18 – 135:1.

13. The State of Louisiana submitted its Third Party Request For Commission Review and Adjudicatory Hearing on March 29, 2007.

14. LEAN submitted its Third Party Request For Commission Review and Adjudicatory Hearing, or in the Alternative, Petition for Intervention on March 29, 2007.

15. STO/KS submitted its Third Party Request For Commission Review and Adjudicatory Hearing on March 27, 2007.

The State of Louisiana Was Not Provided With a Meaningful Opportunity to Review and Comment Upon the Data on Which the Permit Was Based.

State of Louisiana:[1]

16. In an email dated May 4, 2006, ADEQ transmitted to LDEQ an electronic copy of the "Interim Report Ouachita River and Felsenthal System Water Quality Modeling – Calibrated Model Inputs (QUAL2K, WASP, AQUATOX)." The Interim Report had no projection modeling results that could be used to identify any impacts on the Ouachita River or the State of Louisiana. JX 12 (Interim Report).

17. In a letter to ADEQ dated May 17, 2006, LDEQ stated its concern about the potential impact of the combined discharges to the Ouachita River in Louisiana. Due to the lack of sufficient information to determine whether the discharge would have an adverse impact on Louisiana's waters, LDEQ requested that ADEQ extend the public comment period 30 days past the date that the Final Nutrient Modeling Report was made available for review in order to ensure adequate time to review and comment on the final modeling report. La. Ex. 3.

18. On May 18, 2006, LDEQ submitted comments during the public hearing on the draft permit. The comments stated among other things, that "[w]e are concerned about the potential impact with the nutrient loading in the Ouachita River in Louisiana…we feel like we have inadequate information upon which to make detailed comments. Therefore, we are asking for an extension of the comment period. We will reserve our judgment until we see the final modeling report…." JX 7 (Response to Comments).

19. In a letter dated May 22, 2006, Louisiana Department of Culture, Recreation & Tourism ("LDCRT") stated its concern about the potential impacts of the combined discharge into the Ouachita River north of the Louisiana border. LDCRT requested that ADEQ extend

[1] Petitioners have identified the parties raising each issue identified in Proposed Findings of Fact.

the public comment period for 30 days after the Final Nutrient Modeling Report was submitted so that LDEQ could properly determine whether the proposed discharge would have an adverse impact on Louisiana waters and the adjacent riparian economy and cultural resources. JX 1 (Also attached as Exhibit to Louisiana's Request for Commission Review).

20. In a letter dated May 22, 2006, Louisiana Department of Wildlife and Fisheries ("LDWF") stated that the upper Ouachita River in Louisiana is designated as a Natural and Scenic River, prompting that agency's concern regarding the proposed pipeline and the draft permit. LDWF stated that in order for them to formulate and submit meaningful comments on the project, they must determine whether the proposed activity poses significant potential for ecological degradation to the river system. Thus, LDWF objected to this proposal due to the limited information provided regarding the project. LDWF requested that it be provided with a final and complete modeling report and ample time to review and comment on such report. JX 7; (Response to Comments); (Also attached as Exhibit to Louisiana's Request for Commission Review).

21. On June 13, 2006, LDEQ received an email from ADEQ transmitting an electronic copy of the Final Nutrient Modeling Report. Hr'g Tr. Vol. 2, 169.

22. In a letter dated June 20, 2006, LDEQ requested that the draft pipeline permit not be issued in order to allow adequate time for all interested parties to review and comment on the Final Nutrient Modeling Report. LDEQ stated that it anticipated that the modeling report would provide information that would enable a more accurate determination of the potential impact of the discharge on the Felsenthal Reservoir and the lower Ouachita River. Alternatively, LDEQ requested that ADEQ extend the comment period at least 30 days past the date that the Final Nutrient Modeling Report becomes available for review. La. Ex. 6.

23. On July 10, 2006, LDEQ sent an email to ADEQ transmitting comments on the Final Nutrient Modeling Report. The comments expressed LDEQ's concerns about the projected increases in total nitrogen and chlorophyll A in the Ouachita River below the Felsenthal Dam. LDEQ also requested a 90-day extension on the comment period to allow further time for an adequate review of the report. La. Ex. 8.

24. In a letter dated July 26, 2006, the State of Louisiana, through its Attorney General Charles C. Foti, Jr., expressed its concern about the proposed pipeline discharges on the Ouachita River below the Arkansas state line, and the lack of sufficient information for LDEQ to make a determination of the impact of such a proposal. The Attorney General's Office supported LDEQ's request for a 90-day extension of the comment period to ensure that LDEQ could discharge its legal duty to ensure the safety of Louisiana's environment and natural resources. JX 7 (Response to Comments); (Also attached as Exhibit to Louisiana's Request for Commission Review).

25. In an email dated July 26, 2006, ADEQ declined to extend the comment period beyond July 21, 2006. La. Ex. 23.

26. On or around the period of July 12, 2006 through February 14, 2007, LDEQ sent several emails to ADEQ transmitting their comments on the El Dorado project and proposed permits. La. Ex. 11, 23; Hr'g Tr. vol. 2, 81-82.

27. In an email dated February 15, 2007, ADEQ submitted to LDEQ the Revised Nutrient Modeling Report and Appendix A and requested that comments be submitted by February 20, 2007. The Revised Nutrient Modeling Report and Appendix A did not include the necessary information for the LDEQ to perform a considered review of the results. La. Ex. 13.

28. On February 16, 2007, LDEQ responded to ADEQ's comment request and stated that LDEQ would be unable to perform an adequate review of the revised report within the five-day time frame allowed and thus LDEQ was unable, at this time, to withdraw their objections to the issuance of permits for the proposed pipeline on the grounds that there was insufficient information on which to base an adequate and reasoned determination on the effect of the proposed discharges; thus, ADEQ lacked sufficient information to have a complete record of decision. La. Ex. 14.

29. Louisiana requested the models and modeling data upon which the permit applications were based on numerous occasions; however, it did not receive the critical data that would enable Louisiana's personnel to peer review GBMc's modeling studies until after the permit was issued. La. Ex. 19,19, 23; Hr'g Tr. vol. 2, 198-199.

ADEQ FAILED TO ENSURE COMPLIANCE WITH LOUISIANA'S WATER QUALITY STANDARDS

ADEQ Failed to Perform Independent Sufficient Analysis of the Data Submitted By the Permit Applicants to Ensure Its Adequacy.

State of Louisiana, LEAN, STO/KS:

30. ADEQ did not conduct any independent modeling, review the electronic versions of the models submitted by the JPG's consultant, GBMc, compare GBMc's modeling with other data on the hydrology of the Ouachita River that had been compiled by other agencies, such as the Corps of Engineers, or discover the omission of the Thatcher and Felsenthal dams in the HEC-RAS model used by GBMc. Hr'g Tr., vol. 9, 1874-1880; Hr'g Tr. vol. 12, 2015-2024.

31. Martin Maner, Chief of ADEQ's Water Division when the Joint Permit was issued, did not review the modeling performed by GBMc. Hr'g Tr. vol. 11, 1663:2-5. Instead, Mr. Maner relied on his staff, specifically Amy Beck (née Cotter), to review the modeling. Hr'g Tr. vol.

11, 1663:11-16. Mr. Maner did not know how much experience his staff had with the models they were reviewing, but he assumed they had no experience. Hr'g Tr. vol. 11, 1696:5-9.

32. Ms. Beck holds a and master of science in biological and agricultural engineering. Hr'g Tr. vol. 12, 1999:24 – 2000:2. Prior to working on the Joint Permit, Ms. Beck had no experience with QUAL2K, WASP or AQUATOX. Hr'g Tr. vol. 12, 2015:15-20. Ms. Beck is not an expert in AQUATOX. Hr'g Tr. vol. 12, 2005:11 – 2006:6. When examined about the WASP modeling, Ms. Beck responded "I'm not real familiar with this model." Hr'g Tr. vol. 2,037:4.

33. When ADEQ received a comment from Arkansas Game and Fish Commission that GBMc used the wrong aquatic plant in its AQUATOX modeling, Ms. Beck did not require GBMc to use the plant that actually grows in Felsenthal Reservoir in the AQUATOX modeling because she could not find parameters for that plant when she Googled it. Hr'g Tr. vol. 12, 2095:5-8. Ms. Beck did not open the AQUATOX model library or consult the sources the model listed for the other aquatic plants provided in the library. Hr'g Tr. vol. 12, 2092:5-14.

The Permits Issued Are Based Upon Faulty Scientific Methods and Flawed Modeling Data.

State of Louisiana, LEAN, STO/KS:

34. The effluent limits contained in the Permits were developed by ADEQ based upon computer modeling of the Ouachita River by GBMc. JX 1; Hr'g Tr. vol. 4, 554-555; vol. 9, 1872).

35. GBMc utilized three water quality models in the Final Nutrient Modeling Study, dated June 1, 2006, QUAL2K, WASP, and AQUATOX. JX 13.

36. The QUAL2K model was developed for approximately 73 miles of the Ouachita River, beginning just upstream of the confluence with Smackover Creek and terminating one mile downstream of the Felsenthal Lock and Dam. JX 13.

37. Trapezoidal channel geometry for the Ouachita River was developed from field data collected by GBMc from only 20 miles of the mid-section of the river. JX 13

38. In the Final Nutrient Modeling Report, HEC-RAS data files from the Corps of Engineers for the Ouachita River were used to support the field data collected by GBMc and to specify water surface elevations in the development of channel slope. JX 13.

39. The additional field work performed by GBMc in August, 2007, and the subsequent report, was completed after the issuance of the permit, was not part of the public record, and was not available for public comment. JX 16; Hr'g Tr. vol. 9, 1439-1440.

40. According to the Final Nutrient Modeling Study, the slope of the river was calculated from the water surface elevations taken from the HEC-RAS data and used as input data for the QUAL2K model. JX 13; Hr'g Tr., vol. 12, 2089-2090.

41. In the Revised Nutrient Modeling Report, dated February 13, 2007, revised river geometry was calculated using the HEC-RAS model output data and this geometry was used as the basis for the QUAL2K model data. JX 15; Hr'g Tr., vol. 9, 1448-1451.

42. The HEC-RAS model, which was used by GBMc to determine the channel geometry, or hydrology, of the Ouachita River, did not account for the presence of the Thatcher and Felsenthal Dams. Hr'g Tr., vol. 9, 1295-1296.

43. The omission of the Thatcher and Felsenthal Dams from the HEC-RAS model was not discovered by GBMc until after the Permits were issued. Hr'g Tr. vol. 9, 1294-1296, 1439.

44. Martin Maner (ADEQ) testified that he did not discover that the dams were omitted from the HEC-RAS model until after the Permits were issued. Hr'g Tr. vol. 9, 1802)

45. Amy Beck (ADEQ) testified that she discovered that the dams were omitted from the HEC-RAS model when Richard Mays disclosed this information at her deposition, which was taken after the Permits were issued. Hr'g Tr. vol. 12, 2019, 2046-2047.

46. The omission of the Thatcher and Felsenthal Dams from the HEC-RAS model caused the model to predict the depths of the river shallower than the actual river depth. Hr'g Tr. vol. 9, 1428-1430.

47. The average depth of the Ouachita River is actually at least 5 feet deeper than the projections used by GBMc in their modeling studies. Hr'g Tr., vol. 9 1434-1435).

48. Both the Final Nutrient Modeling Study and the Revised Modeling Study prepared by GBMc were used by ADEQ as sources to draft the Permits. JX 1 (Joint Permit) Pages 16-19 of Fact Sheet.

49. The Permits are based, in part, upon admittedly flawed modeling and modeling techniques.

50. The additional field study performed by GBMc in August, 2007, was conducted after the Permits were issued. Thus, this study is irrelevant and inappropriate because the results of the study were not available for review during the public comment period and were not used as a basis for the permitting decision. JX 16 (Report of Additional River Depth Field Data); Hr'g Tr. vol. 9, 1305-1306).

ADEQ Did Not Examine the Impact of the Proposed Pipeline Discharge on Louisiana's Waters.

State of Louisiana, LEAN, STO/KS:

51. Louisiana is an "affected state" for the purposes of the Joint Permit because the permit's receiving waterbody, the Ouachita River, flows into Louisiana approximately 60 miles south of the discharge point. JX 13 (Final Modeling Report), Fig. 6.2.

52. The studies and modeling conducted by GBMc to support the permits did not extend to the Arkansas-Louisiana state line and were thus limited to examining the impacts of the proposed pipeline discharge on the water quality of the Ouachita River in Arkansas. Hr'g Tr. vol. 9, 1406, 1411-1413, 1419-1420.

53. ADEQ did not perform any modeling studies to determine what impact the proposed pipeline discharge would have on the water quality of the Ouachita River in Louisiana. Hr'g Tr. vol. 1, 165-167.

54. ADEQ did not examine the impact of the proposed discharge when that discharge combines with the current wastewater discharge from Georgia-Pacific's industrial complex in Crossett, Arkansas, and the City of Crossett, which is downstream of the Felsenthal Dam, and just upstream of the state line. Hr'g Tr. vol. 9, 1409-1412.

55. The proposed pipeline discharge will cause an increase in nutrients, including nitrogen and phosphorous, and an increase of chlorophyll-a, downstream of the Felsenthal Dam and into Louisiana. JX 13; Hr'g Tr. vol. 9, 1820-1823.

56. The QUAL2K modeling results show that phosphorus and nitrogen added by the Joint Pipeline are not assimilated into the system by the end of the modeling, one mile below Felsenthal Lock & Dam. Hr'g Tr. vol. 4, 471:24 – 472:2.

57. Amy Beck, the ADEQ employee responsible for reviewing GBMc's modeling, acknowledged that GBMc's modeling predicted increased nutrients above the Arkansas-Louisiana state line. Hr'g Tr. vol. 12, 2039:11-18. However, Ms. Beck testified that she does not know the biological effect of the increased nutrients. Hr'g Tr. vol. 12, 2039:19-22.

58. Louisiana adopted an EPA-approved Total Maximum Daily Load ("TMDL") to address the fact that the Ouachita River below the Louisiana state line is impaired for nutrients and biological oxygen demand. *See* LEAN's Ex. 17, 18. Neither ADEQ nor GBMc examined the TMDL to see what nutrient load Louisiana expects to receive from Arkansas and whether the increased nutrient load from the Joint Pipeline was consistent with the TMDL. Hr'g Tr. vol.9, 1404:21-25; Hr'g Tr. vol. 11, 1845:1-4.

ADEQ Failed to Include Mercury Limits in the Permits that Comply with the EPA-Approved Mercury TMDL.

LEAN, STO/KS:

59. Both Arkansas and Louisiana have identified the Ouachita River as having a problem with too much mercury. JX 9 (Arkansas' 303(d) list); LEAN's Ex. 17 (Louisiana's 303(d) list).

60. After finding a problem with mercury bioaccumulating in fish, EPA established a TMDL for mercury in the Ouachita River in both Arkansas and Louisiana. JX 8 (Mercury TMDL).

61. The Mercury TMDL for the Ouachita River was finalized on December 18, 2002. LEAN's Ex. 5 (Notice of Final Adoption). From that day forward, any permits issued in Arkansas or Louisiana that would discharge into the Ouachita River must comply with the TMDL. Hr'g Tr. vol. 3, 360:22 – 361:7.

62. ADEQ was bound to comply with the Mercury TMDL when issuing the Joint Permit. Hr'g Tr. vol. 3, 361:21-23.

63. ADEQ employees did not consult the Mercury TMDL when setting the mercury limits in the Joint Permit. Hr'g Tr., vol. 4, 547:15-19; JX 1, Page 16-18 of Fact Sheet ("Sources" list).

64. The Mercury TMDL determined the total amount of mercury the Ouachita River can handle and then divided it up among different mercury sources—point sources, non-point sources, background, and margin of safety. Hr'g Tr. vol. 3, 358:17 – 359:5; JX 8, Tbl. 4.14.

65. The Mercury TMDL allocates 942 grams/year total to all point sources in the Ouachita River Basin in Arkansas and Louisiana, *See* Ex. JX 8, Tbl. 4.14. That 942 grams/year acts as a budget of mercury that can be divided up between point sources. Hr'g Tr. vol. 3, 364:22-25; 365:24 -366:3.

66. The Mercury TMDL allocates 356 grams/year mercury to one NPDES point source, ENSCO, and allocates 586 grams/year total mercury to several City Waste Water Treatment plants. JX 8, Tbl. 4.14; Hr'g Tr. 365:11-23. The Mercury TMDL did not allocate any mercury to the Joint Pipeline. JX 8, Tbl. 4.14.

67. The Joint Permit allows the JPG to discharge a daily maximum mercury discharge of 0.032 lbs/day and a monthly average mercury discharge of 0.015 lbs/day. *See* Ex. JX 1 (Joint Permit). This means that the Joint Permit allows the JPG to discharge approximately 2,400 grams/year of mercury into the Ouachita River. Hr'g Tr. vol. 3, 366:10-17.

68. Each individual permit allows each discharger to discharge up to 0.2 ug/L of mercury into the Joint Pipeline. *See* JX 3 (El Dorado Water Utilities Individual Permit), P. 1, 3 of Part IA.; JX 4 (El Dorado Chemical Individual Permit), P. 11 of Part IA; JX 5 (Lion Oil Individual Permit) P. 9 of Part IA; JX 6 (Great Lakes Individual Permit), P. 11 of Part IA; *see also* Hr'g. Tr. vol. 3, 366:24 – 367:5.

69. These limits do not add up to the amount the JPG can discharge out of the Joint Pipeline. Hr'g Tr. vol. 3, 367:6-16.

70. The mercury limits in the Individual Permits are expressed in concentration, not mass. JX 3, JX 4, JX 5, JX 6.

71. The mercury discharge allowed under the Joint Permit and the Individual Permits are inconsistent with the Mercury TMDL, which has only allocated 942 grams/year to all point sources that were existing at the time the TMDL was created in 2002. Hr'g Tr. vol. 3, 366:18-24. The Mercury TMDL pie handed out all the slices, or mercury allocation, for the Ouachita River, and there was none left to give the Joint Permit. Hr'g Tr. vol. 3, 364:11-21.

72. Because the Mercury TMDL does not provide a wasteload allocation for the Joint Permit, *see* JX 8, Table 4.14, ADEQ may not allocate any mercury to the Joint Permit without reopening the Mercury TMDL and reshuffling the allocations. Hr'g Tr. vol. 5, 746:13-19. However, the allocations can only be reshuffled if one or more of the sources allocated mercury in the TMDL has reduced their mercury discharge so that there is room for more mercury in the system. Hr'g Tr. vol. 5, 748:2-11. There is no evidence that any of the sources of allocated mercury in the Mercury TMDL have reduced their discharges since the Mercury TMDL was finalized. Hr'g Tr. vol. 5, 649:2-8.

73. The JPG failed to show, prior to the close of the comment period, that the there are sufficient remaining pollutant load allocations to allow the Joint Permit's mercury discharge and that the existing discharges into the segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards.

ADEQ Failed to Require a Testing Method Sensitive Enough to Comply With the Permit Limits for Mercury and the Mercury Water Quality Standards.

LEAN, STO/KS:

74. The Joint Permit and the Individual Permits require the JPG to use EPA Method 245.1 to test for mercury. JX 1 (Joint Permit), Page 3 of Part III; JX 3 (El Dorado Water Utilities Individual Permit), P. 1 of Part III; JX 4 (El Dorado Chemical Individual Permit), P. 1 of Part III; JX 5 (Lion Oil Individual Permit) P. 1 of Part III; JX 6 (Great Lakes Individual Permit), P. 1 of Part III. The lowest amount of mercury Method 245.1 can detect is 0.2 ug/L. Hr'g Tr. vol. 3, 369:6-9.

75. The Joint Permit mercury limits were calculated based on a mercury concentration of 0.9 ug/L for daily average, which is much lower than Method 245.1 can detect. Hr'g Tr. vol. 3, 368:17-18; Hr'g Tr. vol. 3, 369:10-17.

76. This means that the Joint Pipeline discharge could be exceeding the mercury permit limit, but the JPG could report the discharge as zero as long as it was less than 0.2 ug/L, the detection limit for Method 245.1. Hr'g Tr. vol. 3, 371:13-19.

77. In an August 23, 2007 memo, EPA stated that "in light of existing regulatory requirements for NPDES permitting, only the most sensitive methods, such as Method 1631E and 245.7, are appropriate… for sampling and analysis of mercury pursuant to the monitoring requirements within the permit." LEAN's Ex. 20.

78. The EPA recognized the inability of Method 245.1 to detect mercury at low enough levels to match the permit limits and expects "the permitting authority to require the use of a sufficiently sensitive EPA method for monitoring under the permit." LEAN's Ex. 20.

79. Although there were other EPA-approved mercury testing methods, such as Method 1631, available when ADEQ issued the Joint Permit, *see* LEAN's Ex. 21, ADEQ permit-writer

Loretta Reiber did not consult 40 CFR Part 136, the regulation containing EPA-approved testing methods, when selecting the mercury testing method for the Joint Permit. Hr'g Tr. vol. 4, 371:23 -372:3.

ADEQ Violated Regulation 2.508 by Allowing the JPG to Discharge Mercury From The Joint Pipeline Into the Ouachita River.

STO/KS:

80. EPA established the Mercury TMDL after finding that mercury was bioaccumulating, or building up in fish tissue. *See* Ex. JX 8.

81. Mercury in methyl form, i.e. methyl mercury, is toxic to fish, animals, and humans. Hr'g Tr. vol. 5, 591-93. Methyl mercury bioaccumulates. Hr'g Tr. vol. 5, 599-600; 629 to 631.

82. Once methyl mercury is in the food chain, those higher up the food chain receive exponentially more mercury than those lower in the chain as larger fish consume many small mercury-contaminated fish. Hr'g Tr. vol. 5, 594-95.

83. Because of the dangers mercury bioaccumulation in fish pose to fish and humans, EPA created the Mercury TMDL to reduce the amount of mercury present in the Ouachita River and in turn, reduce the amount of methyl mercury in fish. Hr'g Tr. vol. 5, 637.

84. Felsenthal Reservoir provides ideal conditions for mercury "methylation," changing metal mercury into methyl mercury. Hr'g Tr. vol. 5, 594, 596-97. Mercury methylation is effected by the amount of nutrients, the pH level, and anaerobic conditions (low dissolved oxygen in the sediments). Hr'g Tr. vol. 5, 597, 603:25 – 604:3. Because Felsenthal Reservoir is an ideal mercury methylation system, Hr'g Tr. vol. 5, 594, 596-97, the level of toxic, methyl mercury is much higher than other parts of the Ouachita River.

85. GBMc tested the effects of mercury on aquatic life using metal mercury, not methyl mercury. Hr'g Tr. vol. 8, 1200.

86. Neither GBMc, nor the JPG, nor ADEQ analyzed the proper pH for the mercury-effects tests. "Standard" pHs were used instead of the actual pH of the river and Felsenthal Reservoir. The Joint Permit will add nutrients needed for methylation. JX 1 (Joint Permit), Page 1 of Part IA. The added nutrients will also act like fertilizer and encourage plant growth. Hr'g Tr. vol. 2, 344:16-24. When those plants die, they will decompose and reduce oxygen levels in the sediments, contributing to anaerobic soil conditions necessary for methylation. Hr'g Tr. vol. 5, 606:2-18. Because the Joint Permit will provide more favorable methylation conditions, it exacerbates the mercury problem.

ADEQ Violated its Duty To Protect The Ouachita River and Felsenthal Reservoir's Designated Uses By Authorizing the JPG to Discharge Mercury Even Though There Are Fish Consumption Advisories Due to Mercury.

STO/KS:

87. ADEQ has determined that Ouachita River is used for primary and secondary body contact activities such as swimming, and for fishing. APC&EC Reg. 2, A-28.

88. The current level of mercury in the Ouachita River violates the narrative, "fishable/swimmable" standard for water quality in Arkansas. Hr'g Tr. vol. 5, 623.

Kent Stegall, Sam Russell, Ronnie Greer and Joey Haile all testified as to their and their families' uses of the river for both fishing and swimming. Hr'g Tr. vol. 5. They all also testified that if the discharge were allowed, their uses of fishing and swimming in the river would be greatly curtailed or eliminated due to health concerns, odor or taste caused by the discharge. Hr'g Tr. vol. 5, 678, 688, 695, 708.

ADEQ Erroneously Assumed Zinc Background Was Zero Even Though ADEQ's Own Data Shows Zinc Present in the Ouachita River.

LEAN:

89. When calculating permit limits for metals, ADEQ uses pollutant background concentrations, background flow of the river, the discharger's proposed discharge volume, and the water quality criteria to set permit limits that comply with Arkansas' water quality standards. *See* JX 1 (Joint Permit), Pages 9-10 of Fact Sheet; Hr'g Tr. vol. 3, 385:8-17.

90. When setting permit limits for zinc and all other metals in the Joint Permit, ADEQ assumed a background concentration of zero, meaning they assumed that there are no metals present in the Ouachita River. Hr'g Tr. vol. 4, 543:10-13; JX 1 (Joint Permit), Attach. 2 ("Cb = 0").

91. ADEQ has been collecting water quality data in the Ouachita River, both above and below the proposed discharge point, for years. LEAN's Ex. 6. ADEQ posts this data on its website, making it available to the public. Hr'g Tr. vol. 3, 381:8-20.

92. Arkansas' Continuing Planning Process, a guidance document ADEQ uses when writing permits, directs the permit writer to determine if there are pollutant data available on the receiving stream, specifies that "all available data" will be considered, and further clarifies that "[d]ata typically maintained and published by the state … will be considered appropriate" data to use in determining background concentrations. *See* JX 17 (ADEQ CPP), page D-47-48; *see also* Hr'g Tr. vol. 4, Page 544.

93. ADEQ had adequate information to calculate background levels of metals at the discharge point because it had several years' worth of water quality data from the Ouachita River above and below the proposed discharge point that ADEQ itself had maintained and published. *See* Hr'g Tr. vol. 3, 383:8-15.

94. ADEQ could have determined the background concentration of metals in the Ouachita River at the discharge point by using the data ADEQ had already collected, either by averaging the data or by using a more complicated statistical method. Hr'g Tr. vol. 3, 383:2-7.

95. Generally, a permit would contain a greater zinc limit if ADEQ assumes the background concentration of zinc in the Ouachita River is zero than if ADEQ assumes a zinc background concentration of something greater than zero. Hr'g Tr. vol. 4, 574:7-11.

96. By assuming that the Ouachita River has no zinc in it when really the background level is greater than zero, the Joint Permit allows the JPG to discharge more metals than would protect the water quality. Hr'g Tr. vol. 3, 385:18-23.

ADEQ Set Zinc Permit Limits Assuming There Was No Zinc Already In The Ouachita River Even Though Arkansas Has Listed Stretches Above and Below The Discharge Point As Impaired for Zinc.

LEAN:

97. Arkansas has identified waters that are not meeting the water quality standards—often referred to as "impaired waters"—on ADEQ's 303(d) list of impaired waterbodies. JX 9 (Arkansas' 303(d) list).

98. If a river is already violating the water quality standard for a particular pollutant, it is inappropriate to use the same calculations to determine permit limits for that pollutant as those you would use to determine permit limits for pollutants for which a river was not impaired. Hr'g Tr., vol. 11, 1713:15-19.

99. Arkansas has formally acknowledged in ADEQ's 2004 303(d) list of impaired waterbodies that reaches of the Ouachita River above and below the Joint Pipeline's proposed discharge point are impaired for zinc. *See* JX 9 (Arkansas' 303(d) list).

100. When setting permit limits for zinc, ADEQ assumed there was no zinc in the Ouachita River. Hr'g Tr. vol. 4, 543:10-13.

101. Because the Ouachita River is impaired for zinc above the proposed discharge point, ADEQ could not legitimately assume that there was no background levels zinc in the Ouachita River when setting the permit limits in the Joint Permit. Hr'g Tr. vol. 3, 384:11-14.

102. The Joint Permit allows the JPG to discharge 73.52 lbs/day of zinc into the Ouachita River. JX 1 (Joint Permit).

103. Adding 73.52 lbs/day of zinc into the Ouachita River immediately above a reach of the Ouachita River impaired for zinc will "contribute to the violation" of zinc water quality standards. *See* 40 C.F.R. 122.4(i).

ADEQ Assumed A Higher Flow In The Ouachita River When Calculating Permit Limits Than Reflected in the Most Recent Data Available When ADEQ Was Setting Permit Limits in the Joint Permit.

LEAN, STO/KS:

104. When setting permit limits for zinc and the other metals, ADEQ used a background critical flow, or 7Q10,[2] of 750 cubic feet per second. *See* JX 1 (Joint Permit), Page 8 of Fact Sheet ("The 7Q10 of 750 cfs is based on flow data taken from the monitoring station on the Ouachita River near Camden.").

105. ADEQ obtained the 7Q10 from GBMc, who obtained it in 2002 from U.S. Geological Survey using data from 1982-2001. *See* JX 7 (Response to Comments) p. 31, #20b.

106. The dams on the Ouachita River, Thatcher Lock and Dam and Felsenthal Lock and Dam, became active in 1985, Hr'g Tr. vol. 2, 210:5-7, and authorize a minimum flow in the river of 600 cfs. LEAN's Ex. 2 (AGFC Comments on Draft Permit).

[2] The 7Q10, or Q7-10, is "A flow volume equal to or less than the lowest mean discharge during 7 consecutive days of a year which, on average, occurs once every 10 years."

107. The Ouachita River is considered a "Regulated-flow stream." APC&EC Reg. 2.106.

108. The design flow of Thatcher Lock and Dam is 600 cfs. LEAN Ex. 2.

109. Recent data from U.S.G.S. shows that the 7Q10 from April 1985 to September 2005 was 708 cfs. LEAN's Ex. 4 (September 4, 2007 letter from John Terry, USGS); Hr'g Tr. 387:4-9.

110. If ADEQ had used the lower flow data when calculating the permit limits in the Joint Permit, the permit limits would have been lower. *See* JX 1 (Joint Permit), Fact Sheet Page 9-10.

ADEQ Failed to Examine The Joint Pipeline's Impact on Minimum Dissolved Oxygen in Felsenthal Reservoir.

LEAN:

111. Existing uses of the Ouachita River and Felsenthal Reservoir include fisheries. *See* APC&EC Reg. 2, App. A-29; Hr'g Tr. vol. 11, 1707:15-22.

112. Maintaining dissolved oxygen is critical to protecting the existing fishery use in Felsenthal because low dissolved oxygen leads to fish kills and fish kills impair fishing. Hr'g Tr. vol. 2, 282:6-12.

113. The only dissolved oxygen modeling performed on the backwater areas Felsenthal Reservoir was WASP, which examined the Joint Pipeline's impact on average dissolved oxygen. Hr'g Tr. vol. 10, 1540:13-14.

114. Examining average dissolved oxygen does not show whether the dissolved oxygen is dipping to low enough levels to lead to fish kills. Hr'g Tr. vol. 11, 1708:14-17. When concerned about avoiding fish kills, it is important to examine how low dissolved oxygen gets and for how long it stays depressed. Hr'g Tr. vol. 20, 2040:12-24.

115. Arkansas' dissolved oxygen standard is not based on minimum dissolved oxygen. Hr'g Tr. vol. 3, 407:17-19.

The Joint Pipeline Discharges Will Lower Minimum Dissolved Oxygen In Backwater Areas of Felsenthal Reservoir.

LEAN:

116. The Joint Pipeline discharges will add nutrients to the backwater areas of Felsenthal Reservoir. The Joint Permit authorizes the JPG to discharge monthly average phosphorus of 116.7 lbs/day from July through October and 166.8 from November to June along with monthly average ammonia-nitrogen of 1328.6 lbs/day from May through October and 3230 lbs/day from November through April. *See* JX 1 (Joint Permit), Page 1 of Part 1A.

117. The added nutrients, acting like fertilizer, will cause more aquatic plants to grow. Hr'g Tr. vol. 2, 344:16-24. GBMc's WASP modeling predicts that the increased nutrients will cause more algae to grow. JX 13 (June 1, 2006 Final Modeling Report), Fig. 6.32 (Chlorophyll-a predictions).

118. By encouraging the growth of either aquatic plants or algae, the Joint Permit's nutrient discharge will lead to "greater spikes and depressions in dissolved oxygen levels, and it is the depressions [in dissolved oxygen] that cause fish kills." Hr'g Tr. vol. 3, 345:8-15.

119. Areas of Felsenthal Reservoir, such as Crooked-S Slough, are already violating Felsenthal's dissolved oxygen standard, 5.0 mg/L. *See* APC&EC Reg. 2.505; Hr'g Tr. vol. 12, 2037:13 – 2038:1.

120. Depressing minimum dissolved oxygen in areas already violating the dissolved oxygen standard will contribute to violation of a water quality standard.

Large Portions of Felsenthal Reservoir Are Already Suffering From Nuisance Aquatic Vegetation.

LEAN:

121. Currently the Felsenthal Reservoir is approximately 90% covered with aquatic plants, also called macrophytes. Hr'g Tr. vol. 2, 281:16-22. The extensive aquatic plant coverage causes problems by inhibiting access by sportsmen, anglers, hunters, and recreationalists, as well as by lowering dissolved oxygen in the backwater areas. Hr'g Tr. vol. 2, 281: 23 –282:5.

122. Low dissolved oxygen leads to fish kills and impairs fishing. Hr'g Tr. vol. 2, 281:23 - 282:5.

123. AGFC has tried various methods, including herbicide treatment to control plant growth and a radio telemetry study on plant-eating grass carp, over the past several years in an attempt to combat the spread of aquatic vegetation in the Felsenthal Reservoir. Hr'g Tr. vol. 3, 282:16 – 283:24. The most recent attempt, a radio telemetry study, cost AGFC, and ultimately Arkansas taxpayers, approximately $100,000. Hr'g Tr. vol. 2, 284:4-14.

124. Despite AGFC's best efforts, aquatic plants cover in Felsenthal Reservoir has been increasing. Hr'g Tr. vol. 2, 284:15-18.

125. AGFC voiced concern throughout the permitting process that the Joint Pipeline's increased nutrient load would ultimately lead to expanded plant growth in the backwater areas of the Felsenthal. *See* LEAN's Ex. 2; Hr'g Tr. vol. 3, 305:25 – 306:16.

126. ADEQ directed the JPG to examine the issue further. Hr'g Tr. vol. 11, 1694:8-24. GBMc proposed to run two models—WASP and AQUATOX—to determine the effect of the Joint Pipeline's nutrient discharge on the Felsenthal. *See* JX 9 (Work Plan).

ADEQ Failed To Demonstrate That The Joint Permit's Discharges Comply With Arkansas' Nutrient Standards Using Scientific And Engineering Literature Or Written Studies Conducted By ADEQ

LEAN:

127. WASP looked at baseline levels of dissolved oxygen, phosphorus, nitrogen, and chlorophyll-a in Crooked-S Slough and tried to predict the Joint Pipeline's impact on each of those factors. *See* JX 13 (June 1, 2006 Final Modeling Report), p 68.

128. The WASP modeling predicted that chlorophyll-a levels with the Joint Pipeline discharge will reach up to 20.9 ug/L, JX 13 (June 1, 2006 Final Modeling Report), p 94, indicating "the biomass of algae increasing in the reservoir" that are "problematic particularly in a lake." Hr'g Tr. vol. 4, 488:4-14.

129. A Chlorophyll-a level of 10ug/L "is typically considered an enriched environment," or eutrophic. Hr'g Tr. vol. 11, 1656:2-16. Chlorophyll-a levels of 20ug/L indicate an "algal-dominated system, which is very poor for fishing." Hr'g Tr. vol. 4, 489:3-20.

130. WASP under-predicted the Joint Pipeline's effect on algae in the Felsenthal Reservoir by overestimating the current nutrient load into the Felsenthal. To estimate current nutrient load into the backwater areas of the Felsenthal Reservoir, GBMc developed a complete list of all point source discharges in the entire watershed that were likely to reach any portion of the Ouachita River or Saline River. JX 13 (June 1, 2006 Final Modeling Report), p 20-21.

131. GBMc recognized that "many of the point source dischargers in the upper Ouachita River watershed discharge into or above the three lake system located on the Ouachita River (Lake Ouachita, Lake Hamilton, and Lake Catherine) or above Lake Degray located on the Caddo River which empties into the Ouachita River at Arkadelphia." JX 13 (June 1, 2006 Final Modeling Report), p 21. However, GBMc assumed that "**all** of N[itrogen] and

P[hosphorus] loads from discharges above or within the lakes are passed through the lakes." JX 13 (June 1, 2006 Final Modeling Report), p 22.

132. By assuming no nutrient assimilation in upstream lakes, GBMc overestimated the current nutrient loading level into the Felsenthal Reservoir. Hr'g Tr. vol. 4, 468:10 -469:16. By overestimating the amount of nutrients that are currently reaching the Felsenthal, GBMc artificially lessened the relative impact from the Joint Pipeline discharges directly into the Ouachita River. Hr'g Tr. vol. 4, 469:9-16. Therefore, the WASP modeling underestimates the impact from the Joint Pipeline discharges.

133. The Joint Permit does not prevent the nuisance species problem from getting worse. Hr'g Tr. vol. 3, 402:14-24.

134. The AQUATOX modeling examined baseline amounts of plant biomass in Crooked-S Slough and then attempted to determine the Joint Pipeline's impact on nuisance plant growth Crooked-S Slough, a backwater area of Felsenthal Reservoir. *See* JX 13 (June 1, 2006 Final Modeling Report), p. 76; Hr'g Tr. vol. 9, 1360:15-18.

135. Before collecting any plant data in the Felsenthal Reservoir or inputting any data on plant biomass, Hr'g Tr. vol. 10, 1473:6-11, GBMc had already concluded that AQUATOX showed that the discharge from the Joint Pipeline would not increase macrophyte growth. JX 10 (June 29, 2005 Work Plan) ("AQUATOX predicted that the discharge would not result in increased growth of macrophytes."). GBMc based this conclusion on a modeling run of AQUATOX in which the plant biomass numbers it used for the baseline conditions were "not real data." Hr'g Tr. vol. 10, 1471:9 – 1472:23.

136. One of the plants GBMc used in the AQUATOX modeling, *Myriophyllum*, is not a plant that is actually present in Felsenthal Reservoir. LEAN Ex. 1; Hr'g Tr. vol. 10, 1502:23 -1503:2.

137. Arkansas Game and Fish Commission commented that GBMc should have used *Cabomba* in its modeling because *Cabomba* is a nuisance aquatic plant that grows in Felsenthal Reservoir. LEAN's Ex. 1.

138. ADEQ did not request that GBMc actually use *Cabomba* instead of *Myriophyllum* in the AQUATOX modeling. Hr'g Tr. vol. 11, 1695:5-7.

139. Ms. Beck was the ADEQ employee responsible for passing AGFC comments on to GBMC, even though she is not an expert in AQUATOX. Hr'g Tr. vol. 12, 2005:11 – 2006:6; Hr'g Tr. vol. 12, 2029:12 – 2030:1. Ms. Beck did not personally look to see if it was possible to put *Cabomba* in AQUATOX, nor did she open the AQUATOX library to see what source materials the AQUATOX authors used to create the *Myriophyllum* record. Hr'g Tr. vol. 12, 2030:1-19.

140. AQUATOX's *Myriophyllum* record contains several parameters, and next to each parameter lists the source in which AQUATOX's authors found the information. Hr'g Tr. vol. 12, 2091:19 – 2092:14. Ms. Beck did not examine the source materials listed for the *Myriophyllum* parameters to see if they contained parameters for *Cabomba*. Hr'g Tr. vol. 12, 2092:5-14. Instead, she "just kind of did a Google search… and didn't come back with any results," so she concluded that "it seem[ed] like the data might be hard to find." Hr'g Tr. vol. 12, 2095:5-8.

141. *Myriophyllum* and *Cabomba* are not interchangeable. Hr'g Tr. vol. 4, 481-4:7. In addition to the fact that *Cabomba* grows in the Felsenthal Reservoir while *Myriophyllum* does not, Hr'g Tr. vol. 4, 481:22-25, "the two plants grow in different ways." *Cabomba* "obtains a lot of nutrients from the water column," while *Myriophyllum* "almost exclusively obtains its nutrients from the sediments." Hr'g Tr. vol. 4 481:13-16.

142. GBMc should have used *Cabomba* in the AQUATOX modeling. Hr'g Tr. vol. 4, 480:9-11. AQUATOX itself includes a plant library "as examples" and cautions that "it is the responsibility of the user to verify their applicability for specific application." Hr'g Tr. vol. 12,

2091:24 – 2091:4. AQUATOX contains a feature that allows a user to add a new species to the library, Hr'g Tr. vol. 12, 2093: 17-23. GBMc modeler Greg Phillips or Ms. Beck should have looked up parameters for *Cabomba* and made a new record in AQUATOX to use *Cabomba* in GBMc's modeling. Hr'g Tr. vol. 4, 480:25 -481:7.

143. GBMc's failure to use *Cabomba* in the AQUATOX modeling renders the results invalid. Hr'g Tr. vol. 12, 2092:5-14.

144. The purpose of a calibration run during modeling is for the modeler to set the background conditions for the system to be modeled and to get the model to reflect as close to reality as possible. Hr'g Tr. vol. 2, 39:19-23. If you can't come close to predicting what's actually going on in the system during the calibration run, then the rest of the modeling exercise is invalid. Hr'g Tr. vol. 4, 484:18-21. Because the AQUATOX modeling calibration did not predict what's actually going on in the system, the AQUATOX modeling is invalid.

145. GBMc calibrated AQUATOX for two nuisance aquatic plants, *Myriophyllum* and *Hydrilla*. JX 13 (June 1, 2006 Final Modeling Report) p 77-78, Figs. 6.12, 6.13. GBMc used three observed data points of *Cabomba* biomass to predict how *Myriophyllum* would grow throughout a year in Felsenthal, and used three observed data points of *Hydrilla* biomass to predict *Hydrilla*'s growth pattern throughout the year. *See* JX 13 (June 1, 2006 Final Modeling Report) p 77-78, Figs. 6.12, 6.13.

146. The *Myriophyllum* calibration shows observed *Cabomba* data of approximately 125 g/m2 in August 2005, 25 g/m2 in September 2005, and 50 g/m2 in March 2006. JX 13 (June 1, 2006 Final Modeling Report) p 78, Fig. 6.12. The model calibration for those same dates predicted 125 g/m2, 100 g/m2, and 250 g/m2, respectively. JX 13 (June 1, 2006 Final Modeling Report) p 78, Fig. 6.12. The *Myriophyllum* calibration peaked twice, once at nearly 250 g/m2 in October 2005 and again at 350 g/m2 in April 2006.

147. The *Hydrilla* calibration shows observed *Hydrilla* data of approximately 25 g/m2 in August 2005 and 75 g/m2 in September 2005. *See* JX 13 (June 1, 2006 Final Modeling Report) p 78, Fig. 6.13. The *Hydrilla* calibration for August and September 2005 matches the observed data, but the calibration peaks twice, once in October 2005 at 150 g/m2 and again in May 2006 at 250 g/m2. *See* JX 13 (June 1, 2006 Final Modeling Report) p 78, Fig. 6.13.

148. GBMc's calibration of the AQUATOX modeling does not match reality because the trends in the system—when and how many times during the year plant growth peaks in the Felsenthal. Hr'g Tr. vol. 12, 2150:21 – 2151:11. Macrophytes do not peak twice in Crooked-S Slough or anywhere else in Felsenthal, and they definitely don't peak at the times indicated on GBMc's AQUATOX calibration graphs. Hr'g Tr. vol. 12, 2150:3-5; JX 13 (June 1, 2006 Final Modeling Report) p 78, Figs. 6.12, 6.13. Instead, the plants peak once in late summer or early fall and then die back to the general levels they were in the previous winter. Hr'g Tr. vol. 12, 2150:10-18.

149. The fact that the plant biomass peaks predicted in the calibration do not coincide with the times when the plants actually peak in the Felsenthal, combined with the way the models "drift" and do not represent the observed data show that the "model is not running appropriately." Hr'g Tr. vol. 4, 483:6 – 484:1.

150. The AQUATOX modeling does not provide information useful for making a permitting decision because the model was not properly calibrated. Hr'g Tr. vol. 4, 485:1-3. ADEQ could not rely on that modeling to show what affect the Joint Pipeline discharge will have on nuisance species growth in Felsenthal Reservoir. Hr'g Tr. vol. 4, 485:1-3.

Respectfully Submitted,

RICHARD H. MAYS LAW FIRM

By: Richard H Mays

Richard H. Mays (AR Bar #61043)
Cornerstone Square – Suite A-2
2000 Highway 25B North
P.O. Box 1450
Heber Springs, AR 72543
(501) 362-0055
e-mail: rhmays@ix.netcom.com

CHARLES C. FOTI, JR.
ATTORNEY GENERAL OF
THE STATE OF LOUISIANA
Megan K. Terrell (LA #29443)
Ryan M. Seidemann (LA #28991)
LaTonya L. Ozene (LA # 30284)
Assistant Attorney General
Civil Division/Lands & Natural Resources
Post Office Box 94005
Baton Rouge, Louisiana 70804-9005
TEL: (225) 326-6085
FAX: (225) 326-6099

Carolyn Bryant, Esq.
Legal Division
LDEQ
Post Office Box 4302
Baton Rouge, LA 70821-4302

Jill M. Witkowski
Tulane Environmental Law Clinic
6329 Freret Street
New Orleans, LA 70118
Phone: (504) 862-8814
Fax: (504) 862-8721
On Behalf of Louisiana Environmental Action Network

T. David Carruth, AR Bar. 87027
P. O. Box 91
Clarendon, AR 72029
Phone: (870) 787-3839
Fax: (870) 787-5695
On Behalf of Save the Ouachita and Kent Stegall

CERTIFICATE OF SERVICE

The undersigned does hereby certify that on the date set forth below, I did serve a copy of the above and foregoing document upon counsel for the parties by depositing a copy of the same with the U.S. Postal Service, addressed to the persons at the addresses listed below with sufficient postage to arrive at its destination:

Representing the Permittees
Charles R. Nestrud
Chisenhall, Nestrud, and Julian, P.A.
400 W Capitol Ave., Suite 2840
Little Rock, AR 72201

Arkansas Dept. of Environmental Quality
Benjamin T. Jones and Jamie Ewing
5301 Northshore Drive
North Little Rock, AR 72118

Mark Hayes
Arkansas Municipal League
P.O. Box 38
N. Little Rock, AR 72115

Megan K. [illegible] 1/07/08
Date

State of Louisiana

Department of Environmental Quality

KATHLEEN BABINEAUX BLANCO
GOVERNOR

MIKE D. McDANIEL, Ph.D.
SECRETARY

June 16, 2005

Martin Maner, Chief
Water Division
Arkansas Department of Environmental Quality
P.O. Box 8913
Little Rock, AR 72219

FILE
COPY

RE: El Dorado Pipeline Model

Dear Mr. Maner:

The Louisiana Department of Environmental Quality (LDEQ) has been following the issue of the proposed El Dorado Pipeline Complex since it first came to our attention in December. The mayor of the City of West Monroe contacted LDEQ in mid-December expressing his concern about the potential impact of the proposed combined discharge on the water quality of the Louisiana reach of the Ouachita River. At that time, Dugan Sabins of my staff contacted you to gain further information. LDEQ is also concerned about the potential impact of the combined discharge to the Ouachita River in Louisiana.

The Region 6 office of EPA forwarded a copy of the modeling results for the proposed El Dorado Pipeline Complex prepared by GBM^c and Associates. LDEQ staff reviewed the modeling results and prepared some comments on the model. The purpose of this letter is to share those comments with you and to express LDEQ's concern about the possible impact of the proposed discharge. In summary, LDEQ believes that more extensive modeling should be done to include nutrient cycle modeling and to examine the effect on the water quality of the Ouachita River down to the state line. The existing model did not examine nutrients and only examined the reach of the Ouachita River upstream of the Felsenthal Reservoir. An earlier model of the Ouachita River for the Georgia Pacific Mill discharge at Crossett showed little reserve assimilative capacity in the Louisiana reach of the river. Thus, LDEQ is concerned about the proposed pipeline discharge.

More detailed comments are enclosed for your consideration. LDEQ appreciates your consideration of our concerns, and we are happy to offer technical assistance to Arkansas DEQ in further modeling of the Ouachita River.

Office of the Secretary P. O. Box 4301 Baton Rouge, LA 70821-4301
Telephone: (225) 219-3950 Fax: (225) 219-3970
An Equal Opportunity Employer

EXHIBIT
Blumberg No. 5008
LA 1

If you wish to discuss this in more detail, please contact Mrs. Barbara Romanowsky of my staff at 225-219-3557.

Sincerely,

Mike D. McDaniel

Mike D. McDaniel, Ph.D.
Secretary

esc

Enclosure

c: Mary Leath, Deputy Director, ADEQ
Mo Shafii, Permits Manager, ADEQ
Barbara Romanowsky, LDEQ
Dick Duerr, LDEQ

(9)

Review of an Arkansas DEQ Model of the Ouachita River for
Proposed Discharges at El Dorado, Arkansas

April 29, 2005

The model was run by GBM^C & Associates of Bryant, Arkansas for the Arkansas Department of Environmental Quality. The El Dorado dischargers would be five existing facilities, the effluent from which would be transported to the Ouachita River at about river mile 280:

City of El Dorado North POTW
City of El Dorado South POTW
El Dorado Chemical Company
Lion Oil Company
Great Lakes Chemical Company

The model used is MULTI-SMP, and it covers a reach of the Ouachita River from river mile 280 to river mile 255. Parameters modeled are dissolved oxygen, five day biochemical demand, and ammonia-nitrogen. Ammonia-nitrogen is modeled as oxygen demand but not as a nutrient.

1. Louisiana cannot use the output from this model to calculate the impact of the five discharges listed above on the Ouachita River in Louisiana.

   There are existing QUAL2EU models of the river from the Felsenthal Dam in Arkansas at river mile 227 to the Columbia Dam in Louisiana at river mile 117. These models simulate nutrients and *chlorophyll a* as well as oxygen demand. The MULTI-SMP model is not calibrated to water quality data, does not simulate the river to the Felsenthal Dam, and does not provide the necessary information needed to feed headwater data to the downstream models. We are more concerned with the additional nutrient load to the river than with oxygen demanding substances. We would expect the oxygen demand of the El Dorado discharges to be reduced to background in the waters above the Felsenthal Dam.

2. We do not believe that MULTI-SMP is an appropriate model for the characterization of the impact of major dischargers on the Ouachita River, especially those discharging large quantities of nutrient.

   Being concerned with the impact of additional nutrient load on the Ouachita River in Louisiana, we would like to be able to evaluate that impact through the use of the existing models. The MULTI-SMP model does not simulate the necessary parameters. We request that the reach of the Ouachita River between El Dorado and Felsenthal be modeled using an appropriate and fully calibrated model, that is, a model capable of simulating the impact of nutrient as well as oxygen demand.

State of Louisiana

Department of Environmental Quality

KATHLEEN BABINEAUX BLANCO
GOVERNOR

MIKE D. McDANIEL, Ph.D.
SECRETARY

AUG - 3 2005

COPY

Martin Maner, Chief
Water Division
Arkansas Department of Environmental Quality
PO Box 8913
Little Rock, AR 72219-8913

RE: Eutrophication Modeling of the Ouachita River

Dear Mr. Maner:

The Louisiana Department of Environmental Quality (LDEQ) has reviewed the work plan prepared by GBM^c & Associates for sampling and modeling the impact of nutrients in the Ouachita River and Felsenthal Reservoir. We appreciate the opportunity to review the work plan and to provide you with comments that are enclosed.

LDEQ also appreciates the time that was taken to talk with us over the phone about the proposed pipeline discharge. We are pleased that you have considered Louisiana's concerns with this proposed discharge, and look forward to working with you to address these concerns.

If you wish to discuss the work plan in more detail please contact Mrs. Barbara Romanowsky at (225) 219-3557.

Sincerely,

Mike D. McDaniel

Mike D. McDaniel, Ph.D.
Secretary

esc

Enclosure

c: Mary Leath, Deputy Director, ADEQ
Mo Shafii, Permits Manager, ADEQ
Barbara Romanowsky, LDEQ
Dick Duerr, LDEQ
MDM-05-041

EXHIBIT
LA 2

(10)

REVIEW OF ADEQ's WORK PLAN FOR A SURVEY OF THE OUACHITA RIVER

July 25, 2005

The Louisiana Department of Environmental Quality (LDEQ) has reviewed the work plan prepared by GBM^C & Associates for the City of El Dorado, Arkansas and three El Dorado companies proposing to construct a pipeline to reroute their effluent to the Ouachita River above the Felsenthal Reservoir in Arkansas. These entities, the "Joint Pipeline Group", have contracted with GBM^C & Associates to model the Felsenthal system for the impact of that proposed direct discharge to the Ouachita. The work plan outlines a field study and eutrophication modeling study for the Ouachita River and Felsenthal Reservoir. The LDEQ hereby submits the following comments.

- As shown on the attached map, the survey sites are grouped near the backwater from the Felsenthal Dam.
    - Ouachita River sites:
        - SR-1 Saline River just upstream of its confluence with the Ouachita
        - Oua-1 Ouachita River, just upstream of Saline River confluence
        - Oua-2 Ouachita River, just upstream of Hwy 82 bridge
        - Oua-3 Ouachita River, just upstream of Felsenthal dam
    - Felsenthal reservoir/backwater:
        - OB-1 "Open Brake"
        - OB-2 "Open Brake - Flat Water"
        - CSS-1 "Crooked S Slough"
        - PW-1 "Pete Wilson Lake"

  No calibration sites are proposed on the River above Oua-1, which is located just above the Saline River, nor are sites proposed on any tributaries presently carrying loads from El Dorado POTW and El Dorado Chemical to the Ouachita. In addition, there are no sites in Coffee Creek and the Ouachita River at the state line. Passing mention is made of the study being consistent with "historical studies", but no specifics are given. We do not believe that a reasonable calibration from above Smackover Creek and the proposed pipeline outfall to the state line can be achieved by neglecting these reaches of the Ouachita River.
- The plan indicates that the field study will consist of four collection events during summer low flow conditions, but it does not specify the time frame during which the sampling would occur. The time frame should be described.
- The proposed BOD (5-day and 20-day) analysis is of concern. LDEQ has had a problem with the TCMP nitrification inhibitor failing during a 20-day BOD test, giving erroneous results. We have switched all BOD series testing to method SM5210C, as developed by a group headed by Dr. Ray Whittemore. This is very similar to the test that was used by HydroQual for their study of the Ouachita River from the Saline River to Sterlington ("Development of a Water Quality Model of the Ouachita River", HydroQual, Inc.,Mahwah, N.J., 1992). Method SM5210C should be used for this study.

- The proposal for velocity measurements in the brakes, in which the 60% depth will be measured regardless of channel depth, is not in accordance with USGS methods.
- Continuous monitoring (diel) data is proposed for at least a 24 hour period, but only for three sites within the reservoir system. We have found that at least 48 hours is needed (and preferably 3-4 days) to obtain representative data. Continuous monitoring data is needed in the main channel of the Ouachita River as well, both upstream and downstream of the proposed survey area.
- The Ouachita and Saline River flows will be taken from USGS gauges at Camden in the Ouachita and near Rye in the Saline. The Camden gage is just 25 river miles upstream of the mouth of Smackover Creek, and should provide a good measure of upstream flow in the Ouachita. The gage at Rye, however, is about 70 river miles from the mouth of the Saline River, so flows from the Saline may be underestimated.
- The U. S. Army Corps of Engineers has a HEC-2 model of the Ouachita and Black Rivers from Camden, Arkansas to the Red River that includes the Jonesville, Columbia, Felsenthal, and H.K. Thatcher dams. This model was used as a source of hydrology for the LDEQ model of the river from Sterlington to the Columbia Dam, and might be a useful source of hydrology for the Arkansas model.
- It is stated that the model will be calibrated to the "parameters of concern", chlorophyll a, dissolved oxygen, phosphorus, and macrophyte biomass. It is important that the model also be reasonably well calibrated to ultimate carbonaceous BOD, organic nitrogen, ammonia, and nitrites+nitrates. We question the possible use of the critical flow plus 20% for the projections, and would like to know at what temperature the projections will be run. To provide headwater conditions for the Louisiana model, the flow would need to be the 7Q10 statistic and the temperature would need to be the 90 percentile of ambient data.
- The choice of modeling programs, Qual2K, WASP7, and Aquatox, is appropriate to the task.

DEPARTMENT OF ENVIRONMENTAL QUALITY
KATHLEEN BABINEAUX BLANCO
GOVERNOR
MIKE D. McDANIEL, Ph.D.
SECRETARY

55

May 17, 2006

Doug Szenher, Chief
Public Outreach and Assistance Division
Arkansas Department of Environmental Quality
P.O. Box 8913
Little Rock, AR 72219-8913

RE: El Dorado Pipeline Discharge Permit

Dear Mr. Szenher:

The Louisiana Department of Environmental Quality (LDEQ) appreciates the opportunity to comment on the proposed El Dorado Pipeline Discharge permit and the cooperation and consideration of our concerns shown thus far by the Arkansas Department of Environmental Quality (ADEQ). LDEQ is concerned about the potential impact of the combined discharge to the Ouachita River in Louisiana, but at this time, we do not have sufficient information to determine whether the discharge will have an adverse impact on our state's waters. We wish to reserve further comment pending our review of the final modeling report on the Ouachita River/Felsenthal Reservoir System by GBM^c and Associates.

The ADEQ presented a copy of the interim modeling report for the proposed El Dorado Pipeline Complex prepared by GBM^c and Associates to LDEQ. LDEQ staff reviewed the interim report, but we are unable to make conclusive comments at this time because this is simply an interim report that does not contain final modeling results. It is our understanding that the final report will not be completed prior to the June 1st deadline for comments. Therefore, LDEQ requests that the ADEQ extend the public comment period 30 days past the date that the final modeling report is available for review to allow adequate time to review and comment on the final modeling report. LDEQ also believes that the information contained in the final modeling report will be necessary in order to have a complete record for decision.

Again, LDEQ appreciates your consideration of our concerns, and we look forward to working with the ADEQ on this and other issues affecting our shared waters.

EXHIBIT
Blumberg No. 5208
LA 3

OFFICE OF THE SECRETARY
: PO BOX 4301, BATON ROUGE, LA 70821-4301
P:225-219-3953 F:225-219-3971
WWW.DEQ.LOUISIANA.GOV

If you wish to discuss this in more detail, please contact Mrs. Barbara Romanowsky of my staff at 225-219-3557.

Sincerely,

Mike D. McDaniel, Ph.D.
Secretary

esc

c: Marcus C. Devine, Director, ADEQ
Martin Maner, Water Division Chief, ADEQ
Mo Shafii, Permits Manager, ADEQ
Wilbert Jordan, LDEQ
Barbara Romanowsky, LDEQ
Dick Duerr, LDEQ
Kirk Cormier, LDEQ
Ryan Seidemann, LDJ
Miguel Flores, EPA

(21)

Marian Aguillard

From: Barbara Romanowsky
Sent: Monday, March 12, 2007 5:50 PM
To: Marian Aguillard
Subject: FW: Comments on Ouachita River and Felsenthal System Water Quality Modeling

---

From: Cotter, Amy [mailto:COTTER@adeq.state.ar.us]
Sent: Tuesday, May 23, 2006 2:36 PM
To: Barbara Romanowsky
Subject: RE: Comments on Ouachita River and Felsenthal System Water Quality Modeling

Barbara, I have not received comments from you on the Felsenthal Modeling report. Do you have comments?

- Amy
(501) 682 - 0023

-----Original Message-----
From: Cotter, Amy
Sent: Friday, May 05, 2006 9:04 AM
To: 'Barbara Romanowsky'
Subject: RE: Comments on Ouachita River and Felsenthal System Water Quality Modeling

Barbara, please find attached the electronic copy of the report.

- Amy

-----Original Message-----
From: Barbara Romanowsky [mailto:Barbara.Romanowsky@LA.GOV]
Sent: Thursday, May 04, 2006 6:02 PM
To: Cotter, Amy
Subject: RE: Comments on Ouachita River and Felsenthal System Water Quality Modeling

Hi,
My name is Barbara Romanowsky and I work for the Louisiana Department of Environmental Quality/ Water Quality Assessment Division. I'd like to request a copy of the report. Can you send me an electronic copy?
Barbara

From: Cotter, Amy [mailto:COTTER@adeq.state.ar.us]
Sent: Thursday, May 04, 2006 11:03 AM
To: jim_warren@fws.gov; rshenderson@agfc.state.ar.us; hosch.claudia@epa.gov; _DEQ-WWW Office of the Secretary Contact
Cc: Shafii, Mo; Maner, Martin; Leath, Mary
Subject: Comments on Ouachita River and Felsenthal System Water Quality Modeling

Good morning:

"Interim Report Ouachita River and Felsenthal System Water Quality Modeling - Calibrated Model Inputs (QUAL2K, WASP, AQUATOX)": GBMc & Associates; April 13, 2006.

This report is the follow up to the GBMc & Associates proposal dated June 29, 2005 and shows the model predicted effects of the El Dorado Joint Discharge on the Ouachita River and Felsenthal WMA. ADEQ will consolidate the comments and submit them to GBMc & Associates. If you have questions, or have not received a copy of the report, please contact me.

Blumberg No. 5208
EXHIBIT
LA 4

(21)

To comment on the above report, please respond to this email by **May 10, 2006.**

Thank you for your time.

Amy Cotter
Engineering Technical Projects and Assistance Engineer
ADEQ- Water Division
(501)682-0023

(21)

Marian Aguillard

From: Barbara Romanowsky
Sent: Tuesday, May 23, 2006 5:27 PM
To: 'Cotter, Amy'
Cc: Emelise Cormier; Dugan Sabins; Marian Aguillard; Dick Duerr
Subject: LDEQ Comments on Ouachita River and Felsenthal System GBMc INTERIM Water Quality Modeling Report

Amy,
I thought these comments had already been sent to you. I apologize for missing your deadline. Hopefully, these comments/questions will be useful to your contractors. If you need additional information from us regarding these comments, please let me know.
Thank you for your reminder,
Barbara

From: Dick Duerr
Sent: Monday, May 08, 2006 1:20 PM
To: Emelise Cormier
Cc: Marian Aguillard
Subject: GBMc Interim Report - Comments and questions

Comments and questions concerning the GBMc Interim Report of
Ouachita River and Felsenthal System Water Quality Modeling.

We are confining our comments and questions to the modeling of the Ouachita River Channel from Smackover Creek to the Felsenthal Dam.

Comments:

1. Survey sites OUA-B and OUA-5 were added to cover the reach between Smackover Creek and Saline River, a distance of about 54 river miles. These sites plus OUA-1 provide headwater data plus two calibration sites for this reach. This is a minimum level of coverage, but a considerable improvement over no coverage. There is no indication of a site in Smackover Creek (see question 2).
2. The model will not cover the reach between the Felsenthal Dam and the state line and will not, therefore, provide headwater data for a model of the Ouachita in Louisiana.
3. We still have no specific information on the collection of data (see questions 1-6).
4. We have not attempted an analysis of the calibration yet. The lack of hydrologic data will make this difficult. A copy of the field/laboratory data and the calibrated model would be helpful.

Questions:

1. What were the sampling/measurement dates for survey sites OUA-B, OUA-5, OUA-1, OUA-2, OUA-2.5, OUA-3, and SR-1?
2. Was there any flow from Smackover creek at the time of the survey(s)? If so, was Smackover Creek sampled?
3. By what methodology was CBOD measured? Was a laboratory oxidation rate obtained?
4. Was any attempt made to obtain a CBOD oxidation rate by calibration?
5. Was dissolved oxygen measured by deployment of continuous monitors?
6. At what depth(s) were measurements and samples taken?
7. Was the full benthic routine of Qual2K utilized?
8. Calibration to dissolved oxygen, chlorophyll-a, TP, TN, and OP are shown. What other parameters were calibrated?

(69)

DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO
GOVERNOR

MIKE D. McDANIEL, Ph.D.
SECRETARY

June 20, 2006

Doug Szenher, Chief
Public Outreach and Assistance Division
Arkansas Department of Environmental Quality
P.O. Box 8913
Little Rock, AR 72219-8913

RE: El Dorado Pipeline Discharge Permit

Dear Mr. Szenher:

The Louisiana Department of Environmental Quality (LDEQ) had previously requested an extension of the public comment period for the proposed El Dorado Pipeline Discharge Permit, pending our review of the final modeling report on the Ouachita River/Felsenthal Reservoir System by GBM^c and Associates. The ADEQ did agree to extend the comment period to June 21. At this time, we would like to request that the draft permit for the El Dorado Pipeline Discharge not be issued in order to allow adequate time for all interested parties to review and comment on the final nutrient modeling report. We anticipate that the modeling analysis will provide information that will enable a more accurate determination of the potential impact of the discharge on the Felsenthal Reservoir and the lower Ouachita River. Additionally, the nutrient modeling analysis may provide a more sound scientific basis for the proposed permit limitations.

LDEQ reviewed the interim report, and sent comments on the interim report. The ADEQ sent an electronic copy of the draft final modeling report prepared by GBM^c and Associates to LDEQ on June 13, indicating that this draft did not address all of the comments received concerning the interim modeling report and requesting comments by July 21. Given this, it appears that a final modeling analysis report that takes into consideration all of the comments on the interim and draft reports will not be available until some time later than July 21. Therefore, LDEQ requests that the ADEQ not issue the pipeline permit pending receipt of the final modeling analysis.

Blumberg No. 5208
EXHIBIT
LA 6

OFFICE OF **THE SECRETARY**
: PO BOX 4301, BATON ROUGE, LA 70821-4301
P:225-219-3953 F:225-219-3971
WWW.DEQ.LOUISIANA.GOV

Alternatively, we request that ADEQ extend the current public comment period at least 30 days past the date that the final modeling report becomes available for review. We have requested a complete, color hard copy of the draft final report, and we will complete our review as soon as possible after we receive it.

LDEQ appreciates your consideration of our request, and we look forward to working with the ADEQ on this and other issues affecting our shared waters.

If you wish to discuss this in more detail, please contact Mrs. Barbara Romanowsky of my staff at 225-219-3557.

Sincerely,

Mike D. McDaniel

Mike D. McDaniel, Ph.D.
Secretary

esc

c: Marcus C. Devine, Director, ADEQ
Martin Maner, Water Division Chief, ADEQ
Mo Shafii, Permits Manager, ADEQ
Wilbert Jordan, LDEQ
Barbara Romanowsky, LDEQ
Dick Duerr, LDEQ
Kirk Cormier, LDEQ
Ryan Seidemann, LDJ
Miguel Flores, EPA

28

Marian Aguillard

From: Barbara Romanowsky
Sent: Monday, July 10, 2006 1:16 PM
To: 'Cotter, Amy'
Cc: Mike McDaniel; Wilbert Jordan; Karen Gautreaux; Dick Duerr; Marian Aguillard; Kirk Cormier; Emelise Cormier; Dugan Sabins; Max Forbes
Subject: Initial comments on GBM final report - El Dorado Pipeline - 3rd draft
Attachments: Review of Final Report - 3rd Draft.doc

Hi Amy,

These are LDEQ's initial comments on the third draft of the GBM^{C} Final Report. It will take some time and more information from GBM^{C} before we can give you extensive comments on the modeling. As a result, we are requesting a 90-day extension of the comment period plus the input data sets and raw data used in this Final Report.

Please let me know if ADEQ would like to have another conference call to discuss our comments and concerns.

Thank you for the opportunity to provide additional comments,
Barbara Romanowsky
225/219-3483

Blumberg No. 5208
EXHIBIT
LA 7

(73)

REVIEW OF THE FINAL REPORT

OUACHITA RIVER AND THE FELSENTHAL NATIONAL WILDLIFE REFUGE MODELING STUDY

BY
GBM^{C} & ASSOCIATES

FOR
THE EL DORADO JOINT PIPELINE GROUP

07/10/2006

The report concerns the impact on the Ouachita River and the Felsenthal National Wildlife Refuge of the discharge from a pipeline proposed to be built by a group of 3 El Dorado, Arkansas, industries and the City of El Dorado. Since the primary interest of LDEQ in this study lies in the impact of the proposed discharge on the Ouachita River in Louisiana, our comments will be confined to the modeling study of the Ouachita River. We will have no comments on the simulation of the impact on the Wildlife Refuge.

Summary of Comments

We have conducted an initial review of the report but have not yet taken the time to set-up and run the model. We request at least a 90 day extension of the comment period, electronic copies of the input data sets used, and copies of all raw data/samples results/ measurements collected in support of this modeling project. We are concerned about the projected increases in total nitrogen and chlorophyll a in the Ouachita River below the Felsenthal Dam. Ambient data for the Ouachita River in Louisiana indicate that it may be nitrogen limited, and Louisiana is therefore especially concerned with nitrogen loading and the resulting impact on levels of phytoplankton. Our standard steady state modeling protocol requires projections to be made at critical conditions of stream flow and temperature, and anthropogenic point sources to be modeled at long term average discharge rate and permitted pollutant concentrations.

Figure 6.26, the total nitrogen predictions at critical stream conditions and full permitted discharge load (with a 750 cfs Ouachita River critical flow and without the customary margin of safety for the pipeline point source), show about an 85% increase in TN below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline. Figure 6.22, the chlorophyll a predictions at the same conditions, show about a 62% increase in chlorophyll a below the Dam - the concentration of phytoplankton apparently reacting to the increased nutrient load. The impact of the proposed pipeline discharge on dissolved oxygen levels in Louisiana would have to be determined by monitoring and additional modeling but the state is definitely concerned about the projected increase in nutrient that will be flowing into Louisiana.

A more detailed discussion of our concerns follows:

EXHIBIT
Ellenberg No. 5208
LA 8

Page 1 – The possibility of the El Dorado pipeline discharge increasing the phosphorus load downstream of the Felsenthal dam is mentioned as a concern that has been expressed. The ratio of TN to TP for the Ouachita has varied from 4.8 to 7.4 depending on the site and the data year, indicating that nitrogen may be a limiting nutrient. Louisiana is therefore also concerned with nitrogen loading.

Page 7 – The anticipated load used in the projections is identified in Appendix D as associated with a combined pipeline discharge of 13.5 mgd. The Arkansas permit AR0050296 for the discharge from the pipeline includes a summer season monthly average load limitation for CBOD5 of 2,923.2 lb/d and a monthly or long term average discharge limitation of 17.5 mg/l. This is consistent with a monthly or long term average discharge of 20 mgd. Louisiana standard steady state modeling protocol requires projections to be made at critical conditions of stream flow and temperature, and anthropogenic point sources to be modeled at long term average discharge rate and permitted pollutant concentrations. We can think of no justification for using a projection model discharge of less than the monthly average in this case, and therefore insist that the model projections be made at monthly average flow and concentration. This condition is identified by GBM^C & Associates as the full permitted discharge load.

In addition, the Louisiana DEQ makes all water quality projections using a 20% margin of safety for point sources at the insistence of EPA Region 6. Thus the pipeline discharge should be modeled at the monthly average loading limitation of 2,923.2 lb/d * 1.25 = 3,665.25 lb/d for the summer months.

Page 8 – Concerning critical conditions for projection, the U.S. Fish and Wildlife Service has commented that the Ouachita River critical (7Q10) flow at Camden, Arkansas should be 648 cfs rather than the 750 cfs reported in the permit and used by the model. The Louisiana DEQ generally makes water quality model projections at the annual 7Q10 flow and the summer season 90 percentile temperature. We have not checked the critical flows for the Ouachita and Saline Rivers or the critical temperature for the Ouachita used by GBM^C. If USF&W is correct, however, the model should be reprojected at an upstream Ouachita River flow of 648 cfs (18.35 cms).

Pages 83 to 92 – Figure 6.26, the total nitrogen predictions at critical stream conditions and full permitted discharge load (with a 750 cfs Ouachita River critical flow and without a MOS for the pipeline point source), show about an 85% increase in TN below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline. As mentioned above, it is quite possible that nitrogen is a limiting nutrient for the Ouachita in Louisiana. Additional nitrogen loading is therefore of concern, and an 85% increase can reasonably be expected to increase phytoplankton growth and the corresponding trophic index of the Ouachita River in Louisiana.

Figure 6.18, the total phosphorus predictions at critical stream conditions and full permitted discharge load, show a 17% increase in TP below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline.

Considering the existing ratio of TN to TP in the Ouachita River in Louisiana, this additional phosphorus may not be a problem.

Figure 6.22, the chlorophyll a predictions at critical stream conditions, show about a 62% increase in chlorophyll a below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline. The concentration of phytoplankton is apparently reacting to the increased nutrient load.

Figure 6.14, the dissolved oxygen predictions at critical stream conditions, show no change in dissolved oxygen below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline. We will need additional time to investigate the simulation of dissolved oxygen before commenting on the dissolved oxygen projections.

29

Marian Aguillard

From: Dick Duerr
Sent: Wednesday, July 12, 2006 2:25 PM
To: Amy Cotter @ ADEQ (cotter@adeq.state.ar.us)
Cc: Barbara Romanowsky; Marian Aguillard
Subject: Questions for GBM concerning the Ouachita River model
Attachments: Specific questions of GBMc.doc

Hi Amy,

I am reviewing the GBM model of the Ouachita River and have some specific questions of GBM^{C} & Associates concerning the modeling. These are in addition to the comments that Barbara sent to you on July 10. I would appreciate your forwarding the attached file to GBM. We need answers to these questions in order to proceed with the review.

Thank you for your help,
Dick Duerr
Water Quality Modeling Section
LDEQ
225-219-3439

Blumberg No. 5208
EXHIBIT
LA 9

Specific questions of GBM^c & Associates concerning the Ouachita River (main stem) modeling study:

1. What version of Qual2K was used?
2. If the original version was used, we would like to have the following additional information:
    - For what date did you run the model?
    - Alkalinity inputs for the Saline River and Smackover Creek point sources, and calibration alkalinity values (if run) for sites OUA-0.5, 1, 2, 2.5, 3.
    - The conductivity input for Smackover Creek.
    - Calibration detritus values (if calculated) for sites OUA-0.5, 1, 2, 2.5, 3.
    - VSS values for all inputs and sites.
3. If V2.04 was used we do not have full documentation of the input. Missing information, in addition to the above, includes:
    - The number of elements for each reach.
    - Slow CBOD oxidation rate.
    - Organic N settling velocity.
    - Organic P settling velocity.
    - Inorganic P settling velocity.
    - Inorganic P sorption coefficient.
    - Sediment P oxygen attenuation half sat constant.
    - Phytoplankton inorganic carbon half sat constant.
    - Detritus fraction of dissolution to fast CBOD.
4. Are we correct in assuming that no diffuse source was used?
5. What year was used in the calculation of the 7Q10s? USGS climatic? USGS water year? Calendar? Was any flow added for the additional drainage area between the gage site and the point of interest. Please document your calculations.

Questions 1-4 could be answered by sending us the model file for calibration and projection at critical conditions/permitted load.

Blumberg No. 5208
EXHIBIT
LA 10

State of Louisiana

Department of Environmental Quality

KATHLEEN BABINEAUX BLANCO
GOVERNOR

MIKE D. McDANIEL, Ph.D.
SECRETARY

June 16, 2005

Martin Maner, Chief
Water Division
Arkansas Department of Environmental Quality
P.O. Box 8913
Little Rock, AR 72219

FILE
COPY

RE: El Dorado Pipeline Model

Dear Mr. Maner:

The Louisiana Department of Environmental Quality (LDEQ) has been following the issue of the proposed El Dorado Pipeline Complex since it first came to our attention in December. The mayor of the City of West Monroe contacted LDEQ in mid-December expressing his concern about the potential impact of the proposed combined discharge on the water quality of the Louisiana reach of the Ouachita River. At that time, Dugan Sabins of my staff contacted you to gain further information. LDEQ is also concerned about the potential impact of the combined discharge to the Ouachita River in Louisiana.

The Region 6 office of EPA forwarded a copy of the modeling results for the proposed El Dorado Pipeline Complex prepared by GBM^c and Associates. LDEQ staff reviewed the modeling results and prepared some comments on the model. The purpose of this letter is to share those comments with you and to express LDEQ's concern about the possible impact of the proposed discharge. In summary, LDEQ believes that more extensive modeling should be done to include nutrient cycle modeling and to examine the effect on the water quality of the Ouachita River down to the state line. The existing model did not examine nutrients and only examined the reach of the Ouachita River upstream of the Felsenthal Reservoir. An earlier model of the Ouachita River for the Georgia Pacific Mill discharge at Crossett showed little reserve assimilative capacity in the Louisiana reach of the river. Thus, LDEQ is concerned about the proposed pipeline discharge.

More detailed comments are enclosed for your consideration. LDEQ appreciates your consideration of our concerns, and we are happy to offer technical assistance to Arkansas DEQ in further modeling of the Ouachita River.

Office of the Secretary P. O. Box 4301 Baton Rouge, LA 70821-4301
Telephone: (225) 219-3950 Fax: (225) 219-3970
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Blumberg No. 5008
LA 1

If you wish to discuss this in more detail, please contact Mrs. Barbara Romanowsky of my staff at 225-219-3557.

Sincerely,

Mike D. McDaniel

Mike D. McDaniel, Ph.D.
Secretary

esc

Enclosure

c: Mary Leath, Deputy Director, ADEQ
Mo Shafii, Permits Manager, ADEQ
Barbara Romanowsky, LDEQ
Dick Duerr, LDEQ

(9)

Review of an Arkansas DEQ Model of the Ouachita River for
Proposed Discharges at El Dorado, Arkansas

April 29, 2005

The model was run by GBM^C & Associates of Bryant, Arkansas for the Arkansas Department of Environmental Quality. The El Dorado dischargers would be five existing facilities, the effluent from which would be transported to the Ouachita River at about river mile 280:

City of El Dorado North POTW
City of El Dorado South POTW
El Dorado Chemical Company
Lion Oil Company
Great Lakes Chemical Company

The model used is MULTI-SMP, and it covers a reach of the Ouachita River from river mile 280 to river mile 255. Parameters modeled are dissolved oxygen, five day biochemical demand, and ammonia-nitrogen. Ammonia-nitrogen is modeled as oxygen demand but not as a nutrient.

1. Louisiana cannot use the output from this model to calculate the impact of the five discharges listed above on the Ouachita River in Louisiana.

   There are existing QUAL2EU models of the river from the Felsenthal Dam in Arkansas at river mile 227 to the Columbia Dam in Louisiana at river mile 117. These models simulate nutrients and *chlorophyll a* as well as oxygen demand. The MULTI-SMP model is not calibrated to water quality data, does not simulate the river to the Felsenthal Dam, and does not provide the necessary information needed to feed headwater data to the downstream models. We are more concerned with the additional nutrient load to the river than with oxygen demanding substances. We would expect the oxygen demand of the El Dorado discharges to be reduced to background in the waters above the Felsenthal Dam.

2. We do not believe that MULTI-SMP is an appropriate model for the characterization of the impact of major dischargers on the Ouachita River, especially those discharging large quantities of nutrient.

   Being concerned with the impact of additional nutrient load on the Ouachita River in Louisiana, we would like to be able to evaluate that impact through the use of the existing models. The MULTI-SMP model does not simulate the necessary parameters. We request that the reach of the Ouachita River between El Dorado and Felsenthal be modeled using an appropriate and fully calibrated model, that is, a model capable of simulating the impact of nutrient as well as oxygen demand.

(76)

REVIEW OF THE OUACHITA RIVER MODELING STUDY

CONDUCTED AS A PART OF THE OUACHITA RIVER AND FELSENTHAL NATIONAL WILDLIFE REFUGE MODELING STUDY

BY
GBM^C & ASSOCIATES

FOR
THE EL DORADO JOINT PIPELINE GROUP

These comments are a continuation of the LDEQ review of the GBMC modeling study and report. Our comments of July 10, 2006 concerned the report. As we progress in our analysis of the modeling study, there will be further comments.

The Ouachita River and Felsenthal National Wildlife Refuge Modeling Study was conducted to predict the impact on the Ouachita River and the Felsenthal National Wildlife Refuge of the discharge from a pipeline proposed to be built by a group of 3 El Dorado, Arkansas, industries and the City of El Dorado. Since the primary interest of LDEQ in this study lies in the impact of the proposed discharge on the Ouachita River in Louisiana, our comments will be confined to the modeling study of the Ouachita River. We will have no comments on the simulation of the impact on the Wildlife Refuge.

Comments to date on the modeling study

1. The study of the main stem of the Ouachita River utilized data from four collection events conducted between August 17 and September 22, 2005. The Ouachita was sampled at 6 sites and the Saline River at one site. Samples and in-situ measurements were taken at a depth of 1 foot. Calibration Ouachita River flow was reported as 1200 cfs. No full depth in-situ profiles were taken to see if the river was fully mixed top to bottom. We suspect that the dissolved oxygen measurements do not represent the average DO of the water column.

2. The version of QUAL2K used (there is no version number – it is probably the original version made available for general use) allows the waterbody to be divided into reaches of any length, and a steady state flow balance is calculated for each reach. In other words, each reach is simulated as a completely back-mixed portion of the waterbody. The model consists of 12 reaches ranging from 0.16 to 52.3 kilometers in length. Seven of these reaches are more than 10 times longer than their top width. One reach is 574 times longer than its width. This is an unacceptable modeling practice. Version 2.04 of QUAK2K allows the division of each reach into any number of completely back-mixed elements. We request that the Ouachita River be remodeled in version 2.04 or, if available in time, 2.05.

3. Because of the excessive length of some of the reaches, model numerical dispersion is unacceptably large, greatly exceeding longitudinal dispersion. This

EXHIBIT
Blumberg No. 5208
LA 12

can be checked against the output because when the numerical dispersion exceeds the longitudinal dispersion, the bulk dispersion coefficient, E', is calculated solely from the numerical dispersion. Longitudinal dispersion is calculated from bottom trapezoidal width and trapezoidal depth. Although they are not shown in the model output, we have determined that the calculated values of longitudinal and numerical dispersion and E' for each reach are:

Longitudinal dispersion (m^2/s)	Numerical dispersion (m^2/s)	Model input longitudinal dispersion (m^2/s)	Bulk dispersion coefficient E' (m^3/s)
1.88	8.49	0.00	17.00
1.88	8.49	0.00	0.20
1.87	1,436.51	0.00	33.19
2.96	42.44	0.00	13.15
2.96	67.84	0.00	3.21
2.96	653.24	0.00	6.55
2.96	2,757.17	0.00	31.73
7.43	210.66	0.00	13.48
7.43	337.07	0.00	13.35
7.43	547.78	0.00	32.55
7.43	42.15	0.00	17.54
7.43	42.10	0.00	17.51
7.43	42.15	0.00	17.53

4. GBM^C & Associates reports that the model was calibrated to phytoplankton, dissolved oxygen, total nitrogen, and total phosphorus. It appears that an attempt was also made to calibrate organic nitrogen and ammonium. However organic phosphorus, inorganic phosphorus, nitrates, and fast CBOD were apparently not calibrated. LDEQ requests that the model be completely, and not just partially, calibrated. If unfiltered CBOD was run, UCBOD should also be calibrated. There is, of course, no point in recalibrating in the version of QUAL2K that was used.

5. In addition to the concerns of Item 4, there was no calibration site below the Felsenthal Dam and although nutrients and BOD may be assumed to be unaffected by the dam the same is not true of phytoplankton. Lacking calibration below the dam, we think that even though LDEQ insists that the modeling effort extend below the dam, this model cannot reasonably do that.

6. The 7Q10 numbers used in the model are higher than the available information from USGS. We do think, however , that some adjustment for the drainage area between the USGS gage sites and the point of application is appropriate. We propose the following:

(48)

Marian Aguillard

From: Marian Mergist on behalf of Mike McDaniel
Sent: Friday, February 16, 2007 3:24 PM
To: cotter@adeq.state.la.us
Cc: Karen Gautreaux; Wilbert Jordan; Barbara Romanowsky; Dick Duerr; Marian Aguillard; Emelise Cormier; Dugan Sabins; Kirk Manuel; Max Forbes; barhamr@legis.state.la.us; larep015@legis.state.la.us; jeffersh@legis.state.la.us; terrellm@ag.state.la.us; minorc@ag.state.la.us; hosch.claudia@epa.gov; SeidemannR@ag.state.la.us; burrell.monica@epa.gov; rshenderson@agfc.state.ar.us; shafii@adeq.state.ar.us; sckuyeda@agfc.state.ar.us; marmstrong@agfc.state.ar.us; Steph Braden
Subject: Revised El Dorado Pipeline Nutrient Study

Importance: High

Attachments: Appenidex A.pdf; Revised Modleing Report-Final.pdf; Compilation of comments and responses.doc

Appenidex A.pdf (3 MB) Revised Modleing Report-Final.... Compilation of comments and re...

Good Afternoon,

LDEQ is in receipt of your email dated 02/15/2007 transmitting the Febuary 13, 2006 report of the revision of the GBMC model of the Ouachita River. Thank you for providing us with this information.

We understand that you need our comments by 02/20/2007 so as to have them prior to your meeting with the consultant. We are unable to perform an adequate review in such a short time period and are therefore unable, at this time, to withdraw our objections to the issuance of a permit for the proposed Pipeline. A compilation of our previous comments with the consultant's responses to some of those comments is attached. The appendix data tables as transmitted to us are not entirely readable and, in order to continue our review, we therefore request an electronic copy of each final QUAL2K modeling run.

We have made a cursory reading of the report and have the following initial observations:

- It appears that revisions to the June 1, 2006 version of the model still use the original version of QUAL2K, to which we objected in our comments of August 14, 2006.

- In addition, we notice that the model still maintains completely backmixed reach lengths of nearly 10 miles. We continue to object to this use of QUAL2K.

If you have any questions or need additional information we would be happy to discuss our comments with you by phone or by teleconference.

Mike D. McDaniel
Secretary
LA Dept of Environmental Quality
Tel: (225) 219-3953

****

-----Original Message-----
From: Cotter, Amy [mailto:COTTER@adeq.state.ar.us]
Sent: Thursday, February 15, 2007 3:05 PM
To: Shafii, Mo; Barbara Romanowsky; Claudia Hosch; Craig Uyeda; Dick Duerr; Marian Aguillard; Darin Mann; Marian Mergist; Tiffany Dickerson; Monica Burrell; Richard Henderson; Ryan Seidemann
Subject: Revised El Dorado Pipeline Nutrient Study

Blumberg No. 5208
EXHIBIT
LA 13

(48)

Hello all. ADEQ has received the attached revised report on the joint pipeline study. We are meeting with the consultants next Wednesday (Feb. 21). Please review and if you have comments let us know by Tuesday, Feb. 20. Thanks.

Amy Beck
Engineering Technical Projects and Assistance Engineer
ADEQ- Water Division
(501)682-0023

conditions promote the precipitation of inorganic P with ferric Fe^{3+} minerals rendering the inorganic P biologically unavailable. Below the oxidized surface layer and in surface layers where respiratory activity exceeds the oxygen supply rate, reducing conditions occur (Scheffer, 2004). In these subsurface sediments and surface layers subject to reducing conditions, inorganic P is released into the pore water as Fe minerals become soluble with the reduction of ferric Fe^{3+} to ferrous Fe^{2+}. In lakes with sufficient concentrations of sediment P, the abundance of available inorganic P in pore water of reduced subsurface sediment layers provide an easy source for macrophyte available P via root uptake. Soluble pore water P in the subsurface sediment may also diffuse into the oxidized surface sediment layer where it may precipitate with ferric iron, be assimilated into microbial biomass, or be diffused or mixed into the water column (Scheffer, 2004).

As with P, N is subject to numerous transformations in the sediment. Plants primarily use N in the form of amines, and as detritus is decomposed on the bottom of the lake, N is primarily released into sediment pore water as NH_4^+ (Scheffer, 2004; Tisdale et al., 1993). As previously described, in the oxidized environments common in the surface sediment layer, NH_4^+ is converted ultimately to NO_3^- through nitrification. In the subsurface sediments and sediment layers where respiratory processes exceed the O_2 supply rate, NO_3^- is reduced to nitrogeneous gas through denitrification. These nitrogeneous gasses diffuse through the water column and are expelled into the atmosphere; thus, removing N from the aquatic environment.

In subsurface sediment layers the most available form of N is NH_4^+, as NO_3^- is rapidly converted to gaseous N compounds which are expelled to the atmosphere (Scheffer, 2004). These NH_4^+ concentrations in the subsurface sediments provide a readily available source of N via root uptake by aquatic vegetation. However, NH_4^+ is extremely mobile in the sediment and much of what is not incorporated into biomass (macrophyte or microbial) diffuses into the oxidized surface layer where it is transformed to NO_3^-. Nitrate is mobile as well and can rapidly be transformed to N gas, in reduced environments through denitrification and transported to the atmosphere (Scheffer, 2004). Scheffer (2004) reported that 77% of N "retained" in a lake (N load in the influent minus N load in the effluent) is lost to the denitrification process. He also reported that in shallow lakes where hydraulic retention time is greater than a month, it is not uncommon for more than 50% of the nitrogen to be "retained". The nitrification/denitrification process results in the removal of N from the system, and where the external input source of N is removed, N supply may rapidly become a limiting factor for plant growth.

5.4 Maximum Biomass of Macrophytes

Biomass for aquatic vegetation varies with growth form (emergent, floating leafed, or submerged) as well as numerous factors which may limit or enhance vegetative growth. Limiting factors for plant growth are discussed in the following section.

Sculthorpe (1967) reports typical maximum dry weight above and below ground biomass for emergent, floating leaved and submerged macrophytes as 4000 g/m^2, 1750 g/m^2, and 140 to 700 g/m^2, respectively. Above ground dry weight biomass of submerged macrophytes in Lake Okeechobee, a shallow freshwater lake in Florida with similar characteristics as Felsenthal, ranged from 27 to 1593 g/m^2 with a mean value of 759 g/m^2 (Hopson and Zimba, 1993). Bachmann et al. (2002) surveyed 319 Florida lakes to determine relationships between trophic state indicators and plant biomass. He found that in general the lakes were shallow with a mean depth of 3.1 meters. Average values for chlorophyll, total P, and total N, were 0.018, 0.032, and 0.664 mg/L, respectively. On average he found that emergent and floating leaved plants covered 12% of the surface area of the study lakes with wet weight densities of 4000 gm/m^2 and 2000 g/m^2 for emergent and floating leaved macrophytes, respectively. Where present, he reports that wet weight density for SAV averaged 2000 g/m^2.

5.5 Limiting Factors for Growth Macrophytes

Numerous factors are capable of limiting macrophyte growth. The most important environmental factors affecting the abundance and distribution of aquatic macrophytes in lakes are light availability, lake trophic characteristics as they relate to nutrient and water chemistry, substrate (sediment) characteristics, and wind energy (Hoyer and Canfield, 1997). Discussion of these limiting factors follows.

Light availability

Light is necessary for photosynthetic activity, and hence growth of macrophytes. The availability of light to macrophytes is primarily impacted by depth of water column, water clarity, and self shading. Depth is of concern primarily to SAV, as emergent and floating leaved macrophytes are exposed to direct sunlight. Submerged aquatic vegetation will generally grow to a depth of 2-3 times the Secchi depth (Hoyer and Canfield, 1997). While evaluating SAV correlations with depth and light attenuating materials in Lake Okeechobee, Florida, Havens

(2003) found that dense SAV was found only where water depths were less than 2 meters (6.5 feet). In the same study Havens found that the depth of light penetration is dependent on the amount of light attenuating materials present in the water column.

Water clarity is primarily controlled by suspended sediments, phytoplankton, and staining. As phytoplankton, suspended sediments, and color levels increase, there is a rapid reduction in water clarity and aquatic macrophytes become light limited (Hoyer and Canfield, 1997). Phytoplankton densities in the water column increase with increasing water column nutrient concentrations (Scheffer, 2004). Suspended sediments are primarily the result of activities causing the mixing of bottom sediments with the water column such as wind mixing, boat traffic, shoreline erosion, and biotic activity near or within bottom sediments (Hoyer and Canfield, 1997). Havens (2003) found that nonvolatile suspended solids (inorganic suspended particulate matter) had the greatest effect on the penetration of light with dense SAV only occurring at TSS concentrations less than 20 to 30 mg/L. Effects of turbidity are reduced in shallow lakes due to the ability of SAV to increase shoot length to extend the active portion of the plant just below the water surface where enough light is present for photosynthetic activity (Scheffer, 2004). However, even in shallow lakes with high enough turbidity, aquatic plant growth is sparse (Hoyer and Canfield, 1997).

Turbidity is typically reduced in the presence of macrophytes. Shallow lakes containing low densities or that are virtually void of macrophytes are most often turbid due to resuspension of bottom sediments and the abundance of phytoplankton (Havens, 2003). Upon suspension pore water nutrients and nutrients loosely associated with the sediment are released into the water column causing increases in phytoplankton density (Scheffer, 2004). Where dense macrophyte populations occur in shallow lakes the effects of wind on mixing of bottom sediments are reduced (Scheffer, 2004). Additionally, nutrient concentrations in the water column are reduced in macrophyte communities due to settling of nutrient containing particulate matter and incorporation of nutrients into plant biomass, resulting in a decrease in phytoplankton levels (Hoyer and Canfield, 1997). Hoyer and Canfield (1997) also report that dense macrophyte communities limit the amount of available light reaching lower levels of the water column, contributing to a reduction in phytoplankton abundance.

Nutrients

Sixteen elements are considered essential to plant growth (Tisdale et al., 1993). Of these elements N and P are the elements most often present in the smallest amounts in aquatic environments, relative to the needs of macrophytes (Bachmann, 2001; Scheffer 2004). Hoyer and Canfield (1997), however, point out that there are few substantiated reports of nutrient related growth limitation for aquatic plants, stating that nutrients supplied from the sediments combined with those in solution are generally adequate to meet nutritional demands of rooted aquatic plants, even in oligotrophic systems. This is because all lakes deposit some of the nutrients from the water column to the sediment, and over time even a lake with low water column nutrient levels can accumulate ample stores of nutrients in the sediments (Bachmann et al., 2004). Likewise, while observing relationships between aquatic plants and the nutrients N and P in 319 lakes in Florida, Bachmann et al. (2004) concluded that aquatic plants are only weakly related to amounts of nutrients in the water column; rather aquatic plants likely play a role in determining the amount of nutrients in the water column. Havens (2003) also determined that SAV is generally limited by light availability rather than water column nutrients in eutrophic lakes.

Carbon is another element of importance to plant growth. Plants utilize CO_2 as a carbon source. As previously mentioned, emergent and floating leaved macrophytes have available to them an unlimited source of atmospheric CO_2. Submerged aquatic vegetation, on the other hand, has to utilize dissolved CO_2 and, to a lesser extent, bicarbonate present in the water column (Hoyer and Canfield, 1997; Scheffer, 2004). Limitations of C are a result of lower diffusivity of CO_2 in aquatic environments, competition with phytoplankton and epiphyton, and slow diffusive rate through a protective layer located on plant leaves (Scheffer, 2004).

Sediment Characteristics

Sediment characteristics are an important factor in macrophyte growth providing both a substrate for plants to anchor and a source for nutrients. Sediments that are too hard limit root penetration, while soft sediments are often not stable enough to anchor macrophytes (Scheffer, 2004). Sandy and rocky sediments have limited capacity for nutrient retention; and therefore, have a lower fertility level (Hoyer and Canfield, 1997). Havens (2003) reports average total dry weight biomass of SAV in Lake Okeechobee as 4.9 g/m^2, 8.5 g/m^2, and 1.6 g/m^2 in peat sediments, sand, and rock, respectively.

(82)

COMPILATION OF LDEQ COMMENTS AND GBMc RESPONSES
08/16/2006

LDEQ COMMENTS OF
07/10/2006

The report concerns the impact on the Ouachita River and the Felsenthal National Wildlife Refuge of the discharge from a pipeline proposed to be built by a group of 3 El Dorado, Arkansas, industries and the City of El Dorado. Since the primary interest of LDEQ in this study lies in the impact of the proposed discharge on the Ouachita River in Louisiana, our comments will be confined to the modeling study of the Ouachita River. We will have no comments on the simulation of the impact on the Wildlife Refuge.

Summary of Comments

We have conducted an initial review of the report but have not yet taken the time to set-up and run the model. We request at least a 90 day extension of the comment period, electronic copies of the input data sets used, and copies of all raw data/samples results/ measurements collected in support of this modeling project. We are concerned about the projected increases in total nitrogen and chlorophyll a in the Ouachita River below the Felsenthal Dam. Ambient data for the Ouachita River in Louisiana indicate that it may be nitrogen limited, and Louisiana is therefore especially concerned with nitrogen loading and the resulting impact on levels of phytoplankton. Our standard steady state modeling protocol requires projections to be made at critical conditions of stream flow and temperature, and anthropogenic point sources to be modeled at long term average discharge rate and permitted pollutant concentrations.

Figure 6.26, the total nitrogen predictions at critical stream conditions and full permitted discharge load (with a 750 cfs Ouachita River critical flow and without the customary margin of safety for the pipeline point source), show about an 85% increase in TN below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline. Figure 6.22, the chlorophyll a predictions at the same conditions, show about a 62% increase in chlorophyll a below the Dam - the concentration of phytoplankton apparently reacting to the increased nutrient load. The impact of the proposed pipeline discharge on dissolved oxygen levels in Louisiana would have to be determined by monitoring and additional modeling but the state is definitely concerned about the projected increase in nutrient that will be flowing into Louisiana.

A more detailed discussion of our concerns follows:

Page 1 – The possibility of the El Dorado pipeline discharge increasing the phosphorus load downstream of the Felsenthal dam is mentioned as a concern that has been expressed. The ratio of TN to TP for the Ouachita has varied from 4.8 to 7.4 depending on the site and the data year, indicating that nitrogen may be a limiting nutrient. Louisiana is therefore also concerned with nitrogen loading.

EXHIBIT
Blumberg No. 6208
LA 14

RESPONSE: Page 1 Comment. Data collected in the lower half of the Ouachita River (Stations OUA-2, OUA-2.5 and OUA-3) during the field study (August-September 2005) revealed TN:TP ratios ranging from 5 to 32. The results are inconclusive as to the limiting nutrient in the Ouachita.

Page 7 – The anticipated load used in the projections is identified in Appendix D as associated with a combined pipeline discharge of 13.5 mgd. The Arkansas permit AR0050296 for the discharge from the pipeline includes a summer season monthly average load limitation for CBOD5 of 2,923.2 lb/d and a monthly average concentration limitation of 17.5 mg/l. This is consistent with a monthly or long term average discharge of 20 mgd. Louisiana standard steady state modeling protocol requires projections to be made at critical conditions of stream flow and temperature, and anthropogenic point sources to be modeled at long term average discharge rate and permitted pollutant concentrations. We can think of no justification for using a projection model discharge of less than the monthly average in this case, and therefore insist that the model projections be made at monthly average flow and concentration. This condition is identified by GBM^C & Associates as the full permitted discharge load.

In addition, the Louisiana DEQ makes all water quality projections using a 20% margin of safety for point sources at the insistence of EPA Region 6. Thus the pipeline discharge should be modeled at the monthly average loading limitation of 2,923.2 lb/d * 1.25 = 3,665.25 lb/d for the summer months.

RESPONSE: Page 7 Comment. In regards to the request that the discharge be modeled at long term average discharge rate and permitted concentration; modeling scenario 2 (critical stream conditions using anticipated loads) meets this criteria for all constituents except total phosphorus. The more conservative Scenario 1 model run was completed at 7Q10 river flow (750 cfs) and at design pipeline flow of 20 mgd as is required by the Arkansas Department of Environmental Quality.

There is a sizable margin of safety for dissolved oxygen in the model. The remaining assimilative capacity under the Scenario 1 predictions is approximately 25% for oxygen demanding wastes (ammonia and CBOD). In addition, several conservative assumptions are built into the model which provides an additional margin of safety.

Page 8 – Concerning critical conditions for projection, the U.S. Fish and Wildlife Service has commented that the Ouachita River critical (7Q10) flow at Camden, Arkansas should be 648 cfs rather than the 750 cfs reported in the permit and used by the model. The Louisiana DEQ generally makes water quality model projections at the annual 7Q10 flow and the summer season 90 percentile temperature. We have not checked the critical flows for the Ouachita and Saline Rivers or the critical temperature for the Ouachita used by GBM^C. If USF&W is correct, however, the model should be reprojected at an upstream Ouachita River flow of 648 cfs (18.35 cms).

RESPONSE: Page 8 Comment. The 7Q10 of 750 cfs used in the draft permit for the Joint Pipeline discharge and in the nutrient modeling study is accurate for the period of record utilized (climatic data years 1982-2001), and is the same flow utilized by ADEQ in their desktop model completed for this project in its early stages. The actual 7Q10 calculated for the Camden gauge (No. 07362000) was 745 cfs and it was rounded up to 750 cfs to account for additional inflows between the Camden gauge and the Thatcher Lock and Dam (GBMc Memorandum dated March 16, 2005). The 1982-2001 period of record was chosen as it reflected the most current 20 years of USGS approved flow data (no preliminary data was used) available from the Camden gauge at the time the original dissolved oxygen model was run for the project in late 2002. In addition, the 1982 beginning data year approximated the time that the Thatcher Lock and Dam and the Felsenthal Lock and Dam were constructed, so the time period selected more accurately reflects current operational conditions in the river reach of concern. Both the Thatcher and Felsenthal lock and dams currently operating in the lower Ouachita River were not completed until 1984 (personal communication with USACE Vicksburg District personnel). Lastly, the 7Q10 of 750 cfs at the Camden gauge is consistent with the 7Q10 calculated at the state line (802 cfs) and used in the Ouachita River TMDL completed by LDEQ (LDEQ, 2002, 2006).

The 7Q10 flow of 648 cfs proposed by the AG&FC and the USFWS in their comments on the draft permit was calculated by the USGS using a different period of record to that calculated by GBMc. The USGS 7Q10 was based on data dating back to 1970 and extending to 2004. That time frame predates the construction of the Thatcher and Felsenthal lock and dams as they exist today.

Based on this documentation the 750 cfs is an appropriate 7Q10 flow for the reach of the Ouachita River of concern, and should continue to be utilized.

Pages 83 to 92 – Figure 6.26, the total nitrogen predictions at critical stream conditions and full permitted discharge load (with a 750 cfs Ouachita River critical flow and without a MOS for the pipeline point source), show about an 85% increase in TN below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline. As mentioned above, it is quite possible that nitrogen is a limiting nutrient for the Ouachita in Louisiana. Additional nitrogen loading is therefore of concern, and an 85% increase can reasonably be expected to increase phytoplankton growth and the corresponding trophic index of the Ouachita River in Louisiana.

Figure 6.18, the total phosphorus predictions at critical stream conditions and full permitted discharge load, show a 17% increase in TP below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline. Considering the existing ratio of TN to TP in the Ouachita River in Louisiana, this additional phosphorus may not be a problem.

Figure 6.22, the chlorophyll a predictions at critical stream conditions, show about a 62% increase in chlorophyll a below the Felsenthal Dam for the projection with the

pipeline discharge compared to the projection without the pipeline. The concentration of phytoplankton is apparently reacting to the increased nutrient load.

Figure 6.14, the dissolved oxygen predictions at critical stream conditions, show no change in dissolved oxygen below the Felsenthal Dam for the projection with the pipeline discharge compared to the projection without the pipeline. We will need additional time to investigate the simulation of dissolved oxygen before commenting on the dissolved oxygen projections.

RESPONSE: Pages 83 to 92 Comments. The 85% increase in TN, the 18% increase in TP and the 62% increase in chlorophyll-a calculated by LDEQ is consistent with the model predictions. However, the limiting nutrient in the Ouachita River is uncertain (See first response above.)

We agree that dissolved oxygen levels predicted by the model under critical conditions, below the Felsenthal Dam, show little to no difference with the pipeline discharge as compared to without the pipeline discharge.

ADDITIONAL LDEQ COMMENTS OF
08/01/2006

These comments are a continuation of the LDEQ review of the GBMC modeling study and report. Our comments of July 10, 2006 concerned the report. As we progress in our analysis of the modeling study, there will be further comments.

The Ouachita River and Felsenthal National Wildlife Refuge Modeling Study was conducted to predict the impact on the Ouachita River and the Felsenthal National Wildlife Refuge of the discharge from a pipeline proposed to be built by a group of 3 El Dorado, Arkansas, industries and the City of El Dorado. Since the primary interest of LDEQ in this study lies in the impact of the proposed discharge on the Ouachita River in Louisiana, our comments will be confined to the modeling study of the Ouachita River. We will have no comments on the simulation of the impact on the Wildlife Refuge.

<u>Comments to date on the modeling study</u>

1. The study of the main stem of the Ouachita River utilized data from four collection events conducted between August 17 and September 22, 2005. The Ouachita was sampled at 6 sites and the Saline River at one site. Samples and in-situ measurements were taken at a depth of 1 foot. Calibration Ouachita River flow was reported as 1200 cfs. No full depth in-situ profiles were taken to see if the river was fully mixed top to bottom. We suspect that the dissolved oxygen measurements do not represent the average DO of the water column.

RESPONSE: 1. Dissolved oxygen depth profiles were measured at three locations (OUA-B, OUA-0.5 and OUA-3) in the river on August 17, 2006. The river dissolved

oxygen levels were found to vary insignificantly (less than 1.0 mg/L) at depths up to approximately 15 feet, which is deeper than the overall average river depth. Only near the river bottom in its deepest reaches (20 ft- 25 ft) did the dissolved oxygen variation exceed the 1.0 mg/L level. Based on this information and on the desired focus of the model, which was eutrophication, the shallower routinely measured values were determined to be an adequate representation of the system.

2. The version of QUAL2K used (there is no version number – it is probably the original version made available for general use) allows the waterbody to be divided into reaches of any length, and a steady state flow balance is calculated for each reach. In other words, each reach is simulated as a completely back-mixed portion of the waterbody. The model consists of 12 reaches ranging from 0.16 to 52.3 kilometers in length. Seven of these reaches are more than 10 times longer than their top width. One reach is 574 times longer than its width. This is an unacceptable modeling practice. Version 2.04 of QUAK2K allows the division of each reach into any number of completely back-mixed elements. We request that the Ouachita River be remodeled in version 2.04 or, if available in time, 2.05.

RESPONSE: **2.** There is no stated limit to the acceptable reach length in the QUAL2K model. The new QUAL2K version 2.04 does divide each reach into multiple computational elements and allows for more reach specific coefficient inputs, but it was not available when the workplan was written and approved and when the modeling process was began in late 2005 early 2006. Use of QUAL2K version 2.04 is unnecessary to provide accurate water quality predictions. The existing QUAL2K input data files cannot be used directly in QUAL2K version 2.04 without major new data entry and calibration. The time required to set-up version 2.04, recalibrate the model, and report results would greatly hinder the permitting process and provide little to no new information. In addition, LDEQ had an opportunity to comment on the study workplan which included the models intended for use and at that time LDEQ agreed that QUAL2K was "…appropriate to the task."

3. Because of the excessive length of some of the reaches, model numerical dispersion is unacceptably large, greatly exceeding longitudinal dispersion. This can be checked against the output because when the numerical dispersion exceeds the longitudinal dispersion, the bulk dispersion coefficient, E', is calculated solely from the numerical dispersion. Longitudinal dispersion is calculated from bottom trapezoidal width and trapezoidal depth. Although they are not shown in the model output, we have determined that the calculated values of longitudinal and numerical dispersion and E' for each reach are:

Longitudinal dispersion (m^2/s)	Numerical dispersion (m^2/s)	Model input longitudinal dispersion (m^2/s)	Bulk dispersion coefficient E' (m^3/s)
1.88	8.49	0.00	17.00
1.88	8.49	0.00	0.20
1.87	1,436.51	0.00	33.19
2.96	42.44	0.00	13.15
2.96	67.84	0.00	3.21
2.96	653.24	0.00	6.55
2.96	2,757.17	0.00	31.73
7.43	210.66	0.00	13.48
7.43	337.07	0.00	13.35
7.43	547.78	0.00	32.55
7.43	42.15	0.00	17.54
7.43	42.10	0.00	17.51
7.43	42.15	0.00	17.53

RESPONSE: **3.** Dispersion was calculated internally by the QUAL2K model. Model numerical dispersion does exceed longitudinal dispersion in some cases and the model then assigns a zero for dispersion. As noted in the QUAL2K guidance manual the effect this discrepancy has on concentration gradients is "…negligible."

4. GBM^C & Associates reports that the model was calibrated to phytoplankton, dissolved oxygen, total nitrogen, and total phosphorus. It appears that an attempt was also made to calibrate organic nitrogen and ammonium. However organic phosphorus, inorganic phosphorus, nitrates, and fast CBOD were apparently not calibrated. LDEQ requests that the model be completely, and not just partially, calibrated. If unfiltered CBOD was run, UCBOD should also be calibrated. There is, of course, no point in recalibrating in the version of QUAL2K that was used.

RESPONSE: **4.** The focus of the model calibration was chlorophyll-a, dissolved oxygen, total phosphorus and total nitrogen. In addition to these an effort to calibrate the model to inorganic phosphorus, dissolved organic phosphorus, ammonium, dissolved organic nitrogen and CBODu (at the request of LDEQ in their comments on the workplan) was also completed satisfactorily.

5. In addition to the concerns of Item 4, there was no calibration site below the Felsenthal Dam and although nutrients and BOD may be assumed to be unaffected by the dam the same is not true of phytoplankton. Lacking calibration

below the dam, we think that even though LDEQ insists that the modeling effort extend below the dam, this model cannot reasonably do that.

RESPONSE: **5.** Data collection in the Ouachita River was restricted to reaches above the Felsenthal dam. There was no calibration point in the river below the dam. However, the model was set-up to allow predictions below the dam for a distance of 1 mile. Predictions were restricted to only one mile below the dam as the oxygen demand had already been exerted by this point and so as not to complicate the model with inflows from Coffee Creek.

6. The 7Q10 numbers used in the model are higher than the available information from USGS. We do think, however , that some adjustment for the drainage area between the USGS gage sites and the point of application is appropriate. We propose the following:

   Ouachita River at Camden: 7Q10 = 648 cfs Drainage area = 5357 sq mi
   Ouachita River below the mouth of
   Smackover Creek: Drainage area = 6367 sq mi
   Smackover Creek at mouth: Drainage area = 541 sq mi
   Ouachita River above Smackover Creek: Drainage area = 6367-541 = 5826 sq mi
   Ouachita River above Smackover Creek: 7Q10 ≈ 648*5826/5357 = 705 cfs

   Saline river at Rye: 7Q10 = 12.0 cfs Drainage area = 2102 sq mi
   Saline River at mouth: Drainage area = 3250 sq mi
   Saline river at mouth: 7Q10 ≈ 12.0*3250/2102 = 18.6 cfs

   The 7Q10 flows at the Camden and Rye gages are from the U.S. Geological Survey office in Little Rock. The 7Q10s are based on a climatic year (April through March) with a period of record of 1970 through 2004. The adjustment for intervening drainage area is by LDEQ.

RESPONSE: **6.** See previous comment concerning 7Q10 calculation. Use of the drainage area method proposed by LDEQ to account for additional flow entering the Ouachita and Saline Rivers below the gauging stations is an acceptable practice. However, use of this method with the 7Q10 low flows calculated from the 1982-2001 period of record would provide 7Q10 flows in excess of that being used currently in the modeling.

7. We will not know what effect these problems have had on the projections until the model is recalibrated and reprojected. We have not yet checked the U.S. Army Corps of Engineers model of the Ouachita for a confirmation of geometry and surface slope, but plan to do so.

RESPONSE: **7.** No response

8. Questions to facilitate further review/calibration/projection

a. I did not find in the report any mention that the BODs were filtered as recommended in the manual. Were they filtered?
b. Were unfiltered BODs run? If so would you please forward the results.
c. Please confirm the statement in the report that the Ouachita River samples and in-situ measurements were taken at a depth of 1 foot.
d. Were any full depth profiles of the river taken to see if the river was well mixed top to bottom at the calibration depth?
e. In calculating the 7Q10s, was the drainage area between the gages and the point of application taken into account?

RESPONSE: **8.** Analytical analysis of CBODu was completed using SM5210C as requested by LDEQ in their workplan comments. All CBOD5 samples were analyzed according to SM5210B.

Samples collected during the field study were collected from approximately 1 foot below the water surface as stated in the workplan. Collectors generally took samples at an elbows depth which is typically about 1 foot deep, but could be as much as 1.5 feet in depth.

ADDITIONAL LDEQ COMENTS ON
08/14/2006

Comments on the modeling study

1. The GBM model did not closely mirror the U.S. Army Corps of Engineers model of the Ouachita River. The model input was developed for HEC-2 and converted to HEC-RAZ format for GBM. LDEQ ran the original dataset in HEC-2. The COE model was run at the calibration flows to calculate average parameters for the GBM modeled reaches. A comparison of the COE and the GBM calibration output values is shown below.

	Cross Sectional Area	Maximum/ Trapezoidal Depth	Average Depth = c.s.area/top width	Velocity	Time of Travel
COE average values for reaches 1-12	542 m^2	8.08 m	5.46 m	0.069 mps	16.76 days
Range of GBM calibration	322-334 m^2	4.39-4.52 m	3.57-3.67 m	0.10-0.11 mps	12.91 days

output for reaches 1-12					

The GBM report states that channel geometry was based on field data collected between river mile 260 and 280 and confirmed by the COE model. We do not agree that the geometry is confirmed by the COE model. The discrepancies in depth, velocity, and travel time affect reaeration and dissolved oxygen levels.

2. The 7Q10 numbers used in the model are higher than the available information from USGS. We do think, however , that some adjustment for the drainage area between the USGS gage sites and the point of application is appropriate. We think, however, that the adjustment proposed in our July 31 comments is too generous, and propose the following revision:

   Ouachita River at Camden: 7Q10 = 648 cfs Drainage area = 5357 sq mi

   Ouachita River at Arkansas-Louisiana State Line: 7Q10 = 780 cfs Drainage area =10,835 sq mi

   Additional Ouachita River 7Q10 ≈ (780-648)/(10,835-5357) ≈ 24 cfs/1000 sq mi

   Ouachita River below the mouth of

   Smackover Creek: Drainage area = 6367 sq mi

   Smackover Creek at mouth: Drainage area = 541 sq mi

   Ouachita River above Smackover Creek: Drainage area = 6367-541 = 5826 sq mi

   Ouachita River above Smackover Creek: 7Q10 ≈ 648+(5,826-5,357)*(24/1,000) = 659 cfs

   Saline river at Rye: 7Q10 = 12.0 cfs Drainage area = 2102 sq mi

   Saline River at mouth: Drainage area = 3250 sq mi

   Saline river at mouth: 7Q10 ≈ 12.0*3250/2102 ≈ 18 cfs

   The 7Q10 flows at the Camden and Rye gages are from the U.S. Geological Survey office in Little Rock. The 7Q10s are based on a climatic year (April through March) with a period of record of 1970 through 2004. The Ouachita River annual 7Q10 at the Arkansas-Louisiana State Line is used by Louisiana as a basis for TMDL projections.

3. We will not know what effect these problems have had on the projections until the model is recalibrated and reprojected.

Revised Nutrient Modeling

Prepared for:

Joint Pipeline Group
El Dorado, AR

Prepared by:

GBM^c & Associates
219 Brown Lane
Bryant, AR 72022

February 13, 2007



CONTENTS

1.0 INTRODUCTION **1**

2.0 REVISED OUACHITA RIVER GEOMETRY **1**

3.0 MODELING RESULTS **6**
3.1 Ouachita River Modeling Scenario Results 11
3.2 Trophic State Indices 24

FIGURES

Figure 3.0. Dissolved oxygen calibration 6
Figure 3.1. Chlorophyll-a calibration. 7
Figure 3.2. Total phosphorus calibration 7
Figure 3.3. Inorganic Phosphorus calibration. 8
Figure 3.4. Organic phosphorus calibration. 8
Figure 3.5. Total nitrogen calibration 9
Figure 3.6. Ammonia calibration 9
Figure 3.7. Organic nitrogen calibration 10
Figure 3.8. Nitrate calibration 10
Figure 3.9. CBODu calibration. 11
Figure 3.10 Dissolved oxygen predictions with and without the pipeline discharge under critical conditions and at full permitted discharge (Scenario 1) 15
Figure 3.11. Dissolved oxygen predictions with and without the pipeline discharge under critical conditions and at the anticipated discharge loads (Scenario 2). 15
Figure 3.12. Dissolved oxygen predictions with and without the pipeline at full permitted discharge under average summer flow conditions (Scenario 3) 16
Figure 3.13. Dissolved oxygen predictions with and without the pipeline at anticipated discharge under average summer flow conditions (Scenario 4). 16
Figure 3.14. Total phosphorus predictions with and without the pipeline discharge under critical stream conditions and at full permitted discharge loads (Scenario 1). 17
Figure 3.15. Total phosphorus predictions with and without the pipeline discharge under critical stream conditions and the anticipated discharge loads (Scenario 2) 18
Figure 3.17. Total phosphorus predictions with and without the pipeline discharge under average summer flow conditions and anticipated discharge loads (Scenario 4). ... 19
Figure 3.18. Chlorophyll-a predictions with and without the pipeline discharge under critical conditions and full permitted discharge loads (Scenario 1). 20
Figure 3.19 Chlorophyll-a predictions with and without the pipeline discharge under critical stream flow conditions and the anticipated discharge loads (Scenario 2). 20
Figure 3.20. Chlorophyll-a predictions with and without the pipeline discharge under average summer flow conditions and full permitted discharge loads (Scenario 3).... 21
Figure 3.21. Chlorophyll-a predictions with and without the pipeline discharge under average summer flow conditions and anticipated discharge loads (Scenario 4). 21

FIGURES (cont)

Figure 3.22. Total nitrogen predictions with and without the pipeline discharge under critical stream conditions and full permitted discharge load (Scenario 1). 22
Figure 3.23 Total nitrogen predictions with and without the pipeline discharge under critical conditions and the anticipated discharge loads (Scenario 2). 22
Figure 3.24. Total nitrogen predictions with and without the pipeline discharge under average summer flow conditions and full permitted discharge loads (Scenario 3). 23
Figure 3.25. Total nitrogen predictions with and without the pipeline discharge under average summer flow conditions and anticipated discharge loads (Scenario 4). 23

Tables

Table 1.0 Ouachita River Geometry Predicted by HEC-RAS for Calibration Run, at 1,200 cfs... 3
Table 1.1 Ouachita River Geometry Predicted by HEC-RAS for the Critical Runs, at 765 cfs. ... 3
Table 1.2 Ouachita River Geometry Predicted by HEC-RAS for the LTA Summer Flow Runs, at 2050 cfs. 4
Table 1.4 Comparison of Selected HEC-RAS Channel Geometry and QUAL2K Channel Geometry. 5
Table 3.1 Scenarios modeled using QUAL2K, showing the key input parameters for each scenario. 13
Table 3.2. QUAL2K results at OUA-2 14
Table 3.3. QUAL2K results at OUA-3 14
Table 3.4 Summary of trophic state index scores calculated from QUAL2K revised model predictions. 24

APPENDICES

Appendix A

1.0 INTRODUCTION

A detailed water quality modeling study of the Ouachita River was completed on June 1, 2006 (GBMc, 2006), from near its confluence with Smackover Creek to just downstream of the Felsenthal Lock and Dam. Modeling was completed to asses the assimilative capacity of the river for a proposed discharge of oxygen demanding wastes and nutrients from the Joint Pipeline Group which includes three El Dorado industries and the City of El Dorado, AR. Over the months that followed the June 1, 2006 submittal of the study report, comments were received from the Arkansas Department of Environmental Quality (ADEQ) and the Louisiana Department of Environmental Quality (LDEQ) stating concerns related to river geometry and reach set-up. The main concern was that the river geometry, as modeled, was too shallow; causing the time of travel to be too fast and the resulting dissolved oxygen predictions to be too liberal. In a Memorandum to the ADEQ dated October 4, 2006, results of QUAL2K modeling runs competed with the river substantially deepened (nearly a meter deeper on average) were presented. Results of the modeling indicated that there was minimal change in the dissolved oxygen levels (0.1 mg/L less) as a result of a deeper river channel.

Continued concern over the accuracy and homogeneity of the river geometry used in the original study report (GBMc, 2006) has led to this detailed revision of the original model's reach spacing and geometry, and recalibration of the model. A summary of the changes to the model reaches and geometry is presented in Section 2.0. Results of the model calibration and modeling runs completed with the revised geometry are provided in Section 3.0.

2.0 REVISED OUACHITA RIVER GEOMETRY

As requested by the ADEQ, the following changes have been made to the original models of the Ouachita River:

1. Reaches 2 and 6 have been re-segmented so that each reach is less than 10 miles long.
2. A portion of the original reach 6 maintains similar channel geometry as used in the June 1, 2006 report, which is based on field data.

3. All other reaches have been restructured to match geometry (depth in particular) provided in the US Army Corps of Engineers (USACE) HEC-RAS model.
4. Where the HEC data shows transects with depths less than 9.0 feet, these transects have been adjusted (removed) to account for the USACE current navigation channel maintenance of 9.0 foot minimums.

The original reach 2 was subdivided into two reaches, each 13.6 km (8.5 mi) long. The original reach 6 was subdivided into four reaches, each 10.5 km (6.5 mi) long. The newly segmented QUAL2K model utilizes seventeen reaches, with all reaches well under 10 miles long. Reaches in similar segments of the river (geographically and hydrologically) were grouped for assignment of geometry. River geometry for reaches 1-5 and 9-17 was based on analysis of the USACE HEC-RAS data that was provided by the Vicksburg District Office. Geometry for reaches 6-8 was based on the field data collected for the original study (GBMc, 2006).

Revised river geometry was calculated from the USACE HEC-RAS model outputs. All river transects with maximum depths less than 9.0 feet were removed from the analysis, to account for USACE 9.0 foot navigation channel maintenance. The HEC model developed by the USACE was calibrated to known water surface elevations for 1,000 cfs and 10,000 cfs flow levels. The QUAL2K calibration run was for 1,200 cfs and the critical conditions run was for 765 cfs, closely bracketing the USACE HEC model flows, in such a way that the geometry predictions from the HEC model should be fairly accurate for the two model flow levels. To attain appropriate river geometry for each QUAL2K modeling scenario, the HEC-RAS model was run at 1,200 cfs, 765 cfs and 2,050 cfs, using the known water surface elevations from the 1,000 cfs USACE model. Geometry from the HEC-RAS modeling used as the basis for the QUAL2K model, is presented in the tables below.

Table 1.0 Ouachita River Geometry Predicted by HEC-RAS for Calibration Run, at 1,200 cfs.

Reaches	Cs area (ft^2)	Top width (ft)	Maximum Depth (ft)	Average Depth[1] (ft)	Trapezoidal[2] Depth (ft)	Trapezoidal[2] Depth (m)	Revised Trapezoidal[3] Depth (ft)	Revised Trapezoidal[3] (m)
R1-R3	2066	244	13.23	8.33	10.78	3.29	11.27	3.44
R4-R5	1914	180	16.92	10.71	13.81	4.21	14.43	4.40
R6-R8	2291	236	15.25	9.67	12.46	3.80	13.02	3.97
R9-R11	2192	234	14.85	9.34	12.10	3.69	12.65	3.86
R12-R13	2889	273	16.19	10.76	13.47	4.11	14.02	4.27
R14-R15	3799	383	16.70	10.33	13.51	4.12	14.15	4.31
R16-R17	3905	330	19.61	11.89	15.75	4.80	16.52	5.04
Average	2722	269	16.11	10.15	13.13	4.00	13.72	4.18
Min	1914	180	13.23	8.33	10.78	3.29	11.27	3.44
Max	3905	383	19.61	11.89	15.75	4.80	16.52	5.04

[1]Average depth is equal to Cs area divided by top width.
[2]Trapezoidal Depth is equal to the mean of average depth and maximum depth.
[3]Revised trapezoidal depth is equal to the average depth plus 60% of the difference between average depth and maximum depth.

Table 1.1 Ouachita River Geometry Predicted by HEC-RAS for the Critical Runs, at 765 cfs.

Reaches	Cs area (ft^2)	Top width (ft)	Maximum Depth (ft)	Average Depth[1] (ft)	Trapezoidal[2] Depth (ft)	Trapezoidal[2] Depth (m)	Revised Trapezoidal[3] Depth (ft)	Revised Trapezoidal[3] (m)
R1-R3	1787	235	12.05	7.50	9.77	2.98	10.23	3.12
R4-R5	1671	173	15.54	9.76	12.65	3.86	13.22	4.03
R6-R8	1997	225	13.96	8.78	11.37	3.47	11.89	3.62
R9-R11	2090	231	14.42	9.02	11.72	3.57	12.26	3.74
R12-R13	2841	272	16.02	10.61	13.31	4.06	13.85	4.22
R14-R15	3755	382	16.56	10.22	13.39	4.08	14.02	4.28
R16-R17	3864	329	19.49	11.80	15.64	4.77	16.41	5.00
Average	2572.28	263.94	15.43	9.67	12.55	3.83	13.13	4.00
Min	1671.35	172.86	12.05	7.50	9.77	2.98	10.23	3.12
Max	3864.33	382.33	19.49	11.80	15.64	4.77	16.41	5.00

[1]Average depth is equal to Cs area divided by top width.
[2]Trapezoidal Depth is equal to the mean of average depth and maximum depth.
[3]Revised trapezoidal depth is equal to the average depth plus 60% of the difference between average depth and maximum depth.

Table 1.2 Ouachita River Geometry Predicted by HEC-RAS for the LTA Summer Flow Runs, at 2050 cfs.

Reaches	Cs area (ft^2)	Top width (ft)	Maximum Depth (ft)	Average Depth[1] (ft)	Trapezoidal[2] Depth (ft)	Trapezoidal[2] Depth (m)	Revised Trapezoidal[3] Depth (ft)	Revised Trapezoidal[3] (m)
R1-R3	2530	262	15.09	9.54	12.32	3.76	12.87	3.92
R4-R5	2308	193	19.03	12.00	15.51	4.73	16.21	4.94
R6-R8	2701	247	16.94	10.88	13.91	4.24	14.52	4.43
R9-R11	2450	242	15.92	10.11	13.01	3.97	13.60	4.14
R12-R13	3030	275	16.71	11.19	13.95	4.25	14.50	4.42
R14-R15	3935	386	17.11	10.65	13.88	4.23	14.52	4.43
R16-R17	4029	333	19.99	12.15	16.07	4.90	16.85	5.14
Average	2997	277	17.25	10.93	14.09	4.30	14.72	4.49
Min	2308	193	15.09	9.54	12.32	3.76	12.87	3.92
Max	4029	386	19.99	12.15	16.07	4.90	16.85	5.14

[1]Average depth is equal to Cs area divided by top width.
[2]Trapezoidal Depth is equal to the mean of average depth and maximum depth.
[3]Revised trapezoidal depth is equal to the average depth plus 60% of the difference between average depth and maximum depth.

In the original modeling study, river geometry for the calibrated model was based on field measurements (depth transects) taken in the mid section of the river between river mile 260 and 280. Since QUAL2K utilizes Manning's trapezoidal channel equation to calculate depth and velocity internally, a trapezoidal channel dimension, including depth, was developed for use in the model. Each reach was given a standard trapezoidal bottom width and side slope. River longitudinal slope in the original study was calculated from the water surface elevations from the HEC data and then river depth was calibrated by adjusting Manning's Coefficient until the appropriate depth was attained. This calibration was completed only for the "Calibrated" model in the original study. The QUAL2K model was then allowed to calculate new river depth as river flow was adjusted in the various model runs/scenarios (critical, LTA, etc.)

For the revised modeling presented in this report, the middle reaches (reaches 6-13) of the river retained the same trapezoidal bottom width of the original model (56.7 m), but the upstream reaches (reaches 1-5) were adjusted down to 48.5 m and the furthest downstream reaches (reaches 14-17) were adjusted up to 81.6 m, each consistent with the top width differences observed in the HEC-RAS modeling output (Tables 1.0-1.3). Each reach was assigned a side slope of 3.6:1, which is representative of the field data collected in the original report. River longitudinal slope was calculated from the Energy Grade Slope determined by HEC-RAS. Slope ranged from 0.0000199 ft/ft in the upper most reaches to 0.0000013 ft/ft in the lower most reaches. These are very flat slopes, all less than 0.15 feet per mile.

Depths were calculated from HEC-RAS data for each river reach. To arrive at accurate trapezoidal depths for the modeling that would be representative (or more conservative) compared to the HEC-RAS predicted cross sectional areas, trapezoidal depths for each HEC-RAS transect were calculated as the mean of the average and maximum depths along a transect. To provide for an additional level of conservatism, the trapezoidal depths were revised to a level 10% deeper than the mean of the average and maximum depths. These "revised trapezoidal depths" (Table 1.0-1.3) were used for the respective QUAL2K modeling.

To be more consistent with the USACE HEC data (and more conservative for the critical scenarios) each of the revised model scenario depths were "calibrated" to the depths predicted by the HEC-RAS model for the appropriate flow (Tables 1.0-1.3). That is, Manning's Coefficient was adjusted up or down until a depth within +/- 0.1 meters of the revised trapezoidal depth predicted by HEC-RAS was attained in each respective reach. The resulting hydraulics from each of the QUAL2K runs is provided in Appendix A of this report.

As discussed previously, geometry for reaches 6-8 was based on field data collected for the original study and not from the HEC data analysis. Therefore, river depths for reaches 6-8 were approximately 14.4 feet (4.4 m) for the calibrated models, 13.2 feet (4.0 m) for the critical models and 15.2 feet (4.6 m) for the LTA models, all slightly deeper than predicted by the HEC-RAS model.

A comparison of channel geometry predicted by the HEC-RAS modeling and that developed by the QUAL2K models is presented in Table 1.4.

Table 1.4 Comparison of Selected HEC-RAS Channel Geometry and QUAL2K Channel Geometry.

Parameter	Cross Sectional Area (ft2)		Top Width (ft)		Average Depth (ft)		Velocity (fps)	
	HEC-RAS	QUAL2K	HEC-RAS	QUAL2K	HEC-RAS	QUAL2K	HEC-RAS	QUAL2K
Calibrated Run								
R1-R3	2066	2260	244	242	8.5	9.3	0.74	0.52
R9-R11	2192	2982	234	278	9.4	10.7	0.60	0.39
R14-R15	3799	4564	383	372	9.9	12.3	0.37	0.26
Critical Runs								
R1-R3	1787	1981	235	232	7.6	8.5	0.56	0.39
R9-R11	2090	2723	231	271	9.0	10.0	0.40	0.26
R14-R15	3755	4424	382	367	9.8	12.1	0.24	0.16

The cross sectional areas and average depths utilized by QUAL2K for the model predictions are more conservative than those provided by the HEC modeling. The conservatism is largely due to the use of the trapezoidal channel dimensions in QUAL2K, which create a

larger, deeper river channel. The average depth and cross sectional area observed in the field data collected for the original study report was 11.8 feet and 3535 ft^2, respectively, for a flow of approximately 1100 cfs. These values fall within the range of those utilized for the revised modeling completed for this report (Table 1.4).

3.0 Modeling Results

To better match observed water quality a model calibration was completed. Minimal changes from the original model calibration were necessary. The only coefficient adjusted was the CBOD decay (fast) coefficient which was adjusted from 0.15/day to 0.1/day. This parameter remains conservatively high compared to the 0.075/day used in previous modeling studies of the river (AqAeTer, 1999). The calibrated model continued to under predict dissolved oxygen and over predict nitrate while the remainder of the calibration parameters remained similar to the observed data. Calibration charts are provided below which depict the model predictions against the observed data.

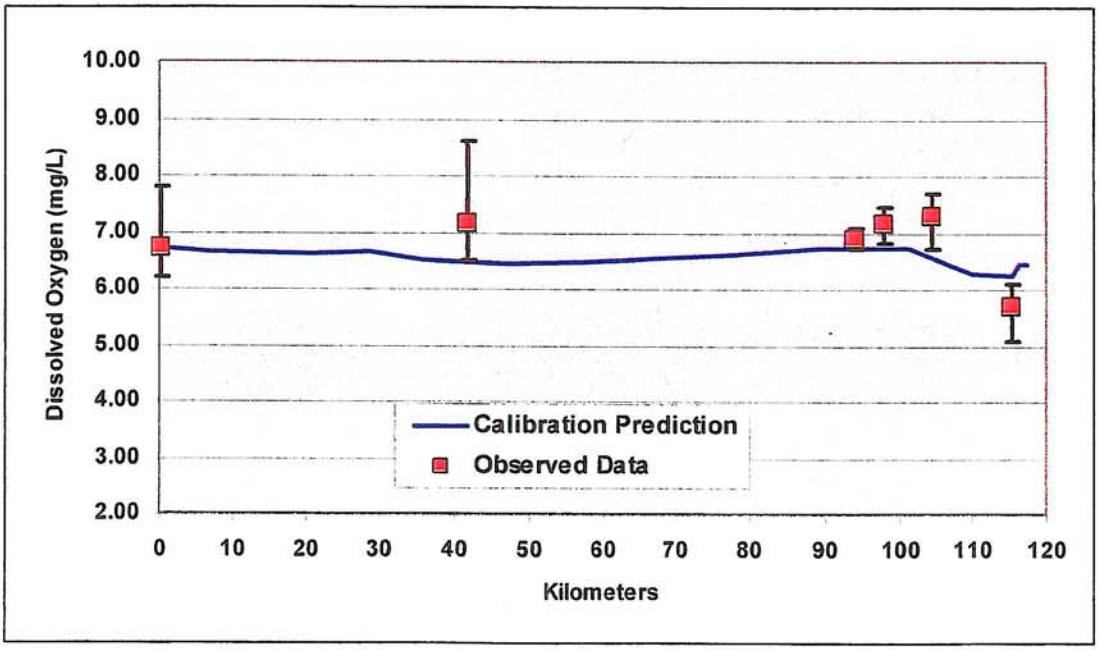


Figure 3.0. Dissolved oxygen calibration

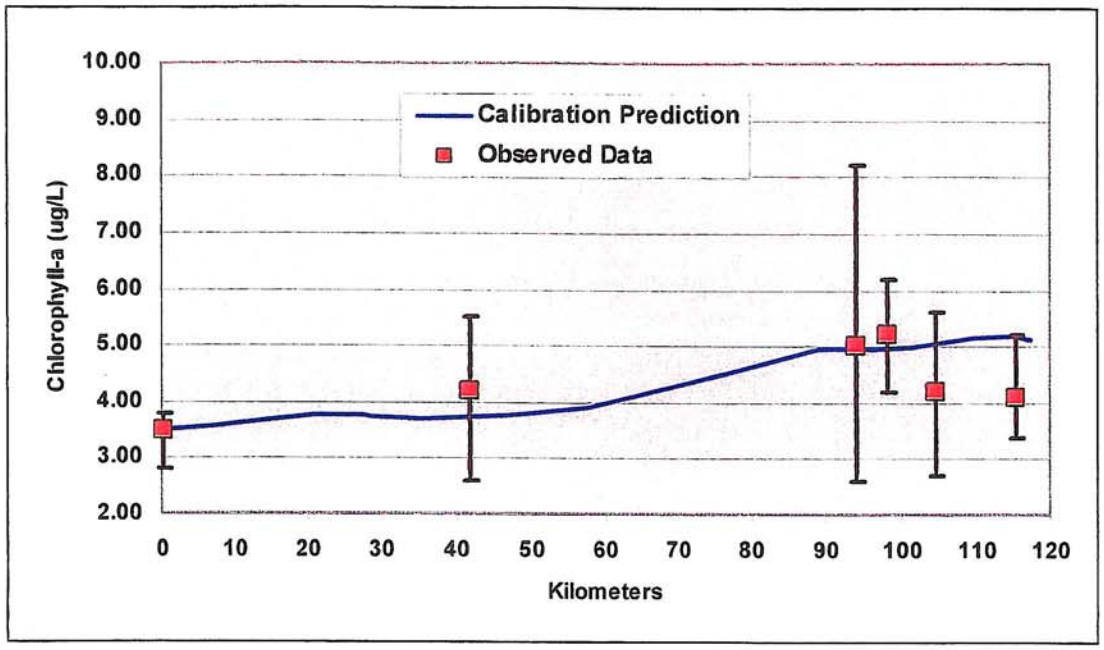


Figure 3.1. Chlorophyll-a calibration.

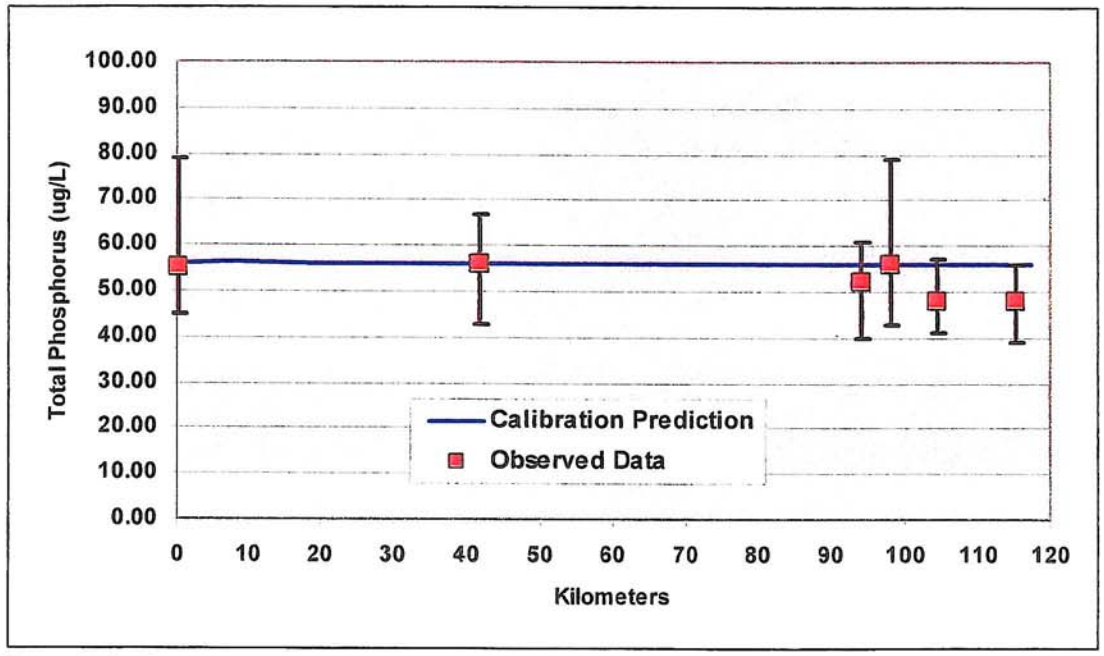


Figure 3.2. Total phosphorus calibration.

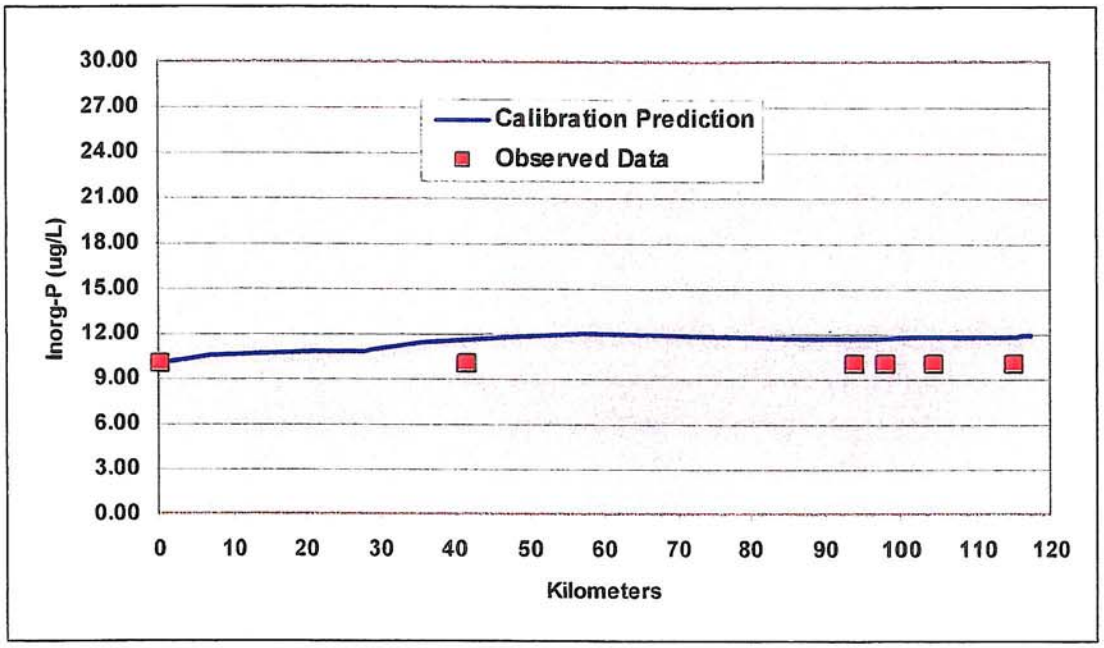


Figure 3.3. Inorganic Phosphorus calibration.

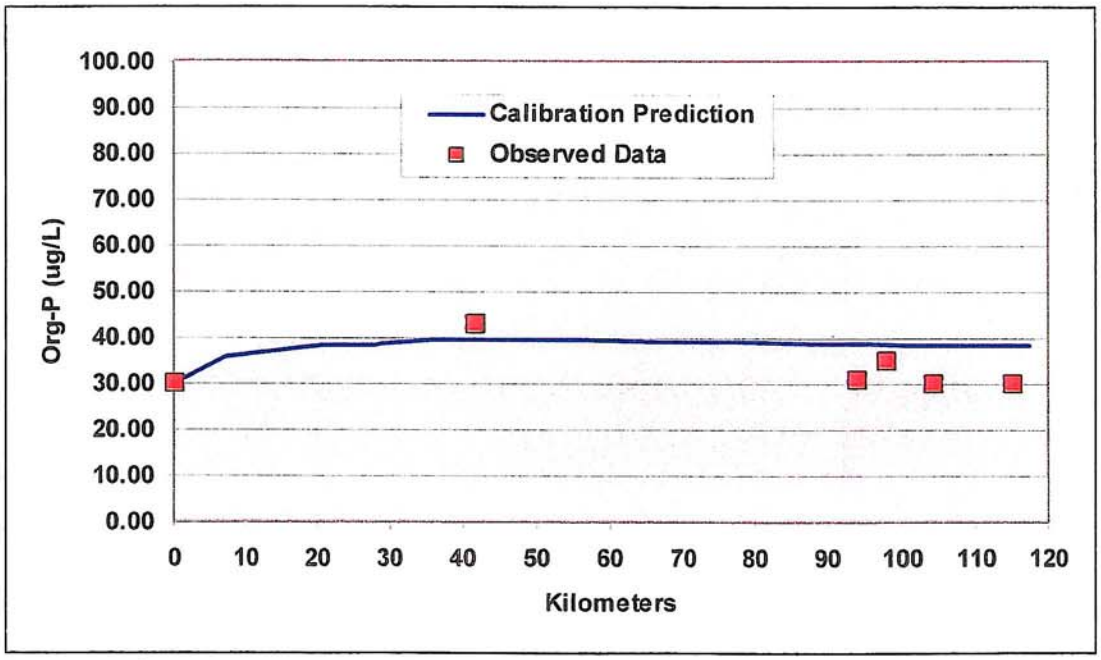


Figure 3.4. Organic phosphorus calibration.

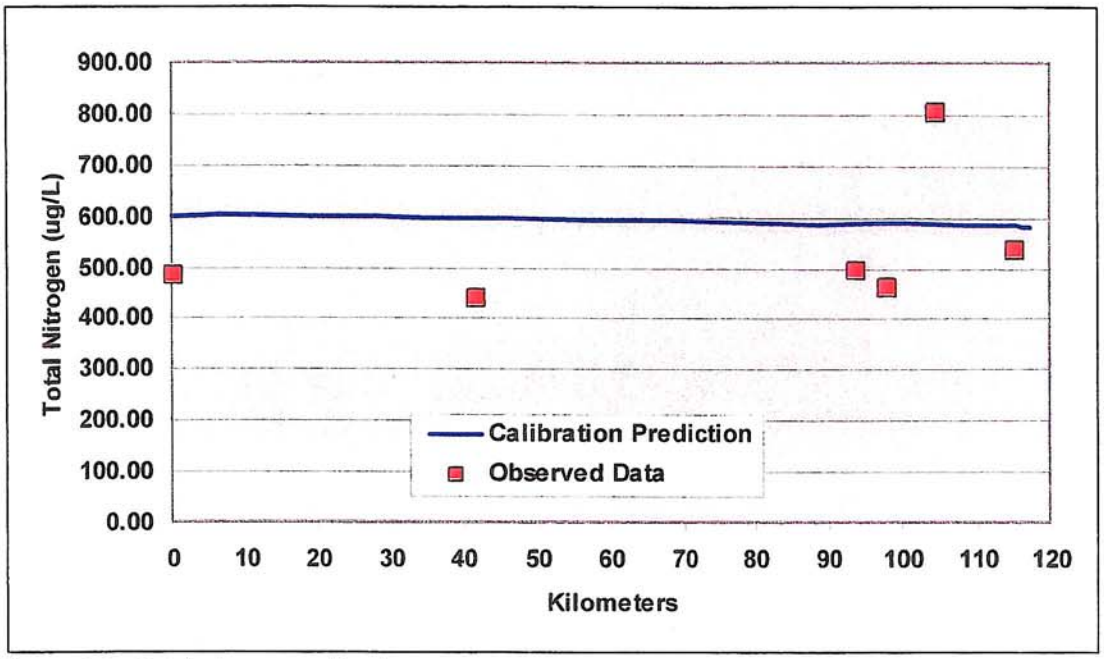


Figure 3.5. Total nitrogen calibration

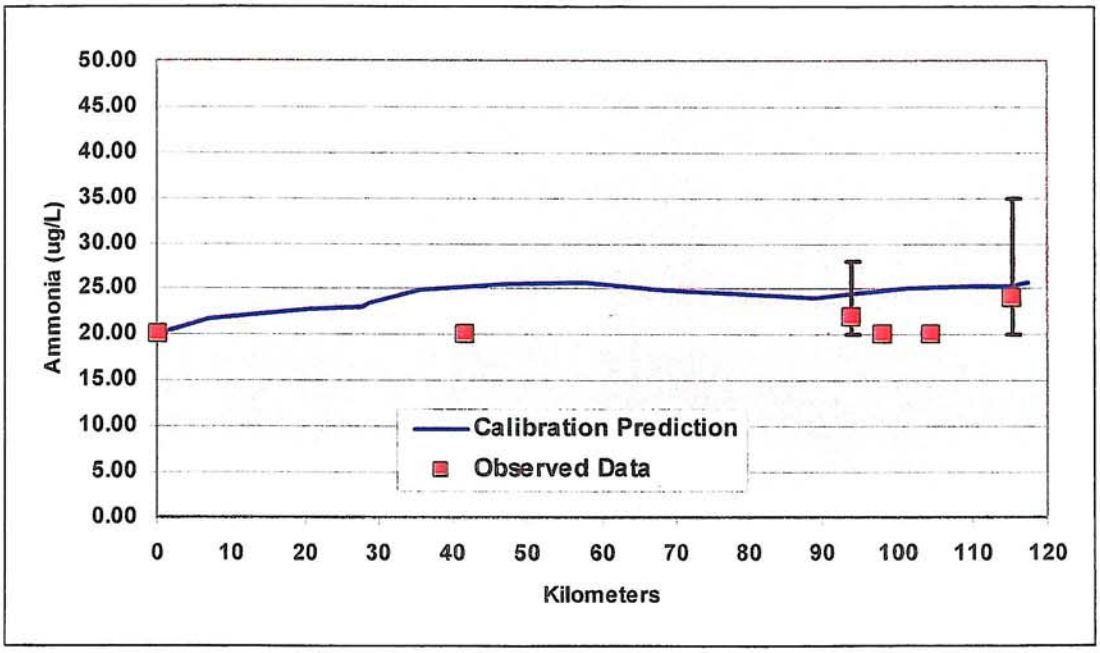


Figure 3.6. Ammonia calibration

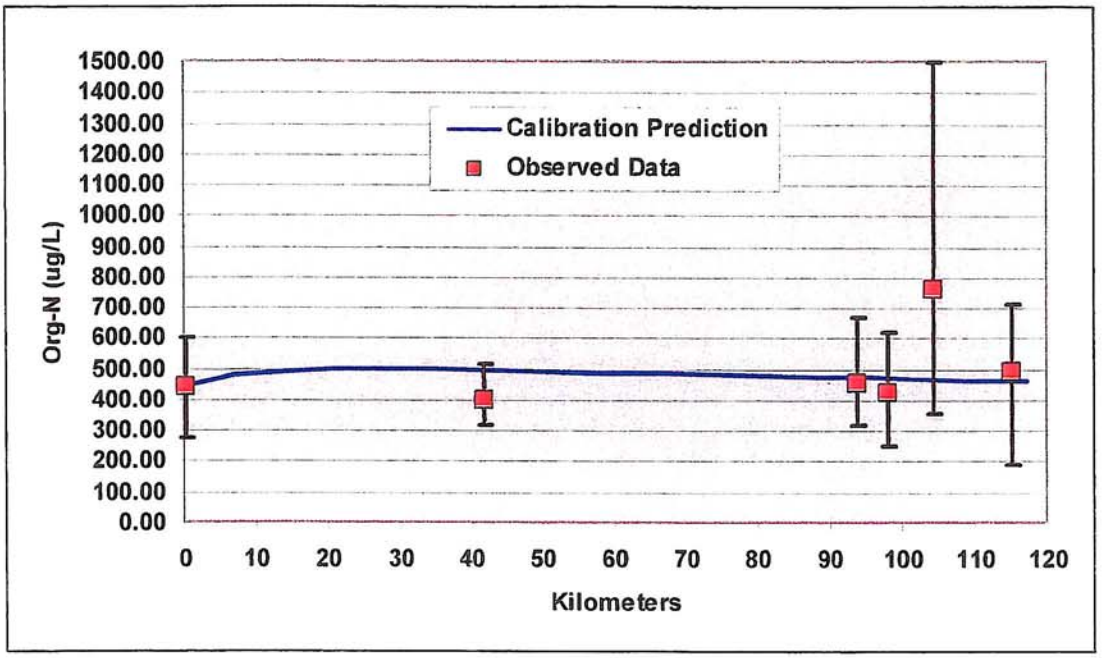


Figure 3.7. Organic nitrogen calibration

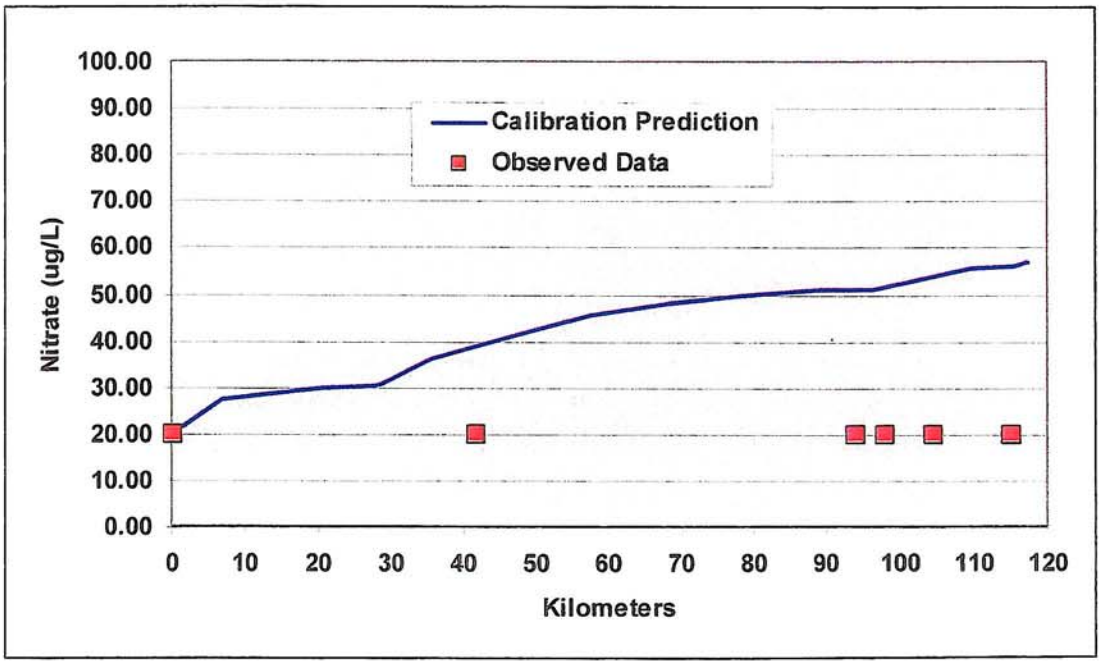


Figure 3.8. Nitrate calibration

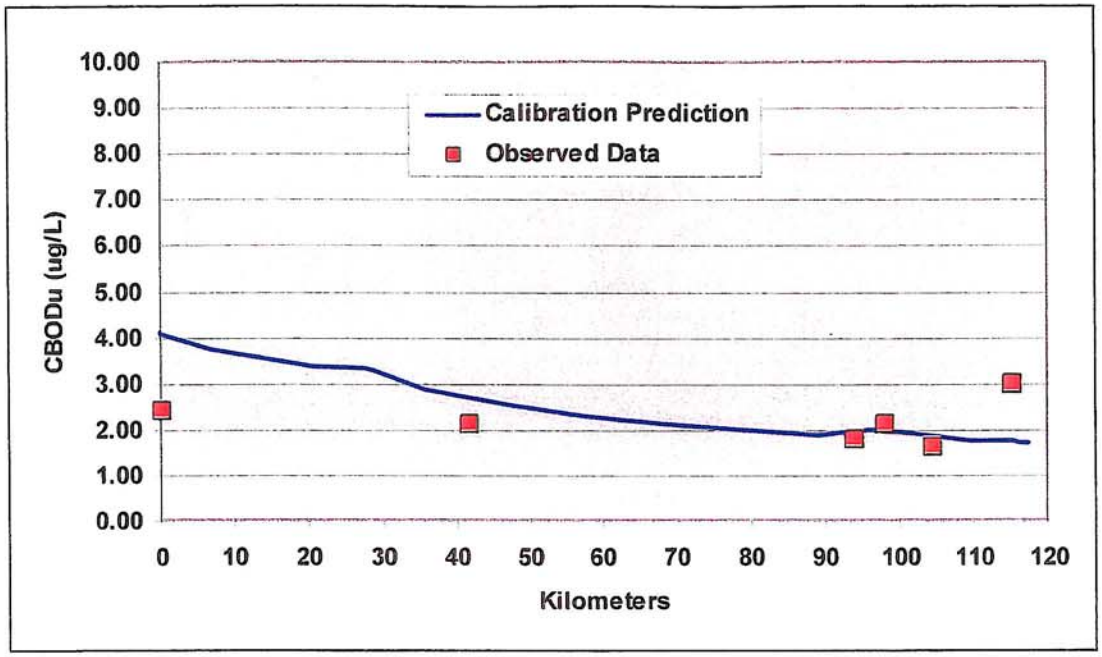


Figure 3.9. CBODu calibration.

3.1 Ouachita River Modeling Scenario Results

Revised modeling scenarios mimicked those found in the original Final Report (GBMc, 2006). The modeling scenarios run using QUAL2K for the Ouachita River are described in the following paragraphs and the key model inputs are shown in Table 3.1.

Scenario 1. Critical stream conditions using full permitted discharge. This scenario describes the stream condition where the effects of the permitted discharge would exhibit the most pronounced change in water quality. The upstream river flow was set at 7Q10, the discharge volume was at the fully permitted level and load of phosphorus, nitrogen, and BOD were also set at their respective fully permitted levels. This scenario, which is based on multiple conservative assumptions, projects the result of the pipeline discharge on the Ouachita River that would occur only when water levels in the river are at a statistically derived low point (that would be predicted to occur for a one week period once each 10 years), coupled simultaneously with the pipeline discharging at its fully permitted capacity for BOD, phosphorus and nitrogen. This scenario represents a "worst case condition" that is unlikely to ever occur.

Scenario 2. Critical stream conditions using anticipated discharge loads. This scenario describes the same stream condition as Scenario 1, that is, a stream condition where the effects of the permitted discharge would exhibit the most pronounced change in water

quality. The upstream river flow was set at 7Q10, however the discharge volume was set at a volume that is representative of the actual volume of water discharged by the combined pipeline group. The nitrogen load was set at the anticipated load when the pipeline begins discharging. The phosphorus load was set at an anticipated level based on maximum measured phosphorus values. This scenario projects the result of the pipeline discharge on the Ouachita River that would occur only when water levels in the river are at a statistically derived low point (that would be predicted to occur for a one week period each 10 years), but with the pipeline discharging loads of BOD, phosphorus and nitrogen that would be anticipated to occur.

Scenario 3. Average summer stream flow conditions using full permitted discharge. This scenario differs from Scenario 1 only in the upstream flow used in the model. A harmonic mean summer flow calculated for July-October was used in the model instead of 7Q10 flow conditions. This scenario projects the result of the pipeline discharge on the Ouachita River at conditions that would be anticipated to occur during a typical summer, provided that the pipeline was discharging at its fully permitted levels for BOD, phosphorus and nitrogen. This scenario is not likely to occur, since it requires that each discharger be at their fully permitted level simultaneously.

Scenario 4. Average summer stream flow conditions at anticipated discharge loads. This scenario differs from Scenario 2 only in the upstream flow used in the model. The summer harmonic mean flow (July-October) was used in the model instead of 7Q10 flow conditions. This scenario projects the result of the pipeline discharge on the Ouachita River at conditions that would be anticipated to occur during a typical summer, and with the pipeline discharging at loads of BOD, phosphorus and nitrogen that would be anticipated to occur. This scenario would be anticipated to be a common occurrence.

Baseline Conditions, The various modeling scenarios also describe "baseline conditions" which are the modeling runs made without the pipeline discharging to the system. Baseline modeling scenarios are used to depict the change (if any) projected by the model to occur when the discharge is added to the river. There was a "baseline conditions" model run for each of the modeling scenarios described. The baseline condition results are slightly different for each scenario because the existing discharges to Smackover Creek had to be addressed in order to accurately portray each scenario. Appendix E of the original report (GBMc, 2006) provides detailed input values.

Table 3.1 shows the key input parameters for each of the modeling scenarios described in section 3.0.

Table 3.1. Scenarios modeled using QUAL2K, showing the key input parameters for each scenario.

Scenario	Key Input Parameter		
	Upstream River Flow (cfs)[1]	Pipeline Discharge Flow (mgd)	Discharge Loads for BOD, TP, NH_3, Organic N and NO_3 (lbs/d)
Scenario 1 (critical stream condition at full discharge)	765 cfs	20 mgd	BOD 2,919 lb/d TP 167 lb/d NH_3 1328 lb/d ON 235 lb/d NO_3 1,406 lb/d
Scenario 2 (critical stream condition at anticipated discharge)	765 cfs	13.5 mgd	BOD 1,966 lb/d TP 23 lb/d NH_3 896 lb/d ON 158 lb/d NO_3 1,020 lb/d
Scenario 3 (average summer stream flow at full discharge)	2014 cfs	20 mgd	BOD 2,919 lb/d TP 167 lb/d NH_3 1328 lb/d ON 235 lb/d NO_3 1,406 lb/d
Scenario 4 (average summer stream flow at anticipated discharge)	2014 cfs	13.5mgd	BOD 1,966 lb/d TP 23 lb/d NH_3 896 lb/d ON 158 lb/d NO_3 1,020 lb/d

[1]Upstream river flow at OUA-2, sum of Ouachita and Saline river flows.

Tables 3.2 and 3.3 provide a summary of the QUAL2K output data for chlorophyll-a, dissolved oxygen, total phosphorus, and total nitrogen from stations OUA-2 and OUA-3, respectively. Tables 3.2 and 3.3 include the output data from QUAL2K models using critical, and average flow conditions with and without the input from the proposed Ouachita Joint Pipeline.

Table 3.2. QUAL2K results at OUA-2

Model	Chlorophyll-a (µg/L)	Dissolved Oxygen (µg/L)	Total Phosphorus (µg/L)	Total Nitrogen (µg/L)
Critical Stream Conditions, Baseline (no discharge)	8.9	6.2	78.3	560
Critical Stream Conditions, Full Permitted Discharge (Scenario 1)	13.9	6.2	92.0	1135
Critical Stream Conditions, Baseline for Anticipated Discharge	8.2	6.2	59.3	570
Critical Stream Conditions, Anticipated Discharge Loads (Scenario 2)	8.1	5.9	59.3	981
Average Summer Flow Conditions, Baseline (no discharge)	5.1	5.8	64.7	597
Average Summer Flow Conditions, Full Permitted Discharge (Scenario 3)	5.4	5.5	70.2	837
Average Stream Conditions, Baseline for Anticipated Discharge	4.4	5.9	57.4	594
Average Summer Flow Conditions, Anticipated Discharge Loads (Scenario 4)	4.4	5.7	57.4	765

Table 3.3. QUAL2K results at OUA-3

Model	Chlorophyll-a (µg/L)	Dissolved Oxygen (µg/L)	Total Phosphorus (µg/L)	Total Nitrogen (µg/L)
Critical Stream Conditions, Baseline (no discharge)	8.5	5.2	77.8	567
Critical Stream Conditions, Full Permitted Discharge (Scenario 1)	13.0	5.2	91.6	1091
Critical Stream Conditions, Baseline for Anticipated Discharge	7.7	5.1	59.0	558
Critical Stream Conditions, Anticipated Discharge Loads (Scenario 2)	7.7	5.0	59.1	950
Average Summer Flow Conditions, Baseline (no discharge)	5.7	5.4	64.6	594
Average Summer Flow Conditions, Full Permitted Discharge (Scenario 3)	6.2	5.2	70.2	830
Average Stream Conditions, Baseline for Anticipated Discharge	4.9	5.5	57.3	590
Average Summer Flow Conditions, Anticipated Discharge Loads (Scenario 4)	4.8	5.3	57.4	759

Results of the modeling indicate that little change in dissolved oxygen occurs as a result of the pipeline discharge (0.3 mg/L maximum oxygen decrease) under any model scenario. The oxygen sag under critical conditions (scenario 1) drops to 5.3 mg/L just downstream of Moro Bay. The oxygen in the river displays additional oxygen sag near the Felsenthal lock and Dam where under critical conditions (scenario 1) the oxygen drops to 5.2 mg/L before recovering.

Figures 3.10 to 3.13 show the results of the modeling from the point of discharge to approximately 118 km downstream for model scenario's 1, 2, 3 and 4 described previously.

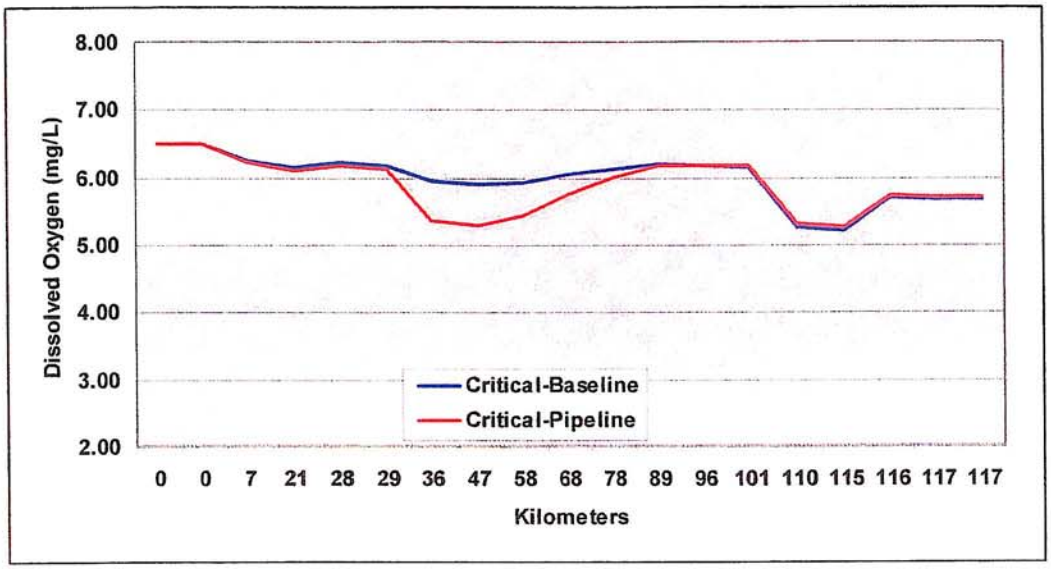


Figure 3.10 Dissolved oxygen predictions with and without the pipeline discharge under critical conditions and at full permitted discharge (Scenario 1).

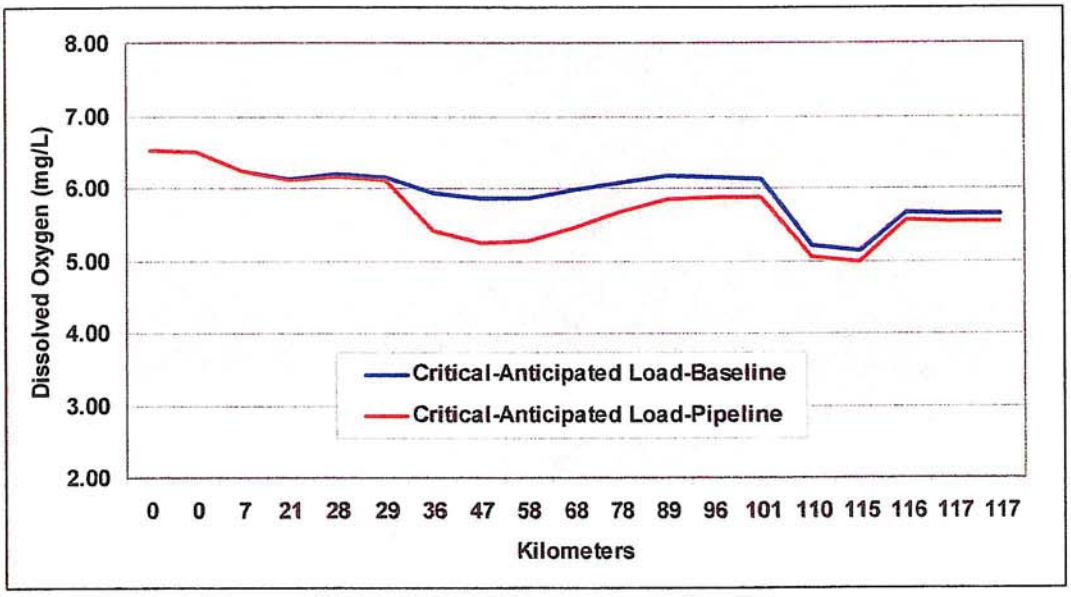


Figure 3.11. Dissolved oxygen predictions with and without the pipeline discharge under critical conditions and at the anticipated discharge loads (Scenario 2).

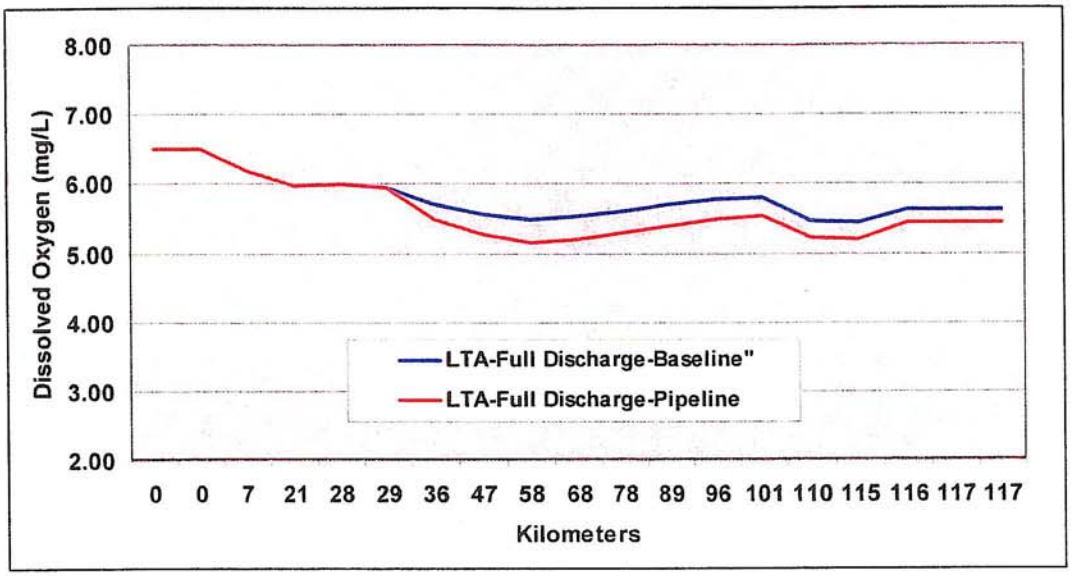


Figure 3.12. Dissolved oxygen predictions with and without the pipeline at full permitted discharge under average summer flow conditions (Scenario 3).

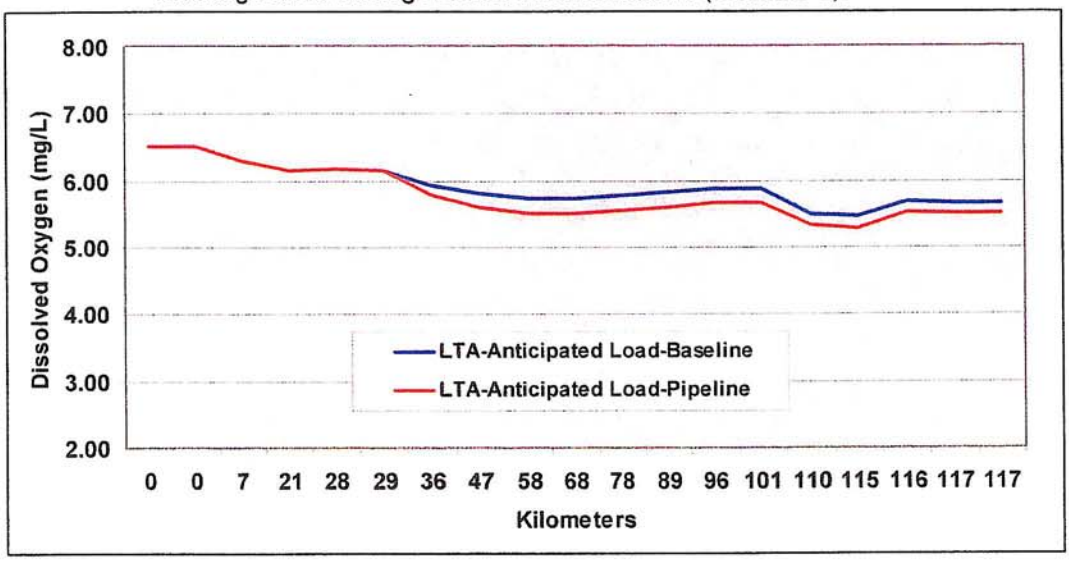


Figure 3.13. Dissolved oxygen predictions with and without the pipeline at anticipated discharge under average summer flow conditions (Scenario 4).

Discharge scenario 1 modeling for total phosphorus, projects an increase in instream phosphorus concentration from approximately 83 µg/L to 93 µg/L as a result of the discharge (Figure 3.14). Total phosphorus levels upstream of Coffee Creek, near the Arkansas and Louisiana state line, remain higher than baseline projections at approximately 92 µg/L, but inorganic phosphorus levels (that portion of phosphorus that is biologically available for

phytoplankton growth) are well below background levels by OUA-2.5, half way between highway 82 and Felsenthal Lock and Dam.

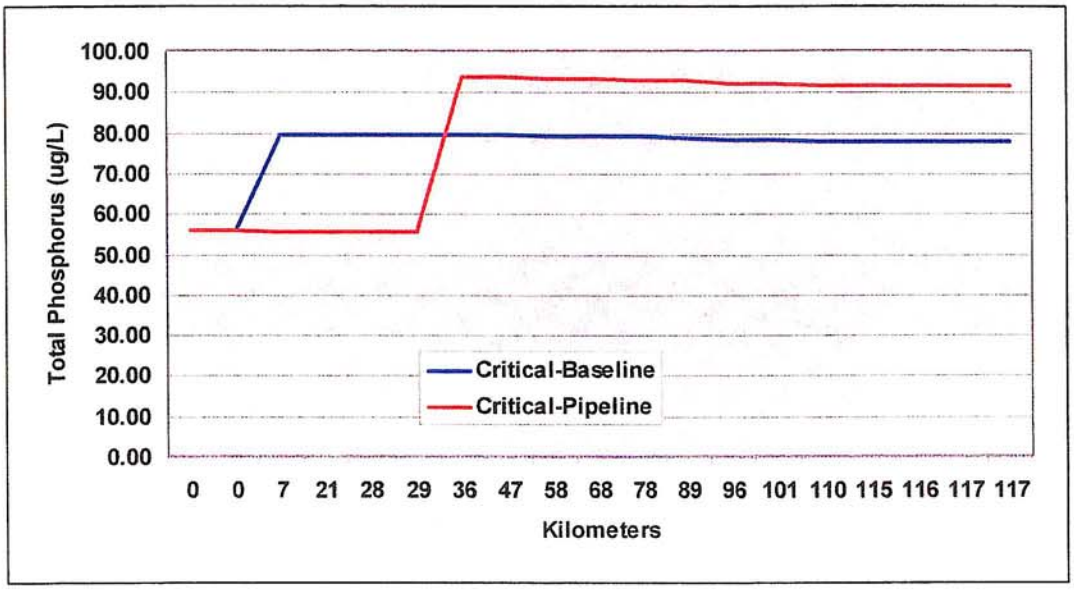


Figure 3.14. Total phosphorus predictions with and without the pipeline discharge under critical stream conditions and at full permitted discharge loads (Scenario 1).

Discharge scenario 2 modeling for total phosphorus projects no significant increase in instream phosphorus concentration as a result of the discharge (Figure 3.15).

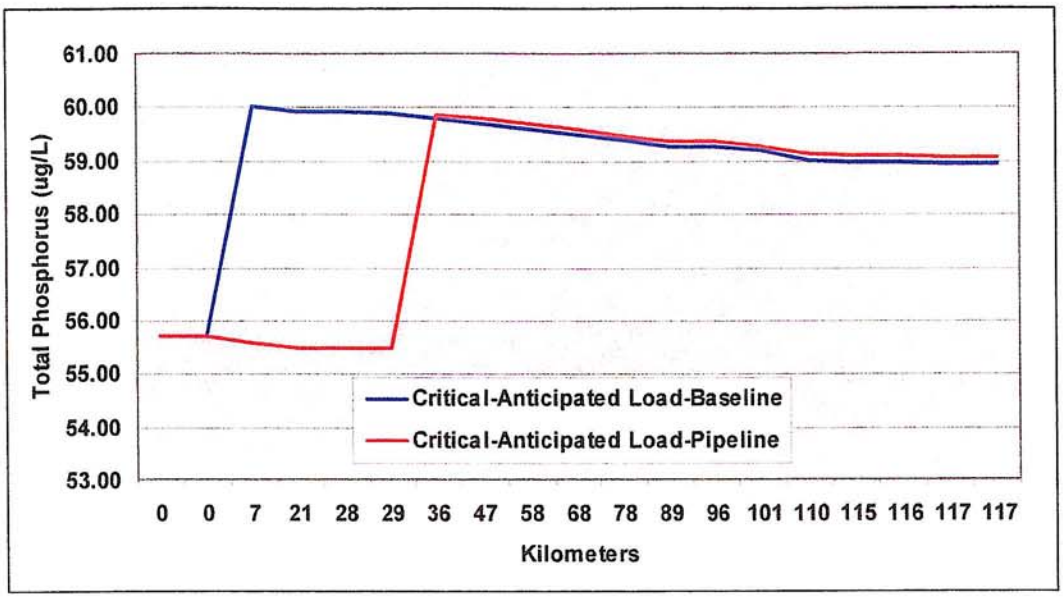


Figure 3.15. Total phosphorus predictions with and without the pipeline discharge under critical stream conditions and the anticipated discharge loads (Scenario 2).

The model projection for scenario 3, average summer stream flow conditions and full permitted discharge results in a slight increase in total phosphorus relative to baseline conditions as the model projects that the total instream phosphorus will be approximately 5 μg/L higher from approximately the 40 km point on the Ouachita River downstream to near the Arkansas and Louisiana state line (Figure 3.16).

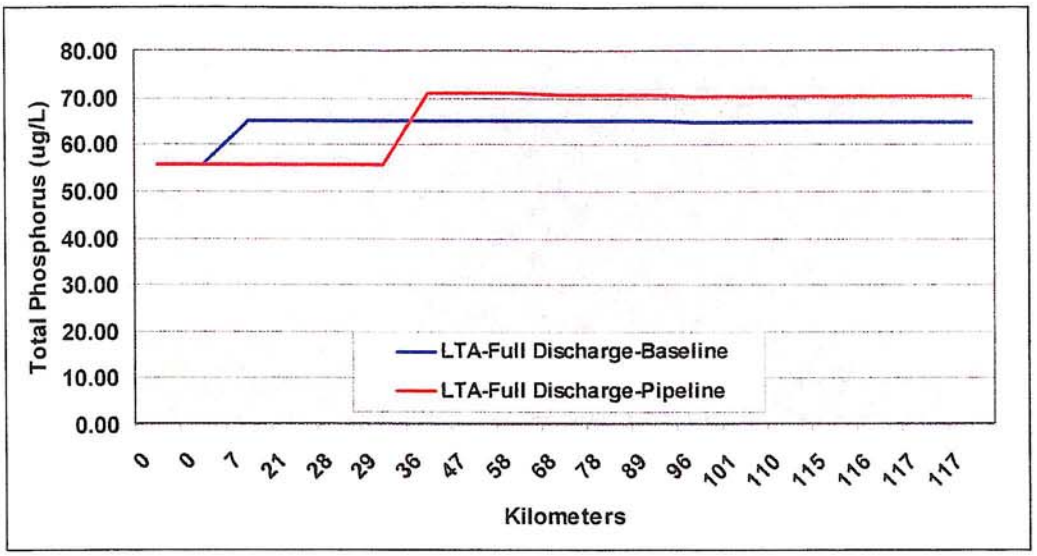


Figure 3.16. Total phosphorus predictions with and without the pipeline discharge under average summer flow conditions and full permitted discharge loads (Scenario 3).

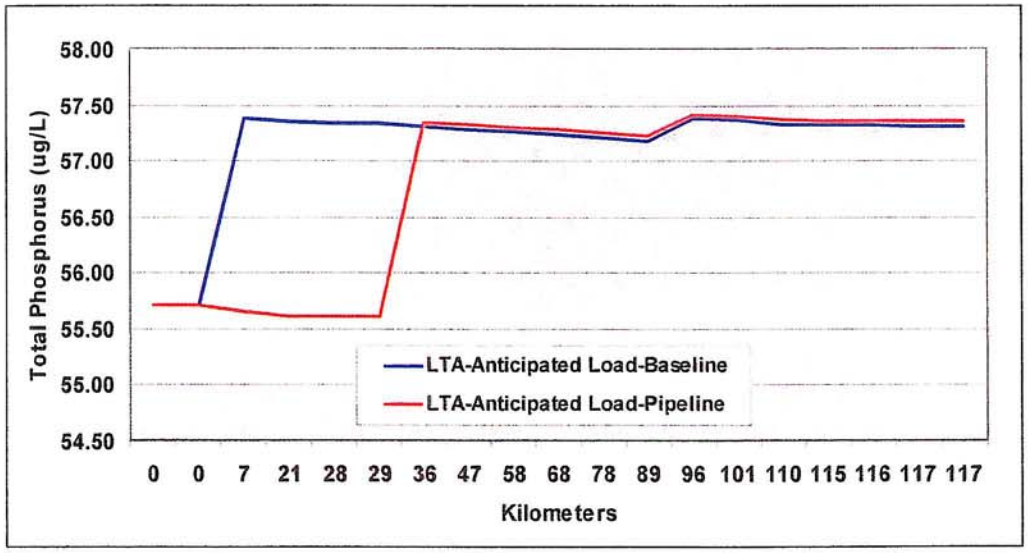


Figure 3.17. Total phosphorus predictions with and without the pipeline discharge under average summer flow conditions and anticipated discharge loads (Scenario 4).

Model projections for chlorophyll-a were similar to those described by the phosphorus projections, that is the largest increases were projected at critical stream flow and full discharge loads. Figure 3.18 shows the scenario 1 model results relative to baseline and projects an increase in chlorophyll-a under critical stream flow conditions and full discharge loads of no more than 5.3 µg/L in the downstream section of the Ouachita River. Figures 3.19 thru 3.21

show only slight increases (≤ 0.5 µg/L) to no increases in chlorophyll-a concentrations are projected under scenario 2, 3 and 4 conditions.

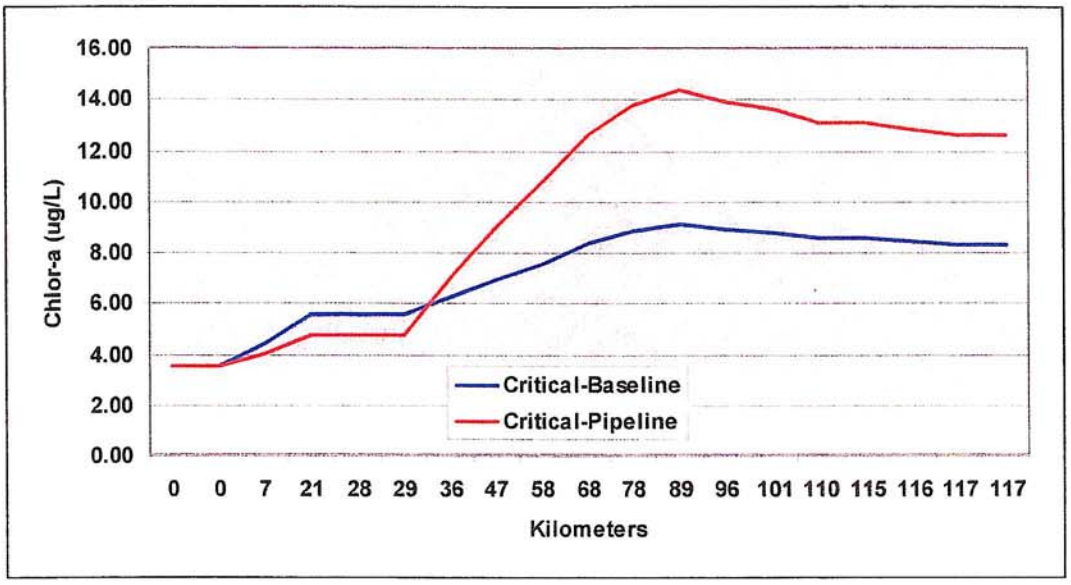


Figure 3.18. Chlorophyll-a predictions with and without the pipeline discharge under critical conditions and full permitted discharge loads (Scenario 1).

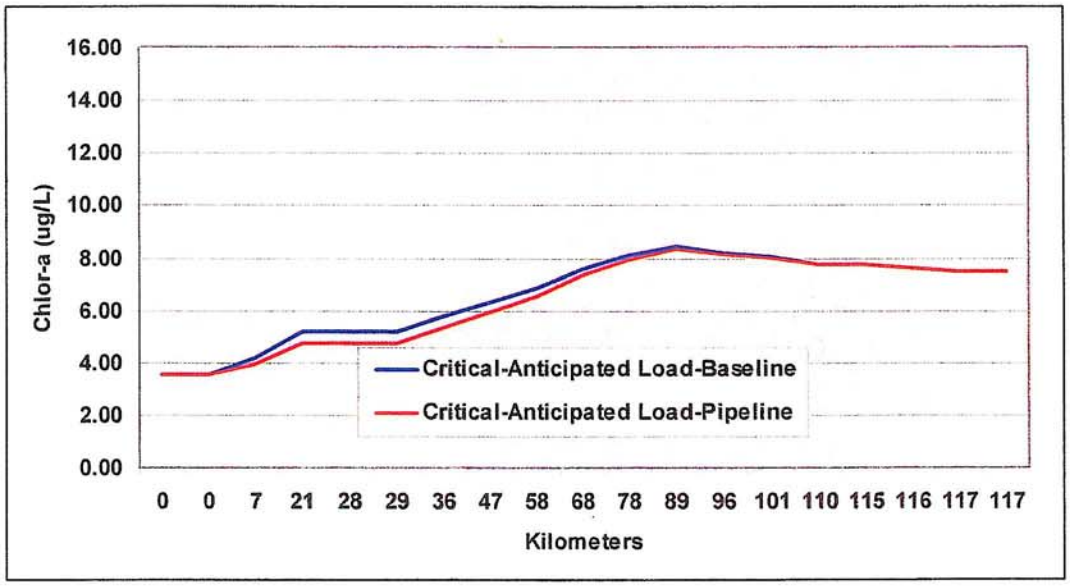


Figure 3.19 Chlorophyll-a predictions with and without the pipeline discharge under critical stream flow conditions and the anticipated discharge loads (Scenario 2).

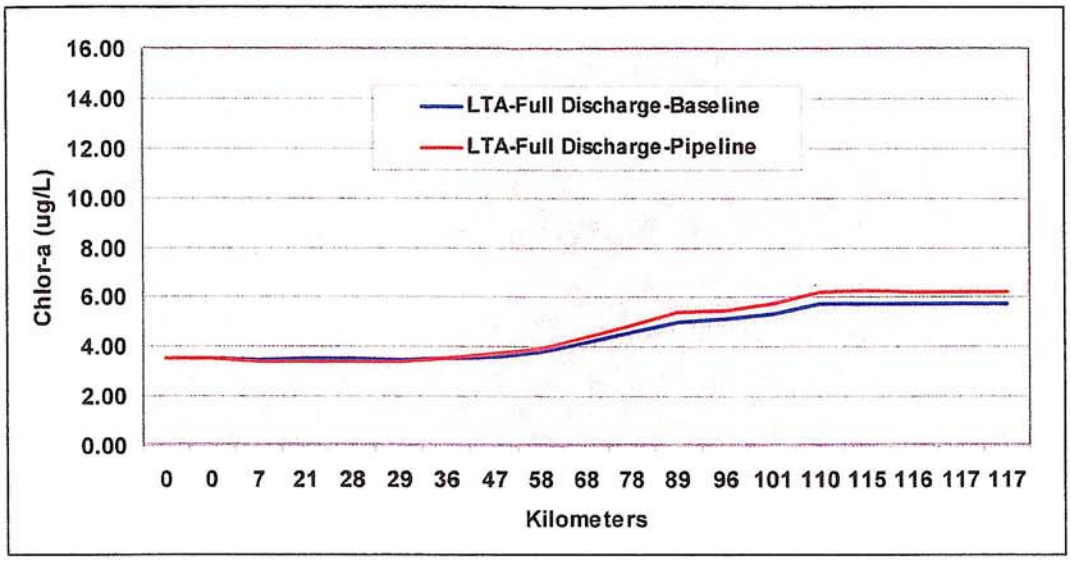


Figure 3.20. Chlorophyll-a predictions with and without the pipeline discharge under average summer flow conditions and full permitted discharge loads (Scenario 3).

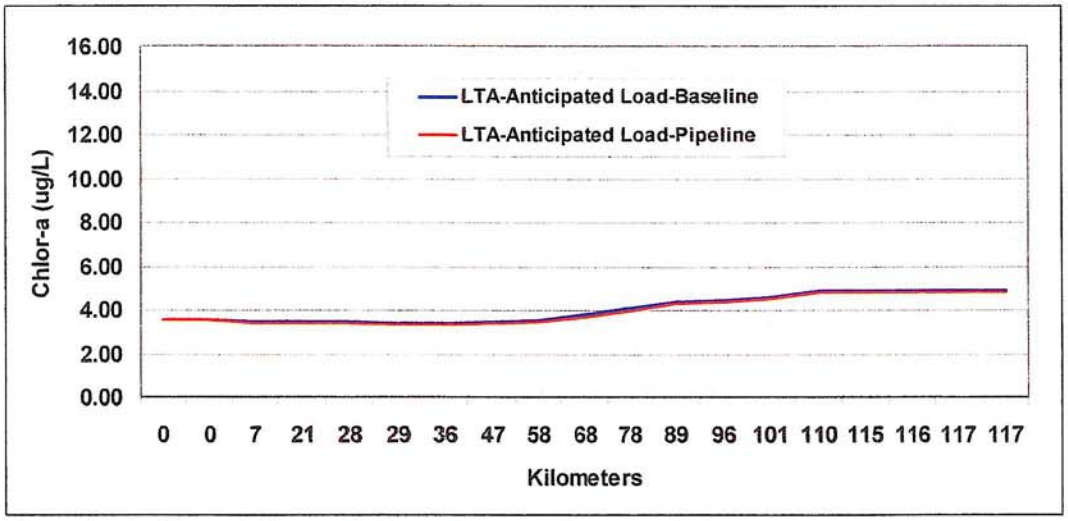


Figure 3.21. Chlorophyll-a predictions with and without the pipeline discharge under average summer flow conditions and anticipated discharge loads (Scenario 4).

The modeling projections for total nitrogen were different than for phosphorus or chlorophyll-a in that the critical stream conditions simulations using both permitted loads and anticipated loads resulted in similar downstream nitrogen results as shown in Figures 3.22 and 3.23. However, the nitrogen levels, as in the original modeling, do not cause an overall change in trophic status in the river (Section 3.2).

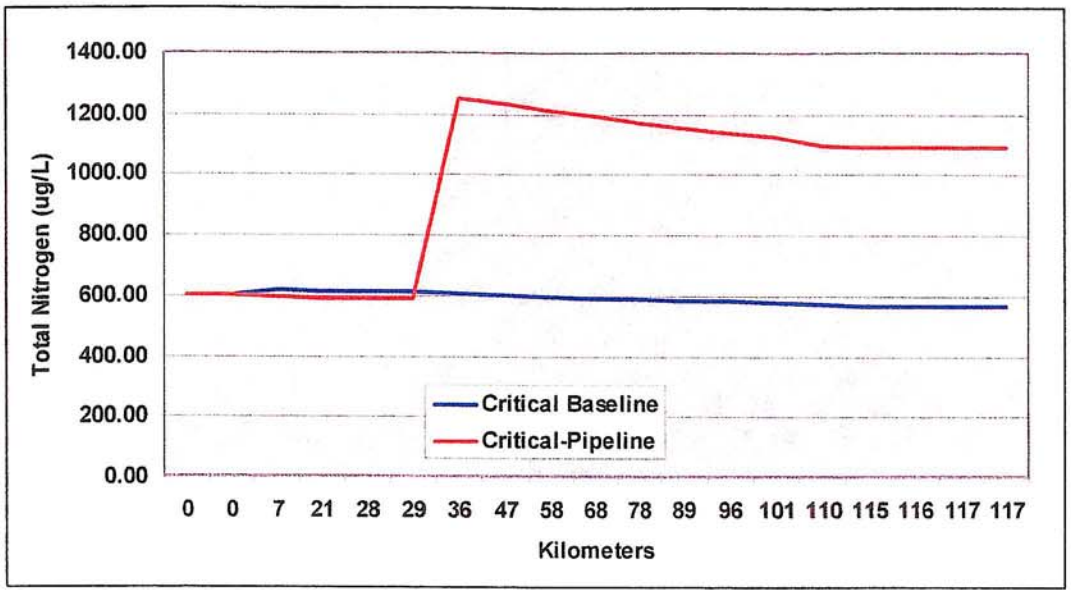


Figure 3.22. Total nitrogen predictions with and without the pipeline discharge under critical stream conditions and full permitted discharge load (Scenario 1).

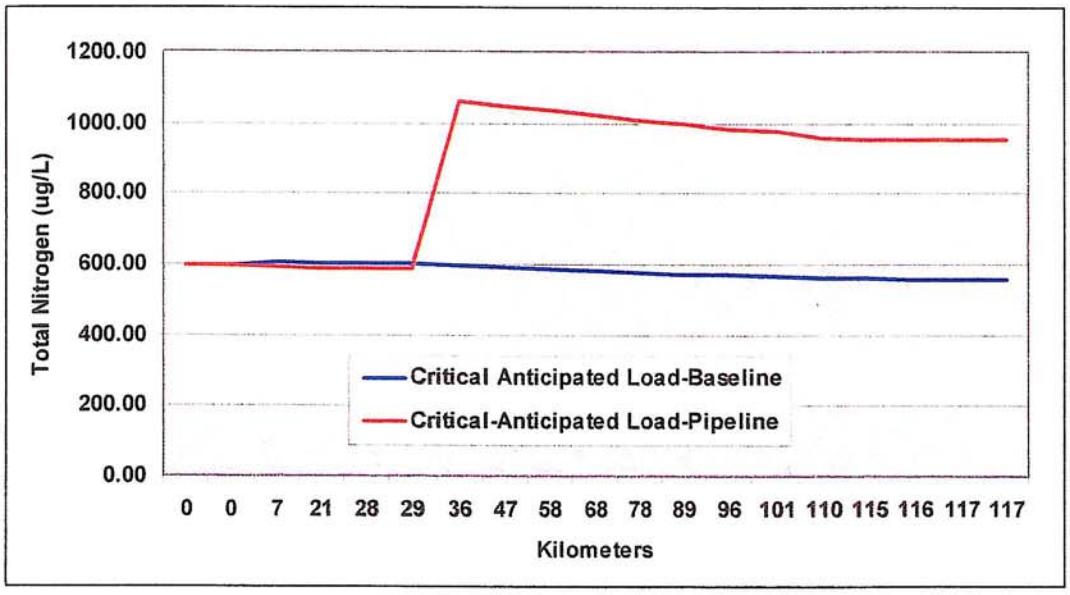


Figure 3.23 Total nitrogen predictions with and without the pipeline discharge under critical conditions and the anticipated discharge loads (Scenario 2).

The projections for average summer flow conditions (Scenario 3 and 4) shown in Figures 3.24 and 3.25 shows a smaller total nitrogen increase downstream.

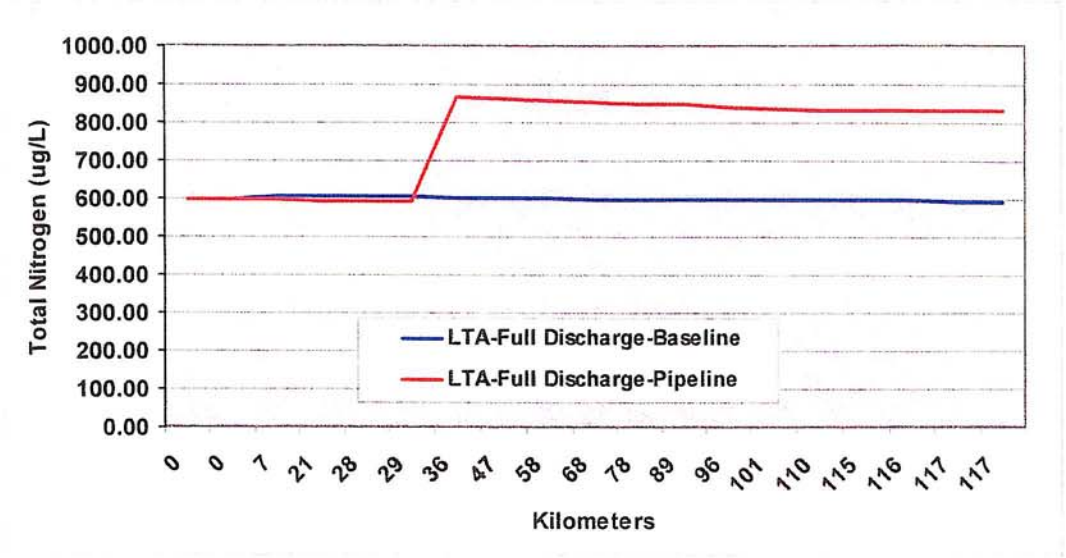


Figure 3.24. Total nitrogen predictions with and without the pipeline discharge under average summer flow conditions and full permitted discharge loads (Scenario 3).

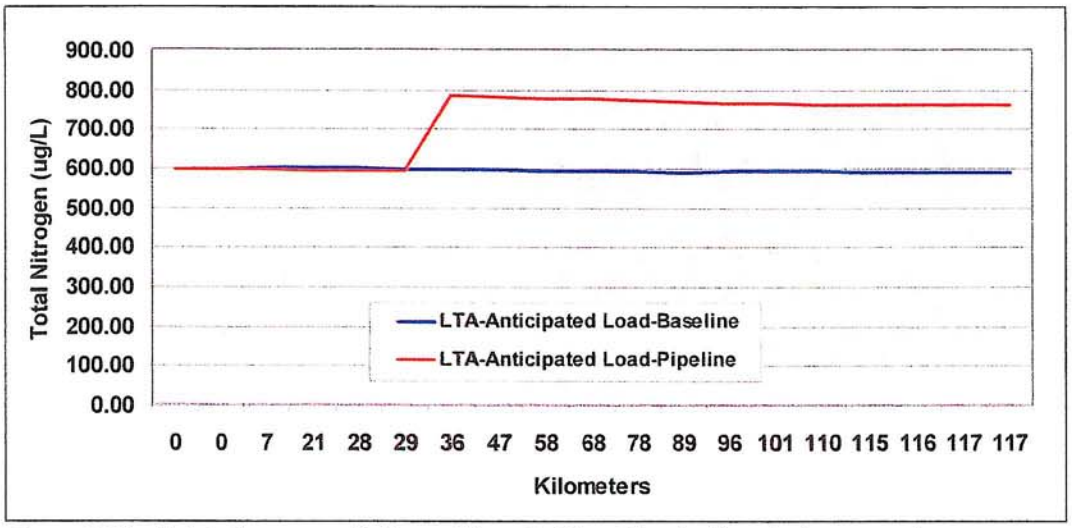


Figure 3.25. Total nitrogen predictions with and without the pipeline discharge under average summer flow conditions and anticipated discharge loads (Scenario 4).

Overall, the water quality predicted by the revised models are little different to that predicted by the models in the original study report.

3.2 Trophic State Indices

Carlson's trophic state indices were calculated from predicted model values for each of the three parameters (chlorophyll-a, total phosphorus and total nitrogen) at OUA-3, just upstream of Felsenthal Lock and Dam (Table 3.4).

Table 3.4. Summary of trophic state index scores calculated from QUAL2K revised model predictions.

Model Scenario	Chlorophyll-a	Total Phosphorus	Total Nitrogen	Overall TSI
Critical Stream Conditions (Baseline) with No Pipeline Discharge	51.6	66.9	46.3	54.9
Critical Stream Conditions with Full Permitted Pipeline Discharge	55.8	69.3	55.7	60.3
Summer Average Flow Conditions (Baseline) with No Pipeline Discharge	47.7	64.3	46.9	53.0
Summer Average Flow Conditions with Full Permitted Pipeline Discharge	48.5	65.5	51.8	55.2
Critical Stream Conditions (Baseline) with No Pipeline Discharge	50.6	62.9	46.0	53.2
Critical Stream Conditions with Anticipated Discharge Loads from the Pipeline	50.6	63.0	53.7	55.8
Summer Average Flow Conditions (Baseline) with No Pipeline Discharge	46.2	62.5	46.8	51.9
Summer Average Flow Conditions with Anticipated Discharge Loads from the Pipeline	46.0	62.6	50.5	53.0

Similar to the original model predictions the results from the trophic state analysis indicate that the model predicts an overall index increase of 5 points under critical worst case conditions as a result of the pipeline discharge. The trophic status of the river remains unchanged. However, as the nutrient load (coupled with critical low flow) this scenario portrays is a theoretical worst case condition that is unlikely to ever be attained, particularly in regards to phosphorus, the more realistic critical scenario (critical stream conditions with anticipated loads) predictions should be emphasized. Trophic state indices calculated from results of the "critical stream conditions with anticipated loads" scenario predictions return scores of 53.0 (baseline) to 55.2 (pipeline). All overall trophic state scores, with or without the pipeline, indicate that the river is eutrophic. Therefore, no change in trophic status of the Ouachita River is predicted to occur as a result of the pipeline discharge for any model scenario analyzed.

Appendix A

Reach for dat plot	11											
			Reach		Downstream		Sat. Option: Leave Bottom Blank or Zero					
							Downstream				Manning Equation	
Reach Label	Downstream End of each Reach	Number	Length (km)	Latitude	Longitude	Location (km)	Bot. Width (m)	Side Slope	Side Slope	Channel Slope	Manning n
	Headwater	0		33.23	92.65	0.00	48.50	3.60	3.60	0.0000199	0.0550
1.000	SMKOVR CRK (297.9)	1	0.16	33.23	92.65	0.16	48.50	3.60	3.60	0.0000199	0.0550
2.000	1/2 way to Thatcher L&D (289.5)	2	13.60	33.23	92.65	13.76	48.50	3.60	3.60	0.0000199	0.0550
3.000	Thatcher L&D (281.0)	3	13.60	33.23	92.65	27.36	48.50	3.60	3.60	0.0000199	0.0550
4.000	280.500	4	0.81	33.23	92.65	28.16	48.50	3.60	3.60	0.000007	0.0500
5.000	Pipeline (279.7)	5	1.29	33.23	92.65	29.45	48.50	3.60	3.60	0.000007	0.0500
6.000	Moro Bay (272.0)	6	12.39	33.23	92.65	41.84	56.70	3.60	3.60	0.0000105	0.0690
7.000	265.500	7	10.46	33.23	92.65	52.30	56.70	3.60	3.60	0.0000105	0.0690
8.000	259.000	8	10.46	33.23	92.65	62.76	56.70	3.60	3.60	0.0000105	0.0690
9.000	252.500	9	10.46	33.23	92.65	73.22	56.70	3.60	3.60	0.0000074	0.0480
10.000	246.000	10	10.46	33.23	92.65	83.68	56.70	3.60	3.60	0.0000074	0.0480
11.000	Saline (239.5)	11	10.47	33.23	92.65	94.15	56.70	3.60	3.60	0.0000074	0.0480
12.000	HWY 82 (237.0)	12	4.02	33.23	92.65	98.17	56.70	3.60	3.60	0.0000025	0.0340
13.000	233.000	13	6.44	33.23	92.65	104.61	56.70	3.60	3.60	0.0000025	0.0340
14.000	Felsenthal U/S (226.5)	14	10.46	33.23	92.65	115.07	81.60	3.60	3.60	0.0000019	0.0400
15.000	Felsenthal L&D (226.0)	15	0.81	33.23	92.65	115.87	81.60	3.60	3.60	0.0000019	0.0400
16.000	225.500	16	0.80	33.23	92.65	116.68	81.60	3.60	3.60	0.0000013	0.0440
17.000	225.000	17	0.80	33.23	92.65	117.48	81.60	3.60	3.60	0.0000013	0.0440

Reach for dielplot	11					One Option, Leave the Other Blank or Zero					
		Reach		Downstream		Downstream		Manning Formula			
Reach Label	Downstream end of reach label	Number	Length (km)	Latitude	Longitude	location (km)	Bot Width m	Side Slope	Side Slope	Channel Slope	Manning n
	Headwater	0		33.23	92.65	0.00	48.50	3.60	3.60	0.0000199	0.0550
1.000	SMKOVR CRK (297.9)	1	0.16	33.23	92.65	0.16	48.50	3.60	3.60	0.0000199	0.0550
2.000	1/2 way to Thatcher L&D (289.5)	2	13.60	33.23	92.65	13.76	48.50	3.60	3.60	0.0000199	0.0550
3.000	Thatcher L&D (281.0)	3	13.60	33.23	92.65	27.36	48.50	3.60	3.60	0.0000199	0.0550
4.000	280.500	4	0.81	33.23	92.65	28.16	48.50	3.60	3.60	0.000007	0.0500
5.000	Pipeline (279.7)	5	1.29	33.23	92.65	29.45	48.50	3.60	3.60	0.000007	0.0500
6.000	Moro Bay (272.0)	6	12.39	33.23	92.65	41.84	56.70	3.60	3.60	0.0000105	0.0690
7.000	265.500	7	10.46	33.23	92.65	52.30	56.70	3.60	3.60	0.0000105	0.0690
8.000	259.000	8	10.46	33.23	92.65	62.76	56.70	3.60	3.60	0.0000105	0.0690
9.000	252.500	9	10.46	33.23	92.65	73.22	56.70	3.60	3.60	0.0000074	0.0480
10.000	246.000	10	10.46	33.23	92.65	83.68	56.70	3.60	3.60	0.0000074	0.0480
11.000	Saline (239.5)	11	10.47	33.23	92.65	94.15	56.70	3.60	3.60	0.0000074	0.0480
12.000	HWY 82 (237.0)	12	4.02	33.23	92.65	98.17	56.70	3.60	3.60	0.0000025	0.0340
13.000	233.000	13	6.44	33.23	92.65	104.61	56.70	3.60	3.60	0.0000025	0.0340
14.000	Felsenthal U/S (226.5)	14	10.46	33.23	92.65	115.07	81.60	3.60	3.60	0.0000019	0.0400
15.000	Felsenthal L&D (226.0)	15	0.81	33.23	92.65	115.87	81.60	3.60	3.60	0.0000019	0.0400
16.000	225.500	16	0.80	33.23	92.65	116.68	81.60	3.60	3.60	0.0000013	0.0440
17.000	225.000	17	0.80	33.23	92.65	117.48	81.60	3.60	3.60	0.0000013	0.0440

Reach Label	Downstream Label	Downstream Distance	Hydraulics Q m3/s	E m3/s	H m	B m	Ac m^2	U m/s	trav time d	Slope	Reaeration ka 20 /d	Reaeration formula
	Headwater	0.00	34.00	17.00	3.44	48.50	209.75	0.16	0.00	0.000020	0.41	O'Conn
1.00	SMKOVR CRK (297.9)	0.16	34.00	0.40	3.44	48.50	209.75	0.16	0.01	0.000020	0.41	O'Conn
2.00	to Thatcher L&D (289.5)	13.76	34.17	17.09	3.45	48.50	210.46	0.16	0.98	0.000020	0.41	O'Conn
3.00	Thatcher L&D (281.0)	27.36	34.17	32.26	3.45	48.50	210.46	0.16	1.95	0.000020	0.41	O'Conn
4.00	280.50	28.16	34.17	13.15	4.38	48.50	281.83	0.12	2.03	0.000007	0.89	Specified
5.00	Pipeline (279.7)	29.45	34.17	3.21	4.38	48.50	281.83	0.12	2.15	0.000007	0.27	O'Conn
6.00	Moro Bay (272.0)	41.84	34.17	18.53	4.34	56.70	314.20	0.11	3.47	0.000011	0.27	O'Conn
7.00	265.50	52.30	34.17	17.08	4.34	56.70	314.20	0.11	4.58	0.000011	0.27	O'Conn
8.00	259.00	62.76	34.17	17.09	4.34	56.70	314.20	0.11	5.69	0.000011	0.27	O'Conn
9.00	252.50	73.22	34.17	17.09	3.91	56.70	276.54	0.12	6.67	0.000007	0.32	O'Conn
10.00	246.00	83.68	34.17	17.08	3.91	56.70	276.54	0.12	7.65	0.000007	0.32	O'Conn
11.00	Saline (239.5)	94.15	34.17	24.68	3.91	56.70	276.54	0.12	8.64	0.000007	0.32	O'Conn
12.00	HWY 82 (237.0)	98.17	35.05	13.48	4.43	56.70	321.84	0.11	9.06	0.000003	0.26	O'Conn
13.00	233.00	104.61	35.05	13.35	4.43	56.70	321.84	0.11	9.75	0.000003	0.26	O'Conn
14.00	Felsenthal U/S (226.5)	115.07	35.05	32.55	4.36	81.60	424.08	0.08	11.21	0.000002	0.25	O'Conn
15.00	Felsenthal L&D (226.0)	115.87	35.05	17.54	4.36	81.60	424.08	0.08	11.32	0.000002	0.25	O'Conn
16.00	225.50	116.68	35.05	17.51	5.13	81.60	513.17	0.07	11.46	0.000001	1.44	Specified
17.00	225.00	117.48	35.05	17.53	5.13	81.60	513.17	0.07	11.60	0.000001	0.20	O'Conn

Reach Label	X (km)	Cond (umhos)	TSS (mg/L)	DO (mg/L)	CBOD (mg/L)	CBOD (mg/L)	NO3 (ug N/L)	NH4 (ug N/L)	NO2 (ug N/L)	PO4 (ug P/L)	Chla (ug/L)	Phyto (ug/L)	Detritus (mg/L)
	0.00	63.80	3.66	6.70	0.00	2.40	444.00	20.00	20.00	30.00	10.00	3.50	1.22
1.00	0.08	63.80	3.65	6.70	0.01	2.40	444.86	20.04	20.04	30.13	10.01	3.50	1.21
2.00	6.96	63.48	3.00	6.63	0.16	2.50	482.31	21.85	27.54	35.79	10.52	3.55	0.63
3.00	20.56	63.48	2.45	6.61	0.12	2.48	495.80	22.80	29.80	38.25	10.73	3.75	0.33
4.00	27.76	63.48	2.42	6.65	0.12	2.48	496.75	23.03	30.08	38.43	10.78	3.74	0.31
5.00	28.81	63.48	2.37	6.63	0.11	2.48	498.00	23.36	30.56	38.68	10.85	3.72	0.28
6.00	35.65	63.48	1.92	6.50	0.06	2.25	498.35	24.93	36.21	39.52	11.36	3.70	0.14
7.00	47.07	63.48	1.60	6.46	0.04	2.01	494.35	25.52	41.03	39.62	11.70	3.76	0.09
8.00	57.53	63.48	1.33	6.46	0.02	1.78	488.47	25.67	45.65	39.45	11.95	3.87	0.06
9.00	67.99	63.48	1.11	6.54	0.02	1.59	482.75	24.97	48.19	39.22	11.89	4.21	0.06
10.00	78.45	63.48	0.92	6.63	0.02	1.42	476.95	24.48	49.93	38.96	11.77	4.56	0.05
11.00	88.91	63.48	0.77	6.70	0.02	1.27	471.30	24.15	50.95	38.72	11.60	4.92	0.05
12.00	96.16	64.20	0.78	6.71	0.07	1.30	470.69	24.69	51.18	38.61	11.53	4.93	0.07
13.00	101.39	64.20	0.70	6.71	0.04	1.24	467.41	25.07	52.84	38.53	11.71	4.98	0.07
14.00	109.84	64.20	0.54	6.26	0.02	1.09	459.98	25.22	55.71	38.28	11.77	5.15	0.06
15.00	115.47	64.20	0.53	6.22	0.02	1.08	459.40	25.23	55.93	38.26	11.78	5.17	0.06
16.00	116.28	64.20	0.52	6.44	0.02	1.07	458.71	25.50	56.39	38.24	11.84	5.13	0.06
17.00	117.08	64.20	0.51	6.45	0.02	1.05	458.01	25.73	56.89	38.21	11.90	5.09	0.06
	117.48	64.20	0.51	6.45	0.02	1.05	458.01	25.73	56.89	38.21	11.90	5.09	0.06

Reach for dist plot	11											
			Reach			Downstream						
Reach	Downstream		length	Downstream		location	Bot Width	Side	Side	Channel	Manning	
Label	end of reach label	Number	(km)	Latitude	Longitude	(km)	m	Slope	Slope	Slope	n	
	Headwater	0		33.23	92.65	0.00	48.50	3.60	3.60	0.0000199	0.0720	
1.000	SMKOVR CRK (297.9)	1	0.16	33.23	92.65	0.16	48.50	3.60	3.60	0.0000199	0.0720	
2.000	1/2 way to Thatcher L&D (289	2	13.60	33.23	92.65	13.76	48.50	3.60	3.60	0.0000199	0.0720	
3.000	Thatcher L&D (281.0)	3	13.60	33.23	92.65	27.36	48.50	3.60	3.60	0.0000199	0.0720	
4.000	280.500	4	0.81	33.23	92.65	28.16	48.50	3.60	3.60	0.000007	0.0670	
5.000	Pipeline (279.7)	5	1.29	33.23	92.65	29.45	48.50	3.60	3.60	0.000007	0.0670	
6.000	Moro Bay (272.0)	6	12.39	33.23	92.65	41.84	56.70	3.60	3.60	0.0000105	0.0920	
7.000	265.500	7	10.46	33.23	92.65	52.30	56.70	3.60	3.60	0.0000105	0.0920	
8.000	259.000	8	10.46	33.23	92.65	62.76	56.70	3.60	3.60	0.0000105	0.0920	
9.000	252.500	9	10.46	33.23	92.65	73.22	56.70	3.60	3.60	0.0000074	0.0670	
10.000	246.000	10	10.46	33.23	92.65	83.68	56.70	3.60	3.60	0.0000074	0.0670	
11.000	Saline (239.5)	11	10.47	33.23	92.65	94.15	56.70	3.60	3.60	0.0000074	0.0670	
12.000	HWY 82 (237.0)	12	4.02	33.23	92.65	98.17	56.70	3.60	3.60	0.0000025	0.0480	
13.000	233.000	13	6.44	33.23	92.65	104.61	56.70	3.60	3.60	0.0000025	0.0480	
14.000	Felsenthal U/S (226.5)	14	10.46	33.23	92.65	115.07	81.60	3.60	3.60	0.0000019	0.0610	
15.000	Felsenthal L&D (226.0)	15	0.81	33.23	92.65	115.87	81.60	3.60	3.60	0.0000019	0.0610	
16.000	225.500	16	0.80	33.23	92.65	116.68	81.60	3.60	3.60	0.0000013	0.0660	
17.000	225.000	17	0.80	33.23	92.65	117.48	81.60	3.60	3.60	0.0000013	0.0660	

Reach Label	x (km)	Pathogen	Alk	pH	Bot Alg (g/m2)	TOC	TKN	TP	TKN	TSS (mg/l)	CBOD u	Bot Alg (mg/m2)	Oxy	DO sat	Dsat
0	0.00	0.00	20.50	7.00	0.00	3.03	597.04	55.70	577.04	5.23	4.09	0.00	0.18	7.30	7.87
1.00	0.08	0.00	20.50	7.00	0.00	3.03	596.95	55.70	576.89	5.19	4.08	0.00	0.18	7.30	7.87
2.00	6.96	0.00	21.60	7.05	0.00	3.02	617.40	79.55	583.77	3.67	3.65	0.00	0.23	7.26	7.89
3.00	20.56	0.00	21.57	7.13	0.00	2.74	612.16	79.44	581.77	2.79	3.25	0.00	0.28	7.22	7.89
4.00	27.76	0.00	21.56	7.15	0.00	2.71	611.85	79.43	581.42	2.73	3.21	0.00	0.31	7.22	7.89
5.00	28.81	0.00	21.56	7.15	0.00	2.66	611.37	79.42	580.81	2.64	3.15	0.00	0.31	7.22	7.89
6.00	35.65	0.00	21.49	7.17	0.00	2.23	605.93	79.31	574.96	2.11	2.71	0.00	0.36	7.19	7.89
7.00	47.07	0.00	21.44	7.21	0.00	1.93	601.08	79.21	570.87	1.82	2.45	0.00	0.41	7.17	7.89
8.00	57.53	0.00	21.39	7.26	0.00	1.71	595.95	79.10	567.39	1.63	2.27	0.00	0.47	7.16	7.89
9.00	67.99	0.00	21.35	7.33	0.00	1.57	590.52	78.98	566.04	1.52	2.18	0.00	0.55	7.15	7.89
10.00	78.45	0.00	21.31	7.41	0.00	1.46	584.89	78.85	563.98	1.42	2.11	0.00	0.67	7.14	7.89
11.00	88.91	0.00	21.27	7.48	0.00	1.37	579.14	78.70	560.87	1.34	2.04	0.00	0.80	7.13	7.89
12.00	96.16	0.00	22.76	7.43	0.00	1.42	579.08	78.32	560.25	1.35	2.10	0.00	0.74	7.13	7.92
13.00	101.39	0.00	22.72	7.45	0.00	1.37	575.66	78.22	555.77	1.27	2.02	0.00	0.79	7.13	7.92
14.00	109.84	0.00	22.62	7.49	0.00	1.25	567.64	77.83	545.45	1.15	1.88	0.00	0.89	7.13	7.92
15.00	115.47	0.00	22.64	7.49	0.00	1.24	567.02	77.80	544.67	1.14	1.87	0.00	0.89	7.13	7.92
16.00	116.28	0.00	22.60	7.56	0.00	1.22	566.41	77.77	543.34	1.12	1.84	0.00	1.05	7.12	7.92
17.00	117.08	0.00	22.59	7.55	0.00	1.21	565.80	77.73	541.96	1.10	1.82	0.00	1.06	7.12	7.92
	117.48	0.00	22.59	7.55	0.00	1.21	565.80	77.73	541.96	1.10	1.82	0.00	1.06	7.12	7.92

Critic pipeline - rap

Reach for diel plot	11											
							ne Option, Leave the Other Blank or Zero)					
			Reach			Downstream		Manning Formula				
Reach	Downstream		length	Downstream		location	Bot Width	Side	Side	Channel	Manning	
Label	end of reach label	Number	(km)	Latitude	Longitude	(km)	m	Slope	Slope	Slope	n	
	Headwater	0		33.23	92.65	0.00	48.50	3.60	3.60	0.0000199	0.0720	
1.000	SMKOVR CRK (297.9)	1	0.16	33.23	92.65	0.16	48.50	3.60	3.60	0.0000199	0.0720	
2.000	1/2 way to Thatcher L&D (289	2	13.60	33.23	92.65	13.76	48.50	3.60	3.60	0.0000199	0.0720	
3.000	Thatcher L&D (281.0)	3	13.60	33.23	92.65	27.36	48.50	3.60	3.60	0.0000199	0.0720	
4.000	280.500	4	0.81	33.23	92.65	28.16	48.50	3.60	3.60	0.000007	0.0670	
5.000	Pipeline (279.7)	5	1.29	33.23	92.65	29.45	48.50	3.60	3.60	0.000007	0.0670	
6.000	Moro Bay (272.0)	6	12.39	33.23	92.65	41.84	56.70	3.60	3.60	0.0000105	0.0920	
7.000	265.500	7	10.46	33.23	92.65	52.30	56.70	3.60	3.60	0.0000105	0.0920	
8.000	259.000	8	10.46	33.23	92.65	62.76	56.70	3.60	3.60	0.0000105	0.0920	
9.000	252.500	9	10.46	33.23	92.65	73.22	56.70	3.60	3.60	0.0000074	0.0670	
10.000	246.000	10	10.46	33.23	92.65	83.68	56.70	3.60	3.60	0.0000074	0.0670	
11.000	Saline (239.5)	11	10.47	33.23	92.65	94.15	56.70	3.60	3.60	0.0000074	0.0670	
12.000	HWY 82 (237.0)	12	4.02	33.23	92.65	98.17	56.70	3.60	3.60	0.0000025	0.0480	
13.000	233.000	13	6.44	33.23	92.65	104.61	56.70	3.60	3.60	0.0000025	0.0480	
14.000	Felsenthal U/S (226.5)	14	10.46	33.23	92.65	115.07	81.60	3.60	3.60	0.0000019	0.0610	
15.000	Felsenthal L&D (226.0)	15	0.81	33.23	92.65	115.87	81.60	3.60	3.60	0.0000019	0.0610	
16.000	225.500	16	0.80	33.23	92.65	116.68	81.60	3.60	3.60	0.0000013	0.0660	
17.000	225.000	17	0.80	33.23	92.65	117.48	81.60	3.60	3.60	0.0000013	0.0660	

Reach Label	x (km)	Reaeration	Kr2	pH	BotAlg (gD/m2)	TOC	TN	TP	TKN	TSS (mgD/L)	cBOD u	BotAlg (mgA/m2)	NH3	DO Sat	pH Sat
	0.00	0.00	20.50	7.00	0.00	3.03	597.04	55.70	577.04	5.23	4.09	0.00	0.18	7.30	7.87
1.00	0.08	0.00	20.50	7.00	0.00	3.03	596.95	55.70	576.89	5.19	4.08	0.00	0.18	7.30	7.87
2.00	6.96	0.00	20.45	7.06	0.00	2.94	591.32	55.57	568.53	3.55	3.53	0.00	0.23	7.26	7.87
3.00	20.56	0.00	20.40	7.12	0.00	2.64	586.65	55.47	563.17	2.64	3.10	0.00	0.28	7.22	7.87
4.00	27.76	0.00	20.39	7.15	0.00	2.61	586.38	55.47	562.60	2.58	3.06	0.00	0.31	7.22	7.87
5.00	28.81	0.00	20.39	7.14	0.00	2.57	585.95	55.46	561.68	2.50	2.99	0.00	0.31	7.21	7.87
6.00	35.65	0.00	22.42	7.08	0.00	2.70	1251.70	93.49	760.97	2.23	3.24	0.00	2.09	7.19	7.90
7.00	47.07	0.00	21.88	7.09	0.00	2.38	1231.23	93.37	689.59	2.08	3.05	0.00	1.21	7.17	7.89
8.00	57.53	0.00	21.60	7.14	0.00	2.16	1210.28	93.22	654.52	2.01	2.95	0.00	0.80	7.16	7.89
9.00	67.99	0.00	21.48	7.25	0.00	2.04	1190.00	93.05	644.11	2.00	2.96	0.00	0.65	7.15	7.89
10.00	78.45	0.00	21.44	7.36	0.00	1.95	1170.13	92.87	643.44	1.98	2.96	0.00	0.68	7.14	7.88
11.00	88.91	0.00	21.43	7.48	0.00	1.88	1150.74	92.68	645.30	1.93	2.94	0.00	0.84	7.13	7.88
12.00	99.15	0.00	22.89	7.43	0.00	1.94	1134.80	92.02	844.42	1.91	2.87	0.00	0.78	7.14	7.91
13.00	101.39	0.00	22.87	7.47	0.00	1.86	1123.38	91.91	641.82	1.82	2.87	0.00	0.87	7.13	7.91
14.00	109.84	0.00	22.82	7.53	0.00	1.72	1093.70	91.58	634.54	1.66	2.69	0.00	1.02	7.13	7.91
15.00	115.47	0.00	22.81	7.54	0.00	1.71	1091.40	91.55	633.98	1.64	2.67	0.00	1.03	7.13	7.91
16.00	116.28	0.00	22.81	7.59	0.00	1.69	1089.20	91.53	632.75	1.61	2.64	0.00	1.20	7.13	7.91
17.00	117.08	0.00	22.80	7.58	0.00	1.67	1087.01	91.50	631.40	1.58	2.60	0.00	1.21	7.13	7.91
	117.48	0.00	22.80	7.58	0.00	1.67	1087.01	91.50	631.40	1.58	2.60	0.00	1.21	7.13	7.91

Reach for diel plot	11											
								ne Option, Leave the Other Blank or Zero)				
								Manning Formula				
Reach	Downstream		Reach	Downstream		Downstream						
Label	end of reach label	Number	length (km)	Latitude	Longitude	location (km)	Bot Width m	Side Slope	Side Slope	Channel Slope	Manning n
	Headwater	0		33.23	92.65	0.00	48.50	3.60	3.60	0.0000199	0.0450
1.000	SMKOVR CRK (297.9)	1	0.16	33.23	92.65	0.16	48.50	3.60	3.60	0.0000199	0.0450
2.000	1/2 way to Thatcher L&D (289	2	13.60	33.23	92.65	13.76	48.50	3.60	3.60	0.0000199	0.0450
3.000	Thatcher L&D (281.0)	3	13.60	33.23	92.65	27.36	48.50	3.60	3.60	0.0000199	0.0450
4.000	280.500	4	0.81	33.23	92.65	28.16	48.50	3.60	3.60	0.000007	0.0400
5.000	Pipeline (279.7)	5	1.29	33.23	92.65	29.45	48.50	3.60	3.60	0.000007	0.0400
6.000	Moro Bay (272.0)	6	12.39	33.23	92.65	41.84	56.70	3.60	3.60	0.0000105	0.0480
7.000	265.500	7	10.46	33.23	92.65	52.30	56.70	3.60	3.60	0.0000105	0.0480
8.000	259.000	8	10.46	33.23	92.65	62.76	56.70	3.60	3.60	0.0000105	0.0480
9.000	252.500	9	10.46	33.23	92.65	73.22	56.70	3.60	3.60	0.0000074	0.0330
10.000	246.000	10	10.46	33.23	92.65	83.68	56.70	3.60	3.60	0.0000074	0.0330
11.000	Saline (239.5)	11	10.47	33.23	92.65	94.15	56.70	3.60	3.60	0.0000074	0.0330
12.000	HWY 82 (237.0)	12	4.02	33.23	92.65	98.17	56.70	3.60	3.60	0.0000025	0.0200
13.000	233.000	13	6.44	33.23	92.65	104.61	56.70	3.60	3.60	0.0000025	0.0200
14.000	Felsenthal U/S (226.5)	14	10.46	33.23	92.65	115.07	81.60	3.60	3.60	0.0000019	0.0250
15.000	Felsenthal L&D (226.0)	15	0.81	33.23	92.65	115.87	81.60	3.60	3.60	0.0000019	0.0250
16.000	225.500	16	0.80	33.23	92.65	116.68	81.60	3.60	3.60	0.0000013	0.0270
17.000	225.000	17	0.80	33.23	92.65	117.48	81.60	3.60	3.60	0.0000013	0.0270

Reach Label	Downstream Label	Downstream Distance	Hydraulics Q, m3/s	E, m3/s	H, m	B, m	Ac, m^2	U, mps	travtime, d	Slope	Reaeration Ka,20, /d	Reaeration formula
	Headwater	0.00	54.37	27.19	4.00	48.50	251.92	0.22	0.00	0.000020	0.23	O'Conn
1.00	DVR CRK (297.9)	0.16	54.37	0.64	4.00	48.50	251.92	0.22	0.01	0.000020	0.23	O'Conn
2.00	cher L&D (289.5)	13.76	54.37	27.19	4.00	48.50	251.92	0.22	0.74	0.000020	0.23	O'Conn
3.00	cher L&D (281.0)	27.36	54.37	51.33	4.00	48.50	251.92	0.22	1.47	0.000020	0.23	O'Conn
4.00	280.50	28.16	54.37	20.92	5.01	48.50	333.08	0.16	1.52	0.000007	0.76	Specified
5.00	Pipeline (279.7)	29.45	54.37	5.12	5.01	48.50	333.08	0.16	1.62	0.000007	0.14	O'Conn
6.00	Moro Bay (272.0)	41.84	54.96	29.81	4.63	56.70	339.26	0.16	2.50	0.000011	0.16	O'Conn
7.00	265.50	52.30	54.96	27.48	4.63	56.70	339.26	0.16	3.25	0.000011	0.16	O'Conn
8.00	259.00	62.76	54.96	27.48	4.63	56.70	339.26	0.16	4.00	0.000011	0.16	O'Conn
9.00	252.50	73.22	54.96	27.48	4.14	56.70	296.06	0.19	4.65	0.000007	0.20	O'Conn
10.00	246.00	83.68	54.96	27.47	4.14	56.70	296.06	0.19	5.30	0.000007	0.20	O'Conn
11.00	Saline (239.5)	94.15	54.96	39.70	4.14	56.70	296.06	0.19	5.95	0.000007	0.20	O'Conn
12.00	HWY 82 (237.0)	98.17	57.62	22.16	4.35	56.70	314.56	0.18	6.21	0.000003	0.19	O'Conn
13.00	233.00	104.61	57.62	21.95	4.35	56.70	314.56	0.18	6.61	0.000003	0.19	O'Conn
14.00	nthal U/S (226.5)	115.07	57.62	53.50	4.43	81.60	431.80	0.13	7.52	0.000002	0.15	O'Conn
15.00	thal L&D (226.0)	115.87	57.62	28.83	4.43	81.60	431.80	0.13	7.59	0.000002	0.15	O'Conn
16.00	225.50	116.68	57.62	28.79	5.15	81.60	516.20	0.11	7.67	0.000001	1.33	Specified
17.00	225.00	117.48	57.62	28.81	5.15	81.60	516.20	0.11	7.76	0.000001	0.11	O'Conn

Reach Label	Flow (cfs)	Velocity (fps)	Depth (ft)	SSD (mg/L)	DO (mg/L)	CBOD5 (mg/L)	CBOD (mg/L)	Org-N (ug/L)	NH4 (ug/L)	NO3 (ug/L)	TKN (ug/L)	Chl-a (ug/L)	Phyto (ug/L)	Org-P (ug/L)	Diss-P (ug/L)
	0.00	63.80	3.66	6.50	0.00	2.40	444.00	20.00	20.00	30.00	10.00	3.50	1.22		
1:00	0.08	63.80	3.64	6.49	0.02	2.39	445.40	20.05	20.06	30.21	10.01	3.50	1.20		
2:00	6.96	62.88	2.74	6.24	0.15	2.51	495.61	21.50	33.63	54.70	15.59	4.38	0.49		
3:00	20.56	62.88	2.02	6.15	0.09	2.34	504.26	22.32	30.39	56.34	15.44	5.51	0.22		
4:00	27.76	62.88	1.98	6.21	0.08	2.33	504.78	22.76	30.43	56.44	15.51	5.52	0.20		
5:00	28.81	62.88	1.92	6.16	0.07	2.30	505.24	23.35	30.56	56.56	15.61	5.54	0.17		
6:00	35.65	62.88	1.39	5.95	0.04	1.90	498.00	25.38	30.96	56.14	16.01	6.23	0.09		
7:00	47.07	62.88	1.05	5.89	0.03	1.60	489.62	26.14	30.21	55.46	16.10	6.90	0.07		
8:00	57.53	62.88	0.80	5.91	0.03	1.35	481.16	26.65	28.56	54.74	16.08	7.55	0.07		
9:00	67.99	62.88	0.61	6.03	0.03	1.18	474.12	26.41	24.48	54.17	15.71	8.34	0.08		
10:00	78.45	62.88	0.46	6.12	0.03	1.04	467.79	26.81	20.91	53.69	15.52	8.84	0.08		
11:00	88.91	62.88	0.35	6.20	0.03	0.94	462.00	27.25	18.27	53.27	15.49	9.12	0.09		
12:00	98.16	63.44	0.37	6.18	0.06	0.99	461.23	28.43	18.83	52.68	15.69	8.95	0.09		
13:00	101.39	63.45	0.31	6.15	0.04	0.95	457.63	29.05	19.89	52.59	16.03	8.72	0.09		
14:00	109.84	63.45	0.21	5.25	0.03	0.84	448.74	29.42	22.19	51.86	16.63	8.53	0.08		
15:00	115.47	63.45	0.20	5.19	0.03	0.83	448.05	29.44	22.36	51.80	16.67	8.52	0.08		
16:00	116.28	63.46	0.20	5.69	0.03	0.82	447.22	30.02	23.07	51.73	16.85	8.38	0.08		
17:00	117.08	63.46	0.19	5.67	0.03	0.82	446.38	30.43	23.83	51.66	17.02	8.25	0.08		
	117.48	63.46	0.19	5.67	0.03	0.82	446.38	30.43	23.83	51.66	17.02	8.25	0.08		

Reach Label	Downstream Label	Downstream Distance	Hydraulics Q, m3/s	E, m3/s	H, m	B, m	Ac, m^2	U, mps	Travtime, d	Slope	Reaeration Ka,20, /d	Reaeration formula
	Headwater	0.00	21.20	10.60	3.07	48.50	182.87	0.12	0.00	0.000020	0.25	O'Conn
1.00	DVR CRK (297.9)	0.16	21.20	0.25	3.07	48.50	182.87	0.12	0.02	0.000020	0.25	O'Conn
2.00	cher L&D (289.5)	13.76	21.51	10.76	3.10	48.50	184.66	0.12	1.37	0.000020	0.25	O'Conn
3.00	cher L&D (281.0)	27.36	21.51	20.31	3.10	48.50	184.66	0.12	2.72	0.000020	0.25	O'Conn
4.00	280.50	28.16	21.51	8.28	3.99	48.50	250.74	0.09	2.83	0.000007	0.76	Specified
5.00	Pipeline (279.7)	29.45	21.51	2.02	3.99	48.50	250.74	0.09	3.00	0.000007	0.14	O'Conn
6.00	Moro Bay (272.0)	41.84	21.51	11.67	3.94	56.70	278.95	0.08	4.86	0.000011	0.14	O'Conn
7.00	265.50	52.30	21.51	10.75	3.94	56.70	278.95	0.08	6.43	0.000011	0.14	O'Conn
8.00	259.00	62.76	21.51	10.76	3.94	56.70	278.95	0.08	8.00	0.000011	0.14	O'Conn
9.00	252.50	73.22	21.51	10.76	3.63	56.70	253.42	0.08	9.43	0.000007	0.17	O'Conn
10.00	246.00	83.68	21.51	10.75	3.63	56.70	253.42	0.08	10.85	0.000007	0.17	O'Conn
11.00	Saline (239.5)	94.15	21.51	15.54	3.63	56.70	253.42	0.08	12.28	0.000007	0.17	O'Conn
12.00	HWY 82 (237.0)	98.17	21.93	8.43	4.13	56.70	295.76	0.07	12.91	0.000003	0.13	O'Conn
13.00	233.00	104.61	21.93	8.35	4.13	56.70	295.76	0.07	13.91	0.000003	0.13	O'Conn
14.00	nthal U/S (225.5)	115.07	21.93	20.36	4.24	81.60	411.05	0.05	16.18	0.000002	0.10	O'Conn
15.00	thal L&D (226.0)	115.87	21.93	10.97	4.24	81.60	411.05	0.05	16.36	0.000002	0.10	O'Conn
16.00	225.50	116.68	21.93	10.96	4.95	81.60	491.76	0.04	16.57	0.000001	1.33	Specified
17.00	225.00	117.48	21.93	10.97	4.95	81.60	491.76	0.04	16.77	0.000001	0.08	O'Conn

Reach Label	x (km)	cond (mmhos)	TSS (mgD/L)	DO (mgO2/L)	CBOD5 (mgO2/L)	CBOD1 (mgO2/L)	NO (gN/L)	NH3 (gN/L)	NO3(D) (gN/L)	PO4(D) (gP/L)	Inorg P (gP/L)	Org P (gP/L)	Petrotox (mgD/L)
	0.00	63.80	3.66	6.50	0.00	2.40	444.00	20.00	20.00	30.00	10.00	3.50	1.22
1.00	0.08	63.80	3.64	6.49	0.02	2.39	445.40	20.05	20.06	30.21	10.01	3.50	1.20
2.00	6.96	63.80	2.68	6.21	0.14	2.45	483.91	22.02	22.79	36.52	10.36	3.94	0.47
3.00	20.56	63.80	1.97	6.09	0.08	2.29	491.81	22.81	23.48	38.57	10.16	4.69	0.20
4.00	27.76	63.80	1.93	6.15	0.08	2.27	492.27	23.18	23.77	38.71	10.21	4.69	0.19
5.00	28.81	63.80	1.87	6.11	0.07	2.24	492.63	23.68	24.27	38.88	10.28	4.69	0.16
6.00	35.65	114.16	1.43	5.34	0.04	2.33	523.48	179.42	490.73	67.74	17.69	6.96	0.11
7.00	47.07	114.16	1.09	5.28	0.04	1.95	516.77	101.33	541.63	66.99	16.45	8.99	0.09
8.00	57.53	114.16	0.83	5.43	0.04	1.65	510.91	59.03	555.75	66.35	15.13	10.76	0.10
9.00	67.99	114.16	0.63	5.73	0.04	1.45	507.19	38.43	545.88	65.99	13.39	12.57	0.11
10.00	78.45	114.16	0.48	5.99	0.04	1.31	504.88	31.00	526.69	65.82	12.12	13.72	0.12
11.00	88.91	114.16	0.37	6.18	0.05	1.21	503.54	29.16	505.44	65.77	11.26	14.35	0.13
12.00	98.15	113.74	0.38	6.17	0.08	1.25	503.88	30.43	490.28	65.27	11.46	13.89	0.14
13.00	101.39	113.74	0.32	6.16	0.05	1.21	503.25	31.05	481.56	65.30	11.67	13.60	0.13
14.00	109.84	113.62	0.22	5.31	0.05	1.10	500.12	31.31	459.16	65.07	12.19	13.08	0.12
15.00	115.47	113.61	0.22	5.24	0.05	1.09	499.87	31.32	457.41	65.08	12.22	13.04	0.12
16.00	116.28	113.60	0.21	5.72	0.04	1.08	499.56	32.22	456.45	65.03	12.47	12.79	0.12
17.00	117.08	113.59	0.20	5.70	0.04	1.07	499.22	32.87	455.62	65.00	12.71	12.57	0.12
	117.48	113.59	0.20	5.70	0.04	1.07	499.22	32.87	455.62	65.00	12.71	12.57	0.12

Reach Label	Downstream Label	Downstream Distance	Hydraulics Q, m^3/s	E, m/s	H, m	B, m	Ac, m^2	U, mps	travTime, d	Slope	Reaeration Ka, 20, /d	Reaeration formula
	Headwater	0.00	21.20	10.60	3.07	48.50	182.87	0.12	0.00	0.000020	0.25	O'Conn
1.00	DVR CRK (297.9)	0.16	21.20	0.25	3.07	48.50	182.87	0.12	0.02	0.000020	0.25	O'Conn
2.00	cher L&D (289.5)	13.76	21.20	10.60	3.07	48.50	182.87	0.12	1.37	0.000020	0.25	O'Conn
3.00	cher L&D (281.0)	27.36	21.20	20.02	3.07	48.50	182.87	0.12	2.73	0.000020	0.25	O'Conn
4.00	280.50	28.16	21.20	8.16	3.96	48.50	248.26	0.09	2.84	0.000007	0.76	Specified
5.00	Pipeline (279.7)	29.45	21.20	1.99	3.96	48.50	248.26	0.09	3.01	0.000007	0.15	O'Conn
6.00	Moro Bay (272.0)	41.84	22.08	11.97	3.99	56.70	283.90	0.08	4.86	0.000011	0.14	O'Conn
7.00	265.50	52.30	22.08	11.04	3.99	56.70	283.90	0.08	6.42	0.000011	0.14	O'Conn
8.00	259.00	62.76	22.08	11.04	3.99	56.70	283.90	0.08	7.97	0.000011	0.14	O'Conn
9.00	252.50	73.22	22.08	11.04	3.69	56.70	257.89	0.09	9.39	0.000007	0.16	O'Conn
10.00	246.00	83.68	22.08	11.03	3.69	56.70	257.89	0.09	10.80	0.000007	0.16	O'Conn
11.00	Saline (239.5)	94.15	22.08	15.95	3.69	56.70	257.89	0.09	12.22	0.000007	0.16	O'Conn
12.00	HWY 82 (237.0)	98.17	22.50	8.65	4.19	56.70	300.93	0.07	12.84	0.000003	0.13	O'Conn
13.00	233.00	104.61	22.50	8.57	4.19	56.70	300.93	0.07	13.84	0.000003	0.13	O'Conn
14.00	nthal U/S (226.5)	115.07	22.50	20.89	4.31	81.60	418.07	0.05	16.09	0.000002	0.10	O'Conn
15.00	thal L&D (226.0)	115.87	22.50	11.25	4.31	81.60	418.07	0.05	16.26	0.000002	0.10	O'Conn
16.00	225.50	116.68	22.50	11.24	5.02	81.60	500.24	0.04	16.47	0.000001	1.33	Specified
17.00	225.00	117.48	22.50	11.25	5.02	81.60	500.24	0.04	16.67	0.000001	0.07	O'Conn

Reach (Reach)	X (km)	cond (umhos)	TSS (mg/L)	DO (mg O2/L)	CBOD5 (mg O2/L)	CBOD (mg O2/L)	NO3 (ug N/L)	NH4 (ug N/L)	ORN (ug N/L)	PO4 (ug P/L)	TOTP (ug P/L)	TOTN (ug N/L)	Chl-a (ug/L)
	0.00	63.80	3.66	6.50	0.00	2.40	444.00	20.00	20.00	30.00	10.00	3.50	1.22
1:00	0.08	63.80	3.65	6.50	0.01	2.40	444.76	20.05	20.04	30.11	10.01	3.50	1.21
2:00	6.96	63.80	3.20	6.28	0.17	2.50	476.57	22.41	23.56	35.05	10.59	3.37	0.66
3:00	20.56	63.80	2.81	6.13	0.14	2.53	490.70	23.86	27.21	37.53	11.01	3.37	0.37
4:00	27.76	63.80	2.79	6.16	0.14	2.53	491.70	24.07	27.56	37.71	11.07	3.35	0.35
5:00	28.81	63.80	2.75	6.13	0.13	2.53	493.07	24.39	28.15	37.96	11.15	3.32	0.32
6:00	35.65	77.42	2.41	5.76	0.08	2.54	505.55	84.38	155.84	40.25	12.04	3.30	0.18
7:00	47.07	77.42	2.14	5.58	0.05	2.35	503.51	68.46	175.83	40.48	12.42	3.34	0.11
8:00	57.53	77.42	1.90	5.47	0.03	2.15	499.27	56.54	191.36	40.41	12.74	3.42	0.07
9:00	67.99	77.42	1.69	5.48	0.02	1.97	494.70	47.75	201.56	40.21	12.82	3.68	0.06
10:00	78.45	77.42	1.50	5.52	0.02	1.81	489.74	41.03	209.26	39.96	12.85	3.96	0.05
11:00	88.91	77.42	1.34	5.58	0.02	1.65	484.65	35.94	214.90	39.69	12.82	4.26	0.04
12:00	96.16	78.11	1.38	5.65	0.14	1.72	485.18	34.15	207.90	39.49	12.72	4.35	0.08
13:00	101.39	78.11	1.28	5.66	0.07	1.70	482.94	32.19	210.56	39.45	12.76	4.48	0.07
14:00	109.84	78.11	1.10	5.30	0.03	1.55	476.98	29.43	214.23	39.22	12.82	4.75	0.06
15:00	115.42	78.11	1.08	5.28	0.03	1.53	476.52	29.22	214.50	39.20	12.82	4.77	0.05
16:00	116.28	78.11	1.07	5.50	0.03	1.52	475.96	29.17	214.94	39.18	12.86	4.76	0.06
17:00	117.08	78.11	1.05	5.49	0.03	1.51	475.39	29.12	215.39	39.15	12.91	4.75	0.05
	117.48	78.11	1.05	5.49	0.03	1.51	475.39	29.12	215.39	39.15	12.91	4.75	0.05

Reach Label	x (km)	Pathogen	Alk	pH	BotAlg (gD/m2)	TOC	PartN	PartP	TKN	TSS (mgD/L)	cBOD	BotAlg (mgA/m2)	NH4	DO	DLsat
	0.00	0.00	20.50	7.00	0.00	3.03	597.04	55.70	577.04	5.23	4.09	0.00	0.18	7.30	7.87
1.00	0.08	0.00	20.50	7.00	0.00	3.03	597.00	55.70	576.96	5.21	4.08	0.00	0.18	7.30	7.87
2.00	6.96	0.00	20.47	7.02	0.00	3.07	594.56	55.64	571.00	4.20	3.74	0.00	0.22	7.28	7.87
3.00	20.56	0.00	20.43	7.04	0.00	2.95	592.62	55.60	565.41	3.52	3.43	0.00	0.24	7.26	7.87
4.00	27.76	0.00	20.43	7.05	0.00	2.94	592.50	55.60	564.94	3.47	3.40	0.00	0.25	7.26	7.87
5.00	28.81	0.00	20.42	7.05	0.00	2.92	592.33	55.60	564.18	3.40	3.36	0.00	0.26	7.26	7.87
6.00	35.65	0.00	21.04	7.04	0.00	2.82	782.19	57.34	626.35	2.91	3.16	0.00	0.86	7.24	7.88
7.00	47.07	0.00	20.88	7.02	0.00	2.58	779.61	57.32	603.78	2.59	2.88	0.00	0.69	7.22	7.88
8.00	57.53	0.00	20.75	7.02	0.00	2.35	777.03	57.30	585.67	2.32	2.63	0.00	0.57	7.21	7.87
9.00	67.99	0.00	20.66	7.04	0.00	2.17	774.53	57.27	572.97	2.12	2.45	0.00	0.50	7.20	7.87
10.00	78.45	0.00	20.58	7.06	0.00	2.00	771.99	57.25	562.73	1.95	2.30	0.00	0.46	7.19	7.87
11.00	88.91	0.00	20.51	7.09	0.00	1.85	769.39	57.22	554.49	1.81	2.17	0.00	0.43	7.18	7.87
12.00	98.16	0.00	24.16	7.08	0.00	2.07	764.65	57.41	556.74	1.80	2.42	0.00	0.40	7.19	7.94
13.00	101.39	0.00	24.13	7.10	0.00	1.98	763.04	57.40	552.48	1.80	2.33	0.00	0.39	7.18	7.94
14.00	109.84	0.00	24.07	7.12	0.00	1.79	758.95	57.36	544.72	1.63	2.15	0.00	0.38	7.17	7.94
15.00	115.42	0.00	24.06	7.13	0.00	1.78	758.63	57.35	544.13	1.62	2.14	0.00	0.38	7.17	7.94
16.00	116.28	0.00	24.06	7.17	0.00	1.76	758.32	57.35	543.37	1.60	2.12	0.00	0.42	7.17	7.94
17.00	117.08	0.00	24.05	7.17	0.00	1.74	758.00	57.35	542.61	1.58	2.10	0.00	0.42	7.17	7.94
	117.48	0.00	24.05	7.17	0.00	1.74	758.00	57.35	542.61	1.58	2.10	0.00	0.42	7.17	7.94

Reach for die[plot	11										
			Reach			Downstream	Manning Formula				
Reach Label	Downstream end of reach label	Number	length (km)	Downstream Latitude	Downstream Longitude	location (km)	Bot Width, m	Side Slope	Side Slope	Channel Slope	Manning n
	Headwater	0		33.23	92.65	0.00	48.50	3.60	3.60	0.0000199	0.0450
1.000	SMKOVR CRK (297.9)	1	0.16	33.23	92.65	0.16	48.50	3.60	3.60	0.0000199	0.0450
2.000	1/2 way to Thatcher L&D (289	2	13.60	33.23	92.65	13.76	48.50	3.60	3.60	0.0000199	0.0450
3.000	Thatcher L&D (281.0)	3	13.60	33.23	92.65	27.36	48.50	3.60	3.60	0.0000199	0.0450
4.000	280.500	4	0.81	33.23	92.65	28.16	48.50	3.60	3.60	0.000007	0.0400
5.000	Pipeline (279.7)	5	1.29	33.23	92.65	29.45	48.50	3.60	3.60	0.000007	0.0400
6.000	Moro Bay (272.0)	6	12.39	33.23	92.65	41.84	56.70	3.60	3.60	0.0000105	0.0480
7.000	265.500	7	10.46	33.23	92.65	52.30	56.70	3.60	3.60	0.0000105	0.0480
8.000	259.000	8	10.46	33.23	92.65	62.76	56.70	3.60	3.60	0.0000105	0.0480
9.000	252.500	9	10.46	33.23	92.65	73.22	56.70	3.60	3.60	0.0000074	0.0330
10.000	246.000	10	10.46	33.23	92.65	83.68	56.70	3.60	3.60	0.0000074	0.0330
11.000	Saline (239.5)	11	10.47	33.23	92.65	94.15	56.70	3.60	3.60	0.0000074	0.0330
12.000	HWY 82 (237.0)	12	4.02	33.23	92.65	98.17	56.70	3.60	3.60	0.0000025	0.0200
13.000	233.000	13	6.44	33.23	92.65	104.61	56.70	3.60	3.60	0.0000025	0.0200
14.000	Felsenthal U/S (226.5)	14	10.46	33.23	92.65	115.07	81.60	3.60	3.60	0.0000019	0.0250
15.000	Felsenthal L&D (226.0)	15	0.81	33.23	92.65	115.87	81.60	3.60	3.60	0.0000019	0.0250
16.000	225.500	16	0.80	33.23	92.65	116.68	81.60	3.60	3.60	0.0000013	0.0270
17.000	225.000	17	0.80	33.23	92.65	117.48	81.60	3.60	3.60	0.0000013	0.0270

Reach Label	Downstream Label	Downstream Distance	Hydraulics Q m3/s	E m3/s	H m	B m	Ac m^2	U mps	trav time d	Slope	Reaeration ka 20 /d	Reaeration formula
	Headwater	0.00	54.37	27.19	4.00	48.50	251.92	0.22	0.00	0.000020	0.23	O'Conn
1.00	DVR CRK (297.9)	0.16	54.37	0.64	4.00	48.50	251.92	0.22	0.01	0.000020	0.23	O'Conn
2.00	cher L&D (289.5)	13.76	54.54	27.27	4.01	48.50	252.46	0.22	0.74	0.000020	0.23	O'Conn
3.00	cher L&D (281.0)	27.36	54.54	51.49	4.01	48.50	252.46	0.22	1.47	0.000020	0.23	O'Conn
4.00	280.50	28.16	54.54	20.99	5.02	48.50	333.80	0.16	1.52	0.000007	0.76	Specified
5.00	Pipeline (279.7)	29.45	54.54	5.13	5.02	48.50	333.80	0.16	1.61	0.000007	0.14	O'Conn
6.00	Moro Bay (272.0)	41.84	54.54	29.58	4.61	56.70	337.48	0.16	2.50	0.000011	0.16	O'Conn
7.00	265.50	52.30	54.54	27.27	4.61	56.70	337.48	0.16	3.25	0.000011	0.16	O'Conn
8.00	259.00	62.76	54.54	27.27	4.61	56.70	337.48	0.16	4.00	0.000011	0.16	O'Conn
9.00	252.50	73.22	54.54	27.27	4.12	56.70	294.52	0.19	4.65	0.000007	0.20	O'Conn
10.00	246.00	83.68	54.54	27.26	4.12	56.70	294.52	0.19	5.31	0.000007	0.20	O'Conn
11.00	Saline (239.5)	94.15	54.54	39.40	4.12	56.70	294.52	0.19	5.96	0.000007	0.20	O'Conn
12.00	HWY 82 (237.0)	98.17	57.20	22.00	4.33	56.70	313.00	0.18	6.22	0.000003	0.19	O'Conn
13.00	233.00	104.61	57.20	21.79	4.33	56.70	313.00	0.18	6.62	0.000003	0.19	O'Conn
14.00	nthal U/S (226.5)	115.07	57.20	53.11	4.41	81.60	429.70	0.13	7.53	0.000002	0.15	O'Conn
15.00	thal L&D (226.0)	115.87	57.20	28.62	4.41	81.60	429.70	0.13	7.60	0.000002	0.15	O'Conn
16.00	225.50	116.68	57.20	28.58	5.13	81.60	513.66	0.11	7.69	0.000001	1.33	Specified
17.00	225.00	117.48	57.20	28.60	5.13	81.60	513.66	0.11	7.77	0.000001	0.11	O'Conn

Reach Label	RK (km)	Temp (Fahrenheit)	TSS (mg/L)	DO (mg/L)	CBOD1 (mg/L)	CBOD2 (mg/L)	NO3 (mg/L)	NH4 (mg/L)	NO2 (mg/L)	PO4 (mg/L)	Algae (ug/L)	Phyto (ug/L)	Detritus (mg/L)
	0.00	63.80	3.66	6.50	0.00	2.40	444.00	20.00	20.00	30.00	10.00	3.50	1.22
1.00	0.08	63.80	3.65	6.50	0.01	2.40	444.76	20.05	20.04	30.11	10.01	3.50	1.21
2.00	6.96	63.60	3.22	6.29	0.17	2.51	479.03	22.35	26.38	36.37	10.94	3.41	0.67
3.00	20.56	63.60	2.82	6.13	0.14	2.54	493.23	23.77	29.78	38.84	11.35	3.44	0.37
4.00	27.76	63.60	2.80	6.16	0.14	2.54	494.24	23.99	30.12	39.02	11.40	3.42	0.35
5.00	28.81	63.60	2.76	6.13	0.13	2.54	495.61	24.31	30.68	39.28	11.48	3.39	0.32
6.00	35.65	63.60	2.40	5.92	0.08	2.41	498.07	25.58	35.99	40.22	12.00	3.38	0.17
7.00	47.07	63.60	2.14	5.80	0.05	2.24	496.03	26.17	40.52	40.44	12.37	3.42	0.11
8.00	57.53	63.60	1.90	5.72	0.03	2.05	491.86	26.43	44.97	40.36	12.68	3.51	0.07
9.00	67.99	63.60	1.68	5.73	0.02	1.88	487.38	25.93	47.87	40.16	12.75	3.77	0.06
10.00	78.45	63.60	1.50	5.77	0.02	1.72	482.54	25.51	50.26	39.92	12.76	4.05	0.05
11.00	88.91	63.60	1.33	5.81	0.02	1.57	477.58	25.16	52.14	39.65	12.73	4.36	0.05
12.00	96.46	64.93	1.37	5.88	0.14	1.66	473.50	25.38	51.50	39.45	12.63	4.44	0.09
13.00	101.39	64.93	1.28	5.87	0.07	1.64	476.35	25.41	52.76	39.42	12.66	4.57	0.07
14.00	109.84	64.93	1.09	5.49	0.03	1.50	470.58	25.54	55.16	39.19	12.71	4.84	0.06
15.00	117.47	64.93	1.07	5.47	0.03	1.49	470.14	25.55	55.34	39.17	12.71	4.86	0.06
16.00	116.28	64.93	1.06	5.67	0.03	1.47	469.59	25.73	55.68	39.15	12.75	4.85	0.06
17.00	117.08	64.93	1.05	5.66	0.03	1.46	469.04	25.90	56.04	39.13	12.79	4.84	0.06
	117.48	64.93	1.05	5.66	0.03	1.46	469.04	25.90	56.04	39.13	12.79	4.84	0.06

Reach Label	x (km)	Pathogen	ATC	CBOD	DO	BotAlg (gD/m2)	TOC	TN	TP	TKN	SS (kgD/L)	CBOD (L	BotAlg (gD/m2)	NH3	CBOD sat	DO sat
	0.00	0.00	20.50	7.00	0.00	3.03	597.04	55.70	577.04	5.23	4.09	0.00	0.18	7.30	7.87
1.00	0.08	0.00	20.50	7.00	0.00	3.03	597.00	55.70	576.96	5.21	4.08	0.00	0.18	7.30	7.87
2.00	6.96	0.00	20.72	7.02	0.00	3.08	600.26	57.38	573.88	4.22	3.76	0.00	0.21	7.28	7.87
3.00	20.56	0.00	20.68	7.04	0.00	2.97	598.28	57.34	568.50	3.54	3.45	0.00	0.24	7.26	7.87
4.00	27.76	0.00	20.68	7.05	0.00	2.96	598.16	57.34	568.04	3.49	3.42	0.00	0.25	7.26	7.87
5.00	28.81	0.00	20.67	7.05	0.00	2.94	597.99	57.34	567.30	3.42	3.38	0.00	0.26	7.26	7.87
6.00	35.65	0.00	20.62	7.05	0.00	2.69	596.29	57.31	560.29	2.91	3.03	0.00	0.27	7.24	7.87
7.00	47.07	0.00	20.58	7.05	0.00	2.46	594.95	57.28	554.43	2.58	2.77	0.00	0.28	7.22	7.87
8.00	57.53	0.00	20.53	7.06	0.00	2.25	593.64	57.26	548.67	2.32	2.53	0.00	0.29	7.21	7.87
9.00	67.99	0.00	20.50	7.08	0.00	2.08	592.32	57.23	544.45	2.12	2.37	0.00	0.30	7.20	7.87
10.00	78.45	0.00	20.46	7.11	0.00	1.92	590.95	57.21	540.69	1.95	2.23	0.00	0.32	7.19	7.87
11.00	88.91	0.00	20.43	7.14	0.00	1.78	589.50	57.18	537.36	1.81	2.11	0.00	0.33	7.18	7.87
12.00	98.76	0.00	24.12	7.12	0.00	2.01	593.53	57.18	542.04	1.90	2.36	0.00	0.32	7.19	7.94
13.00	101.39	0.00	24.09	7.14	0.00	1.92	592.61	57.36	539.85	1.81	2.28	0.00	0.34	7.18	7.94
14.00	109.84	0.00	24.05	7.16	0.00	1.75	590.32	57.32	535.17	1.63	2.11	0.00	0.36	7.17	7.94
15.00	115.47	0.00	24.05	7.17	0.00	1.73	590.15	57.32	534.81	1.62	2.10	0.00	0.36	7.17	7.94
16.00	116.28	0.00	24.04	7.21	0.00	1.72	589.97	57.31	534.29	1.60	2.08	0.00	0.40	7.17	7.94
17.00	117.08	0.00	24.04	7.21	0.00	1.70	589.79	57.31	533.76	1.59	2.06	0.00	0.41	7.17	7.94
	117.48	0.00	24.04	7.21	0.00	1.70	589.79	57.31	533.76	1.59	2.06	0.00	0.41	7.17	7.94

LTA-pisf p_Trap

Reach for diel plot	11											
							ne Option, Leave the Other Blank or Zero)					
			Reach			Downstream		Manning formula				
Reach	Downstream		length	Downstream		location	Bot.Width	Side	Side	Channel	Manning	
Label	end of reach label	Number	(km)	Latitude	Longitude	(km)	m	Slope	Slope	Slope	n	
	Headwater	0		33.23	92.65	0.00	48.50	3.60	3.60	0.0000199	0.0450	
1.000	SMKOVR CRK (297.9)	1	0.16	33.23	92.65	0.16	48.50	3.60	3.60	0.0000199	0.0450	
2.000	1/2 way to Thatcher L&D (289	2	13.60	33.23	92.65	13.76	48.50	3.60	3.60	0.0000199	0.0450	
3.000	Thatcher L&D (281.0)	3	13.60	33.23	92.65	27.36	48.50	3.60	3.60	0.0000199	0.0450	
4.000	280.500	4	0.81	33.23	92.65	28.16	48.50	3.60	3.60	0.000007	0.0400	
5.000	Pipeline (279.7)	5	1.29	33.23	92.65	29.45	48.50	3.60	3.60	0.000007	0.0400	
6.000	Moro Bay (272.0)	6	12.39	33.23	92.65	41.84	56.70	3.60	3.60	0.0000105	0.0480	
7.000	265.500	7	10.46	33.23	92.65	52.30	56.70	3.60	3.60	0.0000105	0.0480	
8.000	259.000	8	10.46	33.23	92.65	62.76	56.70	3.60	3.60	0.0000105	0.0480	
9.000	252.500	9	10.46	33.23	92.65	73.22	56.70	3.60	3.60	0.0000074	0.0330	
10.000	246.000	10	10.46	33.23	92.65	83.68	56.70	3.60	3.60	0.0000074	0.0330	
11.000	Saline (239.5)	11	10.47	33.23	92.65	94.15	56.70	3.60	3.60	0.0000074	0.0330	
12.000	HWY 82 (237.0)	12	4.02	33.23	92.65	98.17	56.70	3.60	3.60	0.0000025	0.0200	
13.000	233.000	13	6.44	33.23	92.65	104.61	56.70	3.60	3.60	0.0000025	0.0200	
14.000	Felsenthal U/S (226.5)	14	10.46	33.23	92.65	115.07	81.60	3.60	3.60	0.0000019	0.0250	
15.000	Felsenthal L&D (226.0)	15	0.81	33.23	92.65	115.87	81.60	3.60	3.60	0.0000019	0.0250	
16.000	225.500	16	0.80	33.23	92.65	116.68	81.60	3.60	3.60	0.0000013	0.0270	
17.000	225.000	17	0.80	33.23	92.65	117.48	81.60	3.60	3.60	0.0000013	0.0270	

Reach Label	Downstream Label	Downstream Distance	Hydraulics Q, m3/s	E, m3/s	H, m	B, m	AC, m^2	U, mps	trav time, d	Slope	Reaeration ka,20, /d	Reaeration formula
	Headwater	0.00	54.37	27.19	4.00	48.50	251.92	0.22	0.00	0.000020	0.23	O'Conn
1.00	DVR CRK (297.9)	0.16	54.37	0.64	4.00	48.50	251.92	0.22	0.01	0.000020	0.23	O'Conn
2.00	cher L&D (289.5)	13.76	54.37	27.19	4.00	48.50	251.92	0.22	0.74	0.000020	0.23	O'Conn
3.00	cher L&D (281.0)	27.36	54.37	51.33	4.00	48.50	251.92	0.22	1.47	0.000020	0.23	O'Conn
4.00	280.50	28.16	54.37	20.92	5.01	48.50	333.08	0.16	1.52	0.000007	0.76	Specified
5.00	Pipeline (279.7)	29.45	54.37	5.12	5.01	48.50	333.08	0.16	1.62	0.000007	0.14	O'Conn
6.00	Moro Bay (272.0)	41.84	55.25	29.96	4.64	56.70	340.47	0.16	2.50	0.000011	0.16	O'Conn
7.00	265.50	52.30	55.25	27.62	4.64	56.70	340.47	0.16	3.25	0.000011	0.16	O'Conn
8.00	259.00	62.76	55.25	27.62	4.64	56.70	340.47	0.16	3.99	0.000011	0.16	O'Conn
9.00	252.50	73.22	55.25	27.62	4.15	56.70	297.10	0.19	4.64	0.000007	0.20	O'Conn
10.00	246.00	83.68	55.25	27.61	4.15	56.70	297.10	0.19	5.29	0.000007	0.20	O'Conn
11.00	Saline (239.5)	94.15	55.25	39.91	4.15	56.70	297.10	0.19	5.95	0.000007	0.20	O'Conn
12.00	HWY 82 (237.0)	98.17	57.91	22.27	4.36	56.70	315.62	0.18	6.20	0.000003	0.18	O'Conn
13.00	233.00	104.61	57.91	22.06	4.36	56.70	315.62	0.18	6.60	0.000003	0.18	O'Conn
14.00	nthal U/S (226.5)	115.07	57.91	53.77	4.44	81.60	433.22	0.13	7.51	0.000002	0.15	O'Conn
15.00	thal L&D (226.0)	115.87	57.91	28.97	4.44	81.60	433.22	0.13	7.58	0.000002	0.15	O'Conn
16.00	225.50	116.68	57.91	28.94	5.17	81.60	517.92	0.11	7.66	0.000001	1.33	Specified
17.00	225.00	117.48	57.91	28.95	5.17	81.60	517.92	0.11	7.75	0.000001	0.11	O'Conn

Reach Label	X (km)	Cond (umhos)	TSS (mg/L)	DO (mg O2/L)	OBOD (mg O2/L)	CBOD (mg O2/L)	NO (ugN/L)	NH (ugN/L)	NO3 (ugN/L)	PO (ugP/L)	Org P (ugP/L)	Phyto (ugA/L)	Detritus (mg/L)
	0.00	63.80	3.66	6.50	0.00	2.40	444.00	20.00	20.00	30.00	10.00	3.50	1.22
1.00	0.08	63.80	3.65	6.49	0.01	2.39	444.76	20.05	20.04	30.11	10.01	3.50	1.21
2.00	6.96	63.80	3.20	6.18	0.17	2.37	476.57	22.42	23.55	35.05	10.59	3.37	0.66
3.00	20.56	63.80	2.81	5.95	0.14	2.29	490.70	23.88	27.17	37.53	11.01	3.37	0.37
4.00	27.76	63.80	2.79	5.98	0.14	2.28	491.70	24.09	27.53	37.71	11.07	3.36	0.35
5.00	28.81	63.80	2.75	5.94	0.13	2.27	493.07	24.41	28.11	37.96	11.15	3.32	0.32
6.00	35.65	83.92	2.42	5.47	0.08	2.24	510.41	112.48	202.27	50.54	15.01	3.47	0.18
7.00	47.07	83.92	2.15	5.25	0.05	1.98	508.52	88.58	228.24	50.62	15.38	3.66	0.11
8.00	57.53	83.92	1.91	5.14	0.03	1.73	504.46	70.63	247.58	50.41	15.69	3.90	0.08
9.00	67.99	83.92	1.70	5.19	0.03	1.52	500.11	57.45	259.66	50.10	15.67	4.34	0.06
10.00	78.45	83.92	1.51	5.27	0.02	1.34	495.44	47.33	268.05	49.75	15.58	4.82	0.05
11.00	88.91	83.92	1.34	5.39	0.02	1.18	490.73	39.68	273.36	49.39	15.41	5.34	0.05
12.00	96.18	84.31	1.30	5.47	0.14	1.26	491.12	36.86	287.49	48.72	15.15	5.44	0.09
13.00	101.39	84.31	1.29	5.51	0.07	1.24	489.16	34.05	265.49	48.64	15.11	5.68	0.08
14.00	109.84	84.31	1.10	5.21	0.04	1.09	483.97	30.10	266.65	48.33	15.00	6.16	0.07
15.00	115.47	84.31	1.09	5.19	0.08	1.08	483.57	29.81	266.72	48.31	14.99	6.20	0.07
16.00	116.28	84.31	1.07	5.43	0.03	1.06	483.09	29.73	266.96	48.28	15.03	6.19	0.07
17.00	117.08	84.31	1.06	5.42	0.03	1.05	482.59	29.65	267.21	48.25	15.06	6.19	0.07
	117.48	84.31	1.06	5.42	0.03	1.05	482.59	29.65	267.21	48.25	15.06	6.19	0.07

Reach Label	Mile (Km)	Pathogen	Alk	pH	Bot Alg (gD/m2)	TOC	TN	TP	TSS RM	TSS (mgD/L)	CBOD	Bot Algae (mgA/m2)	NH3	DO Sat	pH Sat
	0.00	0.00	20.50	7.00	0.00	3.03	597.04	55.70	577.04	5.23	4.09	0.00	0.18	7.30	7.87
1.00	0.08	0.00	20.50	7.00	0.00	3.03	597.00	55.70	576.96	5.21	4.08	0.00	0.18	7.30	7.87
2.00	6.96	0.00	20.47	7.00	0.00	2.94	594.55	55.64	571.00	4.20	3.61	0.00	0.21	7.28	7.87
3.00	20.56	0.00	20.43	7.01	0.00	2.71	592.60	55.60	565.43	3.52	3.19	0.00	0.23	7.26	7.87
4.00	27.76	0.00	20.43	7.02	0.00	2.69	592.49	55.60	564.96	3.47	3.15	0.00	0.24	7.26	7.87
5.00	28.81	0.00	20.42	7.02	0.00	2.66	592.31	55.60	564.20	3.40	3.10	0.00	0.24	7.26	7.87
6.00	35.65	0.00	21.37	6.99	0.00	2.53	863.10	70.81	660.83	2.94	2.88	0.00	1.04	7.24	7.88
7.00	47.07	0.00	21.16	6.97	0.00	2.22	859.72	70.78	631.48	2.63	2.54	0.00	0.79	7.23	7.88
8.00	57.53	0.00	20.99	6.97	0.00	1.95	856.25	70.76	608.67	2.38	2.26	0.00	0.63	7.21	7.88
9.00	67.99	0.00	20.88	6.99	0.00	1.75	852.90	70.73	593.24	2.20	2.08	0.00	0.54	7.20	7.88
10.00	78.45	0.00	20.78	7.01	0.00	1.57	849.49	70.70	581.43	2.05	1.94	0.00	0.47	7.19	7.87
11.00	88.91	0.00	20.71	7.05	0.00	1.43	846.02	70.67	572.66	1.93	1.83	0.00	0.43	7.18	7.87
12.00	99.18	0.00	24.33	7.05	0.00	1.66	837.47	70.24	573.87	2.02	2.09	0.00	0.40	7.18	7.94
13.00	101.39	0.00	24.29	7.07	0.00	1.57	835.36	70.22	569.87	1.94	2.01	0.00	0.39	7.18	7.94
14.00	109.84	0.00	24.24	7.10	0.00	1.40	830.02	70.17	563.37	1.79	1.86	0.00	0.37	7.18	7.94
15.00	115.47	0.00	24.25	7.14	0.00	1.38	829.64	70.17	562.89	1.78	1.85	0.00	0.37	7.17	7.94
16.00	116.28	0.00	24.23	7.15	0.00	1.37	829.20	70.16	562.23	1.76	1.83	0.00	0.41	7.17	7.94
17.00	117.08	0.00	24.22	7.15	0.00	1.35	828.78	70.16	561.57	1.75	1.81	0.00	0.41	7.17	7.94
	117.48	0.00	24.22	7.15	0.00	1.35	828.78	70.16	561.57	1.75	1.81	0.00	0.41	7.17	7.94

1 A-base Trap

Reach for diet plot	11					ne Option, Leave the Other Blank or Zero)					
						Downstream				Manning Formula	
Reach	Downstream		Reach	Downstream		Location	Bot Width	Side	Side	Channel	Manning
Label	end of reach label	Number	length (km)	Latitude	Longitude	(km)	m	Slope	Slope	Slope	n
	Headwater	0		33.23	92.65	0.00	48.50	3.60	3.60	0.0000199	0.0450
1.000	SMKOVR CRK (297.9)	1	0.16	33.23	92.65	0.16	48.50	3.60	3.60	0.0000199	0.0450
2.000	1/2 way to Thatcher L&D (289	2	13.60	33.23	92.65	13.76	48.50	3.60	3.60	0.0000199	0.0450
3.000	Thatcher L&D (281.0)	3	13.60	33.23	92.65	27.36	48.50	3.60	3.60	0.0000199	0.0450
4.000	280.500	4	0.81	33.23	92.65	28.16	48.50	3.60	3.60	0.000007	0.0400
5.000	Pipeline (279.7)	5	1.29	33.23	92.65	29.45	48.50	3.60	3.60	0.000007	0.0400
6.000	Moro Bay (272.0)	6	12.39	33.23	92.65	41.84	56.70	3.60	3.60	0.0000105	0.0480
7.000	265.500	7	10.46	33.23	92.65	52.30	56.70	3.60	3.60	0.0000105	0.0480
8.000	259.000	8	10.46	33.23	92.65	62.76	56.70	3.60	3.60	0.0000105	0.0480
9.000	252.500	9	10.46	33.23	92.65	73.22	56.70	3.60	3.60	0.0000074	0.0330
10.000	246.000	10	10.46	33.23	92.65	83.68	56.70	3.60	3.60	0.0000074	0.0330
11.000	Saline (239.5)	11	10.47	33.23	92.65	94.15	56.70	3.60	3.60	0.0000074	0.0330
12.000	HWY 82 (237.0)	12	4.02	33.23	92.65	98.17	56.70	3.60	3.60	0.0000025	0.0200
13.000	233.000	13	6.44	33.23	92.65	104.61	56.70	3.60	3.60	0.0000025	0.0200
14.000	Felsenthal U/S (226.5)	14	10.46	33.23	92.65	115.07	81.60	3.60	3.60	0.0000019	0.0250
15.000	Felsenthal L&D (226.0)	15	0.81	33.23	92.65	115.87	81.60	3.60	3.60	0.0000019	0.0250
16.000	225.500	16	0.80	33.23	92.65	116.68	81.60	3.60	3.60	0.0000013	0.0270
17.000	225.000	17	0.80	33.23	92.65	117.48	81.60	3.60	3.60	0.0000013	0.0270

Reach Label	Downstream Label	Downstream Distance	Hydraulics Q, m3/s	E, m3/s	H, m	B, m	Ac, m^2	U, mps	Trav Time, d	Slope	Reaeration Ka,20, /d	Reaeration formula
	Headwater	0.00	54.37	27.19	4.00	48.50	251.92	0.22	0.00	0.000020	0.23	O'Conn
1.00	DVR CRK (297.9)	0.16	54.37	0.64	4.00	48.50	251.92	0.22	0.01	0.000020	0.23	O'Conn
2.00	cher L&D (289.5)	13.76	54.68	27.34	4.02	48.50	252.90	0.22	0.74	0.000020	0.23	O'Conn
3.00	cher L&D (281.0)	27.36	54.68	51.62	4.02	48.50	252.90	0.22	1.46	0.000020	0.23	O'Conn
4.00	280.50	28.16	54.68	21.04	5.02	48.50	334.40	0.16	1.52	0.000007	0.76	Specified
5.00	Pipeline (279.7)	29.45	54.68	5.14	5.02	48.50	334.40	0.16	1.61	0.000007	0.14	O'Conn
6.00	Moro Bay (272.0)	41.84	54.68	29.66	4.61	56.70	338.08	0.16	2.50	0.000011	0.16	O'Conn
7.00	265.50	52.30	54.68	27.34	4.61	56.70	338.08	0.16	3.25	0.000011	0.16	O'Conn
8.00	259.00	62.76	54.68	27.34	4.61	56.70	338.08	0.16	4.00	0.000011	0.16	O'Conn
9.00	252.50	73.22	54.68	27.34	4.12	56.70	295.03	0.19	4.65	0.000007	0.20	O'Conn
10.00	246.00	83.68	54.68	27.33	4.12	56.70	295.03	0.19	5.30	0.000007	0.20	O'Conn
11.00	Saline (239.5)	94.15	54.68	39.50	4.12	56.70	295.03	0.19	5.96	0.000007	0.20	O'Conn
12.00	HWY 82 (237.0)	98.17	57.34	22.05	4.34	56.70	313.52	0.18	6.21	0.000003	0.19	O'Conn
13.00	233.00	104.61	57.34	21.84	4.34	56.70	313.52	0.18	6.62	0.000003	0.19	O'Conn
14.00	nthal U/S (226.5)	115.07	57.34	53.24	4.41	81.60	430.40	0.13	7.53	0.000002	0.15	O'Conn
15.00	thal L&D (226.0)	115.87	57.34	28.69	4.41	81.60	430.40	0.13	7.60	0.000002	0.15	O'Conn
16.00	225.50	116.68	57.34	28.65	5.14	81.60	514.51	0.11	7.68	0.000001	1.33	Specified
17.00	225.00	117.48	57.34	28.67	5.14	81.60	514.51	0.11	7.76	0.000001	0.11	O'Conn

Reach Label	X (km)	Temp (deg C)	TSS (mg/L)	DO (mg O2/L)	CBOD slow (mg O2/L)	CBOD fast (mg O2/L)	NO3 (ug N/L)	NH4 (ug N/L)	NO2 (ug N/L)	PO4 (ug P/L)	TOTP (ug P/L)	Phyto (ug A/L)	Benthos (mg D/L)
	0.00	63.80	3.66	6.50	0.00	2.40	444.00	20.00	20.00	30.00	10.00	3.50	1.22
1.00	0.08	63.80	3.65	6.49	0.01	2.39	444.76	20.05	20.04	30.11	10.01	3.50	1.21
2.00	6.96	63.44	3.23	6.18	0.17	2.39	481.04	22.31	28.68	42.28	12.68	3.44	0.67
3.00	20.56	63.44	2.83	5.96	0.14	2.31	495.29	23.73	31.87	44.66	13.15	3.49	0.37
4.00	27.76	63.44	2.81	5.99	0.14	2.30	496.31	23.94	32.20	44.83	13.21	3.47	0.35
5.00	28.81	63.44	2.77	5.95	0.13	2.29	497.69	24.27	32.73	45.08	13.30	3.45	0.32
6.00	35.65	63.44	2.41	5.69	0.08	2.05	500.20	25.53	37.70	45.91	13.89	3.47	0.17
7.00	47.07	63.44	2.15	5.55	0.05	1.82	498.22	26.02	41.74	46.05	14.28	3.58	0.11
8.00	57.53	63.44	1.91	5.48	0.03	1.59	494.14	26.15	45.46	45.88	14.58	3.75	0.07
9.00	67.99	63.44	1.69	5.53	0.02	1.41	489.78	25.48	47.43	45.63	14.58	4.13	0.06
10.00	78.45	63.44	1.50	5.60	0.02	1.24	485.10	24.95	48.66	45.32	14.51	4.54	0.05
11.00	88.91	63.44	1.34	5.69	0.02	1.09	480.37	24.55	49.18	45.01	14.37	4.98	0.05
12.00	96.16	64.77	1.98	5.75	0.14	1.19	481.25	24.82	48.19	44.55	14.17	5.08	0.09
13.00	101.39	64.77	1.28	5.78	0.07	1.17	479.27	24.88	48.63	44.49	14.14	5.28	0.08
14.00	109.84	64.77	1.10	5.44	0.03	1.03	473.98	25.16	49.13	44.23	14.07	5.69	0.06
15.00	115.47	64.77	1.08	5.42	0.03	1.02	473.56	25.18	49.17	44.21	14.07	5.72	0.06
16.00	116.28	64.77	1.07	5.63	0.03	1.01	473.07	25.41	49.36	44.18	14.11	5.71	0.06
17.00	117.08	64.77	1.05	5.62	0.03	0.99	472.56	25.62	49.57	44.16	14.14	5.70	0.06
	117.48	64.77	1.05	5.62	0.03	0.99	472.56	25.62	49.57	44.16	14.14	5.70	0.06

Reach Label	(Km)	Fetch	ALK	pH	BOD5 (gO2/m2)	OC	TN	TP	NITRATE	TSS (mg/L)	CBOD5	BOD5 (gO2/m2)	NH3	DO sat	pH sat
	0.00	0.00	20.50	7.00	0.00	3.03	597.04	55.70	577.04	5.23	4.09	0.00	0.18	7.30	7.87
1:00	0.08	0.00	20.50	7.00	0.00	3.03	597.00	55.70	576.96	5.21	4.08	0.00	0.18	7.30	7.87
2:00	6.96	0.00	20.92	7.00	0.00	2.96	604.92	65.08	576.24	4.24	3.65	0.00	0.20	7.28	7.88
3:00	20.56	0.00	20.89	7.00	0.00	2.74	602.90	65.04	571.03	3.56	3.23	0.00	0.22	7.26	7.88
4:00	27.76	0.00	20.88	7.02	0.00	2.72	602.78	65.04	570.59	3.51	3.19	0.00	0.23	7.26	7.88
5:00	28.81	0.00	20.88	7.01	0.00	2.69	602.60	65.03	569.86	3.44	3.14	0.00	0.23	7.26	7.88
6:00	35.65	0.00	20.83	7.00	0.00	2.34	600.84	65.00	563.14	2.93	2.69	0.00	0.24	7.24	7.88
7:00	47.07	0.00	20.79	7.00	0.00	2.06	599.44	64.97	557.70	2.61	2.37	0.00	0.25	7.22	7.88
8:00	57.53	0.00	20.74	7.01	0.00	1.81	598.05	64.95	552.59	2.35	2.11	0.00	0.26	7.21	7.88
9:00	67.99	0.00	20.71	7.04	0.00	1.62	596.64	64.92	549.21	2.17	1.94	0.00	0.27	7.20	7.88
10:00	78.45	0.00	20.68	7.07	0.00	1.46	595.15	64.90	546.49	2.01	1.80	0.00	0.28	7.19	7.88
11:00	88.91	0.00	20.65	7.11	0.00	1.33	593.57	64.87	544.40	1.89	1.70	0.00	0.30	7.18	7.88
12:00	95.46	0.00	24.32	7.10	0.00	1.57	597.36	64.70	549.47	1.08	1.97	0.00	0.30	7.19	7.95
13:00	101.39	0.00	24.30	7.12	0.00	1.48	596.36	64.68	547.73	1.89	1.89	0.00	0.31	7.18	7.95
14:00	109.84	0.00	24.27	7.15	0.00	1.32	593.87	64.64	544.74	1.73	1.75	0.00	0.35	7.17	7.95
15:00	116.47	0.00	24.26	7.15	0.00	1.31	593.68	64.63	544.51	1.72	1.74	0.00	0.35	7.17	7.95
16:00	116.28	0.00	24.26	7.20	0.00	1.29	593.48	64.63	544.13	1.70	1.72	0.00	0.39	7.17	7.95
17:00	117.08	0.00	24.26	7.20	0.00	1.27	593.29	64.63	543.72	1.69	1.70	0.00	0.39	7.17	7.95
	117.48	0.00	24.26	7.20	0.00	1.27	593.29	64.63	543.72	1.69	1.70	0.00	0.39	7.17	7.95

Reach for dist plot	11					ne Option, Leave the Other Blank or Zero)					
			Reach			Downstream				Manning Formula	
Reach	Downstream		length	Downstream		location	Bot Width	Side	Side	Channel	Manning
Label	end of reach label	Number	(km)	Latitude	Longitude	(km)	m	Slope	Slope	Slope	n
	Headwater	0		33.23	92.65	0.00	48.50	3.60	3.60	0.0000199	0.0720
1.000	SMKOVR CRK (297.9)	1	0.16	33.23	92.65	0.16	48.50	3.60	3.60	0.0000199	0.0720
2.000	1/2 way to Thatcher L&D (289	2	13.60	33.23	92.65	13.76	48.50	3.60	3.60	0.0000199	0.0720
3.000	Thatcher L&D (281.0)	3	13.60	33.23	92.65	27.36	48.50	3.60	3.60	0.0000199	0.0720
4.000	280.500	4	0.81	33.23	92.65	28.16	48.50	3.60	3.60	0.000007	0.0670
5.000	Pipeline (279.7)	5	1.29	33.23	92.65	29.45	48.50	3.60	3.60	0.000007	0.0670
6.000	Moro Bay (272.0)	6	12.39	33.23	92.65	41.84	56.70	3.60	3.60	0.0000105	0.0920
7.000	265.500	7	10.46	33.23	92.65	52.30	56.70	3.60	3.60	0.0000105	0.0920
8.000	259.000	8	10.46	33.23	92.65	62.76	56.70	3.60	3.60	0.0000105	0.0920
9.000	252.500	9	10.46	33.23	92.65	73.22	56.70	3.60	3.60	0.0000074	0.0670
10.000	246.000	10	10.46	33.23	92.65	83.68	56.70	3.60	3.60	0.0000074	0.0670
11.000	Saline (239.5)	11	10.47	33.23	92.65	94.15	56.70	3.60	3.60	0.0000074	0.0670
12.000	HWY 82 (237.0)	12	4.02	33.23	92.65	98.17	56.70	3.60	3.60	0.0000025	0.0480
13.000	233.000	13	6.44	33.23	92.65	104.61	56.70	3.60	3.60	0.0000025	0.0480
14.000	Felsenthal U/S (226.5)	14	10.46	33.23	92.65	115.07	81.60	3.60	3.60	0.0000019	0.0610
15.000	Felsenthal L&D (226.0)	15	0.81	33.23	92.65	115.87	81.60	3.60	3.60	0.0000019	0.0610
16.000	225.500	16	0.80	33.23	92.65	116.68	81.60	3.60	3.60	0.0000013	0.0660
17.000	225.000	17	0.80	33.23	92.65	117.48	81.60	3.60	3.60	0.0000013	0.0660

Reach Label	Downstream Label	Downstream Distance	Hydraulics Q m3/s	E m3/s	H m	B m	Ac m^2	U m/s	trav time d	Slope	Reaeration ka 20 /d	Reaeration formula
	Headwater	0.00	21.20	10.60	3.07	48.50	182.87	0.12	0.00	0.000020	0.25	O'Conn
1.00	DVR CRK (297.9)	0.16	21.20	0.25	3.07	48.50	182.87	0.12	0.02	0.000020	0.25	O'Conn
2.00	cher L&D (289.5)	13.76	21.20	10.60	3.07	48.50	182.87	0.12	1.37	0.000020	0.25	O'Conn
3.00	cher L&D (281.0)	27.36	21.20	20.02	3.07	48.50	182.87	0.12	2.73	0.000020	0.25	O'Conn
4.00	280.50	28.16	21.20	8.16	3.96	48.50	248.26	0.09	2.84	0.000007	0.76	Specified
5.00	Pipeline (279.7)	29.45	21.20	1.99	3.96	48.50	248.26	0.09	3.01	0.000007	0.15	O'Conn
6.00	Moro Bay (272.0)	41.84	21.79	11.82	3.97	56.70	281.41	0.08	4.87	0.000011	0.14	O'Conn
7.00	265.50	52.30	21.79	10.89	3.97	56.70	281.41	0.08	6.43	0.000011	0.14	O'Conn
8.00	259.00	62.76	21.79	10.90	3.97	56.70	281.41	0.08	7.99	0.000011	0.14	O'Conn
9.00	252.50	73.22	21.79	10.90	3.66	56.70	255.65	0.09	9.41	0.000007	0.16	O'Conn
10.00	246.00	83.68	21.79	10.89	3.66	56.70	255.65	0.09	10.83	0.000007	0.16	O'Conn
11.00	Saline (239.5)	94.15	21.79	15.74	3.66	56.70	255.65	0.09	12.26	0.000007	0.16	O'Conn
12.00	HWY 82 (237.0)	98.17	22.21	8.54	4.16	56.70	298.33	0.07	12.88	0.000003	0.13	O'Conn
13.00	233.00	104.61	22.21	8.46	4.16	56.70	298.33	0.07	13.88	0.000003	0.13	O'Conn
14.00	nthal U/S (226.5)	115.07	22.21	20.62	4.27	81.60	414.55	0.05	16.14	0.000002	0.10	O'Conn
15.00	thal L&D (226.0)	115.87	22.21	11.11	4.27	81.60	414.55	0.05	16.32	0.000002	0.10	O'Conn
16.00	225.50	116.68	22.21	11.10	4.98	81.60	495.98	0.04	16.52	0.000001	1.33	Specified
17.00	225.00	117.48	22.21	11.11	4.98	81.60	495.98	0.04	16.73	0.000001	0.07	O'Conn

Reach	x (km)	cond (mg/L)	TSS (mg/L)	DO (mg O2/L)	CBOD5 (mg O2/L)	CBOD1 (mg O2/L)	CBOD (mg O2/L)	TN (ug N/L)	NH4 (ug N/L)	NO3 (ug N/L)	TPO4 (ug P/L)	TP (ug P/L)	Chl a (ug Chl/L)	Chl a (ug Chl/L)
1	0.00	63.80	3.66	6.50	0.00	2.40	444.00	20.00	20.00	30.00	10.00	3.50	1.22	
1.00	0.08	63.80	3.64	6.49	0.02	2.39	445.40	20.05	20.06	30.21	10.01	3.50	1.20	
2.00	6.96	63.80	2.68	6.21	0.14	2.45	483.91	22.02	22.79	36.52	10.36	3.94	0.47	
3.00	20.56	63.80	1.97	6.09	0.08	2.29	491.81	22.81	23.48	38.57	10.16	4.69	0.20	
4.00	27.76	63.80	1.93	6.15	0.08	2.27	492.27	23.18	23.77	38.71	10.21	4.69	0.19	
5.00	28.81	63.80	1.87	6.11	0.07	2.24	492.63	23.68	24.27	38.88	10.28	4.69	0.16	
6.00	35.65	98.22	1.40	5.39	0.04	2.17	509.96	133.56	370.00	42.36	11.24	5.31	0.09	
7.00	47.07	98.22	1.07	5.23	0.03	1.80	500.44	82.40	414.43	42.07	11.08	5.92	0.07	
8.00	57.53	98.22	0.81	5.26	0.02	1.49	490.52	53.86	435.09	41.71	10.81	6.52	0.06	
9.00	67.99	98.22	0.62	5.46	0.02	1.27	482.10	38.48	439.54	41.43	10.15	7.32	0.07	
10.00	78.45	98.22	0.47	5.66	0.03	1.10	474.46	31.14	436.80	41.23	9.60	7.91	0.07	
11.00	88.91	98.22	0.36	5.83	0.03	0.97	467.52	28.02	430.82	41.11	9.17	8.32	0.08	
12.00	96.16	98.10	0.37	5.85	0.03	1.04	466.15	28.28	421.90	41.03	9.33	8.10	0.09	
13.00	101.39	98.10	0.31	5.87	0.03	0.95	461.83	28.18	420.09	41.00	9.50	7.97	0.08	
14.00	109.84	98.01	0.22	5.04	0.03	0.82	451.38	27.91	411.72	40.78	9.89	7.70	0.07	
15.00	115.47	98.01	0.21	4.97	0.03	0.81	450.58	27.89	411.04	40.76	9.92	7.68	0.07	
16.00	116.28	98.00	0.20	5.53	0.03	0.80	449.60	28.39	411.02	40.73	10.08	7.54	0.07	
17.00	117.08	97.99	0.20	5.52	0.03	0.79	448.62	28.76	411.07	40.71	10.23	7.42	0.07	
	117.48	97.99	0.20	5.52	0.03	0.79	448.62	28.76	411.07	40.71	10.23	7.42	0.07	

Reach/Element	X (km)	Flow (m3/s)	Area (m2)	Vel (m/s)	Elev (m)	TOC (g/m3)	TN (g/m3)	TP (g/m3)	TKN (g/m3)	TSS (g/m3)	CBOD (g/m3)	Algae (mgA/m2)	Org N (g/m3)	Org P (g/m3)	pH (SU)
0.00	0.00	0.00	20.50	7.00	0.00	3.03	597.04	55.70	577.04	5.23	4.09	0.00	0.18	7.30	7.87
1.00	0.08	0.00	20.50	7.00	0.00	3.03	596.95	55.70	576.89	5.19	4.08	0.00	0.18	7.30	7.87
2.00	6.96	0.00	20.45	7.06	0.00	2.94	591.32	55.57	568.53	3.55	3.53	0.00	0.23	7.26	7.87
3.00	20.56	0.00	20.40	7.12	0.00	2.64	586.65	55.47	563.17	2.64	3.10	0.00	0.28	7.22	7.87
4.00	27.76	0.00	20.39	7.15	0.00	2.61	586.38	55.47	562.60	2.58	3.06	0.00	0.31	7.22	7.87
5.00	28.81	0.00	20.39	7.14	0.00	2.57	585.95	55.46	561.68	2.50	2.99	0.00	0.31	7.21	7.87
6.00	35.65	0.00	21.73	7.08	0.00	2.46	1058.53	59.85	688.54	2.03	2.88	0.00	1.54	7.19	7.89
7.00	47.07	0.00	21.31	7.07	0.00	2.09	1044.90	59.77	630.46	1.73	2.54	0.00	0.94	7.17	7.88
8.00	57.53	0.00	21.06	7.09	0.00	1.80	1031.01	59.67	595.92	1.53	2.29	0.00	0.65	7.16	7.88
9.00	67.99	0.00	20.92	7.15	0.00	1.62	1017.65	59.57	578.11	1.42	2.16	0.00	0.54	7.15	7.88
10.00	78.45	0.00	20.84	7.23	0.00	1.47	1004.51	59.46	567.72	1.33	2.06	0.00	0.52	7.14	7.88
11.00	88.91	0.00	20.78	7.30	0.00	1.36	991.65	59.34	560.82	1.26	1.98	0.00	0.55	7.13	7.87
12.00	96.16	0.00	22.25	7.28	0.00	1.43	980.96	59.34	559.06	1.27	2.03	0.00	0.63	7.14	7.90
13.00	101.39	0.00	22.21	7.31	0.00	1.34	973.21	59.27	553.13	1.19	1.93	0.00	0.56	7.13	7.90
14.00	109.84	0.00	22.13	7.36	0.00	1.19	951.78	59.11	540.06	1.06	1.76	0.00	0.63	7.13	7.90
15.00	116.47	0.00	22.12	7.36	0.00	1.17	950.44	59.09	539.07	1.05	1.74	0.00	0.63	7.13	7.90
16.00	116.28	0.00	22.12	7.44	0.00	1.16	948.58	59.08	537.54	1.03	1.72	0.00	0.77	7.13	7.90
17.00	117.08	0.00	22.11	7.44	0.00	1.14	947.02	59.07	535.95	1.01	1.69	0.00	0.77	7.13	7.90
	117.48	0.00	22.11	7.44	0.00	1.14	947.02	59.07	535.95	1.01	1.69	0.00	0.77	7.13	7.90

Crystal - selin - Tr
j. phos

Reach for diel plot	11											
Reach	Downstream		Reach	Downstream		Downstream						
Label	end of reach label	Number	Length (km)	Latitude	Longitude	location (km)	Bot Width n	Side Slope	Side Slope	Channel Slope	Manning n
	Headwater	0		33.23	92.65	0.00	48.50	3.60	3.60	0.0000199	0.0720
1.000	SMKOVR CRK (297.9)	1	0.16	33.23	92.65	0.16	48.50	3.60	3.60	0.0000199	0.0720
2.000	1/2 way to Thatcher L&D (289	2	13.60	33.23	92.65	13.76	48.50	3.60	3.60	0.0000199	0.0720
3.000	Thatcher L&D (281.0)	3	13.60	33.23	92.65	27.36	48.50	3.60	3.60	0.0000199	0.0720
4.000	280.500	4	0.81	33.23	92.65	28.16	48.50	3.60	3.60	0.000007	0.0670
5.000	Pipeline (279.7)	5	1.29	33.23	92.65	29.45	48.50	3.60	3.60	0.000007	0.0670
6.000	Moro Bay (272.0)	6	12.39	33.23	92.65	41.84	56.70	3.60	3.60	0.0000105	0.0920
7.000	265.500	7	10.46	33.23	92.65	52.30	56.70	3.60	3.60	0.0000105	0.0920
8.000	259.000	8	10.46	33.23	92.65	62.76	56.70	3.60	3.60	0.0000105	0.0920
9.000	252.500	9	10.46	33.23	92.65	73.22	56.70	3.60	3.60	0.0000074	0.0670
10.000	246.000	10	10.46	33.23	92.65	83.68	56.70	3.60	3.60	0.0000074	0.0670
11.000	Saline (239.5)	11	10.47	33.23	92.65	94.15	56.70	3.60	3.60	0.0000074	0.0670
12.000	HWY 82 (237.0)	12	4.02	33.23	92.65	98.17	56.70	3.60	3.60	0.0000025	0.0480
13.000	233.000	13	6.44	33.23	92.65	104.61	56.70	3.60	3.60	0.0000025	0.0480
14.000	Felsenthal U/S (226.5)	14	10.46	33.23	92.65	115.07	81.60	3.60	3.60	0.0000019	0.0610
15.000	Felsenthal L&D (226.0)	15	0.81	33.23	92.65	115.87	81.60	3.60	3.60	0.0000019	0.0610
16.000	225.500	16	0.80	33.23	92.65	116.68	81.60	3.60	3.60	0.0000013	0.0660
17.000	225.000	17	0.80	33.23	92.65	117.48	81.60	3.60	3.60	0.0000013	0.0660

Reach Label	Downstream Label	Downstream Distance	Hydraulics Q m3/s	E m3/s	H m	B m	Ac m^2	U m/s	travtime d	Slope	Reaeration Ka 20 /d	Reaeration formula
	Headwater	0.00	21.20	10.60	3.07	48.50	182.87	0.12	0.00	0.000020	0.25	O'Conn
1.00	DVR CRK (297.9)	0.16	21.20	0.25	3.07	48.50	182.87	0.12	0.02	0.000020	0.25	O'Conn
2.00	cher L&D (289.5)	13.76	21.37	10.69	3.08	48.50	183.85	0.12	1.37	0.000020	0.25	O'Conn
3.00	cher L&D (281.0)	27.36	21.37	20.18	3.08	48.50	183.85	0.12	2.72	0.000020	0.25	O'Conn
4.00	280.50	28.16	21.37	8.22	3.97	48.50	249.62	0.09	2.83	0.000007	0.76	Specified
5.00	Pipeline (279.7)	29.45	21.37	2.01	3.97	48.50	249.62	0.09	3.01	0.000007	0.15	O'Conn
6.00	Moro Bay (272.0)	41.84	21.37	11.59	3.92	56.70	277.72	0.08	4.87	0.000011	0.14	O'Conn
7.00	265.50	52.30	21.37	10.68	3.92	56.70	277.72	0.08	6.44	0.000011	0.14	O'Conn
8.00	259.00	62.76	21.37	10.69	3.92	56.70	277.72	0.08	8.02	0.000011	0.14	O'Conn
9.00	252.50	73.22	21.37	10.69	3.62	56.70	252.31	0.08	9.45	0.000007	0.17	O'Conn
10.00	246.00	83.68	21.37	10.68	3.62	56.70	252.31	0.08	10.88	0.000007	0.17	O'Conn
11.00	Saline (239.5)	94.15	21.37	15.44	3.62	56.70	252.31	0.08	12.31	0.000007	0.17	O'Conn
12.00	HWY 82 (237.0)	98.17	21.79	8.38	4.12	56.70	294.48	0.07	12.94	0.000003	0.13	O'Conn
13.00	233.00	104.61	21.79	8.30	4.12	56.70	294.48	0.07	13.94	0.000003	0.13	O'Conn
14.00	nthal U/S (226.5)	115.07	21.79	20.23	4.23	81.60	409.31	0.05	16.22	0.000002	0.10	O'Conn
15.00	thal L&D (226.0)	115.87	21.79	10.90	4.23	81.60	409.31	0.05	16.39	0.000002	0.10	O'Conn
16.00	225.50	116.68	21.79	10.89	4.93	81.60	489.65	0.04	16.60	0.000001	1.33	Specified
17.00	225.00	117.48	21.79	10.90	4.93	81.60	489.65	0.04	16.81	0.000001	0.08	O'Conn

Reach Label	Volume (km)	Cond (umhos)	TSS (mgD/L)	DO (mgO2/L)	CBOD5 (mgO2/L)	CBODf (mgO2/L)	NO (ugN/L)	NH4 (ugN/L)	NO3 (ugN/L)	TSS (ugC/L)	Inorg P (ugP/L)	Phyto (ugA/L)	Detritus (mgD/L)
	0.00	63.80	3.66	6.50	0.00	2.40	444.00	20.00	20.00	30.00	10.00	3.50	1.22
1.00	0.08	63.80	3.64	6.49	0.02	2.39	445.40	20.05	20.06	30.21	10.01	3.50	1.20
2.00	6.96	63.29	2.71	6.23	0.14	2.48	490.37	21.74	28.73	39.89	11.11	4.19	0.48
3.00	20.56	63.29	2.00	6.12	0.09	2.32	498.68	22.55	27.26	41.92	10.74	5.15	0.21
4.00	27.76	63.29	1.96	6.18	0.08	2.30	499.18	22.96	27.42	42.06	10.78	5.15	0.19
5.00	28.81	63.29	1.89	6.14	0.07	2.27	499.59	23.51	27.72	42.23	10.84	5.16	0.17
6.00	35.65	63.29	1.37	5.92	0.04	1.88	491.86	25.33	29.87	42.32	10.83	5.75	0.09
7.00	47.07	63.29	1.04	5.85	0.03	1.57	482.97	26.06	30.90	42.04	10.66	6.30	0.07
8.00	57.53	63.29	0.79	5.86	0.02	1.32	473.88	26.52	31.23	41.70	10.41	6.82	0.07
9.00	67.99	63.29	0.59	5.98	0.02	1.14	466.21	26.17	28.65	41.46	9.79	7.55	0.07
10.00	78.45	63.29	0.45	6.08	0.03	1.01	459.25	26.47	25.93	41.29	9.28	8.07	0.07
11.00	88.91	63.29	0.34	6.17	0.03	0.91	452.91	26.93	23.64	41.17	8.90	8.41	0.08
12.00	96.16	63.85	0.36	6.15	0.06	0.95	452.10	28.13	24.30	41.10	9.09	8.18	0.09
13.00	101.39	63.85	0.30	6.12	0.04	0.91	448.14	28.86	25.97	41.08	9.28	8.02	0.08
14.00	109.84	63.86	0.21	5.21	0.03	0.80	438.33	29.28	30.22	40.83	9.69	7.73	0.07
15.00	115.47	63.86	0.20	5.14	0.03	0.79	437.58	29.30	30.55	40.81	9.72	7.74	0.07
16.00	116.28	63.86	0.19	5.66	0.03	0.78	436.66	29.82	31.43	40.78	9.88	7.56	0.07
17.00	117.08	63.86	0.19	5.64	0.03	0.77	435.74	30.21	32.38	40.76	10.03	7.43	0.07
	117.48	63.86	0.19	5.64	0.03	0.77	435.74	30.21	32.38	40.76	10.03	7.43	0.07

Reach Label	x (km)	Pathogens	Alk	pH	DOAlg (gO2/m2)	TOC	TN	TP	TKN	TSS (mgD/L)	CBODu	BotAlg (mgA/m2)	NH4	DO	pH Calc
	0.00	0.00	20.50	7.00	0.00	3.03	597.04	55.70	577.04	5.23	4.09	0.00	0.18	7.30	7.87
1.00	0.08	0.00	20.50	7.00	0.00	3.03	596.95	55.70	576.89	5.19	4.08	0.00	0.18	7.30	7.87
2.00	6.96	0.00	21.09	7.05	0.00	2.99	605.71	60.01	576.98	3.61	3.60	0.00	0.23	7.26	7.88
3.00	20.56	0.00	21.04	7.12	0.00	2.69	600.72	59.91	573.46	2.72	3.18	0.00	0.28	7.22	7.88
4.00	27.76	0.00	21.04	7.15	0.00	2.67	600.43	59.90	573.01	2.66	3.14	0.00	0.31	7.22	7.88
5.00	28.81	0.00	21.03	7.15	0.00	2.62	599.97	59.89	572.26	2.58	3.08	0.00	0.31	7.22	7.88
6.00	35.65	0.00	20.96	7.16	0.00	2.18	594.85	59.79	564.98	2.04	2.63	0.00	0.35	7.19	7.88
7.00	47.07	0.00	20.90	7.19	0.00	1.88	590.30	59.69	559.40	1.74	2.35	0.00	0.39	7.17	7.88
8.00	57.53	0.00	20.84	7.24	0.00	1.65	585.49	59.60	554.26	1.53	2.15	0.00	0.45	7.16	7.88
9.00	67.99	0.00	20.80	7.31	0.00	1.50	580.37	59.49	551.71	1.42	2.06	0.00	0.52	7.15	7.88
10.00	78.45	0.00	20.76	7.38	0.00	1.39	575.02	59.37	549.09	1.33	1.98	0.00	0.62	7.14	7.88
11.00	88.91	0.00	20.71	7.46	0.00	1.30	569.52	59.25	545.88	1.26	1.92	0.00	0.75	7.13	7.88
12.00	96.16	0.00	22.22	7.40	0.00	1.37	569.74	59.25	545.44	1.27	1.99	0.00	0.69	7.13	7.91
13.00	101.39	0.00	22.18	7.42	0.00	1.30	566.47	59.17	540.51	1.18	1.89	0.00	0.75	7.13	7.91
14.00	109.84	0.00	22.08	7.46	0.00	1.17	558.79	58.98	528.57	1.05	1.74	0.00	0.82	7.13	7.91
15.00	115.47	0.00	22.07	7.46	0.00	1.16	558.20	58.97	527.65	1.04	1.73	0.00	0.83	7.13	7.91
16.00	116.28	0.00	22.06	7.53	0.00	1.14	557.62	58.95	526.19	1.02	1.70	0.00	0.98	7.12	7.91
17.00	117.08	0.00	22.05	7.52	0.00	1.13	557.04	58.94	524.66	1.00	1.68	0.00	0.98	7.12	7.91
	117.48	0.00	22.05	7.52	0.00	1.13	557.04	58.94	524.66	1.00	1.68	0.00	0.98	7.12	7.91

Ouachita River at Camden: 7Q10 = 648 cfs Drainage area = 5357 sq mi
Ouachita River below the mouth of
Smackover Creek: Drainage area = 6367 sq mi
Smackover Creek at mouth: Drainage area = 541 sq mi
Ouachita River above Smackover Creek: Drainage area = 6367-541 = 5826 sq mi
Ouachita River above Smackover Creek: 7Q10 ≈ 648*5826/5357 = 705 cfs

Saline river at Rye: 7Q10 = 12.0 cfs Drainage area = 2102 sq mi
Saline River at mouth: Drainage area = 3250 sq mi
Saline river at mouth: 7Q10 ≈ 12.0*3250/2102 = 18.6 cfs

The 7Q10 flows at the Camden and Rye gages are from the U.S. Geological Survey office in Little Rock. The 7Q10s are based on a climatic year (April through March) with a period of record of 1970 through 2004. The adjustment for intervening drainage area is by LDEQ.

7. We will not know what effect these problems have had on the projections until the model is recalibrated and reprojected. We have not yet checked the U.S. Army Corps of Engineers model of the Ouachita for a confirmation of geometry and surface slope, but plan to do so.

8. Questions to facilitate further review/calibration/projection

a. I did not find in the report any mention that the BODs were filtered as recommended in the manual. Were they filtered?
b. Were unfiltered BODs run? If so would you please forward the results.
c. Please confirm the statement in the report that the Ouachita River samples and in-situ measurements were taken at a depth of 1 foot.
d. Were any full depth profiles of the river taken to see if the river was well mixed top to bottom at the calibration depth?
e. In calculating the 7Q10s, was the drainage area between the gages and the point of application taken into account?

BEFORE THE ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF:
EL DORADO JOINT PIPELINE GROUP PERMITS

CONSOLIDATED
Docket No. 07-006-P

PERMIT NOS. **AR 0050296**
AR 0049743
AR 0000647
AR 0000752
AR 0001171

LOUISIANA ENVIRONMENTAL ACTION NETWORK'S REQUEST FOR ORAL ARGUMENT BEFORE THE COMMISSION REGARDING THE ADMINISTRATIVE HEARING OFFICER'S MAY 8, 2008 RECOMMENDED DECISION (ORDER 9)

This case presented the Administrative Hearing Officer with a monumental task: untangle information from seven days of trial testimony and over a hundred exhibits to determine whether ADEQ complied with a litany of laws and regulations when issuing a permit to the Joint Pipeline Group (El Dorado Water Utilities, El Dorado Chemical Company, Great Lakes Chemical Company and Lion Oil Company) allowing them to combine their wastewater and dump it into the Ouachita River, upstream of Felsenthal National Wildlife Refuge and the Arkansas-Louisiana state line. While the AHO got some things right, his 68-page Recommended Decision contains several errors. Therefore, pursuant to Regulation 2.5.19, Louisiana Environmental Action Network ("LEAN") hereby requests oral argument before the Commission regarding the Administrative Hearing Officer's ("AHO") Recommended Decision dated May 8, 2008 ("Recommended Decision"), Order 9.

The Recommended Decision contains several errors that the Commission should modify. First, when the Joint Pipeline Group (JPG) asked the AHO to change the permits to say that the Ouachita River is not impaired for zinc, the AHO directed that ADEQ change the statement to

read that the Ouachita River is "not impaired for zinc and mercury." No one asked the AHO to remove the statement that the Ouachita River is impaired for mercury, and all testimony at the hearing agreed that the Ouachita River is impaired for mercury.

Second, the AHO ignored state and federal law by allowing the JPG to discharge 2400 grams of mercury per year into the Ouachita River, even though the river already has so much mercury in it that you can't eat the fish. *See* STO Ex. 2. Allowing the JPG to discharge that much mercury into the river violates ADEQ's duty to protect and maintain the Ouachita River's fishery. The AHO found that the Joint Permit protects the fishery because he concluded that the JPG would not actually discharge mercury. He based that conclusion on testimony that old test results showed that the JPG members were discharging less than 200 nanograms per liter of mercury. But evidence that the JPG members discharged less than 200 nanograms per liter of mercury is not the same thing as evidence showing they discharge no mercury. Also, the AHO ignored the fact that the Joint Permit allows the JPG to discharge up to 2400 grams per year of mercury, whether or not they are currently discharging any.

Because the Ouachita River is impaired for mercury, EPA decided back in 2002 how much mercury the Ouachita River can handle. It adopted a document called a Total Maximum Daily Load (TMDL) that sets a mercury "budget" (in grams) for the Ouachita River and then divides that budget between all mercury sources. All permits issued after EPA adopted the TMDL in 2002 must comply with the TMDL's mercury budget. The TMDL for the entire Ouachita River is 932 grams per year combined from all point sources (i.e. pipes) into the river. This TMDL "budget" does not include any of the mercury from the Joint Pipeline. But the Joint Permit would allow the JPG to discharge 2400 grams per year of mercury into the river—more than double the entire budget from all point sources for the whole river. By allowing ADEQ to

"overspend" the mercury budget and let the Joint Pipeline discharge 2400 grams of mercury per year, the AHO failed to enforce federal law.

Third, the AHO also erred by letting ADEQ assume the Ouachita River has absolutely no zinc or other metals in it when ADEQ calculated the Joint Permit limits even though ADEQ has years worth of data from monitoring stations above and below the discharge point in the Ouachita River showing zinc and other metals present in the river. Further, ADEQ presented no evidence supporting its assumption that there are no metals in the Ouachita River at the spot where the Joint Pipeline wants to discharge. Based on the evidence presented at the hearing, the AHO could not reasonably conclude that ADEQ was reasonable in using a "0" background concentration for all metals when setting permit limits.

Fourth, federal law prohibits ADEQ from issuing a permit that does not "ensure compliance" with the water quality standards of all affected states. The AHO erred by finding that ADEQ could "ensure compliance" with Louisiana's water quality standards when ADEQ ***(1)*** failed to examine how the Joint Pipeline discharges, when combined with the pulp and paper mill discharges at Coffee Creek just above the Arkansas-Louisiana state line, impact dissolved oxygen at the state line; ***(2)*** failed to examine the biological effect elevated nutrients would have on Louisiana's water quality and ***(3)*** failed to determine whether that biological effect would comply with Louisiana's water quality standards for nutrients and nuisance species.

Fifth, the AHO erred in concluding that the Joint Pipeline discharges protect the fishery in Felsenthal National Wildlife Refuge. Fish die when dissolved oxygen gets too low, but the modeling ADEQ and the AHO relied on only predicted average dissolve oxygen levels. By only predicting the Joint Pipeline discharges' impact on average dissolved oxygen levels, ADEQ did

not get a clear picture of how the discharges will effect minimum dissolved oxygen and, in turn, whether the discharges will protect fish.

Sixth, the AHO erred when he concluded that the Joint Pipeline discharges would comply with Arkansas' nutrient and nuisance species standards in Felsenthal National Wildlife Refuge. The AHO ignored modeling showing elevated nutrient levels, but he gave weight to other modeling that looked at the discharges' impact on a plant that actually doesn't grow in Felsenthal.

For these reasons, the Commission should reverse and/or modify the Recommended Decision as set forth below and in LEAN's Proposed Minute Order.

I. The AHO Erred by Directing ADEQ to Change the Permits to Say that the Ouachita River is not Listed on Arkansas' Impaired Waters List for Mercury and Zinc.

The AHO erred when he directed ADEQ to revise the language in the Permits to state that the Ouachita River is not on Arkansas' Impaired Waters List—also called the 303(d) list—for mercury and zinc. The Recommended Decision directs ADEQ to revise language in the Permits to read: "'The receiving stream for Outfall 010 (the Ouachita River) is not listed on the 303d list for mercury and zinc." Recommended Decision at 55. This change is wrong for several reasons.

A. All Parties Agree that the Ouachita River is on Arkansas' Impaired Waters List for Mercury.

First, no one has alleged that the Ouachita River is not on the 303(d) list—Arkansas' list of impaired waters—for mercury. The JPG and ADEQ only requested that the language in the permit be changed to reflect their view that the reach of the Ouachita River into which the Joint Pipeline would discharge is not impaired for zinc. *See* Ex. A, JPG's Proposed Findings of Fact and Conclusions of Law at 83-84. Arkansas' 303(d) list shows the Ouachita River impaired for

mercury. *See* Ex. B, Excerpt from JX-9, Arkansas' 2004 List of Impaired Waterbodies. Therefore, the Commission must reject the AHO's Recommended Decision to the extent it directs ADEQ to state that the Ouachita River is not on the 303(d) list for mercury.

B. The Ouachita River is listed on the 303(d) list for Zinc.

Second, it is incorrect to say that "the Ouachita River is not listed on the 303d list for zinc." Portions of the Ouachita River in Segment 2D are on the 303(d) impaired waters list for zinc. *See* Ex. B, Excerpt from JX-9, Arkansas' 2004 List of Impaired Waterbodies. Therefore, the current statement in the Permits that the Ouachita River is on the 303(d) list for mercury and zinc is correct.

C. There was No Testimony Identifying By Number the Specific Reach Where the Joint Pipeline Plans to Discharge.

The 303(d) list identifies waters by Segment, Hydrologic Unit Code, and Reach. *See* Ex. B, Excerpt from JX-9, Arkansas' 2004 List of Impaired Waterbodies. The Joint Permit states that the Joint Pipeline would discharge into Segment 2D of the Ouachita River, but does not identify the Hydrologic Unit Code or Reach Number into which the Joint Pipeline would discharge. *See* Ex. C, Excerpt from JX-1, Joint Permit. There was no testimony during the hearing identifying by number the reach of the Ouachita River into which the Joint Pipeline will discharge. Without testimony regarding the Hydrologic Unit Code and Reach number where the Joint Pipeline would be discharging, the AHO could not reasonably confirm whether that reach is or is not listed on the 303(d) list.

D. The AHO could not Unilaterally Determine That Waters Listed on the 2004 List of Impaired Waterbodies are not Impaired.

The AHO recognized that some reaches of the Ouachita River in Segment 2D are on the 303(d) list for zinc. The AHO noted "the reaches identified are in Category 5d, which means

those waters need ***data verification to confirm the use impairment*** before a TMDL is scheduled." Recommended Decision at 55 (emphasis added). Without collecting data or hearing evidence that ADEQ collected data to confirm whether or not the reach is impaired, the AHO unilaterally concluded that "the reaches listed on the 303d list in Segment 2D ***are not impaired*** for zinc." Recommended Decision at 55 (emphasis added). The AHO had no support in the record for his determination that the reaches in Segment 2D of the Ouachita River on the 303(d) list are not impaired for zinc. Further, even if the AHO had heard such evidence, it was beyond the scope of the proceedings for the AHO to determine whether or not waterbodies listed on Arkansas' 2004 List of Impaired Waterbodies are actually impaired.

E. The Commission Has Several Options to Fix the AHO's errors.

The Commission can fix the AHO's errors in several ways. First, the Commission should reverse the AHO's finding that the Ouachita River "is not listed on the 303d list for mercury." Second, the Commission should reverse the AHO's finding that the Ouachita River is not listed on the 303(d) list for zinc. Third, the Commission should reverse the AHO's finding that "the reaches listed on the 303d list in Segment 2D are not impaired for zinc" because there is no evidence in the record that the reaches listed are not impaired for zinc. Fourth, if the Commission desires that the Permits describe the nature of the specific reach of the Ouachita River where the Joint Pipeline proposes to discharge, the Commission should remand the matter back to the AHO to hear evidence regarding the Hydrologic Unit Code and Reach Number where the Joint Pipeline wants to discharge into the Ouachita River so that the AHO can compare that information with the 303(d) list and confirm for himself whether or not that reach is on the 303(d) list.

II. The AHO Erred When He Affirmed That the JPG Can Discharge 2400 Grams Per Year of Mercury Into the Ouachita River From the Joint Pipeline.

The AHO made several findings with regard to the Joint Pipeline's mercury discharges. The AHO missed the mark when he affirmed that the JPG can discharge 2400 grams per year of mercury into the Ouachita River.

A. The Ouachita River Already Has Too Much Mercury In It.

The Ouachita River has so much mercury in it that there is a fish advisory warning people not to eat fish they catch in the river. *See* STO Ex. 2.[1] Arkansas has listed "fishing" as one of the designated uses of the Ouachita River. *See* APC&EC Reg. 2.303(F). But because there is so much mercury in the river that it has built up in fish tissues, the river does not support fish consumption or meets the existing "fishable" use. *See* Ex. B, Excerpt from JX-9, Arkansas' 2004 List of Impaired Waterbodies.

B. The Joint Permit Allows the JPG to Discharge 2400 Grams Per Year of Mercury into the Ouachita River.

The Joint Pipeline Permit allows the JPG to discharge a monthly average of 0.15 pounds of mercury per day. *See* Ex C, Excerpt from Joint Permit, JX-1. That means that Joint Permit allows the JPG to discharge 2400 grams per year of mercury into the Ouachita River.[2]

C. The AHO Erred In Concluding that the Joint Permit Does Not Violate Arkansas' "Existing Uses" Regulation.

1. Arkansas Law Directs ADEQ to Protect and Maintain Existing Uses of the Ouachita River.

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[1] Tr. Vol. 3, 319-20 (**Q. [Carruth]** Mr. Olive, I want to hand you what has been marked as STO/Stegall Exhibit 2. Can you identify that document? Take your time and look it over. **A. [Olive]** It appears to be an article from the Arkansas Game & Fish Commission Web site. **Q.** And what is it about? **A**. Mercury and eating fish. **Q.** Does it list the Felsenthal or Lake Jack Lee area, again, as being under a mercury advisory? **A.** Yes. **Q.** And this was something put out by your agency, the agency for whom you work? **A.** Yes.).

[2] Tr. Vol. 3, 366 (**Q. [DeBoard]** And how much mercury does the joint permit allow to be discharged? **A. [Sulkin]** In the joint permit itself, it has an explicit value of -- it's given in pounds per day, but if you convert it, it's around 2,400 grams per year. **Q.** And how did you come up with this number? **A.** I converted pounds to grams and multiplied it by 365 days per year.).

Arkansas law requires ADEQ to protect and maintain existing uses of the Ouachita River when issuing water discharge permits. Regulation 2.201 states "Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." Witnesses for Save the Ouachita testified about their and their families' use of the Ouachita River, which includes fishing and swimming in the river. *See generally* Tr. Vol. 5, 678-700, 704-717. The witnesses testified that if the discharge were allowed, their uses would be greatly curtailed or eliminated due to health concerns caused by the discharge. *See* Recommended Decision at 32.

2. The Evidence does not show that the JPG is Discharging No Mercury.

The AHO interpreted testimony by former ADEQ Water Division Chief Martin Maner that "there is no known mercury in the effluent of any of the pipeline participants" to conclude that the Joint Pipeline protects and maintains existing uses of the Ouachita River. *See* Recommended Decision at 32. However, Mr. Maner testified that old test results did not <u>detect</u> any mercury in any discharge by JPG members.[3] The JPG's own consultant, Vince Blubaugh, admitted that the JPG's "non-detect" results came from mercury testing Method 245.1.[4] The lowest amount of mercury that method can detect is **200** nanograms per liter.[5] This means that there could be **199** nanograms per liter in the JPG's discharges, and the test would still not detect mercury in the discharge. Therefore, the evidence does not demonstrate that "no mercury will be discharged by the joint pipeline," as the AHO concluded. *See* Recommended Decision at 32.

[3] T. Vol. 11, 1850 "**A. [Maner]** As far as we know, the analysis that's been done, there's no mercury in any of the discharges. That's according to the level of detection."

[4] Tr. Vol. 7, 947 (**Q. [Nestrud]** And what would have been the test method that would have been used for those applications? **A.** [**Blubaugh]** It would have been the one that was in play -- that was required at the time, which would be the 245.1, I believe it is.)

[5] Tr. Vol. 7, 947 (**Q. [Nestrud].** And what was the detection limit? **A. [Blubaugh]** The detection limit of that is .2 micrograms, I believe.).

3. The Joint Pipeline Permit Does Not Set the Mercury Limit As Zero.

The Joint Pipeline Permit allows the JPG to discharge 2400 grams per year of mercury into the Ouachita River. That means that, regardless of how much mercury the JPG members are discharging now, they would be free to discharge 2400 grams per year of mercury into the river through the Joint Pipeline. If the AHO believes that the JPG really will not discharge any mercury in the Ouachita River, he could have directed ADEQ to change the Joint Permit mercury limit to zero without causing the JPG hardship.

4. There is No Evidence in the Record That 12 Nanograms Per Liter of Mercury Is Protective of Bioaccumulation in the Ouachita River.

As further support for his determination that ADEQ did not violate the "Existing Uses" regulation, the AHO concluded: "the mercury limit of 12 nanograms per liter, established by EPA, is protective of bioaccumulation." *See* Recommended Decision at 32. The AHO points to no evidence in the record that the mercury limit of 12 nanograms per liter is protective of bioaccumulation in the Ouachita River. Because the AHO has not pointed to any evidence supporting that conclusion, it is arbitrary and should be reversed.

D. The AHO Erred In Concluding that the Permits Do Not Violate the Ouachita River's Mercury Budget.

1. All Discharges of Mercury in the Ouachita River Must Comply with the Mercury Budget Set in the TMDL.

In 2002, EPA adopted a mercury budget for the Ouachita River in Arkansas and Louisiana. *See generally* JX-8. The document, called a Total Maximum Daily Load, or TMDL, sets a mercury "budget" (in grams) for the Ouachita River and then divides that budget up between all mercury sources. *See* Ex. D, Excerpt from JX-8, 2002 Mercury TMDL, Table 4.14. The TMDL only set aside 942 grams per year of mercury for all point sources discharging into the Ouachita River: 356 grams per year to Ensco and 586 grams per year to all city wastewater

treatment plants. *See* Ex. D, Excerpt from JX-8, Table 4.14; T. Vol. 5, 646-647. The TMDL does not budget any mercury for El Dorado Chemical, Lion Oil, Great Lakes Chemical Company, or the Joint Pipeline.

2. Federal Regulations Require the JPG to Show The TMDL Has 2400 grams per year Left in the Mercury Budget for the Joint Pipeline.

Once a TMDL is in effect for a waterbody, federal regulations specify how a new point source may discharge into that waterbody. Regulations provide that any permittee who wants to discharge into a waterbody for which there is a TMDL must show, before the close of the public comment period, that: ***1)*** "there are sufficient remaining pollutant load allocations to allow the discharge…" and ***2)*** "the existing discharges into the segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards." 40 C.F.R. 122.4(i).

Therefore, in order for the JPG to be able to discharge 2400 grams per year of mercury into the Ouachita River, it needed to show, before the close of the comment period, that the TMDL reserved 2400 grams per year for the discharge and existing discharges are "subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards." There is no evidence in the record that the JPG met either of its burdens. Further, the AHO did not make a finding that the JPG had met either of the requirements set out in the federal regulation. Because the JPG did not carry its burden of complying with the federal regulation before the close of the comment period, the Commission must either deny the permit altogether, change the mercury limit to zero, or remand the permit to ADEQ, start another comment period, and give JPG and opportunity to meet the federal regulations before the close of the comment period.

3. The AHO's Finding Ignores the Federal Regulation.

The AHO erred by "find[ing] no legal authority that prohibits ADEQ from issuing a permit with a mercury limit for entities that were not included in the TMDL study." *See* Recommended Decision at 29. The AHO's finding ignores 40 C.F.R. 122.4(i), which generally states: "No permit may be issued [t]o a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards." The TMDL recognizes that the Ouachita River is "not meeting the narrative water quality standard and designated uses of fishable water bodies." *See* Ex. E, excerpt from JX-8, 2002 Mercury TMDL at i. Because the river is not meeting the water quality standard for mercury, adding more mercury would contribute to violation of the water quality standards and is generally illegal under 40 C.F.R. 122.4(i).

However, 40 C.F.R. 122.4(i) sets out the limited circumstances in which a permit can be issued to a new source that is not meeting water quality standards when the waterbody is covered by a TMDL. The regulation states:

> [A] **new discharger** proposing to discharge into a water segment which does not meet applicable water quality standards… and for which the State or interstate agency has **performed a** pollutants load allocation [**TMDL**] for the pollutant to be discharged, **must demonstrate**, before the close of the public comment period, that: (1) There are sufficient remaining pollutant load allocations to allow for the discharge; and (2) The existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards. (Emphasis added.)

Unless a new discharger complies with the regulation, it may not be issued a permit to discharge mercury into the Ouachita River. *See* T. Vol. 3, 363. LEAN's water quality expert, Mr. Sulkin, explained several different ways in which a new discharger can comply with a

TMDL.[6] The JPG did not meet any of those scenarios, and the AHO did not find that it met any of those scenarios.

4. The AHO Could Not Reasonably Conclude That the TMDL Set an Unlimited Mercury Budget for the Ouachita River.

The AHO essentially concluded that the TMDL did not act as an actual, binding mercury budget for the Ouachita River. Instead, he concluded that the TMDL set a budget for all the point sources it had information for and then allows any other source to dump as many grams of mercury they want into the Ouachita River, as long as the concentration of the discharge is below 12 nanograms per liter. *See* Recommended Decision at 28. ("[I]t is not the intent of Table 4.14 that industrial sources not included in the TMDL are to have no mercury allocation"; "The Mercury TMDL for point sources allows the permitting of 12 nanograms per liter as required by Regulation No. 2.").

The AHO's interpretation of the Mercury TMDL ignores the essence of a Total Maximum Daily Load: determining the total amount of a particular pollutant (in terms of "load" or "mass") a waterbody can handle and then dividing that up among all sources of the pollutant.[7] Further, the TMDL does not allow all sources not included in the TMDL to have a 12 nanogram per liter mercury limit as the AHO suggests. To support his conclusion, the AHO cited page 4-13 of the Mercury TMDL. However, Page 4-13 of the Mercury TMDL does not say ADEQ can

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[6] T. Vol. 3, 363-364 (**Q. [DeBoard]** So can you still discharge pollutants into a waterway that has a TMDL for that pollutant? **A. [Sulkin]** In some circumstances, yes. **Q.** How could you do that? **A**. There are various scenarios. You could be an existing discharger that was discharging when the TMDL was developed and your permit has not be[en] revised yet. You could be a discharger that was given an allocation as part of the TMDL. The sources of pollution could be corrected. Nonpoint sources are eliminated and more availability opens up. The TMDL could be revised and a new player could be added.).

[7] *See* T. Vol. 3, 358-59 (**Q. [DeBoard]** What exactly is a TMDL? **A. [Sulkin]** A TMDL is a required part of the Clean Water Act and regulations where so-called water quality limited segments are identified that have some problem or limitation with how much of a particular pollutant they can take. A determination is made how much of that parameter can safely be assimilated by that body of water or a segment of a body of water, and then assignments of that total amount are given to various components, such as individual dischargers, background levels or natural occurrences, margin of safety, some --sometimes some is reserved for future dischargers, so it adds up to no more than the total that that body of water can accept safely.).

allow unlimited mercury discharges into the Ouachita River as long as the concentration did not exceed 12 nanograms per liter. Instead, page 4-13 of the Mercury TMDL, explains that the authors calculated the joint mass limit for all city wastewater treatment plants listed on Table 4.14 by multiplying the flow of each city waste water treatment plant by an assumed concentration of 12 nanograms per liter. *See* Ex. F, excerpt from JX-8, 2002 Mercury TMDL at 4-13. Nowhere does the Mercury TMDL state that there is a mass limit for a handful of point sources and then any point source not listed can put as much mercury as it wants into the Ouachita River as long as the concentration does not exceed 12 nanograms per liter.

For these reasons, the AHO's conclusion that "the mercury limits in the pipeline permit and individual permits do not violate the mercury TMDL" is incorrect. *See* Recommended Decision at 29.

III. The AHO Erred When He Concluded ADEQ Could Assume there is No Zinc or Other Metals in the Ouachita River When Setting Permit Limits.

When setting the permit limits for zinc and other metals, ADEQ assumed that there was no zinc or other metal present in the Ouachita River, even though ADEQ had years of data from both upstream and downstream of the discharge point showing zinc and other metals in the river. Even though ADEQ collects information on zinc and other metals in the Ouachita River and posts the data on its website,[8] ADEQ ignored all available data when setting the permit limits for zinc and other metals in the Joint Permit. *See* Ex. H., Excerpt from JX-1, Attachment 2 ("Cb = 0"); Recommended Decision at 34. By assuming there is no zinc or other metals in the Ouachita

[8] *See* Ex. G, LEAN Ex. 6, Arkansas Water Quality Data.

River, ADEQ set the permit limit for zinc and other metals too high[9]—at a level that does not protect water quality.[10]

During the hearing, LEAN presented evidence—ADEQ's own water quality monitoring data—that there are metals in the Ouachita River both upstream and downstream of the discharge point. *See* Ex. G, LEAN Ex. 6, Arkansas Water Quality Data. Neither ADEQ nor the JPG presented any evidence that, unlike above and below the discharge point, there is absolutely no zinc or other metals in the Ouachita River. Based on the evidence presented at the hearing, the AHO could not reasonably conclude that ADEQ correctly used "zero" as the background concentration of zinc and other metals when setting the Joint Pipeline permit limits.

To correct the problem, the Commission should remand the permit back to ADEQ to determine the actual amount of metals in the Ouachita River at the proposed discharge point—either by taking actual measurements or by looking at existing upstream and downstream data and estimating the metals amounts from those numbers—and then to recalculate the permit limits for all the metals in the Joint Permit using actual background information instead of zero.

IV. The AHO Erred When He Determined that The Joint Pipeline Permit "Ensures Compliance" with Louisiana's Water Quality Standards.

Federal law prohibits ADEQ from issuing a permit that does not "ensure compliance" with an affected state's water quality standards. 40 C.F.R. 122.4(d). Therefore, before issuing the Joint Permit, ADEQ needed to collect enough information to reasonably conclude that the permit "ensures compliance" with Louisiana's water quality standards. ADEQ relied on modeling that failed to examine the impact the Joint Pipeline discharge, when combined with a

[9] T. Vol. 3, 385(**Q. [DeBoard]** So what was the effect of assuming a zinc background concentration of zero on these permit limits? **A. [Sulkin]** It allowed for a much higher permit limit in combination with using a higher flow than would otherwise be used, therefore, you could have excess zinc in the system.).

[10] T. Vol. 3, 386 (**Q. [DeBoard]** And assuming this background concentration of zero for zinc, does this comply with the Arkansas water quality standards? **A. [Sulkin]** It does not. **Q.** Why not? **A.** It's too high.).

large pulp and paper mill discharge, would have on water quality at the Arkansas-Louisiana state line. Further, even though modeling predicted the Joint Pipeline discharges would nearly double the levels of nitrogen, phosphorus, and chlorophyll-a above the state line, ADEQ failed to determine the biological impact of the additional nutrients or examine Louisiana's water quality standards to determine whether the elevated nutrient and chlorophyll-a levels would violate Louisiana's water quality standards. ADEQ violated its duty to "ensure compliance" with Louisiana's water quality standards by failing to examine the Joint Pipeline discharges' impacts at the state line.

A. The Modeling Did Not Show Dissolved Oxygen Returning to Background Levels or the Dissolved Oxygen Level at the State Line.

The AHO erred when he concluded, based on the evidence presented, that ADEQ had sufficient evidence to determine that the Joint Permit discharges would not affect dissolved oxygen levels at the state line. To support his decision, the AHO cited testimony by Martin Maner that the Multi-SMP model (a simple dissolved oxygen model) "showed that dissolved oxygen levels would return to normal background conditions long before the effluent reached Felsenthal." Recommended Decision at 22. Yet, the AHO ignored Mr. Maner's admission that the actual results from Multi-SMP model did not show where, if at all, dissolved oxygen levels would recover to background levels. Mr. Maner admitted that "he couldn't say exactly" where the dissolved oxygen would recover to background levels because they did not run the model far enough to tell where it would recover to background levels. T. Vol. 11, 1838-39. He also admitted that the Multi-SMP modeling does not show what dissolved oxygen levels would be at the Arkansas-Louisiana state line.[11]

[11] . T. Vol. 11, 1840 (**Q. [Witkowski]** [t]he Multi-SMP results… do not show what dissolved oxygen would be at the state line? **A. [Maner]** No, they don't.).

The AHO also heard evidence that Georgia Pacific dumps wastewater from a pulp and paper mill into the Ouachita River (via Coffee Creek) just above the Louisiana state line. *See* T. Vol. 9, 1406; T. Vol. 2, 166. The Multi-SMP modeling, which only examined 20 miles below the discharge point, did not take into account the impact that the Joint Pipeline discharge, when mixed with the Georgia Pacific discharge, would have on dissolved oxygen. Without knowing the impact those two discharges together will have on dissolved oxygen at the state line, ADEQ cannot ensure that the discharges will not violate Louisiana's dissolved oxygen standard. Therefore, the AHO was unreasonable in relying solely on the results of the Multi-SMP modeling to conclude that the Joint Permit ensures compliance with Louisiana's dissolved oxygen standard.

The Commission should send the Joint Permit back to ADEQ to have them model the impact that the Joint Pipeline discharges, along with the Georgia Pacific discharges, will have on dissolved oxygen at the state line.

B. The AHO Failed to Address LEAN's Argument that ADEQ Does Not Know Whether the Joint Pipeline Discharges Will Comply With Louisiana's Nutrient Standard.

ADEQ cannot ensure the Joint Permit complies with Louisiana's water quality standards unless it understands the effect the Joint Pipeline discharges will have on Louisiana's water quality. The AHO recognized that the modeling predicted "elevated phosphorus and nitrogen levels a few miles above the Arkansas-Louisiana state line." Recommended Decision at 23; *see* Ex. I, Excerpts from JX 13, Final Modeling Report, Fig. 6.18 and 6.26. While the modeling does not show what nutrients levels will be at the state line, LEAN's expert Dr. Blancher opined that the elevated nutrient levels at the end of the modeling show that it is almost certain that the post-pipeline nitrogen levels in the Ouachita River at the Arkansas-Louisiana state line would be

almost double the baseline, or pre-pipeline, conditions, and that doubling would have an impact on Louisiana. *See* Tr. Vol. 4, 507-08.

Amy Beck, the ADEQ employee responsible for reviewing the modeling run by the JPG's consultants, acknowledged that the modeling predicted increased nutrients above the Arkansas-Louisiana state line.[12] However, Ms. Beck testified that she does not know the biological effect of the increased nutrients.[13] Therefore, Ms. Beck and ADEQ could not know whether the predicted nutrient increases would violate Louisiana's narrative criteria for nutrients. *See* La. Admin. Code § 1113B.8 ("Nutrient conditions that produce aquatic growth to the extent that it creates a public nuisance or interferes with designated water uses shall not be added to any surface waters."). Based on testimony at the hearing, ADEQ did not gather enough information to reasonably conclude the Joint Pipeline discharges "ensure compliance" with Louisiana's water quality standards. *See* 40 C.F.R. 122.4(d). Because ADEQ did not have enough information to conclude the Joint Pipeline discharges "ensure compliance" with Louisiana's water quality standards, ADEQ could not issue the permit.

The Commission can resolve this issue by remanding the permit back to ADEQ with directions for ADEQ to model the nutrient levels at the Arkansas-Louisiana state line with the Joint Pipeline discharges and then examine the biological effect of those nutrients.

V. The AHO Erred In Concluding that the Joint Pipeline Discharges Protects the Fisheries in the Felsenthal National Wildlife Refuge.

Arkansas regulations require ADEQ to protect and maintain the existing fisheries use in the Ouachita River and the backwater areas of Felsenthal National Wildlife Refuge

[12] Tr. Vol. 12, 2039 (**Q. [Witkowski]** At the end of the day, at the end of the modeling runs both for WASP, which was in Crooked S Slough, and QUAL2K, which is in the river, there are elevated levels of nitrogen in both those places, aren't there? **A. [Beck]** Are you talking about field data or the models? **Q.** The models. **A.** Yes, the -- as I recall, the graphs showed there was elevated nutrients.).

[13] Tr. Vol. 12, 2039 (**Q. [Witkowski]** And you've testified here earlier, I believe, that you don't really know from experience what difference that will make physically to the system? **A. [Beck]** That's correct.).

("Felsenthal"). *See* Regulation 2.201 ("Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected."). ADEQ failed to demonstrate that the Joint Pipeline discharges will protect the fish in Felsenthal.

A. The Modeling in Felsenthal Did Not Examine Minimum Dissolved Oxygen.

Throughout the permitting process, Arkansas Game and Fish Commission (AGFC) voiced its concern that the Joint Pipeline discharges would threaten Felsenthal Reservoir's fishery by depressing dissolved oxygen and ultimately killing fish. LEAN's Ex. 2. AGFC biologist Jason Olive explained that maintaining dissolved oxygen is critical to protecting the existing fishery use in Felsenthal because low dissolved oxygen leads to fish kills and fish kills impair fishing. Tr. Vol. 2, 282. ADEQ failed to examine or require the JPG to examine the Joint Pipeline's impact on low dissolved oxygen. Indeed, the only dissolved oxygen modeling performed on the backwater areas Felsenthal Reservoir was WASP. GBMc modeler Greg Phillips testified that the WASP dissolved oxygen modeling he performed was trying to answer the question: "Will the joint pipeline discharge change those ***average*** dissolved oxygen levels?" Tr. Vol. 10, 1540. (emphasis added).

As ADEQ employees admit, fish don't care about *average* dissolved oxygen levels. Martin Maner, former chief of ADEQ's water division, testified that examining average dissolved oxygen would not show whether the dissolved oxygen was getting low enough to lead to fish kills. Tr. Vol. 11, 1708. ADEQ employee Amy Beck likewise admitted that the dissolved oxygen modeling for the Joint Permit only examined average dissolved oxygen levels but that when one is concerned about dissolved oxygen to avoid fish kills, one should look at how low dissolved oxygen gets and for how long it stays depressed. Tr. Vol. 20, 2040.

Further, Arkansas' dissolved oxygen standard, which acknowledges the correlation between dissolved oxygen levels and sustaining a fishery,[14] is not based on ***average*** dissolved oxygen; it is based on ***minimum*** dissolved oxygen. *See* APC&EC Reg. 2.505; *see* Tr. Vol. 3, 407 ([Mr. Sulkin] "Dissolved o[xygen] criteria or sometimes called standards are always based on how low it goes, the minimum."). Average dissolved oxygen "becomes unimportant if you're looking at highs and lows that balance out." Tr. Vol. 3, 407:-08. So modeling how the Joint Pipeline discharge affects ***average*** dissolved oxygen says nothing about whether or not the Joint Pipeline discharge complies with the dissolved oxygen standard and protects fisheries. Tr. Vol. 4, 467. ADEQ's failure to examine the Joint Pipeline's impact on minimum dissolved oxygen in the backwater areas of Felsenthal Reservoir violated ADEQ's duty under Regulation 2.201 to protect and maintain the existing fishery use in the Felsenthal Reservoir and the dissolved oxygen levels necessary to maintain the fishery.

Because fish die when dissolved oxygen gets too low, it was crucial for dissolved oxygen modeling to look at how low the dissolved oxygen will get during a day—not at the daily average or some other number above the low point. *See* Tr. Vol. 3, 408-09. Here, the models did not examine the dissolved oxygen lows. Instead, the models looked at average dissolved oxygen levels. *See* Tr. Vol. 3, 408-09. Greg Phillips, JPG's consultant who ran the WASP model for Felsenthal, testified that the dissolved oxygen data input came from grab samples taken at various times throughout the day—but not at night.[15] He also testified that the model was predicting <u>average</u> dissolved oxygen.[16] The AHO's finding that Mr. Phillips used a "value less

[14] *See, e.g.,* APC&EC Reg. 2.205 ("they are assumed to provide sufficient water to support a perennial fishery and, therefore, must meet the dissolved oxygen standards of the next size category of streams.").

[15] T. Vol. 10, 1534 (**Q. [Witkowski]** what time of day did you take this first measurement at? **A. [Phillips]** I can't tell you for sure what time of day. They did vary somewhat. Some would have been early in the morning and some in the afternoon. **Q.** And none of them were at night? **A.** No.)

[16] T. Vol. 10, 1534 (**Q. [Witkowski]** This calibration, this line here, you said that when you model you model average numbers; is that correct? **A. [Philips]** That's correct).

than the average" to model dissolved oxygen in the backwater areas is incorrect. *See* Recommended Decision at 39. The quote the AHO relied on to make that conclusion came from Mr. Phillips' testimony about the QUAL2K model, which predicted dissolved oxygen in the Ouachita River, not in the backwater areas of Felsenthal.[17]

B. The AHO Could Not Reasonably Conclude the Dissolved Oxygen Water Quality Standards Would be Maintained Because Felsenthal Already Violates Dissolved Oxygen Standard.

JPG's consultants measured dissolved oxygen levels in both the Ouachita River and Felsenthal over a period of several days to record the daily oxygen swing, also called the "diurnal" oxygen cycle. *See* JX 13. The measurements for Crooked-S Slough in Felsenthal show dissolved oxygen levels below the water quality standard (5.0 mg/L) for nearly the entire measured period. *See* Ex. J, Excerpts from JX-13, Final Modeling, Fig. 4.4. Yet the AHO concluded that "the field measurements showed the diurnal depression was less than 1.0 mg/L and therefore the water quality standards would be maintained." Recommended Decision at 40. The evidence does not support this conclusion.

C. The Felsenthal Dissolved Oxygen Modeling Was Not Calibrated to Reflect Current Dissolved Oxygen Levels in Felsenthal.

The AHO relied on the WASP modeling in backwater areas of Felsenthal to conclude that the "joint pipeline discharge will not interfere with the existing fishery in the… backwater areas of Felsenthal." Recommended Decision at 40. However, the model was so poorly calibrated—the baseline predictions did not accurately reflect actual baseline conditions in

[17] T. Vol. 10, 1561 (**Q. [Witkowski]** You don't have Ouachita River data on what the minimums are, do you? **A. [Phillips]** We have our diurnal measurements in the river. **Q.** And you didn't use those for the modeling, did you? **A.** No. We started with DO averages below what they really were to compensate for not having that kind of information.).

Felsenthal—that ADEQ and the AHO could not reasonably rely on the modeling predictions.[18] For example, the WASP model predicts dissolved oxygen levels skyrocket to an average of 10 mg/L, without data to support dissolved oxygen levels that high. *See* Ex. K, Excerpts from JX-13, Fig. 6.33. Arkansas Game & Fish biologist Jason Olive, who has worked in Felsenthal for years and sampled dissolved oxygen there, stated that he has never seen dissolved oxygen reach 10 mg/L in Felsenthal and average results were around 2.0 mg/L. Tr. Vol. 3, 306-07. Because the baseline calibration did not reflect actual dissolved oxygen conditions in Felsenthal, the model's predictions were meaningless. As LEAN's expert Dr. Blancher explained, "if you can't come close to predicting what's actually going on in the system during the calibration run, then the rest of the modeling exercise is basically invalid." Tr. Vol. 4, 484.

To fix the AHO's errors, the Commission should remand the permit back to ADEQ with directions to ADEQ to model the Joint Pipeline discharge's impact on minimum dissolved oxygen in Felsenthal.

VI. The AHO Erred In Concluding that the Joint Pipeline Discharges Will Not Violate Arkansas' Nutrient Standards.

Arkansas has two narrative standards that directly address nutrients and nuisance growth. Regulation 2.402 provides that "[a]ll waters shall be free from substances attributed to man-caused point or nonpoint source discharges in concentrations that produce undesirable aquatic life or result in the dominance of nuisance species." Regulation 2.509 provides that " nutrients stimulating algal growth shall not be present in quantities sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use of the

[18] T. Vol. 4, 486-87 (**A. [Blancher]** On the dissolved oxygen side of things, we -- I think this is critical when we're looking at dissolved oxygen. They do capture those first points through there. However, the model then goes up to about 10 milligrams per liter, which I -- I don't think we've seen observations of values that high, particularly not on an average basis. And then it never gets back down to the lower levels that we see early on, which is the initial 2 milligrams per liter of oxygen there.).

waterbody." One model that examined backwater areas of Felsenthal—WASP—predicted the Joint Pipeline discharge will increase algae growth. The other model—AQUATOX—was so poorly calibrated that its results are meaningless.

A. The WASP Model Results Show the Discharge will Increase Algal Growth.

The WASP modeling results show that the Joint Pipeline discharges will encourage algal growth, causing objectionable algal densities. *See* Ex. L, JX 13, Final Modeling Report at 96; Tr. Vol. 4, 472. The WASP modeling predicted that chlorophyll-a levels with the Joint Pipeline discharges will reach up to 20.9 ug/L. *See* Ex. M, JX 13, Final Modeling Report at 94. WASP predicts levels of chlorophyll-a that show "the biomass of algae increasing in the reservoir." Tr. Vol. 4, 488. Increases that high are "problematic particularly in a lake." Tr. vol. 4, 488. Dr. Blancher testified that chlorophyll-a levels of 20ug/L indicate an "algal-dominated system, which is very poor for fishing." Tr. Vol. 4, 489. Indeed, Martin Maner expressed concern at chlorophyll-a levels of 14 ug/L and testified that chlorophyll-a levels of 10ug/L "is typically considered an enriched environment," or eutrophic. Tr. Vol. 11, 1656. The AHO did not address this testimony in his Recommended Decision.

B. The Felsenthal Plant Growth Modeling Was So Poorly Calibrated That Its Results Are Meaningless.

The JPG's consultants ran a model—AQUATOX—to examine the Joint Pipeline discharges' impact on aquatic plant growth. In its June 29, 2005 Modeling Work Plan, before collecting any plant data in the Felsenthal Reservoir or inputting any data on plant biomass,[19] the consultants had already concluded that AQUATOX showed that the discharges from the Joint Pipeline would not increase macrophyte growth. *See* Ex. N, JX 10, June 29, 2005 Work Plan, ("AQUATOX predicted that the discharge would not result in increased growth of

[19] Tr. Vol. 10, 1472-73.

macrophytes."). The consultant based this conclusion on a modeling run of AQUATOX in which the plant biomass numbers it used for the baseline conditions were "not real data." Tr. Vol. 10, 1471-72.

The model, AQUATOX, was so poorly calibrated that the results (that the Joint Pipeline discharges will have no impact on plant growth) are meaningless. The calibration shows baseline aquatic growth in Felsenthal peaking twice during a year. *See* Ex. O, JX 13, Final Modeling, Figs. 6.35, 6.36. Arkansas Game & Fish biologist Jason Olive testified that aquatic plants do not peak twice during the year and the plants in Felsenthal do not peak at the time the calibrated model predicts.[20] The AQUATOX calibration also predicted the Joint Pipeline discharges' effect on a plant that does not actually grow in Felsenthal.[21] These errors render the model's prediction—that the discharges will not have an impact on plant growth in Felsenthal—meaningless.

The Commission should remand the permit back to ADEQ to properly calibrate and run the AQUATOX modeling using plants that actually grow in Felsenthal and to examine the impact the high chlorophyll-a levels the WASP model predicts will have on the backwater areas of Felsenthal.

VII. The AHO Erroneously Dismissed Testimony by LEAN's Modeling Expert About Flaws in the Modeling Just Because LEAN Did Not Run Its Own Modeling.

Throughout his Recommended Decision, the AHO dismissed testimony by LEAN's modeling expert because LEAN did not run its own models.[22] LEAN did not run its own models

[20] Tr. Vol. 12, 2150 (**A. [Olive]** Macrophytes don't peak twice in Crooked S or anywhere else in Felsenthal, and they definitely don't peak at the times indicated on this graph.").

[21] Tr. Vol. 10, 1502-03 (**Q. [Witkowski]** Is there Myriophyllum in the backwater areas of Felsenthal? **A. [Phillips]** Not that I'm aware of. As far as what I understand from Game and Fish, that's not a species that typically grows there.).

[22] *See* Recommended Decision at 40 ("Neither LEAN not STO presented any modeling results in this case."); Recommended Decision at 43 ("LEAN and the other parties offered no modeling results to verify that the addition of nutrients will cause more fish kills than what occurs at the present time."); Recommended Decision at 48 ("Dr.

for two reasons. First, LEAN, a nonprofit citizens group represented by public interest lawyers, could not afford to pay the thousands of dollars it would have cost to run the models themselves. Second, it is not LEAN's job to do the technical work that ADEQ and the JPG should have done correctly before ADEQ issued the permit. When a party challenges modeling, courts do not consider whether or not they provided their own modeling; instead courts look only at the validity of the challenged modeling. See, E.g., Castellow v. Chevron USA, 97 F. Supp 2d 780, 792 (S.D. Tex. 2000) (holding that the modeling in the case was invalid based on the circumstances, not because the other party presented a better model); Bowen v. E.I DuPont de Nemours & Co., 906 A.2d 787, 795-96 (Del. Supr. Ct. 2006) (invalidating modeling because it was based on faulty science, not because the other party presented competing modeling); Sterling v. Velsicol Chem. Corp., 855 F.2d 1188, 1199 (6th Cir. 1988) (upholding modeling based on its own validity, not on the fact that the other party did not present their own modeling); United States v. Dico, Inc., 266 F.3d 864, 870-71 (8th Cir. 2001) (upholding modeling because the modeler considered all relevant factors, not because the other party did not present competing modeling).

Therefore, LEAN merely needs to show why the modeling that ADEQ relied on when issuing the Permits was flawed in a way that made it unreasonable for ADEQ to use the results to justify the Permits. LEAN has done so. Notably, ADEQ ran none of its own modeling to confirm the results provided by the JPG's consultants. If the AHO is going to discount all testimony from LEAN's modeling expert about flaws in the modeling because he did not independently run the models, the AHO should have also discounted all testimony from ADEQ

Blancher testified that Myriophyllum should not have been used as a substitute for Cabomba in the AQUATOX model…. However Blancher did not offer any modeling results of his own."); Recommended Decision at 49 ("Although Blancher testified as to what should have been done to replicate Cabomba and calibrate the AQUATOX model to Cabomba, he did not undertake the task himself.").

employees on why the model was reasonable because they also did not independently run the models.

Conclusion

For the reasons set forth above, LEAN respectfully requests that the Commission grant LEAN oral argument on the Recommended Decision. LEAN also requests that the Commission reverse or modify portions of the Recommended Decision consistent with the reasons set forth herein and according to LEAN's Proposed Minute Order.

Respectfully Submitted on May 28, 2008

Jill M. Witkowski, Deputy Director
Tulane Environmental Law Clinic
6329 Freret Street
New Orleans, LA 70118
Phone: (504) 862-8814
Fax: (504) 862-8721
On Behalf of Louisiana Environmental Action Network

CERTIFICATE OF SERVICE

The undersigned does hereby certify that on the date set forth below, I did serve a copy of the above and foregoing document upon counsel for the parties by depositing a copy of the same with the U.S. Postal Service, addressed to the persons at the addresses listed below with sufficient postage to arrive at its destination:

Representing the Great Lakes Chemical Corporation, El Dorado Chemical Co., Lion Oil Company, El Dorado Water Utilities:
Charles R. Nestrud
Chisenhall, Nestrud, and Julian, P.A.
400 W Capitol Ave., Suite 2840
Little Rock, AR 72201

Arkansas Dept. of Environmental Quality
Represented by Dara Hall, Ben Jones and Jamie Ewing
P.O. Box 8913
Little Rock, AR 72219-8913

State of Louisiana
Represented by Megan Terrell and Ryan Seidemann
Assistant Attorneys General
P.O. Box 94005
Baton Rouge, LA 70804

Richard Mays
2000 Hwy 25 E North
Suite A-2
Heber Springs, AR 72543

Mark Hayes
Arkansas Municipal League
P.O. Box 38
N. Little Rock, AR 72115

Jill M. Witkowski

5/28/08
Date

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF:

EL DORADO WATER UTILITIES
NPDES PERMIT No. AR0049743
NPDES PERMIT NO. AR0049743C

GREAT LAKE CHEMICAL CORPORATION **DOCKET No. 07-006-P**
NPDES PERMIT No. AR0001171

LION OIL COMPANY
NPDES PERMIT NO. AR0000646

EL DORADO CHEMICAL COMPANY
NPDES PERMIT No. AR0000752

EL DORADO WATER UTILITIES
GREAT LAKE CHEMICAL CORPORATION
LION OIL COMPANY
EL DORADO CHEMICAL COMPANY
NPDES PERMIT No. AR0050296

PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

The Arkansas Department of Environmental Quality ("ADEQ"), by and through its attorneys, Dara Hall, Jamie Ewing and Benjamin Jones; and the Permittees, El Dorado Water Utilities ("City"), Lion Oil Company ("Lion"), Great Lakes Chemical Company ("GLCC"), and El Dorado Chemical Company ("EDCC"), (the above four entities are referred to herein collectively as "Permittees" or the "Joint Pipeline Group" or "JPG"), by and through their attorneys, Chisenhall, Nestrud & Julian, P.A., jointly present their proposed findings of fact and conclusions of law.

The Arkansas Municipal League joins in these proposed findings of fact and conclusions of law for a limited purpose. The Arkansas Municipal League hereby agrees to withdraw its

PLAINTIFF'S EXHIBIT tabbies Ex A

instantaneous flow cap in the permit to prevent any short term discharge of high concentration phosphorus into the river. Maner, Tr. 1702. As long as there is an instantaneous flow limit, and a mass limit, there is no need for a concentration limit. Maner, Tr. 1717; 1723.

The AHO finds that ADEQ's agreement to remove the concentration limit for phosphorus from the Joint Pipeline Permit is reasonable and appropriate.

B. Metals Limits

All of the metals limits in the Joint Pipeline Permit, including mercury, were established in the same manner. The CPP provides a procedure for determining whether any metal in an effluent poses a reasonable potential to be present in an amount that may lead to a water quality violation. This is a very conservative screening process, and was followed for the joint pipeline permit. When the reasonable potential screen was run for the combined effluent of the joint pipeline, no metals were found that exceeded the reasonable potential. Accordingly, under the CPP procedure, it would have been appropriate to have no permit limits in the Joint Pipeline Permit for any metal. Blubaugh, Tr. 934-935; 944-945. Rather than have a "report" requirement as was approved in the recent *Umetco* permit appeal, ADEQ calculated a numeric permit limit which was equivalent to the reasonable potential value. Blubaugh, Tr. 943. Although the JPG does not believe the numeric permit limits are justified from a regulatory viewpoint, they are more protective and he JPG has agreed to accept those permit limits. Blubaugh, Tr. 944.

C. Zinc

Every witness who testified agreed that the segment of the Ouachita River into which the joint pipeline will discharge is not on the 303d list for zinc. Blubaugh, Tr. 944. ADEQ and the JPG have stipulated that the Fact Sheet for the Joint Pipeline Permit has a typographical error

and the final decision in this case should reflect that the segment of the Ouachita River into which the joint pipeline will discharge is not on the 303d list for zinc.

The AHO finds that the segment of the Ouachita River into which the joint pipeline will discharge is not on the 303d list for zinc.

D. Monitoring Frequencies

The JPG appealed the Pipeline Permit because they contended that the level of monitoring required was excessive and not necessary to adequately characterize the effluent. Blubaugh, Tr. 966. For example, the Pipeline Permit requires phosphorus samples to be collected and analyzed daily. JX-1. Nonetheless, the JPG has agreed to accept those permit requirements. Blubaugh, Tr. 971.

E. Pipeline Permit Cancellation and Individual Permit Modification

The permits address the circumstances and procedures that will be followed in the event one of the participants needs to divert wastewater from the pipeline to one of the outfalls that are currently permitted to authorize discharge of that effluent into the small creek. JX-1 through JX-6. JPG is concerned that the permits, as issued, may impose restrictions that would restrict necessary flexibility during emergency and maintenance events that were not intended by ADEQ. Blubaugh, Tr. 975. These conditions are the subject of an appeal filed by the JPG.

ADEQ agrees that the concerns raised by the JPG are valid and that it did not intend for the permits to be applied in that manner. ADEQ is also concerned that the language may be interpreted to inadvertently restrict their ability to immediately revise the permits and make them more restrictive should one of the pipeline participants permanently terminate their participation. Shafii, Tr. 1908-1908. Accordingly, ADEQ and JPG have agreed to alternative language which better reflects the intent of ADEQ when it drafted the permits. That language is as follows:

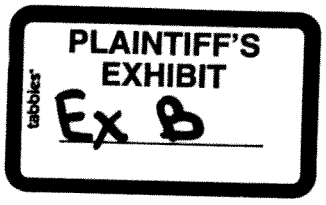
ARKANSAS' 2004 LIST OF IMPAIRED WATERBODIES

Arkansas' 2004 List of Water Quality Limited Waterbodies, commonly referred to as the 303(d) list, has been formatted to reflect the most current guidance issued by the Environmental Protection Agency. As part of that guidance, EPA suggests placing waterbody segments into the following five categories:

1 = Attaining all designated uses;
2 = Attaining some designated uses, but there is insufficient data to determine if other uses are being attained;
3 = Insufficient data to determine if any designated use is attained;
4 = Impaired for one or more designated uses, but does not require the development of a TMDL because:
   a. A TMDL has been completed for the listed parameters;
   b. Other pollution control requirements are expected to result in attainment of water quality standards; and/or
   c. Impairment is not caused by a pollutant
5 = The waterbody may be impaired, or one or more designated uses may not be attained. Waterbodies in category 5 are placed in one of the following subcategories by the Arkansas Department of Environmental Quality:
   a. Truly impaired; develop a TMDL for the listed parameter
   b. Waters not attaining standards, but will be de-listed with the adoption of current Regulation No. 2 revision
   c. Waters in which the data is questionable because of QA/QC procedures and which require confirmation before a TMDL is scheduled
   d. Waters which need data verification to confirm use impairment (additional sampling, biological assessment) before a TMDL is scheduled
   e. Waters which are listed because of a small magnitude of exceedance from the water quality standards. The next revision of the assessment methodology will address magnitude of exceedance. The need for a future TMDL will be based on this protocol.

Arkansas' 2004 303(d) list, Category 5a list has a total of 59 stream segments, totaling approximately 1009.9 stream miles. In addition, ten lakes are listed, totaling approximately 5530 lake acres.

Each list contains the name of the stream, its corresponding hydrologic unit code and stream reach identifier, the number of stream miles affected, and the monitoring stations used to assess the segment. The impacted designated use is also identified. Some segments have more than one designated use assessed as not attaining. The columns under the heading "Source" identify the source(s) of the impairment. The columns under the heading "Cause" list the cause(s) of the impairments. Some stream segments are impaired by multiple causes, individual causes may be from multiple sources. A source for each cause is listed. The source for cause number one is identified as source number one. The source for cause number two is identified as source number two, and so forth.



Arkansas' Water Quality Limited Waterbodies With Completed TMDLs (Stream)
(Category 4a)

STREAM NAME	HUC	REACH	PLNG SEG	MILES	MONITORING STATIONS	ASSESS	FISH COMSUMP	AQUATIC LIFE	PRIMARY CONTACT	SECONDARY CONTACT	DRINKING WATER	AGRI & INDUSTRY	MAJOR SOURCE	MINOR SOURCE	MAJOR CAUSE	MINOR CAUSE	TMDL DATE
Dorcheat Bayou	11140203	-022	1A	8.4	RED15A	M	N						UN		HG		2003
Dorcheat Bayou	11140203	-020	1A	11.9		E	N						UN		HG		2003
Dorcheat Bayou	11140203	-026	1A	23.3	BDT01,02	M	N						UN		HG		2003
Dorcheat Bayou	11140203	-024	1A	7.0		E	N						UN		HG		2003
B. Bartholomew	8040205	-001	2B	60.1	OUA13	M		N					AG		SI		2002
B. Bartholomew	8040205	-002	2B	17.9	BYB01	M	N	N					UN	AG	HG	SI	2002/03
B. Bartholomew	8040205	-006	2B	82.3	OUA33	M		N					AG		SI		2002
Deep Bayou	8040205	-005	2B	28.9	OUA151	M		N					AG		SI		2002
Cutoff Creek	8040205	-007	2B	16.8	COC01	M	N						UN		HG		2003
B. Bartholomew	8040205	012U	2B	82.7	BYB02	M		N					AG		SI		2002
B. Bartholomew	8040205	-013	2B	33.9	BYB03	M		N					AG		SI		2002
B. Bartholomew	8040205	-012	2B	25	BYB02	M	N	N					UN	AG	HG	SI	2002/03
Saline River	8040203	-001	2C	0.2		E	N						UN		HG		2003
Saline River	8040204	-001	2C	2.8	OUA10A&117	M	N						UN		HG		2003
Saline River	8040204	-002	2C	53	OUA10A&117	M	N						UN		HG		2003
Saline River	8040204	-004	2C	16.4	OUA10A&117	M	N						UN		HG		2003
Saline River	8040204	-006	2C	17.5	OUA118	M	N						UN		HG		2003
Ouachita River	8040202	-002	2D	51.8	OUA08B	M	N						UN		HG		2003
Ouachita River	8040202	-003	2D	8.4	OUA08B	M	N						UN		HG		2003
Ouachita River	8040202	-004	2D	49.2	OUA124B	M	N						UN		HG		2003
Moro Creek	8040201	-001L	2D	54.4		M	N						UN		HG		2003
Ouachita River	8040201	-002	2D	22.5	OUA124B	M	N						UN		HG		2003
Ouachita River	8040201	-004	2D	2.5	OUA37	M	N						UN		HG		2003
Champagnolle	8040201	-003L	2D	20	CHC01	M	N						UN		HG		2003
Elcc Trib.	8040201	-606	2D	8.5	OUA137A+	M		N			N		IP	IP	AM	CL	2002
Elcc Trib.	8040201	-606	2D		OUA137A+	M		N			N		IP	IP	AM	SO_4	2002
Flat Cr.	8040201	-706	2D	16.0	OUA137C	M		N			N		IP	IP	AM	TDS	2002
Flat Cr.	8040201	-706	2D		OUA137C	M		N			N		RE		CL		2004
Flat Cr.	8040201	-706	2D		OUA137C	M		N			N		RE		SO_4		2004
Salt Cr.	8040201	-806	2D	8.0	OUA137D	M		N			N		RE		TDS		2004
Salt Cr.	8040201	-806	2D		OUA137D	M		N			N		RE		CL		2004
Fourche LaFave	11110206	-002	3E	8.7		M	N						RE		TDS		2004
Stone Dam Creek	11110203	-904	3F	3	ARK51	M		N			N		UN		HG		2003
Whig Creek	11110203	-931	3F	10	ARK67	M		N			N		MP	MP	AM	NO_3	2004
Whig Creek	11110203	-931	3F	10	ARK67	M		N			N		MP		NO_3		2001
Hicks Creek	11010004	-015	4F	9.1	WHI65	M					N		MP		Cu		2004
Holman Creek	11010001	-059	4K	9.1	WHI70	M					N		MP		NO_3		2001
L'Anguille R.	8020205	-001	5B	19.7	FRA10	M		N					MP		NO_3		2001
L'Anguille R.	8020205	-002	5B	16.8		E		N					AG		SI		2001
L'Anguille R.	8020205	-003	5B	1.8		E		N					AG		SI		2001
L'Anguille R.	8020205	-004	5B	16.0	LGR01	M		N					AG		SI		2001
L'Anguille R.	8020205	-005	5B	44.1	LGR02	M		N					AG		SI		2001

Arkansas' Water Quality Limited Waterbodies (Streams)
(Categories 5a-5e)

STREAM NAME	HUC	RCH	PLNG SEG	MILES	MONITORING STATIONS	ASSESS TYPE	FISH COMSUMP	AQUATIC LIFE	PRIMARY CONTACT	SECONDARY CONTACT	DRINKING WATER	AGRI & INDUSTRY	SOURCE 1	SOURCE 2	SOURCE 3	SOURCE 4	CAUSE 1	CAUSE 2	CAUSE 3	CAUSE 4	Category	Priority
St. Francis River	8020203	-014	5A	22.8	FRA08	M		N					UN				DO				5c	M
Bodcau Creek	11140205	-006	1A	22.4	RED27	M		N					UN				Zn				5d	M
Bodcau Creek	11140205	-002	1A	6.0		E		N					UN				Zn				5d	M
McKinney Bayou	11140201	-014	1B	21.6	RED55	M					N	N	UN				SO4				5d	M
McKinney Bayou	11140201	-012	1B	23.1	RED54	M					N	N	UN				SO4				5d	M
Mine Creek	11140109	-033	1C	22.1	RED48B+	M			N				IP				PA				5d	M
Holly Creek	11140109	-013	1C	12.7	RED34A&B	M			N				MP	IP			PA				5d	M
Big Bayou	8050001	-022	2A	27.1	BGB01+	M		N					AG	AG			TDS	SO4			5d	M
Beouf River	8050001	-019	2A	58.1	BFR01	M		N					AG	AG			TDS	SO4			5d	M
Beouf River	8050001	-018	2A	49.4	OUA15A	M		N					AG	AG			TDS	SO4			5d	M
Cross Bayou	8040205	-905	2B	2.4	OUA152	M			N				UN				PA				5d	M
Jack's Bayou	8040205	-904	2B	6.0	OUA150	M			N				UN				PA				5d	M
Melton's Creek	8040205	-903	2B	8.7	OUA160	M			N				UN				PA				5d	M
Harding Creek	8040205	-902	2B	4.6	OUA145	M				N			UR				PA				5d	M
Bearhouse Creek	8040205	-901	2B	24.4	OUA155	M			N				UN				PA				5d	M
B. Bartholomew	8040205	-013	2B	33.9	BYB03	M			N				AG				PA				5d	M
Cutoff Creek	8040205	-007	2B	16.8	COC01	M		N					UN				SI				5d	M
B. Bartholomew	8040205	-006	2B	82.3	OUA33	M		N					AG				DO				5d	M
Deep Bayou	8040205	-005	2B	28.9	OUA151	M			N				AG				PA				5d	M
B. Bartholomew	8040205	-002	2B	17.9	OUA154	M		N					AG				DO				5d	M
B. Bartholomew	8040205	012U	2B	82.7	BYB02	M		N					AG				DO				5d	M
Big Creek	8040204	-005	2C	28.9	OUA43	M		N					UN				SI				5d	M
Smackover Creek	8040201	-007	2D	29.1		E		N					RE				Zn				5d	M
Smackover Creek	8040201	-006	2D	14.8	OUA27	M		N					RE				Zn				5d	M
Ouachita River	8040201	-005	2D	34.2	OUA37	M		N					UN	UN			Cu	Zn			5d	M
Ouachita River	8040202	-004	2D	28.9	OUA124B	M		N					UN				Zn				5d	M
Ouachita River	8040202	-002	2D	4.0	OUA08B	M		N					UN				Zn				5d	M
Prairie Creek	8040101	-048	2F	10.0	OUA40	M		N					UN				SI				5d	M
Wabbaseka Bayou	8020401	-003	3A	101.7	WSB01	M		N					UN				DO				5d	M
Bayou Meto	8020402	-007	3B	65.7	ARK60,50	M		N					IP	UN			Pb	DO			5d	M
Bayou Two Prairie	8020402	-006	3B	44.7	ARK97	M		N					UN				DO				5d	M
Walnut Creek	11110202	-902	3H	5.1	ARK125	M			N				UN				PA				5d	M
Mill Creek	11110202	-901	3H	8.6	ARK110	M			N				AG				PA				5d	M
Short Mountain Cr	11110202	-043	3H	14.9	ARK11B	M		N					MP				Cu				5d	M
Little Piney Creek	11110202	-025	3H	27.2	ARK126	M			N				UN				PA				5d	M
Little Piney Creek	11110202	-024	3H	6.2	ARK104	M			N				AG				PA				5d	M
Hurricane Creek	11110202	-022	3H	15.4	ARK119	M			N				UN				PA				5d	M
Big Piney Creek	11110202	-018	3H	5.8	ARK105	M			N				AG				PA				5d	M
Town Branch	11110103	-901	3J	3.0	ARK56	M		N					MP				TP				5d	M
Clear Creek	11110103	-029	3J	13.5	ARK10C	M			N				UR				PA				5d	M
Boat Gunwale Slash	8020304	-914	4A	5.0	WHI74	M		N					AG				DO				5d	M
Prairie Cypress	8020304	-014	4A	26.1	WHI73	M		N					AG				DO				5d	M
Big Creek	8020304	-010	4A	34.3	BGC03	M						N	AG	AG			CL	TDS			5d	M
Cache River	8020302	-032	4B	11.4		E		N					AG				Pb				5d	M
Cache River	8020302	-031	4B	3.4		E		N					AG				Pb				5d	M
Cache River	8020302	-029	4B	3.9		E		N					AG				Pb				5d	M
Cache River	8020302	-028	4B	5.9	CHR04	M		N					AG				Pb				5d	M
Cache River	8020302	-027	4B	3.9		E		N					AG				Pb				5d	M
Cache River	8020302	-021	4B	18.4		E		N					AG				Pb				5d	M
Cache River	8020302	-020	4B	22.6	CHR03	M		N					AG				Pb				5d	M
Village Creek	11010013	-008	4C	13.0		E		N					AG				DO				5d	M
Village Creek	11010013	-007	4C	1.2		E		N					AG				DO				5d	M

Permit number: AR0050296

AUTHORIZATION TO DISCHARGE WASTEWATER UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND THE ARKANSAS WATER AND AIR POLLUTION CONTROL ACT

In accordance with the provisions of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended, Ark. Code Ann. 8-4-101 et seq.), and the Clean Water Act (33 U.S.C. 1251 et seq.),

Lion Oil Company - El Dorado Refinery
1000 McHenry Ave.
El Dorado, AR 71730

Great Lakes Chemical Corporation – Central Plant
P.O. Box 7020
El Dorado, AR 71731-7020

El Dorado Water Utilities (**operator**)
P.O. Box 1587
El Dorado, AR 71731

El Dorado Chemical Company
P.O. Box 231
El Dorado, AR 71731-0231

are each authorized to discharge to the joint pipeline from their own facilities which are located as follows:

Lion Oil Company is located at 1000 McHenry Street, southwest section of El Dorado, located between Highway15 and Highway 82 bypass, in Section 32, Township 17 South, Range 15 West in Union County, Arkansas.

Latitude: 33° 11' 56"; Longitude: 92° 40' 33"

Lion Oil Company's monitoring outfall for its discharge to the joint pipeline (Outfall 010 – combined outfall of Outfalls 001, 006, and 007 in NPDES Permit No. AR0000647) is located at the following coordinates:
Latitude: 33° 11' 56"; Longitude: 92° 40' 33".

Great Lakes Chemical Corporation – Central Plant is located on the west side of Hwy. 15, approximately 2 miles south of U.S. Hwy. 82 at 2226 Haynesville Highway (Hwy. 15 South), in Section 1, Township 18 South, Range 16 West in Union County, Arkansas.

Latitude: 33° 11' 07"; Longitude: 92° 42' 21"

Great Lakes Chemical Corporation – Central Plant's monitoring outfall for its discharge to the joint pipeline (Outfall 010 – combined outfall of Outfalls 001, 002, 003, and 007 in NPDES Permit No. AR0001171) is located at the following coordinates: Latitude: 33° 11' 07"; Longitude: 92° 42' 21".

El Dorado Water Utilities

The North Plant is 2300 feet south and 800 feet east of the intersection of Hwys. 167 and 167B at 1119 Victor Dumas Drive in Section 15, Township 17 South, Range 15 West in Union County, Arkansas.

Latitude: 33° 14' 54"; Longitude: 92° 38' 43"



The North Plant's monitoring outfall for its discharge to the joint pipeline (Outfall 010 North in NPDES Permit No. AR0049743) is located at the following coordinates: Latitude: 33° 14' 54"; Longitude: 92° 38' 43".

The South Plant is 8000 feet west and 4900 feet south of the intersection of Hwy. 167 and the Hwy. 82 bypass at 325 Quail Crossing in Section 9, Township 18 South, Ranges 15 West in Union County, Arkansas.

Latitude: 33° 10' 28"; Longitude: 92° 39' 43"

The South Plant's monitoring outfall for its discharge to the joint pipeline (Outfall 010 South in NPDES Permit No. AR0049743) is located at the following coordinates: Latitude: 33° 10' 28"; Longitude: 92° 39' 43".

El Dorado Chemical Company is located on the north side of the City of El Dorado, approximately 1 mile west of Hwy. 7 Spur at 4500 North West Avenue, in Sections 6 & 7, Township 17 South, Range 15 West in Union County, Arkansas.

Latitude: 33° 15' 55"; Longitude: 92° 41' 15"

El Dorado Chemical Company's monitoring outfall for its discharge to the joint pipeline (Outfall 010 – combined outfall of Outfalls 001, 004, 006, and 007 in NPDES Permit AR0000752) is located at the following coordinates: Latitude: 33° 15' 55"; Longitude: 92° 41' 15"

The **joint pipeline** is located in north central Union County, approximately 6 miles due east of US Hwy 167, in Section 29, Township 16 South, Range 13 West in Union County, Arkansas.

Latitude: 33° 17' 30"; Longitude: 92° 28' 12"

to receiving waters named:

via the joint pipeline to the Ouachita River approximately 1.5 miles downstream of the H.K. Thatcher Lock and Dam in Segment 2D of the Ouachita River Basin.

The joint pipeline monitoring outfall is located at the following coordinates:

Monitoring Outfall Location 010R: Latitude: 33° 13' 17"; Longitude: 92° 35' 02"

The co-permittees retain the rights to discharge under their individual NPDES Permits from outfalls which would normally be routed to the joint pipeline (in addition to the outfalls which are not routed to the joint pipeline) as follows:

Lion Oil Company, under NPDES Permit No. AR0000647, may discharge to receiving waters named (Outfalls 001, 006, and 007): Loutre Creek, thence to Bayou de Loutre, thence to the Ouachita River in Segment 2D of the Ouachita River Basin.
Outfall 001: Latitude: 33° 11' 44"; Longitude: 92° 40' 48"
Outfall 006: Latitude: 33° 12' 03"; Longitude: 92° 40' 55"
Outfall 007: Latitude: 33° 11' 49"; Longitude: 92° 40' 51"

PART I
PERMIT REQUIREMENTS

SECTION A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS: OUTFALL 010R - combined waste waters from Outfall 010 at each of the following facilities: El Dorado Chemical Company, Great Lakes Chemical Company – Central Plant, Lion Oil Company, and the City of El Dorado's North and South Plants (Outfall 010 at each of the facilities is covered under their individual permits.)

During the period beginning on the effective date and lasting until the date of expiration, the permittees are authorized to discharge from outfall serial number 010. Such discharges shall be limited and monitored by the permittees as specified below:

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	Mass (lbs/day, unless otherwise specified)		Concentration (mg/l, unless otherwise specified)		Frequency	Sample Type
	Monthly Avg.	Daily Max	Monthly Avg.	Daily Max		
Flow[1]	N/A	N/A	Report	20, inst. max.	once/day	totalizing meter
Carbonaceous Biochemical Oxygen Demand (CBOD5)						
(May-Oct)	2923.2	4384.8	17.5	26.3	once/day	24-hr composite
(Nov-Apr)	3356.9	5035.3	20.1	30.2	once/day	24-hr composite
Total Suspended Solids (TSS)	5004	7506	N/A	N/A	once/day	24-hr composite
Ammonia Nitrogen (NH3-N)						
(May-Oct)	1328.6	1992.9	8.0	12	once/day	24-hr composite
(Nov-Apr)	3230.1	4845.1	19.4	29	once/day	24-hr composite
Dissolved Oxygen[2]	N/A	N/A	2.0, monthly avg. minimum		once/day	grab
Oil and Grease (O & G)	1668	2502	N/A	N/A	two/week	grab
Total Dissolved Solids (TDS)	N/A	N/A	Report	Report	two/week	grab
Sulfates	N/A	N/A	Report	Report	two/week	grab
Chlorides	N/A	N/A	Report	Report	two/week	grab
Mercury, Total Recoverable[4]	0.015	0.032	N/A	N/A	once/month	24-hr composite
Cadmium, Total Recoverable[4]	2.22	4.46	N/A	N/A	once/month	24-hr composite
Hexavalent Chromium, Dissolved[4]	9.62	19.3	N/A	N/A	once/month	24-hr composite
Copper, Total Recoverable[4]	8.23	16.51	N/A	N/A	once/month	24-hr composite
Lead, Total Recoverable[4]	3.99	8.01	N/A	N/A	once/month	24-hr composite
Nickel, Total Recoverable[4]	142.3	285.52	N/A	N/A	once/month	24-hr composite
Selenium, Total Recoverable[4]	6.58	13.2	N/A	N/A	once/month	24-hr composite
Silver, Total Recoverable[4]	0.78	1.56	N/A	N/A	once/month	24-hr composite
Zinc, Total Recoverable[4]	73.52	147.51	N/A	N/A	once/month	24-hr composite
Chromium (III), Total Recoverable[4]	395.16	792.86	N/A	N/A	once/month	24-hr composite
Cyanide, Total Recoverable[4]	6.84	13.73	N/A	N/A	once/month	24-hr composite
Total Phosphorus						grab
(July – October)	116.7	233.5	0.7	1.4	once/day	24-hr composite
(November – June)	166.8	333.6	1	2	once/day	24-hr composite
Fecal Coliform Bacteria (FCB)			colonies/100 ml			
	N/A	N/A	Report	Report	once/day	grab
pH	N/A	N/A	Minimum 6.0 s.u.	Maximum 9.0 s.u.	once/day	grab
Chronic Biomonitoring[3]	N/A	N/A	N/A	N/A	once/month	24-hr composite

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TMDLS FOR SEGMENTS LISTED FOR MERCURY IN FISH TISSUE FOR THE OUACHITA RIVER BASIN, AND BAYOU BARTHOLOMEW, ARKANSAS AND LOUISIANA TO COLUMBIA

May 30, 2002



Table 4.14. Arkansas mercury TMDL allocation for Ouachita River basin.

Source Type	Upper Boundary		Most Likely		Lower Boundary	
	Loading Rate (g/yr)	Percent of Total Maximum Load	Loading Rate (g/yr)	Percent of Total Maximum Load	Loading Rate (g/yr)	Percent of Total Maximum Load
Point Source (WLA)						
NPDES Point Source	356	0.1%	356	0.1%	356	0.5%
City Municipal WWT	586	0.1%	586	0.2%	586	0.9%
Non Point Source (LA)						
Regional Atmospheric Deposition	0	0.0%	1,098	0.4%	19,218	28.7%
Local Atmospheric Deposition	0	0.0%	81	0.0%	1,418	2.1%
Soil/Deposited Hg Erosion	0	0.0%	3,313	1.2%	8,283	12.4%
Background						
Geologic/Erosion	591,658	123.0%	212,997	77.7%	23,666	35.3%
Total Basin Load	592,600	123.2%	218,431	79.7%	53,528	79.9%
Percent reduction of nonpoint load	100%		98%		65%	
Margin of Safety (MOS)	96,237	20.0%	54,821	20.0%	13,404	20.0%
Total Maximum Load (g/yr)	481,183	100%	274,103	100%	67,022	100%

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TMDLS FOR SEGMENTS LISTED FOR MERCURY IN FISH TISSUE FOR THE OUACHITA RIVER BASIN, AND BAYOU BARTHOLOMEW, ARKANSAS AND LOUISIANA TO COLUMBIA



May 30, 2002

EXECUTIVE SUMMARY

The Arkansas and Louisiana 1998 Section 303(d) Lists included 5 segments and 3 subsegment (reaches) in the Ouachita River basin that were impaired due to excess concentrations of mercury in fish. While there have been no known violations of the numeric mercury water quality standard and fishable designated use for these waterbodies, these segments and subsegments are not meeting the narrative water quality standard and designated uses of fishable water bodies. A basin-wide approach is being used in this TMDL due to similar ecoregions and watershed characteristics and because of similar causative factors such as atmospheric and geologic contributions.

The Ouachita River basin is in the Ouachita Mountain, South Central Plain, and Mississippi Alluvial Plain ecoregions. It has gently rolling topography, with hilly uplands, flatwood uplands, terraces, and floodplains. Land use in the basin is 71% forest with 13% in wetlands. There is one NPDES point source with permit mercury limits in the basin. There are seven air emission point sources with permit mercury limits. The geology of the Ouachita Mountains contains rocks with relatively high, naturally occurring mercury concentrations. The soils in the basin reflect this geology and also receive mercury from atmospheric deposition.

Both Arkansas and Louisiana have numeric mercury water quality standards of 0.012 μg/L. There have been no known violations of the numeric water quality standards, but clean sampling procedures and ultra-trace level analyses have not been used. There are fish consumption advisories in the lower Ouachita River basin and Bayou Bartholomew in both Arkansas and Louisiana because of mercury contamination of fish. The Action Level in Arkansas for fish consumption advisories is 1 mg/kg. While Louisiana does not have an established Action Level, fish tissue mercury concentrations of approximately 0.5 mg/kg have historically triggered fish consumption advisories as a result of risk assessments for individual water bodies. Safe target levels for all fish species in this TMDL are 0.8 mg/kg in Arkansas and 0.4 mg/kg in Louisiana, using a 20% Margin of Safety (MOS) for the Action Levels.

The TMDL was developed using a two-step approach. The first step estimated the mercury loads from the NPDES facility with a permit mercury limit, municipal wastewater

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TMDLS FOR SEGMENTS LISTED FOR MERCURY IN FISH TISSUE FOR THE OUACHITA RIVER BASIN, AND BAYOU BARTHOLOMEW, ARKANSAS AND LOUISIANA TO COLUMBIA



May 30, 2002

the assumption that the erosion rates for the rock to soil cannot be reduced. The total maximum loads and margins of safety were calculated from the target basin loads calculated in Table 4.13. Since the explicit margin of safety for this TMDL study was 20% (see Section 4.3), the target basin loads would be 80% of the total maximum load. Therefore the total maximum loads were calculated as the target basin loads divided by 0.8. The margins of safety were calculated as 0.2 times the total maximum loads.

Felsenthal NWR, Arkansas, also requires a factor of 3 reduction to achieve safe target levels, but Felsenthal is a special system in Arkansas. Felsenthal NWR is a relatively new reservoir, with impoundment occurring in 1985. New reservoirs typically have elevated concentrations of mercury in fish, but there is a decline in concentration after about 20 to 30 years with fish reaching concentrations sustained by external mercury loadings in about 25 to 30 years (Anderson et al. 1995). Fish mercury concentrations in Felsenthal NWR would be expected to decrease in the future, but the system should continue to be managed as a special system for mercury and fish consumption advisories.

4.8.1 Wasteload Allocation

The analysis of NPDES point sources in the watershed indicates that the cumulative loading of mercury from these facilities is less than 1% of the total estimated current loading. Even if this TMDL were to allocate none of the calculated allowable load to NPDES point sources (i.e., a wasteload allocation of zero), the applicable water quality standards for mercury would not be attained in the waterbody because of the very high mercury loadings from nonpoint and background sources. At the same time, however, EPA recognizes that mercury is an environmentally persistent bioaccumulative toxic with detrimental effects to human fetuses even at minute quantities, and as such, should be eliminated from discharges to the extent practicable. Taking these two considerations into account, this TMDL, therefore, provides that mercury contributions from the city municipal WWTPs not exceed the mercury water quality standard for Arkansas and Louisiana (12 ng/L). No change in mercury limits is provided for the NPDES point source with permit limits for mercury.

PLAINTIFF'S EXHIBIT Ex G

tabbies

ICP Metals Sampling Records for Station ID #OUA0037

(Includes all trace metals run by ICP/MS)

From 01/01/1970 through Today

Close this window

Note: Click the underlined links below for detailed information or code definitions.
Note: Data listed as "BDL" indicates test results that are "Below Detection Limits".
CLICK HERE to view the "Detection Limits Definition Chart".

Date Collected	Sample Type	Aluminum µg/L	Arsenic µg/L	Barium µg/L	Beryllium µg/L	Boron µg/L	Cadmium µg/L	Calcium mg/L	Chromium µg/L	Cobalt µg/L	Copper µg/L	Iron µg/L	Lead µg/L	Magnesium mg/L	Manganese µg/L	Nickel µg/L	Potassium mg/L	Selenium µg/L	Silver µg/L	Sodium mg/L	Vanadium µg/L	Zinc µg/L	Hardness mg/L
01/09/1995	WWR	338						6.55			(BDL)	310		1.2	50.6		1.37			3.975		11.1	21
02/13/1995	WWR	167.30		21.69	(BDL)			5.66		(BDL)	(BDL)	295.00		1.27	88.70	(BDL)	1.44			5.09	8.49	6.71	17.66
03/27/1995	WWRQ	167.10		26.41	(BDL)			5.53		(BDL)	2.42	370.00		1.19	66.70	(BDL)	1.09			4.76	7.90	17.20	19
04/24/1995	WWR	108.9		27.3	(BDL)	8.5		7.9		(BDL)	3.7	560.0		1.2	77.2	(BDL)	1.3			5.3	(BDL)	30.3	24.6
05/22/1995	WWR	65.82		25.67	(BDL)	9.91		7.05		(BDL)	2.33	338.00		1.33	120.00	(BDL)	1.17			3.16	(BDL)	10.10	23
06/19/1995	WWRQ	46.91		27.02	(BDL)	12.44		5.89		(BDL)	2.90	246.00		1.34	92.20	(BDL)	1.12			5.43	8.85	7.71	20
07/18/1995	WWR	(BDL)		24.6	(BDL)	13.3		5.6		(BDL)	(BDL)	142		1.5	83	(BDL)	1.1			6.2	8.5	13.7	20
08/07/1995	WWRQ	50		24.7	(BDL)	3.9		5.9		(BDL)	5.7	119		1.6	50	(BDL)	1.1			6.2	5.9	12.3	21
09/18/1995	WWR	42.4		27.9	(BDL)	15.3		6.2		(BDL)	(BDL)	137		1.7	72	(BDL)	1			9.7	8.8	23.6	22
10/16/1995	WWR	29.1		27.5	(BDL)	17.1		6.4		(BDL)	(BDL)	131		1.7	120	(BDL)	1.3			14.5	6.6	7.8	23
11/14/1995	WWR	32.1		22.1	(BDL)	(BDL)		6.0		(BDL)	2.9	77		1.6	42	(BDL)	1.0			2.3	19.9	6.3	22
12/06/1995	BWR																						
12/18/1995	WWR	40.6		17.8	(BDL)	7.4		6		5.9	2.4	82		1.2	47	(BDL)	1.3			7.6	9.7	33.2	19
01/30/1996	WWR	41.7		23.5	(BDL)	12.5		6		4.3	(BDL)	122.0		2	44.5	(BDL)	1.0			7	14.3	12.6	22
02/20/1996	WWR	39.9		26.0	(BDL)	14.4		7		(BDL)	(BDL)	130		1.6	84	(BDL)	1.2			11.8	12.0	11.0	24
03/12/1996	WWR	66		25.6	(BDL)	11.8		5.0		(BDL)	(BDL)	279.0		1.3	75.1	(BDL)	1.0			6.0	9.8	15.5	19
04/23/1996	WWR	82.2		26.0	(BDL)	14.8		5.5		(BDL)	2.6	336.0		1.0	105.0	(BDL)	0.7			6.1	7.1	25.7	18
05/21/1996	WWR	22.8		24.5	(BDL)	4.3		6.7		(BDL)	(BDL)	216.0		1.4	127.0	(BDL)	1.0			3.6	8.4	24.5	22
06/18/1996	WWRQ	33.5		27.6	(BDL)	12.3		6.7		(BDL)	(BDL)	386.0		1.5	113.0	(BDL)	1.2			7.6	9.0	13.9	23
07/16/1996	WWR	46.3		28.9	(BDL)	17.7		5.7		(BDL)	4.0	384.0		1.2	115.0	(BDL)	0.8			2.0	6.2	9.8	19
09/10/1996	WWRQ	21.1		24.7	(BDL)	13.3		7.1		(BDL)	6.9	193		1.8	80	(BDL)	1.0			12.8	7.1	13.8	25
11/19/1996	WWR	30.9		19.5	(BDL)	12.4		4.6		(BDL)	(BDL)	143.0		1.4	23.2	(BDL)	1.4			2.5	(BDL)	17.9	17
01/28/1997	WWR	146.2		27.4	(BDL)	11.1		6.9		(BDL)	2.7	342.0		1.0	53.4	(BDL)	1.3			3.9	(BDL)	12.9	22
03/11/1997	WWR	130.8		33.7	(BDL)	8.8		5.6		(BDL)	2.2	243.0		1.2	26.9	(BDL)	1.6			(BDL)	(BDL)	39.9	19
07/21/1998	WWR	(BDL)	(BDL)	23.3	(BDL)	10.4	(BDL)	5	(BDL)	(BDL)	1.79	147.5	(BDL)	1.7	68.3	(BDL)	2.8	(BDL)		8.8	6.29	29.1	19.5
09/01/1998	WWRQ	(BDL)	(BDL)	22.4	(BDL)	13.0	(BDL)	4.5	(BDL)	(BDL)	1.84	164.0	(BDL)	1.6	53.4	(BDL)	2.3	(BDL)		7.6	5.78	3.0	18
11/16/1998	WWR	143.5	(BDL)	27.1	(BDL)	17.6	(BDL)	7.1	(BDL)	(BDL)	1.44	457.4	(BDL)	1.6	89.8	(BDL)	2.7	(BDL)		6.3	2.84	9.6	25
01/26/1999	WWR	355.0	(BDL)	26.1	(BDL)	15.7	0.19	6.4	0.47	(BDL)	1.40	436.0	0.30	1.2	40.6	(BDL)	0.5	(BDL)		3.6	2.07	27.9	21
03/23/1999	WWR	293	(BDL)	23.5	(BDL)	8.5	(BDL)	4.6	(BDL)	(BDL)	1.04	335.8	(BDL)	1	44.5	(BDL)	2.3	(BDL)		3.3	1.08	31.4	16
05/25/1999	WWR	(BDL)	(BDL)	29.2	(BDL)	14.2	(BDL)	5.5	(BDL)	(BDL)	1.3	560	0.45	1.5	154.9	(BDL)	2.2	(BDL)		7.2	2.8	13.2	20
07/27/1999	WWR	(BDL)	(BDL)	19.7	(BDL)	4.6	(BDL)	6	(BDL)	(BDL)	1.03	127.3	(BDL)	1.5	33.1	(BDL)	1.2	(BDL)		4.5	12.56	205.8	21
09/21/1999	WWR	(BDL)	(BDL)	22.7	(BDL)	13.5	(BDL)	5.6	(BDL)	(BDL)	1.43	124.5	(BDL)	1.6	56.6	(BDL)	3.6	(BDL)		9.0	6.37	12.4	21
11/22/1999	WWR	(BDL)	(BDL)	23.0	(BDL)	17.8	(BDL)	6.7	0.40	(BDL)	1.29	100.2	(BDL)	1.8	82.3	(BDL)	1.5	(BDL)		11.3	3.20	13.9	24
01/25/2000	WWR	(BDL)	(BDL)	21.5	(BDL)	13.5	(BDL)	6.7	0.52	(BDL)	0.97	113.7	(BDL)	1.7	40.3	(BDL)	2.4	(BDL)		9.2	3.57	6.8	24
03/27/2000	WWR	(BDL)	(BDL)	29.6	(BDL)	20.4	(BDL)	5.4	0.68	(BDL)	1.32	276	(BDL)	1.5	120.5	(BDL)	0.7	(BDL)		9.8	4.24	9.1	20
05/30/2000	WWR	(BDL)	(BDL)	25.9	(BDL)	14	(BDL)	6.7	0.49	(BDL)	1.47	154	(BDL)	1.5	10.3	(BDL)	1.8	(BDL)		7.2	6.66	8.5	23
07/25/2000	WWR	(BDL)	(BDL)	20	(BDL)	11.3	(BDL)	6	0.91	(BDL)	0.69	84.7	(BDL)	1.7	94.1	(BDL)	2.4	(BDL)		5.6	6.87		22
09/18/2000	WWR	(BDL)	(BDL)	19.1	(BDL)	11.7	(BDL)	5.9	(BDL)	(BDL)	1.55	69	(BDL)	1.6	68.2	(BDL)	1.3	(BDL)		8.6	4.60	7.2	21
12/19/2000	WWR	(BDL)	(BDL)	22	(BDL)	10.8	(BDL)	5.4	1.08	(BDL)	1.10	93.2	(BDL)	1.2	69.4	(BDL)	2.5	(BDL)		3.7	2.61	19.6	18
01/30/2001	WWR	(BDL)	(BDL)	21.5	(BDL)	(BDL)	(BDL)	4.4	0.93	(BDL)	1.03	76.3	(BDL)	1.2	53.4	(BDL)	1.3	(BDL)		3	2.22	43.5	16
03/27/2001	WWRQ	(BDL)	(BDL)	24.7	(BDL)	9.9	(BDL)	6	(BDL)	0.55	1.65	253	(BDL)	1.3	128	(BDL)	(BDL)	(BDL)		3	3.59	7.1	20
05/22/2001	WWR	(BDL)	(BDL)	26.6	(BDL)	13.6	(BDL)	4.4	(BDL)	(BDL)	1.77	436.0	(BDL)	1.1	112.0	(BDL)	(BDL)	(BDL)		3.7	2.07	30.9	15
07/24/2001	WWRQ	(BDL)	(BDL)	18.6	(BDL)	11.1	(BDL)	5.3	0.5071	(BDL)	2.166	120.0	(BDL)	1.5	64.3	(BDL)	2.2	(BDL)		3.5	6.919	5.9	19

09/18/2001	WWR	(BDL)	(BDL)	33.6	(BDL)	18	(BDL)	6.5	(BDL)	(BDL)	1.43	196	(BDL)	1.7	19	(BDL)	(BDL)	(BDL)		11.2	4.25	4	23
11/19/2001	WWR	(BDL)	(BDL)	17	(BDL)	11.5	(BDL)	6.8	0.57	(BDL)	1.19	137	(BDL)	1.6		(BDL)	1.5	(BDL)		8.8	12.25	7.4	
05/28/2002	WWR	(BDL)	1.56	55.7	(BDL)	41.2	(BDL)	7.1	0.79	1.61	24.65	824	1.85	2	332	2.57	2.5	(BDL)		33.8	2.65	96	26
07/23/2002	WWR	(BDL)	(BDL)	23.8	(BDL)	11.8	(BDL)	5.8	(BDL)	(BDL)	3.27	119.0	(BDL)	1.5	47.8		1.1	(BDL)		3.9	6.83	(BDL)	21
09/17/2002	WWR	(BDL)	(BDL)	21.4	(BDL)	15.0	(BDL)	5.8	1.51	(BDL)	5.44	90.9	0.43	1.6	65.3	3.20	1.5	(BDL)		5.1	6.81	64.0	21.0
11/05/2002	WWR	(BDL)	(BDL)	25.5	(BDL)	20.3	(BDL)	6.89	0.55	(BDL)	1.78	198	(BDL)	1.66	54.4	(BDL)	2.12	(BDL)		7.00	5.27	39.2	24
01/21/2003		(BDL)	(BDL)	20.5	(BDL)	15.7	(BDL)	5.33	0.46	(BDL)	2.33	236	(BDL)	1.44	72.7	(BDL)	1.60	(BDL)		5.42	11.7	23.2	19
03/25/2003		145	(BDL)	31.0	(BDL)	11.3	(BDL)	5.97	1.02	(BDL)	1.00	424	(BDL)	1.35	90.9	(BDL)	1.52	(BDL)		4.43	9.63	33.6	20
05/20/2003		301	(BDL)	33.7	(BDL)	18.4	(BDL)	8.44	0.76	(BDL)	2.21	585	0.49	1.46	38.0	2.48	2.38	(BDL)		4.68	8.82	31.4	27
07/15/2003		138	(BDL)	32.4	(BDL)	14.4	(BDL)	7.56	0.81	(BDL)	8.60	572	(BDL)	1.82	173	(BDL)	1.24	(BDL)		7.20	14.5	44.1	26
09/23/2003		(BDL)	(BDL)	28.5	(BDL)	19.0	(BDL)	6.37	(BDL)	(BDL)	1.54	178	(BDL)	1.95	50.9	(BDL)	1.36	(BDL)		9.10	5.84	22.2	24
11/11/2003		134	(BDL)	23.5	(BDL)	13.7	(BDL)	8.67	(BDL)	(BDL)	2.47	118	(BDL)	1.92	19.1	(BDL)	1.89	(BDL)		9.76	47.4	273	30
01/20/2004		131	(BDL)	19.2	(BDL)	9.11	(BDL)	5.86	(BDL)	(BDL)	1.38	144	(BDL)	1.51	27.5	(BDL)	1.35	(BDL)		5.86	29.4	91.1	21
03/16/2004		364	(BDL)	51.9	(BDL)	31.2	(BDL)	6.69	(BDL)	1.07	2.49	789	0.62	1.98	150	2.64	2.56	(BDL)		23.3	4.22	12.3	25
05/11/2004		(BDL)	(BDL)	23.3	(BDL)	10.8	(BDL)	7.26	(BDL)	(BDL)	1.65	182	(BDL)	1.72	51.0	(BDL)	1.65	(BDL)		4.01	19.4	17.3	25
07/20/2004		130	(BDL)	30.7	(BDL)	5.95	(BDL)	6.92	(BDL)	(BDL)	3.42	376	(BDL)	1.48	282	(BDL)	2.20	(BDL)		3.90	5.41	13.3	23
09/21/2004		(BDL)	(BDL)	20.4	(BDL)	11.6	(BDL)	7.12	(BDL)	(BDL)	2.30	66.2	(BDL)	1.71	69.3	(BDL)	1.58	(BDL)		4.35	15.7	14.0	25
11/30/2004		142	0.78	27.0	(BDL)	17.9	(BDL)	5.07	0.23	(BDL)	2.50	281	0.29	1.13	53.2	2.15	3.65	(BDL)		4.18	3.86	153	
03/28/2005		41.6	(BDL)	20.4	(BDL)	11.3	(BDL)	6.93	(BDL)	(BDL)	(BDL)	204	(BDL)	1.43	36.4	(BDL)	1.45	(BDL)		6.81	7.18	24.0	23
04/04/2005		270	(BDL)	32.9	(BDL)	14.0	(BDL)	7.25	0.32	0.64	1.55	908	0.44	1.42	99.5	1.49	1.25	(BDL)		4.54	4.49	4.02	
05/02/2005		31.2	0.67	28.0	(BDL)	15.2	(BDL)	6.69	0.12	0.50	1.01	505	0.21	1.57	154	1.14	1.25	(BDL)		6.08	8.35	1.91	23
05/23/2005		28.8	0.75	28.3	(BDL)	17.3	(BDL)	6.88	(BDL)	(BDL)	2.01	194	0.12	1.83	130	0.96	1.37	(BDL)		7.64	4.72	53.8	25
06/27/2005		43.0	0.77	19.7	(BDL)	11.9	(BDL)	6.23	(BDL)	(BDL)	2.50	83.1	0.50	1.67	20.9	0.80	1.24	(BDL)		5.55	7.76	28.1	22
07/26/2005		36.8	0.84	22.8	(BDL)	16.9	0.46	6.81	0.14	(BDL)	2.65	140	0.39	1.76	49.3	0.80	1.56	(BDL)		4.92	10.4	11.9	24
09/27/2005		63.6	0.94	26.4	(BDL)	13.2	(BDL)	6.07	0.12	(BDL)	0.96	118	(BDL)	1.36	11.5	0.90	1.70	(BDL)		6.10	11.8	118	21
11/29/2005		27.6	0.62	21.5	(BDL)	14.0	(BDL)	7.64	0.50	(BDL)	(BDL)	188	(BDL)	1.55	72.2	0.59	1.41	(BDL)		6.04	5.82	28.9	25
01/17/2006		(BDL)	0.52	22.3	(BDL)	17.1	(BDL)	8.67	0.33	(BDL)	(BDL)	122	(BDL)	2.40	39.7	0.87	2.73	(BDL)		14.7	12.8	53.3	32
05/16/2006		129	0.74	27.4	(BDL)	17.2	(BDL)	8.07	0.35	(BDL)	5.78	370	0.11	1.39	74.6	1.14	2.21	(BDL)		5.34	7.91	26.7	26
07/25/2006		(BDL)	0.53	22.0	(BDL)	13.9	(BDL)	5.65	(BDL)	(BDL)	2.33	39.0	(BDL)	1.49	9.28	(BDL)	1.34	(BDL)		5.50	5.30	6.14	20
09/26/2006		(BDL)	0.56	18.9	(BDL)	11.2	(BDL)	5.93	0.15	(BDL)	0.99	80.0	(BDL)	1.39	28.5	(BDL)	1.31	(BDL)		3.29	9.19	2.84	21
11/28/2006		(BDL)	(BDL)	18.8	(BDL)	16.5	(BDL)	6.40	(BDL)	(BDL)	0.86	122	(BDL)	1.54	47.9	0.51	1.39	(BDL)		3.32	6.99	4.53	22
01/02/2007		71.9	0.51	25.6	(BDL)	16.8	(BDL)	6.31	0.18	(BDL)	1.95	178	(BDL)	1.43	53.5	1.42	1.95	(BDL)		2.77	10.3	3.43	22
03/13/2007		25.6	(BDL)	24.4	(BDL)	9.30	(BDL)	7.12	0.13	(BDL)	1.58	312	0.11	1.45	86.8	0.84	1.27	(BDL)		3.26	4.83	6.18	24
05/01/2007		37.1	0.61	25.2	(BDL)	6.13	(BDL)	6.32	0.15	(BDL)	1.06	275	(BDL)	1.40	33.0	1.11	1.29	(BDL)		2.45	11.2	9.95	22
07/17/2007		121	1.19	47.4	(BDL)	16.3	(BDL)	7.16	0.33	(BDL)	2.16	517	0.18	1.17	118	2.64	1.84	(BDL)		2.10	8.56	10.7	20
09/05/2007		125	(BDL)	22.8	(BDL)	(BDL)	0.31	5.91	(BDL)	(BDL)	2.31	404	(BDL)	1.46	86.1	(BDL)	1.34	(BDL)		2.25	6.34	?60.8	21

Close this window

Permit number: AR0050296

AUTHORIZATION TO DISCHARGE WASTEWATER UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND THE ARKANSAS WATER AND AIR POLLUTION CONTROL ACT

In accordance with the provisions of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended, Ark. Code Ann. 8-4-101 et seq.), and the Clean Water Act (33 U.S.C. 1251 et seq.),

Lion Oil Company - El Dorado Refinery
1000 McHenry Ave.
El Dorado, AR 71730

Great Lakes Chemical Corporation – Central Plant
P.O. Box 7020
El Dorado, AR 71731-7020

El Dorado Water Utilities (**operator**)
P.O. Box 1587
El Dorado, AR 71731

El Dorado Chemical Company
P.O. Box 231
El Dorado, AR 71731-0231

are each authorized to discharge to the joint pipeline from their own facilities which are located as follows:

Lion Oil Company is located at 1000 McHenry Street, southwest section of El Dorado, located between Highway15 and Highway 82 bypass, in Section 32, Township 17 South, Range 15 West in Union County, Arkansas.

Latitude: 33° 11' 56"; Longitude: 92° 40' 33"

Lion Oil Company's monitoring outfall for its discharge to the joint pipeline (Outfall 010 – combined outfall of Outfalls 001, 006, and 007 in NPDES Permit No. AR0000647) is located at the following coordinates:
Latitude: 33° 11' 56"; Longitude: 92° 40' 33".

Great Lakes Chemical Corporation – Central Plant is located on the west side of Hwy. 15, approximately 2 miles south of U.S. Hwy. 82 at 2226 Haynesville Highway (Hwy. 15 South), in Section 1, Township 18 South, Range 16 West in Union County, Arkansas.

Latitude: 33° 11' 07"; Longitude: 92° 42' 21"

Great Lakes Chemical Corporation – Central Plant's monitoring outfall for its discharge to the joint pipeline (Outfall 010 – combined outfall of Outfalls 001, 002, 003, and 007 in NPDES Permit No. AR0001171) is located at the following coordinates: Latitude: 33° 11' 07"; Longitude: 92° 42' 21".

El Dorado Water Utilities

The North Plant is 2300 feet south and 800 feet east of the intersection of Hwys. 167 and 167B at 1119 Victor Dumas Drive in Section 15, Township 17 South, Range 15 West in Union County, Arkansas.

Latitude: 33° 14' 54"; Longitude: 92° 38' 43"



ATTACHMENT 2

Permittee	El Dorado Joint Pipeline			
Receiving Stream	Ouachita River			
Permit number	AR0050296			
Flow (Qe)	20.00	MGD		
Flow (Qe)	30.90	CFS		
7Q10 =	750.00	CFS		
Long Term Average =	750.00	CFS		
Using Diffusers	yes	Yes/No		
pH =	6.85	S.U.		
Total Hardness	28.00	mg/l		
TSS	5.50	mg/l		
(% of 7Q10 for Chron	0.25		Qb	187.50
(% of 7Q10 for Acute)	0.13		Qb	97.50
Cb	0.00	ug/l		
AML factor	1.55			
DML/AML	3.11			

	WQSa	WLAa	LTAa	WQSc	WLAc	LTAc	LTAa/LTAc	AML, ug/l	DML, ug/l	WQSb	WLAb	AML, ug/l	DML, ug/l
Cadmium Total*	3.91	16.26	9.27	1.6891	11.94	8.60	8.60	13.32	26.73				
Chromium (hex)	15.71	65.29	37.21	10.5820	74.79	53.85	37.21	57.68	115.74				
Copper Total*	13.44	55.83	31.82	10.0216	70.83	51.00	31.82	49.33	98.98				
Lead Total*	77.87	323.56	184.43	3.0343	21.45	15.44	15.44	23.93	48.02				
Mercury Total*	6.70	27.84	15.87	0.0120	0.08	0.06	0.06	0.09	0.19				
Nickel Total*	973.88	4046.79	2306.67	----------	764.45	550.40	550.40	853.12	1711.75				
Selenium Total	20.00	83.11	47.37	5.0000	35.34	25.44	25.44	39.44	79.13				
Silver Total*	1.27	5.27	3.00	----------	----------	----------	3.00	4.65	9.33				
Zinc Total*	120.05	498.87	284.35	----------	774.85	557.89	284.35	440.75	884.34				
Chromium (Tri)*	925.86	3847.28	2192.95	----------	2122.80	1528.42	1528.42	2369.04	4753.37				
Cyanide Total	22.36	92.91	52.96	5.2000	36.75	26.46	26.46	41.02	82.30				

* See Linear Partition Coefficient (Page 6)

	AML, lb/d	DML, lb/d
Cadmium Total	2.22	4.46
Chromium (hex)	9.62	19.30
Copper Total	8.23	16.51
Lead Total	3.99	8.01
Nickel Total	142.30	285.52
Selenium Total	6.58	13.20
Silver Total	0.78	1.56
Zinc Total	73.52	147.51
Chromium (Tri)	395.16	792.86
Cyanide Total	6.84	13.73

Ouachita River and Felsenthal Nutrient Modeling Study

Prepared for:

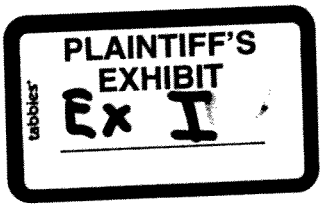
Joint Pipeline Group

El Dorado, AR

Prepared by:

GBM^c & Associates
219 Brown Lane
Bryant, AR 72022

June 1, 2006



Discharge scenario 1 modeling for total phosphorus, projects an increase in instream phosphorus concentration from approximately 80 μg/L to just over 90 μg/L as a result of the discharge (Figure 6.18). Total phosphorus levels upstream of Coffee Creek, near the Arkansas and Louisiana state line, remain higher than baseline projections at approximately 91 μg/L, but inorganic phosphorus levels (that portion of phosphorus that is biologically available for phytoplankton growth) are reduced to background levels by OUA-2.5, half way between highway 82 and Felsenthal Lock and Dam.

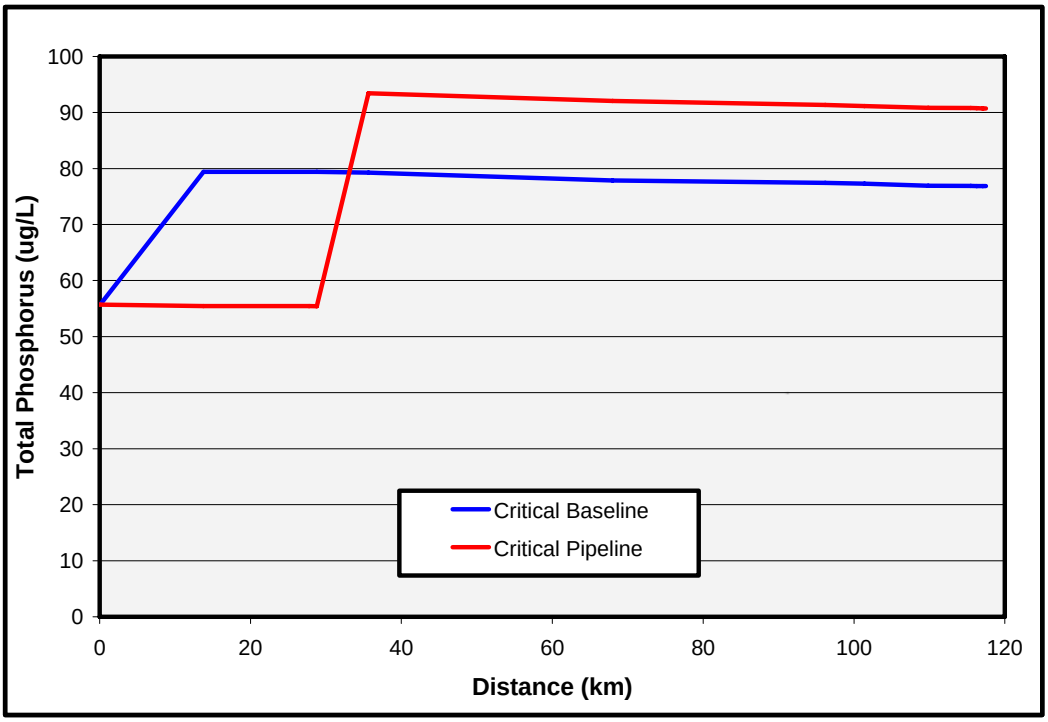


Figure 6.18. Total phosphorus predictions with and without the pipeline discharge under critical stream conditions and at full permitted discharge loads (Scenario 1).

Discharge scenario 2 modeling for total phosphorus projects no significant increase in instream phosphorus concentration as a result of the discharge (Figure 6.19).

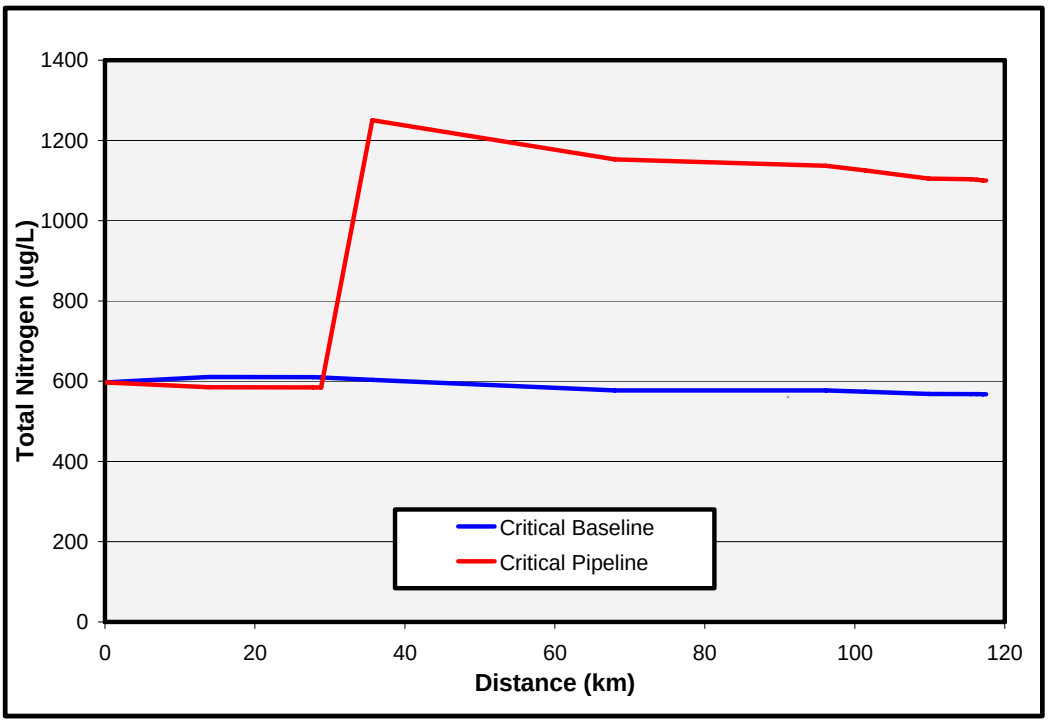


Figure 6.26. Total nitrogen predictions with and without the pipeline discharge under critical stream conditions and full permitted discharge load (Scenario 1).

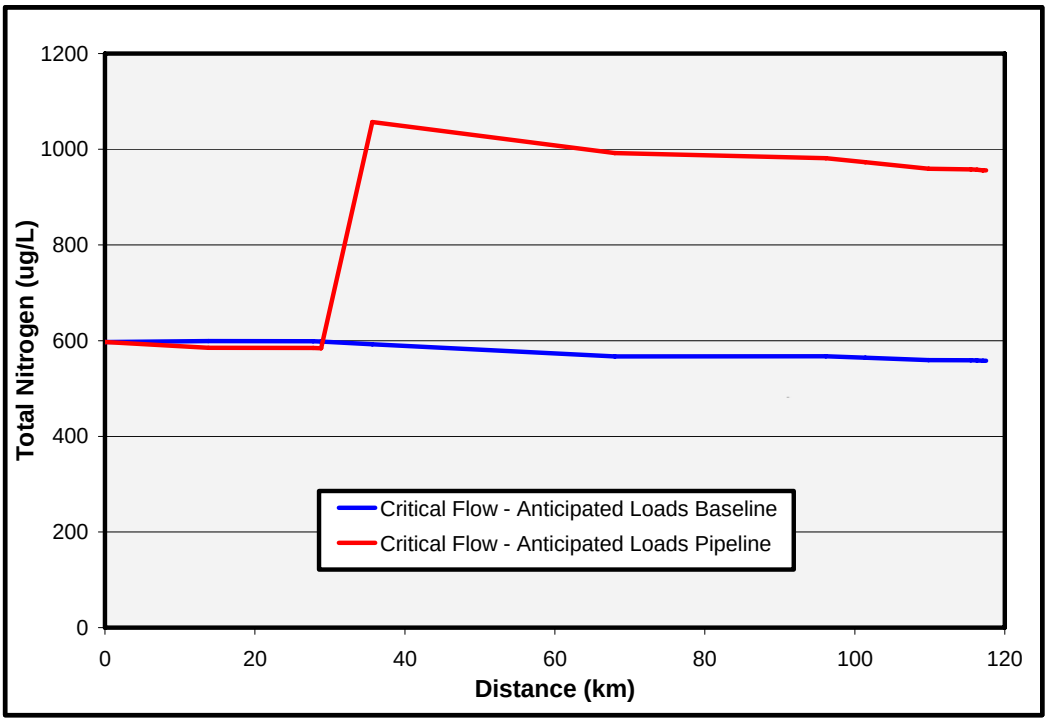


Figure 6.27. Total nitrogen predictions with and without the pipeline discharge under critical conditions and the anticipated discharge loads (Scenario 2).

Ouachita River and Felsenthal Nutrient Modeling Study

Prepared for:

Joint Pipeline Group
El Dorado, AR

Prepared by:

GBM^c & Associates
219 Brown Lane
Bryant, AR 72022

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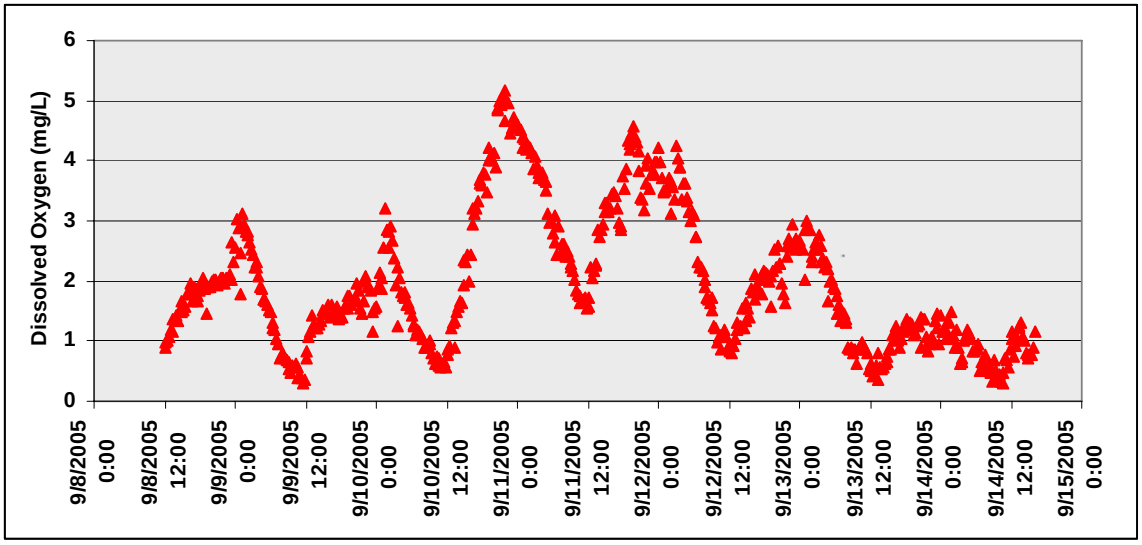


Figure 4.4. Diurnal dissolved oxygen levels in Crooked-S Slough (at CSS-1).

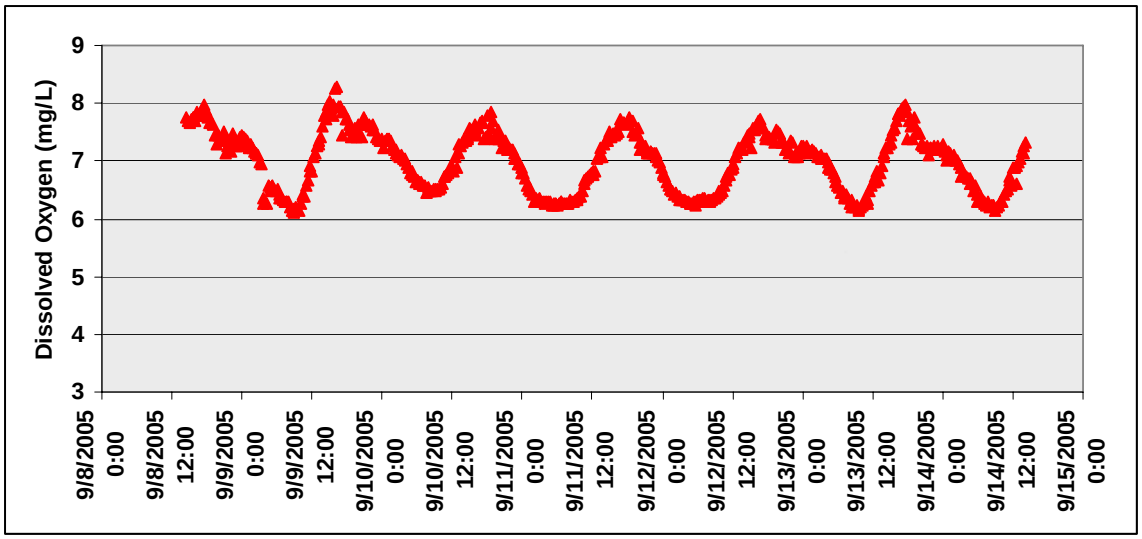


Figure 4.5. Diurnal dissolved oxygen levels in the Ouachita River at OUA-2.

Diurnal fluctuation of temperature and pH was much less pronounced compared to that of dissolved oxygen. Maximum pH fluctuation was 0.7 s.u., and maximum temperature fluctuation was 3.5 °C (Appendix C.)

Ouachita River and Felsenthal Nutrient Modeling Study

Prepared for:

Joint Pipeline Group
El Dorado, AR

Prepared by:

GBM^c & Associates
219 Brown Lane
Bryant, AR 72022

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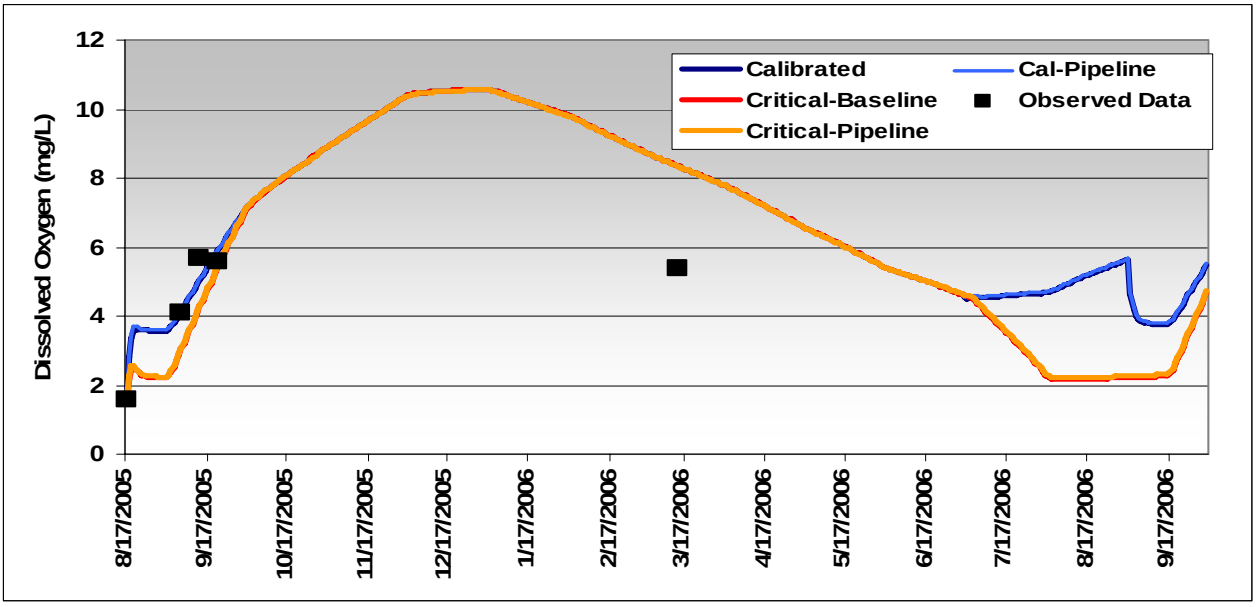


Figure 6.33. Dissolved oxygen predictions in Crooked-S Slough (CSS-1) for an annual cycle. Note that the two critical model predictions and the two calibrated model predictions overlap almost identically.

Trophic State Indices

Carlson's trophic state index was calculated for each of the three parameters (chlorophyll-a, total phosphorus and total nitrogen) for each modeling scenario (Table 6.19.) A summary of the results is presented in Figure 6.34.

Table 6.19. Summary of Trophic State Index Scores calculated from WASP predictions for CSS.

	Parameter			
Model Scenario	**Chlorophyll-a**	**Phosphorus**	**Nitrogen**	**Average**
Calibrated Model (Baseline)	58.5	63.7	48.8	57.0
Calibrated With Pipeline	59.7	66.4	54.1	60.1
Critical Model (Baseline)	59.7	63.7	49.0	57.5
Critical With Pipeline	60.4	66.4	56.1	61.0

Ouachita River and Felsenthal Nutrient Modeling Study

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Joint Pipeline Group
El Dorado, AR

Prepared by:

GBM^c & Associates
219 Brown Lane
Bryant, AR 72022

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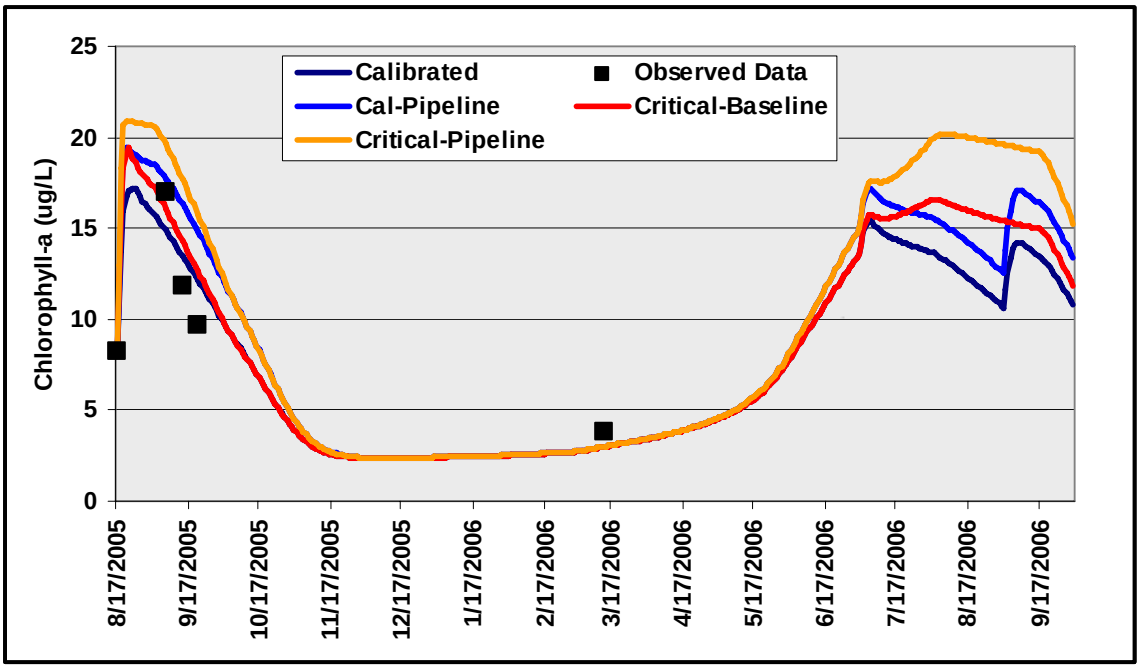


Figure 6.32. Chlorophyll-a predictions in Crooked-S Slough (CSS-1) for an annual cycle.

Dissolved oxygen levels predicted by the model in the Felsenthal system remain virtually unaffected by the additional nutrients and accompanying phytoplankton increases resulting from the pipeline in the Felsenthal system (Figure 6.33). This is very important as it indicates that the concerns that the AG&FC has raised about further depletion of oxygen levels in the backwater lakes as a result of the pipeline discharge, are not supported by the modeling predictions. Dissolved oxygen model predictions for August and September are consistent with the diurnal oxygen measurements taken in-situ during the 2005 field study. Both the WASP model predictions and the diurnal in-situ results exhibit summer daily average dissolved oxygen levels near 2 mg/L, indicating that daily minimums could drop much lower. Considering the wetland like environment in the backwater lakes of Felsenthal the low dissolved oxygen levels would be expected to occur naturally as a result of existing organic matter decay and macrophyte respiration.

Ouachita River and Felsenthal Nutrient Modeling Study

Prepared for:

Joint Pipeline Group
El Dorado, AR

Prepared by:

GBM^c & Associates
219 Brown Lane
Bryant, AR 72022

June 1, 2006

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6.3.2 Felsenthal Eutrophication Modeling Results (WASP)

Modeling completed in the backwater lakes portion of Felsenthal utilized the USEPA WASP model. The WASP model predicts water quality constituent changes over time for an annual cycle in Crooked-S Slough. The following sections summarize the results of the modeling (Table 6.18). Models were run comparing the calibrated conditions with and without the pipeline and critical conditions with and without the pipeline.

Table 6.18. Summary of key parameter values predicted by WASP for each model scenario.

	WASP Parameter			
Model Scenario	Minimum Dissolved Oxygen (mg/L)	Maximum Total Phosphorus (mg/L)	Maximum Total Nitrogen (mg/L)	Maximum Chlorophyll-a (µg/L)
Calibrated (Baseline)	2.79	0.062	0.674	17.2
Calibrated With Pipeline	2.84	0.075	0.976	19.4
Critical (Baseline)	2.17	0.062	0.686	19.4
Critical With Pipeline	2.20	0.075	1.119	20.9

Total phosphorus levels change very little with the addition of the pipeline discharge to the system (Figure 6.30). Predicted values for phosphorus are all within the observed range measured during the summer 2005 field study for both the calibrated and critical conditions.

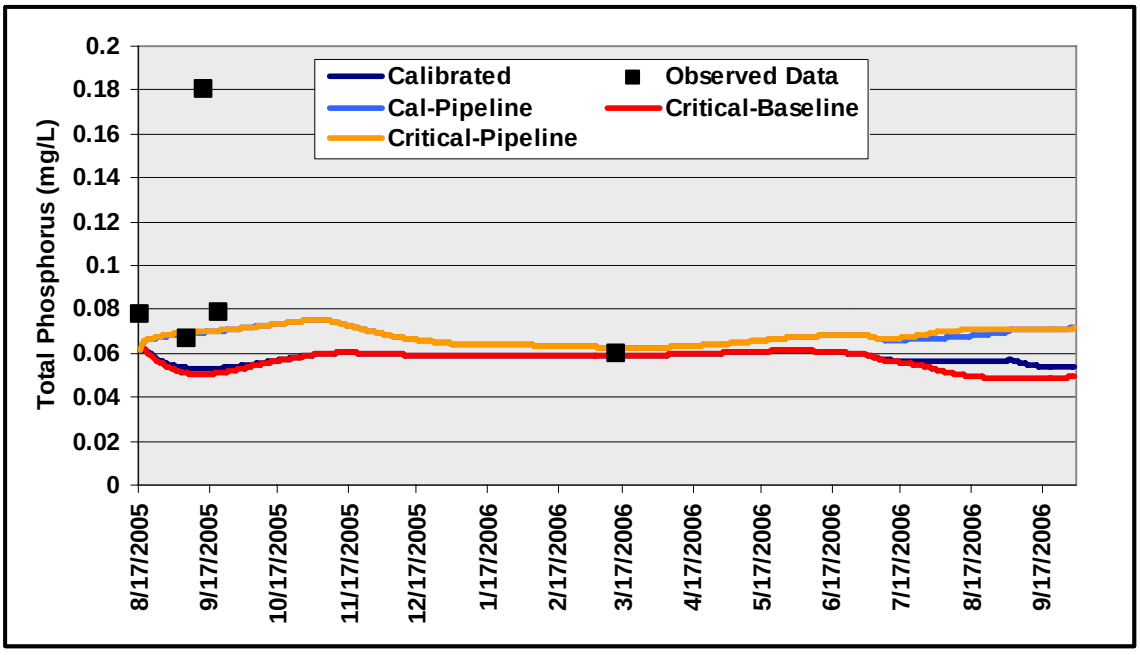


Figure 6.30. Total phosphorus predictions in Crooked-S Slough (CSS-1).

Work Plan for Conducting a Field Study and Eutrophication Model(s) for the Ouachita River and Felsenthal Reservoir

Prepared for:

Joint Pipeline Group
El Dorado, AR

Prepared by:

GBM^c & Associates
219 Brown Lane
Bryant, AR 72022

June 29, 2005

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1.0 Introduction

The City of El Dorado, Lion Oil Company, Great Lakes Chemical Corporation and El Dorado Chemical Company (the "Joint Pipeline Group") have traditionally discharged treated wastewater into small creeks near their facilities. New regulations imposing more stringent permit limits have made it impractical to continue this practice. As a result, a joint NPDES permit application that establishes a single discharge point to the Ouachita River via a joint pipeline was submitted to the Arkansas Department of Environmental Quality in November 2004. Felsenthal National Wildlife Refuge (Felsenthal) lies downstream from the proposed pipeline discharge point approximately 50 river miles. According to personnel with the Arkansas Game and Fish Commission and the U.S. Fish and Wildlife Service Felsenthal currently suffers from dense growths of aquatic macrophytes which inhabit the shallow backwater portions of the refuge. The initial concern of Arkansas Game and Fish Commission personnel was that increased nutrient load from the proposed pipeline discharge would result in increased macrophyte growth in the backwater areas.

In response to those concerns the joint pipeline group commissioned GBM^c & Associates to model the Felsenthal system using EPA's AQUATOX model. AQUATOX is a simulation model for aquatic systems that predicts the fate of pollutants, such as nutrients and their effects on the ecosystem. AQUATOX predicted that the discharge would not result increased growth of macrophytes. That prediction is supported by the literature that suggests that water borne nutrients do not typically limit macrophyte growth; sediment nutrients are generally sufficient to support growth and factors such as water depth and water clarity are usually limiting factors.

In a meeting to discuss the AQUATOX model results (attendees represented included the Arkansas Game and Fish Commission, the U.S. Fish and Wildlife Service and the Arkansas Department of Environmental Quality) additional concerns arose. These include the possibility of increasing chlorophyll in either the Ouachita River or in Felsenthal, and increasing phosphorus load downstream of Felsenthal as a result of the pipeline discharge. In a letter dated June 16, 2005 the Louisiana Department of Environmental Quality also expressed concern about the effect of the proposed joint pipeline discharge downstream of Felsenthal. In an effort to address the additional

Ouachita River and Felsenthal Nutrient Modeling Study

Prepared for:

Joint Pipeline Group
El Dorado, AR

Prepared by:

GBM^c & Associates
219 Brown Lane
Bryant, AR 72022

June 1, 2006

PLAINTIFF'S EXHIBIT
tabbies
Ex O

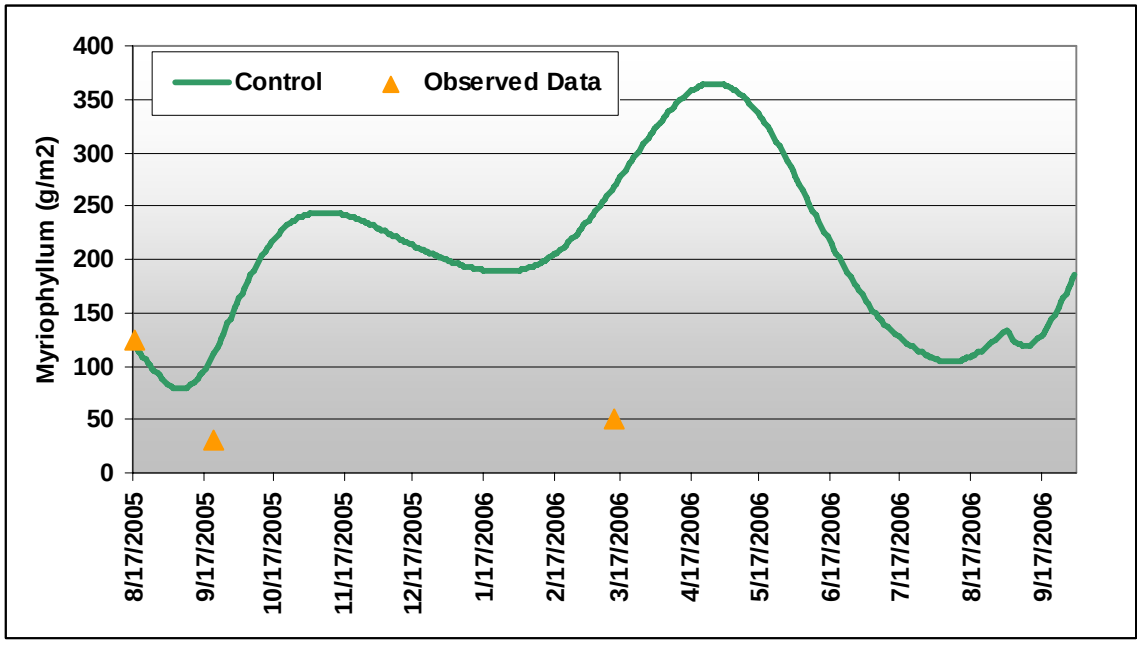


Figure 6.12. AQUATOX calibrated to Myriophyllum macrophyte biomass.

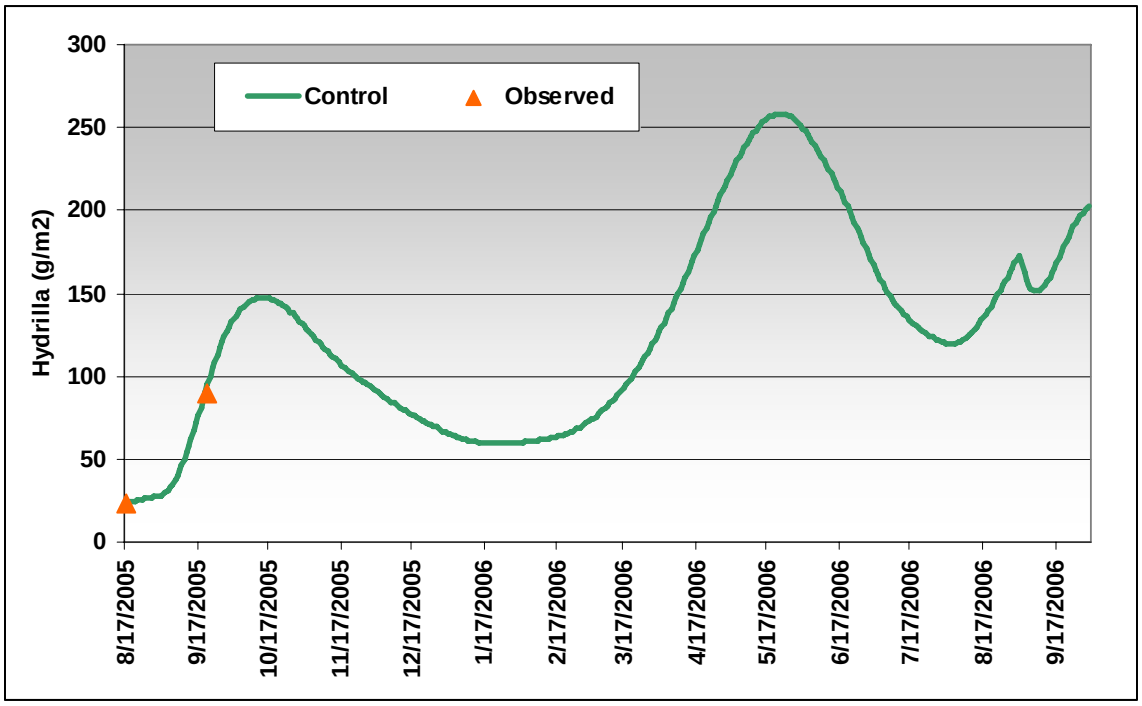


Figure 6.13. AQUATOX calibrated to Hydrilla macrophyte biomass.

On May 8, 2008, Michael O'Malley, Administrative Hearing Officer ("AHO") issued his Recommended Decision, Order No. 9, in Consolidated Docket. No. 07-006-P, which is styled In the Matter of El Dorado Joint Pipeline Group Permits.

Order No. 9 affirms in part and reverses and remands in part the Arkansas Department of Environmental Quality decision to issue permits AR0050296, and AR0049743C and modify permits AR0001171, AR0049743, AR0000647, and AR0000752.

The record compiled in this docket by the AHO and Order No. 9 came before the Commission at its June 27, 2008 meeting. After considering the matter, the Commission adopts and affirms Order No. 9, entered on May 8, 2008, with the following modifications:

A. Issues Raised By State of Louisiana, Louisiana Environmental Action Network, and Save the Ouachita and Kent Stegall

1. The AHO's findings on Issue 5—Compliance with Louisiana's water quality standards, section b—40 C.F.R. § 122.4(d) are reversed. Federal and state law prohibit Arkansas from issuing a permit unless it can "ensure compliance" with the water quality standards of all affected states. 40 C.F.R. §122.4(d). The Arkansas Department of Environmental Quality did not ensure compliance with Louisiana's water quality standards because: **(a)** ADEQ failed to examine the impact of the Joint Pipeline discharge—when combined with the pulp and paper mill discharge at Coffee Creek—on water quality at the Arkansas-Louisiana state line and **(b)** ADEQ failed to examine the biological effect of increased nutrients at the Arkansas-Louisiana state line to ensure compliance with Louisiana's nutrient and nuisance species standards.

2. The AHO's findings on Issue 6—Mercury, section a—Mercury TMDL are reversed. Federal and state law prohibit issuance of a permit that will cause or contribute to violation of a water quality standard. 40 C.F.R. § 122.4(i). Fish consumption advisories for the Ouachita River show the river is not meeting its water quality standard for mercury. ADEQ may not issue a permit allowing the discharge of mercury into the Ouachita River unless that permit is consistent with the mercury budget set in the 2002 Mercury TMDL. The mercury limit in the Joint Permit, AR0050296, is not consistent with the 2002 Mercury TMDL.

3. The AHO's findings on Issue 6—Mercury, section d—Designated uses are reversed. State law requires ADEQ to protect and maintain "existing instream water uses and the level of water quality necessary to protect the existing uses." Reg 2.201. Existing instream uses of the Ouachita River include fishing and swimming. Allowing the permittees to discharge 2400

grams per year of mercury into the Ouachita River, which already has fish consumption advisories for mercury, does not protect the existing uses.

4. The AHO's findings on Issue 7—Zinc are reversed. ADEQ uses background concentrations of metals in the receiving water to set permit limits. ADEQ could not reasonably assume background concentration of "0" for all metals when setting limits for the Joint Permit because it has data from above and below the discharge point showing metals in the river and no data showing metals as "0" at the discharge point. The metals limits in the Joint Permit therefore do not protect water quality. The AHO had no authority to determine that a waterbody listed on the 2004 List of Impaired Waterbodies is not impaired.

5. The AHO's findings on Issue 9—Existing fishery in Felsenthal are reversed. State law requires ADEQ to protect and maintain "existing instream water uses and the level of water quality necessary to protect the existing uses." Reg 2.201. Existing instream uses of the Ouachita River in the backwater areas of Felsenthal National Wildlife Refuge include fishing. ADEQ has not shown that the Joint Pipeline discharges protects the dissolved oxygen levels and avoids nutrient loading in order to protect the fishery in Felsenthal National Wildlife Refuge.

B. Issues raised by the JPG

1. The AHO's findings on Issue 3—Zinc are reversed. The Ouachita River is listed on the 303d list for mercury and zinc.

C. The Order

1. Paragraph 2b is reversed.

2. The following subparagraphs are added in paragraph 2 :

f. Louisiana's water quality: ADEQ shall model the impact of the Joint Pipeline discharge and the pulp and paper mill discharge at Coffee Creek on water quality at the state line and to examine the biological effect of increased nutrients at the state line and adjust permit limits in the Joint Permit accordingly/

g. Mercury—The permit limit for mercury in permits AR0050296, AR0001171, AR0049743, AR0000647, and AR0000752 shall be set at "0."

h. Metals—ADEQ shall determine actual background concentrations of metals in the Ouachita River at the proposed discharge point and to recalculate the Joint Permit's metals limits accordingly.

i. Existing Fishery in Felsenthal National Wildlife Refuge: ADEQ shall examine—using properly calibrated modeling—the Joint Permit's effect on minimum dissolved oxygen levels and plant growth of plants that actually grow in Felsenthal National Wildlife Refuge and adjust the Joint Permit limits to protect and maintain the fishery in Felsenthal National Wildlife Refuge.

COMMISSIONERS

_____ L. Bengal	_____ L. Sickel
_____ S. Henderson	_____ J. Simpson
_____ D. Hendrix	_____ W. Thompson
_____ C. McGrew	_____ E. Valdez
_____ D. Samples	_____ B. White
_____ T. Schueck	_____ R. Young
_____ J. Shannon	

_____ SUBMITTED BY: _Jill Witkowski_ PASSED: _6/27/08_
Chair

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN RE: EL DORADO JOINT PIPELINE GROUP PERMITS	CONSOLIDATED DOCKET NO. 07-006-P

SAVE THE OUACHITA AND KENT STEGALL'S
REQUEST FOR ORAL ARGUMENT BEFORE THE FULL
ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

Comes now Save the Ouachita (STO) and Kent Stegall, by their attorney, T. David Carruth and, pursuant to Regulation 8, Section 2.5.19 requests that they be allowed to make oral argument before the full Commission on the Recommended Decision of the Administrative Hearing Officer (AHO) issued the 8th day of May, 2008. In support thereof they state:

FACTUAL BACKGROUND:

Nutrients
(includes phosphorus)
(Recommended Decision, pages 23 & 41)

(1) The AHO found that three computer models were employed by the permittee to study the effects on the Ouachita River environment as a result of the nutrient discharge from the joint pipeline. Each model addressed a different ecosystem type, or attributes of a particular ecosystem. These findings are found on page 4 of the Recommended Decision. The AHO found that the QUAL2K model was used to model the impacts of the discharged nutrients on the **main stem** of the Ouachita River. The AHO found that the WASP model was used to understand **in-lake nutrient dynamics and effects on system ecology**. The AHO found that the AQUATOX model was used because it **purported to simulate the impact of effluent on the growth of aquatic plants**

in Felsenthal Reservoir[1]. The AQUATOX model was only run on one small part of Felsenthal Reservoir, that being Crooked S Slough. Notwithstanding the AHO's finding that three different models were utilized and each confirmed pipeline nutrients would be transported in the Ouachita River to Felsenthal Reservoir and its backwaters, in his analysis beginning on page 23 of the Recommended Decision the AHO made reference only to the results of the QUAL2K model and did not incorporate the results of the WASP or AQUATOX model in his analysis. Beginning on page 41 of his Recommended Decision, the AHO further analyzed the result of the WASP, QUAL2K and AQUATOX models. As a factual matter, the AHO should have incorporated the results of all three models and the cumulative impact they reflect into his analysis. When the results of all three models are viewed holistically, the conclusion is reached that discharge of pipeline nutrients, specifically nitrates and phosphorus, violate applicable water quality standards, specifically in Felsenthal Reservoir, as found in Regulation 2.

The proof at the hearing was uncontroverted that nutrients, particularly phosphorus from the joint pipeline would make their way into the waters of Felsenthal Reservoir where, due to the slower water of the reservoir, many particles would settle out of the water column and fall to the bottom. These nutrients would eventually either become available to the plant life in Felsenthal Reservoir or could become re-suspended in the water column and be carried further downstream. The permittees offered testimony that even though Felsenthal Reservoir is inundated with nutrients, pipeline nutrients would not be a problem because there currently existed an overabundance of nutrients and, therefore, pipeline nutrients would not be used by the aquatic plants for a long time if at all. The AHO adopted this rational in finding nutrients would not cause harm to Felsenthal Reservoir.

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[1] Felsenthal Reservoir is also known as Lake Jack Lee.

The AHO should have recommended to the Commission that there be no discharge of nutrients from the joint pipeline and denied the permit on this basis.

STO and Stegall request oral argument before the full Commission on the issue of nutrients and nuisance species.

Mercury
(includes toxic substances)
(Recommended Decision page 25)

The Joint Pipeline Permit No. AR0050296 provides for the discharge into the Ouachita River of up to 900 gallons per day of solid human and industrial waste along with up to 580 gallons of Ammonia Nitrogen into the river. Other chemicals and the maximum amount that would be dumped into the river each day would be, 13.73 pounds of cyanide, 792.86 pounds of chromium, 147.51 pounds of zinc, 285.52 pounds of nickle, 13.2 pounds of selenium, 4.46 pounds of Cadmium and a third of a pound of Mercury. Regulation 2. §2.508 provides that toxic substances shall not be present in the receiving stream in such quantities as to be toxic to humans, animal, plant life or to interfere with the normal propagation, growth and survival of the indigenous aquatic biota. Under Regulation 2, §2.405 it is the responsibility of ADEQ to collect and evaluate the aquatic biota in order to determine it Regulation 2. §2.508 is being violated. The testimony was uncontroverted that the applicable segment of the Ouachita River is impaired due to excess mercury. It is also uncontroverted that methyl mercury is toxic to both fish and humans and "bioaccumulates" or builds up exponentially in the food chain. Dr. Joe Nix testified that Felsenthal Reservoir contains the ideal conditions and combination of organic matter and mercury to cause non-toxic metal mercury to methylize into methyl mercury. The AHO found that the Ouachita River is impaired due to mercury. The AHO found that the mercury limit in the permit violated the narrative standard that the waters be fishable. The AHO also found that the amount of mercury from all sources in the applicable

segment of the Ouachita River exceeded the established TMDL. The AHO further found that none of the members of the Joint Pipeline Group would be discharging mercury into the Ouachita River. Notwithstanding these findings the AHO approved the permit limit for mercury based on the numeric standard of 12 nanograms per liter citing Regulation 2.508 (toxic substances).

In finding that the amount of mercury allowed to be discharged under the permit, the AHO found that testing conducted by the Joint Pipeline Group showed no harm to aquatic life due to mercury. Reliance on this testing was misplaced. GBMc conducted the testing. Mr. Roland McDaniel testified that the mercury in the water sample used in the test was metal mercury and not methyl mercury. As metal mercury is not toxic to fish or humans, this test is of no value. Reliance on it for a determination of toxicity is misplaced. The AHO should have found that the testing was flawed and denied the permit limit for mercury based on an analysis of all of the evidence.

STO and Stegall request oral argument on the issue of toxicity.

Existing Uses
and
Taste and Odor

Witnesses for STO who regularly use the Ouachita River and Felsenthal Reservoir and Kent Stegall who lives on the Ouachita River testified that they were aware of the substances that would be discharged into the Ouachita River through the pipeline. Regulation 2, §2.407 provides that taste and odor producing substances shall be limited in receiving streams to concentrations that will not..... result in offensive odor arising from the waters or otherwise interfere with the reasonable use of the water. At the public meeting held in El Dorado, Arkansas on May 18, 2006, Kent Stegall asked the question of Martin Maner if the Ouachita River water would have an unpleasant or offensive odor or taste as a result of the Joint Pipeline discharge. The answer was in the affirmative.

Notwithstanding this fact, the permit has been granted. Odor effects recreational use of a river. It causes potential users to hesitate or stop using the river on the belief that the smell is indicative of tainted or polluted water that is unhealthy for human contact and, therefore, not "swimmable". Smell can also lead a person to not fish in the river due to an inability to eat the fish due to any caught fish having an unpleasant or "off" taste. This results in economic loss occasioned by reduced use of unfishable waters. Taste effects the ability to use the water for potable purposes as well as effecting the taste of fish caught in the stream. It was error for ADEQ to issue the permit in direct violation of §2.407 and the Commission should overturn that decision Based on this, witnesses for STO testified the discharge would have a negative impact on current uses of the river. This impact would be in the form of less use of the river due to skin contact with the discharged substances, health concerns from contact with the effluent and offensiveness of the odor. STO presented testimony that this would have a negative economic impact due to lost tourism, hunting and fishing income to the area.

Ronnie Greer testified that he had fished the applicable segment of the Ouachita River most of his adult life and had fished and boated in Felsenthal Reservoir since its formation. Mr. Greer testified that if the discharge were permitted it would not only cause him to use the river less but that it would make Felsenthal Reservoir functionally obsolete as a fishing lake due to both the inability to navigate through the aquatic plant life as well as loss of fish populations due to low dissolved oxygen levels.

Notwithstanding this uncontroverted testimony, the AHO found that existing uses would not be impaired.

STO and Stegall request oral argument on the issue of existing uses, taste and odor.

Regulations:

The applicable regulations are as follows:

The Joint Pipeline Permit does not meet the standards set forth in Regulations 2, §2.201 (existing uses). Based on the testimony of STO's witnesses, Ronnie Greer and Kent Stegall, the AHO should have found that the pipeline discharge would have a negative impact on existing uses in violation of 2.201. After reviewing the testimony and hearing oral argument the full Commission should make the finding that the pipeline discharge violates the narrative standard for existing uses and deny the permit.

The Joint Pipeline Permit does not meet the standards set forth in Regulation 2, §2.304. The testimony of Roland McDaniel on behalf of the Joint Pipeline Group, Dr. Joe Nix and Mr. Kent Thornton on behalf of STO and Stegall all established that an over abundance of mercury already exists in the effected segment of the Ouachita River. Dr. Nix testified that methylation of mercury will take place in Felsenthal Reservoir and enter the food chain. Mr. Greg Phillips testified that nutrients will make their way to Felsenthal Reservoir after being discharged from the pipeline. All of this testimony establishes that the effluent discharged from the pipeline will cause a physical alteration of the habitat in violation of Regulation 2, §2.304

This physical alteration will be occasioned by the continued growth of nuisance species, predominately aquatic plants in Felsenthal Reservoir in violation of Regulation 2§2.402 (nuisance species). This will, in turn negatively effect the biological integrity of the effected segment of the lower Ouachita in violation of Regulation 2, §2.405 (biological integrity). To support its claim that the biological integrity was protected the Joint Pipeline Group relied on the testing of GBMc wherein aquatic life was subjected to effluent water that did not contain methyl mercury. Regulation 2, §2.405 provides that the reference stream should have similar habitat and hydrologic conditions. The

AHO's findings were based on evidence that did not have similar habitat and hydrologic conditions and is in error.

Martin Maner confirmed that the discharge from the pipeline would have a noticeable odor and might cause the Ouachita River to have a distinct taste. This is in violation of Regulation 2, §2.407.

Regulation 2, §§2.409 & 2.508 both prohibit the issuance of a permit that allows for the introduction of substances toxic to both plant and animal life. Notwithstanding this prohibition, the Department issued and the AHO is recommending approval of a permit that allows just that, the introduction of a toxic substance into the waters of the Ouachita River. By way of illustration and not limitation, the best example of this is mercury. The pipeline would allow the discharge of mercury into the Ouachita River, mercury that eventually will travel to Felsenthal Reservoir and be converted into methyl mercury. The issuance of a permit that allows for the discharge of this much mercury is in violation of Regulation 2, §§2.409 and 2.508.

The U. S. Fish and Wildlife Service and the Arkansas Game and Fish Commission, whose comments were adopted by the petitioners, expressed concern about the growth of aquatic plants during the summer months negatively effecting the habitat of the Ouachita River, particularly in the area of Felsenthal Reservoir. The Ouachita River below the outfall point of the Joint Pipeline, currently has an excess of phosphorous and other waterborne nutrients. It is this excess that leads to degradation of the aquatic habitat in Lake Jack Lee due to growth of aquatic plants. Growth of the plants results in a depletion of oxygen. Depletion of oxygen results in loss of plant, fish and other life in Lake Jack Lee. While ADEQ set the amount of discharge of phosphorous at a low level, even a low level, when added to an overabundance results in an even greater overabundance and adds to a currently existing problem of nuisance species. The permit would have to allow for no

discharge of phosphorous in order to comply with Regulation 2, §§2.201, 2.304, 2.402 and 2.509. The permit would have to call for removal of phosphorous, and other nutrients in order to meet the requirements of Regulation 2, §2.405 which it does not.

STO and Stegall request oral argument before the Commission on the issue of nutrients.

Relief Sought

STO and Stegall request the following relief:

(1) That the permit be denied in whole or in part as the discharge it permits results in degradation of existing uses of the Ouachita River and Felsenthal Reservoir in violation of Regulations 2, §2.201;

(2) That the permit be denied as the discharge it permits results in a physical alteration of the habitat of the Ouachita River and Felsenthal Reservoir in violation of Regulation 2, §2.304;

(3) That the permit be denied in whole or in part as the discharge it permits allows for the continued growth of nuisance species in violation of Regulation 2, §2.402 and the discharge will negatively effect the biological integrity of the Ouachita River and Felsenthal Reservoir in violation of Regulation 2, §2.405;

(4) That the permit be denied in whole or in part as the discharge it permits results in an offensive odor in the Ouachita River and Felsenthal Reservoir in violation of Regulation 2, §2.407;

(5) That no mercury limit be set forth in the permit. Allowing mercury to be discharged via the Joint Pipeline is in violation of Regulation 2. §§2.409 and 2.508. Additionally, the participants to the Joint Pipeline presented proof at the hearing that no mercury would be discharged from the pipeline. Therefore, there is no need for a permit limit and the same should be removed from the permit.

(6) That the nutrient levels, particularly the phosphorus limit set forth in the permit be

reduced to levels at which the Ouachita River could assimilate the discharge prior to Felsenthal Reservoir and eliminate exacerbation of the nutrient problems in Felsenthal Reservoir.

(7) For such other relief to which the Commission may deem them entitled.

Respectfully submitted,
SAVE THE OUACHITA
& KENT STEGALL

By: _____

T. David Carruth
Attorney at Law
P. O. Box 91
Clarendon, AR 72029
870-747-3839
870-747-5695 fax
Ark. Bar. No. 87027

CERTIFICATE OF SERVICE

The undersigned states on oath that he did on the 28th day of May, 2008, serve the above and foregoing on all parties to this action by depositing a copy thereof in the United States mail, postage prepaid, return receipt requested and addressed as follows:

Mr. Charles Nestrud
Attorney at Law
Chisnell, Nestrud & Julian
400 W. Capitol, Ste. 2840
Little Rock, AR 72201

Ms. Teresa Marks, Director
Arkansas Department of Environmental Quality
c/o Ms. Jamie Ewing
P. O. Box 8913
Little Rock, AR 72219-8913

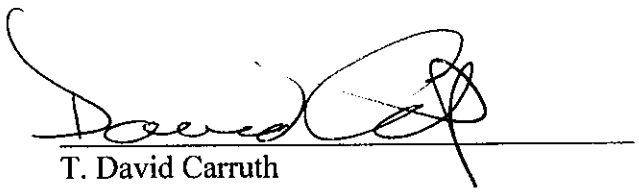
Ms. Jill Witkowski/Mr. Matthew Fraser
Mr. Patrick Buller/Ms. Rina Eisenberg
6329 Freret Street
New Orleans, LA 70118

Mr. Richard H. Mays
2000 Hwy. 25 E. North, Ste. A-2
Heber Springs, AR 72543

Mr. Ryan M. Seidmann/Ms. Megan K. Terrell
Ms. Lotonya L. Ozene
Assistant Attorneys General
Land and Natural Resources Division
P. O. Box 94005
Baton Rouge, LA 70804-9005

Mr. Mazie Combs, Legal Division
LDEQ
P. O. Box 4302
Baton Rouge, LA 70821-4302

Mr. Mark Hayes
Arkansas Municipal League
P. O. Box 38
N. Little Rock, AR 72115



T. David Carruth

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF:

EL DORADO WATER UTILITIES
NPDES PERMIT No. AR0049743
NPDES PERMIT NO. AR0049743C

GREAT LAKE CHEMICAL CORPORATION **DOCKET No. 07-006-P**
NPDES PERMIT No. AR0001171

LION OIL COMPANY
NPDES PERMIT NO. AR0000646

EL DORADO CHEMICAL COMPANY
NPDES PERMIT No. AR0000752

EL DORADO WATER UTILITIES
GREAT LAKE CHEMICAL CORPORATION
LION OIL COMPANY
EL DORADO CHEMICAL COMPANY
NPDES PERMIT No. AR0050296

RESPONSE TO REQUESTS FOR ORAL ARGUMENT

The Permittees, El Dorado Water Utilities ("City"), Lion Oil Company ("Lion"), Great Lakes Chemical Company ("GLCC"), and El Dorado Chemical Company ("EDCC"), (the above four entities are referred to herein collectively as "Permittees" or the "Joint Pipeline Group" or "JPG"), by and through their attorneys, Chisenhall, Nestrud & Julian, P.A., present this Response to Request for Oral Argument.

The State of Louisiana ("Louisiana"), the Louisiana Environmental Action Network ("LEAN"), and Save the Ouachita/Kent Stegall ("STO") have each requested oral argument before the Commission on the Recommended Decision of the Administrative Hearing Officer ("AHO"). With one exception related to what appears to be a typographical error in the

Recommended Decision, the Requests for Oral Argument rehash arguments presented during the seven day adjudicatory hearing. All of these issues were resolved by the AHO after reviewing the testimony and exhibits introduced. The challengers requests for oral argument, for the most part, present flawed interpretations of regulatory issues, and snippets of controverted testimony taken out of context, in an attempt to discredit a well reasoned and thoroughly documented Recommended Decision.

Since nothing new was presented in the requests for oral argument, this Response principally incorporates the joint post hearing brief and findings presented to the AHO by ADEQ and JPG, which outlines and documents the evidence supporting the AHO's Recommended Decision, as well as the appropriate legal standards. Due to the overlap in the three separate Requests for Oral Argument, one combined response is presented by JPG. For ease of reference, this response includes, where appropriate, cross references the issues raised by the challengers in the three Requests for Oral Argument, with page references.

I. INTRODUCTION

A. Statement of the Case and Summary of the Recommended Decision

This is an appeal were taken from the February 28, 2007 final permitting actions of the Director. Separate appeals were filed by the Permittees, by the State of Louisiana (Louisiana), by the Louisiana Environmental Action Network (LEAN), and by Save the Ouachita (STO) and Kent Stegall (STO and Stegall will collectively be referred to herein as STO). Through Order No. 2 the appeals were consolidated for hearing. The hearing was conducted on seven days, from October 29 through November 6, 2007. The Administrative Hearing Officer affirmed the decision of the Director in a well reasoned, thoroughly documented 66 page Recommended Decision, issued on May 9, 2008.

This is a request for review of several permits that would authorize the construction and operation of a joint wastewater pipeline that would discharge treated wastewater directly into the Ouachita River. Two of the participants, the El Dorado Water Utilities and El Dorado Chemical Company already have final NPDES permits that authorize those facilities to discharge their own wastewater directly into the Ouachita River. If this permit is denied, the result would be that the joint pipeline would not be constructed, but the El Dorado Water Utilities and El Dorado Chemical Company would be free to discharge treated wastewater directly to the Ouachita River through their own individual permits.

Louisiana has no recommendations for changes to the permit and has no information that the pipeline discharge will cause a violation of the Louisiana water quality standards. Romanowsky, Tr. 121; Duerr, Tr. 242. Although Louisiana's concern is the potential impact that nutrients from the pipeline will have on water quality in Louisiana, LDEQ does not regulate nutrients in NPDES permits issued to facilities that discharge into the Ouachita River in Louisiana. The nutrients in the joint pipeline permit will not adversely impact the water quality of the Ouachita River in Louisiana, and if anything, will improve the dissolved oxygen levels by stimulating algal growth and enhancing photosynthesis.

EPA established the loading rates for oxygen demanding pollutants based on its review of the MULTI-SMP modeling results, ADEQ's standard water quality model. Additional calibrated water quality models were run to assess the impacts of nutrients on water quality in the Ouachita River and the Felsenthal NWR. Those models demonstrated that the joint pipeline will not cause a violation of the water quality standards for nutrients or any other parameter. ADEQ imposed a phosphorus limit in the joint pipeline permit that is the most restrictive phosphorus limit in the State of Arkansas, and the phosphorus loading authorized in the permit is identical to the

phosphorus standard recently adopted by the Commission for the Ouachita River as part of Regulation No. 6. EPA also reviewed the draft permit and the additional nutrient modeling reports, and approved the permits.

The pipeline permit includes terms and conditions that will protect the designated uses of the Ouachita River and the applicable water quality standards. None of the opponents presented any water quality modeling results, and as a result there is no scientific information which would indicate that the pipeline discharge, as permitted, would violate any water quality standard, or that an alternative permit limit is necessary to protect any water quality standard.

The pipeline permit contains permit limits for all metals, including mercury, which require the amount of each metal in the discharge to be less than the amount that would create a reasonable potential to exceed the applicable water quality criteria. Based on the analysis of the anticipated discharge effluent, and utilizing the CPP procedure, there is no need to include a numerical permit limit in the permit for any metal. ADEQ's approach is more restrictive than the applicable CPP procedure would require, and the permittees do not object. By imposing a permit limit that will maintain mercury at a level that will not create a reasonable potential for a violation of the mercury water quality criteria, the permit does not violate the Mercury TMDL. ADEQ and the Permittees have agreed that mercury testing under the permit will be conducted using the new test method, Method 245.7, which has a detection limit of 0.005 ug/L.

ADEQ and the Permittees have resolved the issues raised by the Permittees in their Request for Review. [1]

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[1] The Director and JPG jointly requested that certain changes be made to the permit. The AHO approved some of those changes and directed that they be incorporated into the permit. Some of the changes requested by the Director and JPG were not approved by the AHO, at this time. Neither the Director nor JPG have requested oral argument on the changes not approved by the AHO, although those issues may be addressed in future permitting actions.

B. The Permits

This appeal involves six separate permit decisions:

- NPDES Permit No. AR0049743 issued to the El Dorado Water Utility (the "EDWU Permit")(JX 3);
- NPDES Permit No. AR0000646 issued to Lion (the "Lion Permit")(JX 5);
- NPDES Permit No. AR0001171 issued to GLCC (the "GLCC Permit")(JX 6);
- NPDES No. AR0000752 issued to EDCC (the "EDCC Permit")(JX 4);

(the EDWU Permit, the Lion Permit, the GLCC Permit and the "EDCC Permit" are collectively referred to herein as the "Individual Permits");

- NPDES Permit No. AR0050296 issued EDWU, Lion, GLCC and EDCC for a joint pipeline which transports the effluent from the above stated permits to the Ouachita River (the "Joint Pipeline Permit") Joint Exhibit 1[2]; and
- Construction Permit No. AR00049743C issued to EDWU which authorizes construction of the joint pipeline (the "Construction Permit") (JX 2);

(all six of the above permits are collectively referred to herein as "the Permits").

B. The Permittees

1. EDWU

Mr. Jack Reynolds testified on behalf of EDWU. Mr. Reynolds is the manager of the El Dorado and Wesson Railway Company, Chairman of the Finance Committee for the Union

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[2] The Joint Exhibits will be referred to as "JX"; the Exhibits introduced by Louisiana will be referred to as "LA"; the Exhibits introduced by the Louisiana Environmental Action Network will be referred to as "LEAN"; the Exhibits introduced by Save the Ouachita and Kent Stegall will be referred to as "STO", the Exhibits introduced by the Permittees will be referred to as "JPG"; and the Exhibits introduced by ADEQ will be referred to as "ADEQ."

County Quorum Court, and Chairman of the Commission which governs EDWU. Reynolds, Tr. 859.

EDWU has two treatment plants, one North of the city and one South of the city. The North Plant discharges into Flat Creek and the South Plant discharges into Bayou D'Loutre Creek. Reynolds, Tr. 860. EDWU has approximately 8000 residential and 2200 commercial customers. Pilgrim's Pride, which uses about 2 million gallons per day ("mgd") of water, and pays about 30% of the total revenue of EDWU, is the largest industrial customer. Reynolds, Tr. 860-861.

EDWU has been considering a pipeline to the Ouachita River since at least 1998 when the NPDES permit came up for renewal, but at that time EDWU did not pursue a pipeline. When EDWU became aware that new ammonia limits would be applied to the next permit renewal, EDWU reevaluated the pipeline alternative. EDWU's consulting engineer, James Tanner, advised EDWU to build a pipeline as soon as it could. EDWU met with ADEQ and they provided the same advice. Reynolds, Tr. 861-862. Over five years ago, on February 28, 2003, EDWU received an NPDES permit which authorizes EDWU to build its own wastewater pipeline to the Ouachita River. EDWU currently has a final, effective NPDES permit that authorizes EDWU to discharge 12 million gallons per day of treated wastewater directly to the Ouachita River through a pipeline. Reynolds, Tr. 862-863. As would be expected, the water quality impacts of the joint pipeline, when compared to the water quality impacts of the pipeline that EDWU will construct if the Joint Pipeline Permit is denied, are the same. JPG 141-143; Phillips, Tr. 1341-1343.

If EDWU builds a wastewater pipeline to the Ouachita River on its own, the capital cost will be $12 to $16 million. In order to save money for the customers of EDWU, EDWU began

discussions with the major industries who were also considering wastewater pipelines, to join together and build one pipeline. The capital costs for EDWU's share of the joint pipeline is $9 million. A similar joint water supply pipeline project had been successfully completed to bring Ouachita River water to those industries so they could cease using water from the depleted Sparta aquifer. Reynolds, Tr. 862-863.

If the Joint Pipeline Permit is denied, EDWU will construct the 12 mgd wastewater pipeline that it already has an NPDES permit for. The only other option for EDWU would be to upgrade the existing wastewater treatment plants, which is not feasible. In order to achieve compliance with the new ammonia criteria, EDWU would have to install substantial treatment upgrades at the two treatment plants and impose 450% rate increase on the EDWU customers. Reynolds, Tr. 865. The EDWU share in the joint pipeline requires a 45% rate increase—and most of that rate increase, 25%, has been approved by the City Council and is already being collected. Reynolds, Tr. 868.

2. Lion Oil Company

Steve Cousins, the Vice President of Refining, testified on behalf of Lion Oil Company. Cousins, Tr. 766. Lion is located in El Dorado and operates a 70,000 barrel per day refinery in El Dorado, employs over 700 persons, with an annual payroll of $40 million and South Arkansas purchases of close to $600 million. Cousins, Tr. 772

Currently Lion discharges its treated wastewater into Loutre Creek, which has extremely low to non existent background flow. Lion's discharge is the majority of the water in that creek. Cousins, Tr. 773. This situation has caused Lion problems in how it conducts operations. In the 1980's Lion accepted a restriction on plant output to address a temperature limit that was imposed in its NPDES permit due to the small size of the receiving stream. Cousins, Tr. 773. In

2003 Lion installed a new air emission scrubber which added dissolved minerals to the wastewater, and that required Lion to seek a change to the water quality criteria to accommodate the increased load of dissolved minerals to the small creek. Cousins, Tr. 774. When Lion's permit was renewed in 2004 new metals limits (including selenium) were added, with a three year period to come into compliance. JX 5; Blubaugh, Tr. 882-883. The only option Lion has been able to identify to achieve compliance with the new selenium limit is the joint pipeline. Cousins, Tr. 774-776. Continuing to discharge into Loutre Creek will place Lion at a competitive disadvantage, and will impair its ability to expand operations. Cousins, Tr. 777-778. If the joint pipeline is not approved, Lion will likely apply for a permit to construct its own wastewater pipeline to the Ouachita River, because that is the only way Lion can successfully compete in the refinery business. Cousins, Tr. 806.

3. El Dorado Chemical Company

Greg Withrow is the General Manager and testified on behalf of El Dorado Chemical Company. Withrow, Tr. 811. EDCC is located in El Dorado and operates an ammonium nitrate, nitric acid and sulfuric acid manufacturing facility with 155 employees and an annual payroll of $9 million. Withrow, Tr. 813.

In 2004 EDCC's NPDES permit was renewed, which included more restrictive permit limits for ammonia and nitrate with a three year compliance period. Over the past three years EDCC has installed recycle and recovery measures as well as new equipment and has been able to achieve compliance with the new ammonia and nitrate limits before the June, 2007 compliance date. Withrow, Tr. 816. EDCC has also brought its effluent into compliance with toxicity requirements. Withrow, Tr. 818. Through these efforts EDCC has reduced ammonia in its effluent by 9 times and has reduced nitrate in its effluent by 16 times. Withrow, Tr. 852. The

2004 permit that imposed more restrictive permit limits also authorizes EDCC to construct its own wastewater pipeline to discharge its treated effluent directly to the Ouachita River. Withrow, Tr. 823.

When EDCC achieved compliance with the new permit limits for ammonia and nitrate, it believed, based on communications with the opposition, that if EDCC dropped out of the joint pipeline that the opposition to the joint pipeline would be satisfied. EDCC was willing to drop its participation in the joint pipeline if that could resolve the permit appeal. Withrow, Tr. 822-823; 853-854.

Currently, EDCC is in compliance with the new, more restrictive ammonia and nitrate limits in its permit, but needs the flexibility of other options in the event future new permit conditions make discharging into the small creek infeasible. Withrow, Tr. 824-825. For example, EDCC recently had a conversation with ADEQ and was advised that EDCC's next permit will incorporate new ammonia criteria that will apply to a discharge to the small creek and will require further ammonia reductions from 12 mg/L to approximately 4 mg/L. Withrow, Tr. 825-826. EDCC may need to participate in the pipeline to achieve compliance with the new ammonia criteria, but that would be its last option. EDCC will first seek to comply with the new limits through further recycling, waste reduction and on site treatment, and may become a customer of the city, should further recycling and waste reduction efforts not be sufficient to comply with these new ammonia limits. Participation in the joint pipeline would be the last option for EDCC, but EDCC must retain that option to keep all alternatives available. Withrow, 826-828.

4. Great Lakes Chemical Company

GLCC is a corporation which operates a chemical manufacturing plant in El Dorado, Union County, Arkansas. As part of its operations, GLCC collects stormwater and other nonprocess wastewaters which are discharged pursuant to the GLCC Permit. JX 6.

Mr. Blubaugh testified on behalf of all of the Permittees, and explained how each of the joint pipeline participants is facing new regulatory requirements that either have or will impose more restrictive permit limits that will apply to the small streams that they discharge into. For Lion and Great Lakes, new metals limits are the principal problem. For the City and EDCC, new ammonia criteria are the principal problem. Blubaugh, Tr. 885-892. Mr. Blubaugh described why the joint pipeline has developed as the most feasible option for the Permittees to comply with the permit limits that have been and will be applied to their wastewater discharges.

D. The Expert Witnesses

1. Louisiana

Richard Duerr. Richard Duerr is an Environmental Chemical Specialist with LDEQ and testified about modeling issues for the State of Louisiana. Mr. Duerr is familiar with the QUAL series of water quality models and the HEC hydrology models. He has some familiarity the Multi-SMP model. Tr. 128-129. Mr. Duerr did not address the WASP or AQUATOX models.

2. LEAN

Barry Sulkin. Barry Sulkin is an environmental consultant who was retained in this case by the Tulane Environmental Law Clinic, and testified as an expert for LEAN. Sulkin, Tr. 347. This project is the first time Mr. Sulkin has ever worked on project in the State of Arkansas. Sulkin, Tr. 429.

Eldon Blancher. Eldon Blancher is an environmental consultant with Toxicological and Environmental Associates, Baton Rouge, Louisiana, and testified as an expert for LEAN. Blancher, Tr. 457. Mr. Blancher testified primarily on the AQUATOX modeling.

Although Mr. Blancher testified regarding the calibration and results of the QUAL2K, WASP and AQUATOX models, his experience is limited. Mr. Blancher's experience with AQUATOX comes from work he did on the Cahaba River in Alabama in 2002, the Bradenton-Evers Reservoir near Sarasota, Florida, and a project for the City of Tallahassee, Florida. Blancher, Tr. 454. In the Bradenton-Evers project, Mr. Blancher calibrated the hydrodynamic SWMM model which was used as an input to the AQUATOX model. Blancher, Tr. 529. In the Cahaba River project, Mr. Blancher's responsibility was the collection of field data over a three year period of time. Blancher, Tr. 530. In the Tallahassee project, Mr. Blancher was never asked to do any AQUATOX modeling but "played around with the model on his own time." Blancher, Tr. 531. With the exception of a project in 1983, Mr. Blancher has not done a calibration of WASP or an application of WASP to any particular area. Blancher, Tr. 532. Over the past ten years, Mr. Blancher's experience with QUAL2 modeling has been to collect field data that has been used by others to calibrate and run QUAL2. Blancher, Tr. 532.

3. Save the Ouachita

Joe Nix. Joe Nix is a Ph.D. chemist, and former professor at Ouachita Baptist University. Dr. Nix was called as a witness by STO to address mercury. Nix, Tr. 589. Dr. Nix was the Chairman of the Mercury Task Force which initially investigated mercury problems in Arkansas. Dr. Nix had no opinions as to whether any of the loading rates approved in the pipeline permits would have any adverse impacts on the water quality of the Ouachita River.

Nix, Tr. 613. Dr. Nix had no information that would suggest that the pipeline permits would make the mercury situation in the Ouachita River watershed worse. Nix, Tr. 617.

Kent Thornton. Kent Thornton has a Ph.D. in systems ecology, and is a principal in the environmental consulting firm, FTN Associates in Little Rock. Dr. Thornton was called as a witness by STO to address the Mercury TMDL, which he authored. The Mercury TMDL was prepared by FTN for EPA Region 6. Thornton, Tr. 620. Dr. Thornton testified that the permits are consistent with the Mercury TMDL.

4. **Joint Pipeline Group**

Vince Blubaugh. Vince Blubaugh is the former Chief of the Water Division for ADEQ and is currently a principal of GBMc and Associates, an environmental consulting firm in Little Rock. Blubaugh, Tr. 877-878. The majority of the work that GBMc does is related to wastewater and receiving stream water quality. Blubaugh, Tr. 879.

Roland McDaniel. Roland McDaniel has an MS in Biology with an emphasis in aquatic biology. Mr. McDaniel developed the initial biomonitoring program when he was employed by ADEQ for 10 years, and is now a principal of GBMc and Associates, an environmental consulting firm in Little Rock. McDaniel, Tr. 1122-1123. Mr. McDaniel is the principal primarily involved in evaluating toxicity in NPDES permits. McDaniel, Tr. 1123.

Greg Phillips. Greg Phillips has a BS in Biology, and is currently a senior scientist with GBMc and Associates, an environmental consulting firm in Little Rock. Mr. Phillips is primarily involved in water quality analysis and modeling. Phillips, Tr. 1208-1209. Mr. Phillips has used the Multi-SMP model extensively, as that is the principal water quality model used by ADEQ for NPDES permitting. Phillips, Tr. 1210. He has used the QUAL2 and WASP models, as well as other water quality models, on several projects, and has also reviewed and provided

comments on TMDLs that have used those models. Phillips, Tr. 1210. Although this was the first time Mr. Phillips had used the AQUATOX model, he has considerable experience with other water quality and ecosystem models, and is well qualified to run the AQUATOX model. Phillips, Tr. 1355-1356, 1358. Mr. Phillips evaluated the water quality impacts of the pipeline discharge on the Ouachita River and the Felsenthal NWR through a variety of EPA sponsored water quality models.

Michael Corn. Michael Corn is the president of AquAeTer, an environmental consulting firm in Brentwood, Tennessee. AquAeTer has done considerable water quality modeling work on the Ouachita River in Arkansas and Louisiana. Mr. Corn has considerable experience with the Multi-SMP model, the QUAL2 models and the WASP model. AquAeTer worked with EPA when WASP was first brought out to calibrate WASP and compare the results to QUAL2. Corn, Tr. 1925-1928.

Mr. Corn developed the reaeration rates for the Ouachita River through field testing he did for the National Council for Air and Stream Improvement (NCASI). Those rates are still used today for water quality modeling on the Ouachita River in Arkansas and Louisiana. Corn, Tr. 1928-1929. When ADEQ asked International Paper in Camden to move its discharge from a small stream to the Ouachita River, Mr. Corn did the water quality modeling for a 30-40 mile stretch of the Ouachita River downstream of Camden to the Smackover Creek area for that permit. Since 1991, Mr. Corn has performed water quality modeling for Georgia Pacific from Felsenthal NWR to Sterlington, Louisiana. Corn, Tr. 1930; 1969. This work included preparing a use attainability analysis in conjunction with ADEQ and LDEQ to support changing the water quality standards for dissolved oxygen due to naturally occurring low dissolved oxygen ("DO") waters from the Felsenthal NWR. In the spring and early summer, low DO water from the

Felsenthal backwater areas enters the Ouachita River due to flooding, causing a natural depression of DO in the Ouachita River. Arkansas and Louisiana changed their water quality standards on the basis of Mr. Corn's modeling work to lower the DO regulatory requirements to reflect this natural condition. Regulation No. 2, Page A-31; Corn, Tr. 1930-1933. The majority of swamps in the South, like the backwater areas of Felsenthal, have this same condition. Corn, Tr. 1932.

5. ADEQ

Loretta Reiber. Loretta Reiber is a Permit Engineer for ADEQ and assisted in writing the Pipeline Permits. Her responsibility was to assist in calculating the metals limits for the permits, and in drafting Section 3 of the joint pipeline permit. Reiber, Tr. 555.

Martin Maner. Martin Maner was the Chief of the Water Division when the Permits were issued and signed the permits. JX 1-6; Maner, Tr. 1644. Mr. Maner worked for ADEQ in various capacities since 1970 and currently works as the Director of Watershed Management for Central Arkansas Water. Maner, Tr. 1638, 1644. Mr. Maner has also had extensive training and experience in water quality modeling during his tenure at ADEQ. Maner, Tr. 1638-1640.

Mo Shafii. Mo Shafii has been employed by ADEQ since 1990 and is currently the Assistant Chief of the Water Division. Mr. Shafii was manager of the permits section the water division when the pipeline permits were issued and was principally responsible for drafting the pipeline permits. Shafii, Tr. 1854.

Amy Beck. Amy Beck does dissolved oxygen modeling for ADEQ and is responsible or updating the WQMP. Primarily Ms. Beck uses the Multi-SMP model. That is the model used by ADEQ exclusively to make sure that NPDES sources are meeting the water quality standards. Beck, Tr. 2000-2001. Ms. Beck is familiar with the QUAL2, WASP and AQUATOX models

through her review of modeling reports. Ms. Beck sees QUAL2 and WASP models fairly regularly, but this project was the first. Beck, Tr. 2000-2001; 2016.

E. The Standard of Review and the Burden of Proof (LEAN Request, Issue VII, pages 23-25)

The standard of review for the Commission's adjudicatory review of a permit decision is "de novo." APC&EC Reg. 8 Sec. 2.5.18. Importantly, this review is not a "sufficiency of the evidence" appeal where the record developed by ADEQ prior to the permit decision is evaluated to determine whether sufficient evidence existed to support the Director's decision. Instead, the Commission undertakes a de novo evaluation of the issues raised by the challengers, conducts an adjudicatory hearing in which it compiles its own factual record, and issues the final decision on all issues. Ark. Code. Ann. § 8-4-205(c)(7)(decision of Commission is final); APC&EC Reg. 8 Sec. 2.5.18(Commission shall conduct de novo review of record compiled by Administrative Hearing Officer); APC&EC Reg. 8 Sec. 2.6.1-2.6.2(procedure on appeal – no action shall constitute a final agency action until all procedures for hearing and review have been completed and the record for appeal shall include all items from 2.5.18).

The burden of proof in the adjudicatory review of a permit decision is preponderance of the evidence. The ultimate issue in any adjudicatory review of a permit decision is whether the Director's decision on the issue raised by the challenger was correct. In this case, the challengers have requested review of the permit on numerous issues, arguing that the permit should not have been issued. For the most part, the issues that involved an adjudication of disputed issues of fact related to whether a particular water quality standard will be violated by the pipeline discharge. The challengers must prove, by the preponderance of the evidence, that the discharge authorized by the permit will violate the applicable water quality standards.

At the adjudicatory hearing, none of the challengers to the permit presented any affirmative evidence to establish that any water quality standard would be violated by the permitted discharge. Instead, the challengers have proceeded as if they have no burden at all, arguing instead that ADEQ has not proven that there will be no violation of the applicable water quality standards. Challengers' central argument is that more data, or a different model, or a different model simulation should have been used. Instead of recognizing that this adjudicatory review proceeding is the forum to have these issues fully and finally resolved, challengers repeatedly sought a remand to ADEQ, so ADEQ might re-evaluate its permitting decision. The challengers' obvious strategy is to change the burden of proof, and thereby inject delay into this process. This strategy must be rejected. The challengers must go beyond questioning the studies conducted by ADEQ and the permittees. The challengers must present their own additional data, their own methodologies, or their own models, and prove, affirmatively, that there will be a violation of the water quality standards. This has not been done, which is fatal to the challengers' request for review.

The decision in *In the Matter of Guy King and Sons, Inc*, Docket No. 07-002-P Order No. 6 (September 6, 2007) best illustrates the application of the burden of proof in a permit appeal, and how the challengers' failure to present affirmative proof is fatal to the appeal. In *Guy King and Sons*, the challengers made strikingly similar challenges to the permit, namely that ADEQ should have used a different methodology, that the data relied upon by the Director was insufficient and that additional factors should have been examined before the decision was made. In the evaluation of the challengers' arguments, the AHO repeatedly noted that the challengers had failed to produce any evidence or data documenting the effects they claimed to exist in the water body.

First, the challengers argued that the methodology used by the Director to measure the temperature of the water was flawed and that another method should have been used. The AHO rejected this challenge, noting, "[the challengers] presented other methods for gathering temperature samples but presented no temperature data based on their suggested methodology." *Id.* Challengers argued that other factors such as seasonal streams, waste water, storm water runoff or development on Crooked Creek **could have** contributed to the increase in temperature in the creek and therefore these other factors should have been considered by ADEQ. The AHO rejected this argument stating that "[Challengers'] witnesses did not produce any studies or data that looked at the impact seasonal streams, waste water, storm water runoff or development had on Crooked Creek. . . . The AHO finds no evidence proving that wastewater discharges, storm water runoff or development increased the temperature in Crooked Creek." *Id.*

Importantly, the decision in *Guy King and Sons* illustrates that the challenger in a permit appeal cannot prevail merely by arguing that the information considered by the Director was insufficient to support the permitting decision. Instead, the challenger must introduce the "deficient" evidence and convince the Commission that a different result should be reached. Because the challengers have wholly failed to offer any affirmative evidence that a water quality standard will be violated, their appeal must be dismissed.

II. MORE DETAILED RESPONSE TO THE SPECIFIC ISSUES RAISED BY THE OPPONENTS

A. Opportunity to Provide Timely Comments--The State of Louisiana Was Provided With the Appropriate Opportunity to Review and Comment Upon the Draft Permit (Lousiana Request, Issue 1, pages 2-3)

Louisiana argued during the adjudicatory hearing that it was deprived of its rights under Section 402(b) of the Clean Water Act, 33 U.S.C. 1342 (b), to provide input into the permit decision. This argument is not raised in the Request for Oral Argument.

Louisiana also argues that its opportunity to comment was not "meaningful." A "meaningful" opportunity to comment means that the proposal must be "sufficiently descriptive of the 'subjects and issues involved' so that interested parties [could] offer criticism and comment." *Northwest Airlines, Inc. v. Goldschmidt*, 645 F.2d 1309 (8th Cir. 1981)(citing *Ethyl Corp. v. Environmental Protection Agency*, 541 F.2d 1 (D.C. Cir. 1976). The notice need not contain "every precise proposal which [the agency] may ultimately adopt." *Northwest Airlines, Inc v. Goldschmidt*, 645 F.2d at 1319. "This last qualification is important since the notice invites comments and the comments will frequently prompt changes." *Ethyl Corp. v. Environmental Protection Agency*, 541 F.2d at 48. The important question for evaluating whether an opportunity to comment is "meaningful" is to evaluate the notice, and determine whether it is "sufficiently descriptive of the 'subjects and issues involved' so that interested parties [could] offer criticism and comment."

In this case, the commenters had notice that the proposed pipeline would discharge specific pollutants in specific quantities into the Ouachita River at a specific location upstream of the Louisiana state line. Louisiana had the electronic files for the QUAL2K June, 2006 Nutrient Modeling Report on July 13, 2006—over seven months prior to the close of the comment period. Duerr, Tr. 176. LDEQ has always had the COE HEC model. On August 8, 2006, immediately after LDEQ had received the electronic modeling files from GBMc, LDEQ had advised ADEQ and EPA that "in the next few months" it planned to do its own modeling to assess the impacts of the pipeline. JPG 218, Romanowsky Tr. 109-110, Duerr Tr. 227-231. The modeling LDEQ planned to do would have extended from Smackover Creek in Arkansas to the Columbia Dam in Louisiana. Duerr, Tr. 269. From the electronic files provided to LDEQ, LDEQ could have done

its own modeling. Phillips, Tr. 1367; 1407-1408; 1421. Louisiana elected to not do any modeling prior to the close of the comment period.

LDEQ had also been requested by a member of the Louisiana legislature to do its own modeling. Romanowsky, Tr. 113. LDEQ had advised the Rep. Walsworth that LDEQ was going to do its own modeling but it never did any modeling. Romanowsky, Tr. 113. Immediately after the permit was issued, Rep. Walsworth wanted an explanation from Ms. Romanowsky as to why LDEQ had not run its own model. JPG 218; Romanowsky, Tr. 113.

When, as here, additional hearings are afforded, the "meaningful" opportunity to comment extends through then end of the adjudicatory hearing process. *National Wildlife Federal v. Marsh*, 568 F.Supp. 985 (D.C.D.C. 1983) (the public must be informed of the rationale prior to the close of the comment **and hearing** period). See also, *Seacoast Anti-Pollution League v. Costle,* 11 ERC 1358 (1st Cir. 1978) (the parties have a meaningful opportunity to "comment" on any evidence that is introduced during the adjudicatory hearing on an NPDES permit).

Mr. Duerr testified during the hearing that LDEQ has all of the information it requested (Duerr, Tr. 240), but it still has not done the sort of modeling that would allow LDEQ to determine whether nutrients would have an adverse impact on water quality. Duerr, Tr. 143. He testified that he could offer no conclusions as to the impacts of the pipeline in Louisiana. Duerr, Tr. 233-234. His objection to the GBMc models was succinctly stated in response to a question from the AHO.

Q. So your objection to the models that GBMc did is just simply things that you think had been left out, but you don't have any way of showing whether or not, had you done your own model, you would have come up with the same information?

A. Yes. We can't make a judgment as to what results we would get if we were to do our own modeling. I think that is just simply a fair statement.

Duerr, Tr. 269-270.

Mr. Duerr confirmed that LDEQ has done no modeling, and he could not provide any information that would support a different permit limit. Duerr, Tr. 242.

Louisiana had ample opportunity to identify the specific Louisiana water quality standard that is at issue and make substantive recommendations as to whether the proposed permit limits are adequate to protect that standard, and failed to do so.

B. ADEQ Provided an Appropriate Response to Louisiana's "Recommendations" on the Draft Permit

To the extent that Louisiana provided appropriate written recommendations to ADEQ (the upstream or "permitting" state), ADEQ had an obligation to either accept the recommendation or to provide reasons for not doing so:

> [the affected state] . . . may submit written recommendations to the permitting State (and the Administrator) with respect to any permit application and, if any part of such written recommendations are not accepted by the permitting State, that the permitting State will notify such affected State (and the Administrator) in writing of its failure to so accept such recommendations together with its reasoning to do so.

See 33 U.S.C. §1342(b)(5)

In this case, Louisiana states that its recommendation was "that the issuance of the permits be delayed until additional opportunity was provided for additional review of the data upon which the permits were based." Louisiana Post Trial Brief, page 9. A request for additional time is not the type of recommendation that the Clean Water Act requires an affected state to present to the permitting state. As stated by the United States Supreme Court in *International Paper Co. v. Ouellette*, 479 U.S. 481 (1987), the "recommendation" must be substantive and relate to the **proposed standards** provided in the permit. See, *International Paper Co. v. Ouellette, Supra* ("an affected state only has an advisory role in regulating pollution

that originates beyond its borders. Before a federal permit may be issued, each affected State is given notice and the opportunity to **object to the proposed standards** at a public hearing."). Notably, Louisiana has never identified any specific water quality standard adopted by LDEQ that is the basis for its concern.

ADEQ tried to determine whether Louisiana had any recommendations regarding the proposed permit limits, but received none. Mr. Shafii testified that on several occasions he asked LDEQ what they recommended as permit limits for the pipeline permit, but they never gave him an answer. Shafii, Tr. 1867. Mr. Shafii asked LDEQ if they had a problem with the phosphorus limit that was being proposed and they said nothing. Shafii, Tr. 1910. Since LDEQ never responded, Mr. Shafii recommended that the pipeline permits be issued. Shafii, Tr. 1867.

To the extent that a request for additional time could somehow be construed to be a "recommendation" regarding a "proposed standard," ADEQ did respond, in writing, to the request Louisiana made for additional time at the public hearing. JX-7, Response #21, page 36. ADEQ actually granted Louisiana's request and extended Louisiana's opportunity to comment on the permit. Subsequent and repeated requests for more time, which extended through the adjudicatory hearing, have been denied. While Louisiana is not satisfied with ADEQ's decision to cut off the comment period, the Clean Water Act does not require Louisiana to be satisfied—the Clean Water Act only requires that "[ADEQ] notify [Louisiana] in writing of its failure to so accept [Louisiana's] recommendations together with its reasoning to do so." *Id.*

C. ADEQ Provided An Appropriate Rationale for Its Permitting Decision (Louisiana Request, Issue 2, pages 3-4)

Louisiana also relies upon Ark. Code Ann. §8-4-203(c)(2)(B)(i) and argues that the permit is not based on sound science and good engineering practice. Neither Louisiana, nor any

of the other challengers raised this issue in their respective Requests for Review. Accordingly, this is not an appropriate issue for resolution. Nonetheless, the scientific basis for the discharge limits in the permit is well documented.

Ark. Code Ann. §8-4-203(c)(2)(B) (which is the same as Regulation No. 8, Section 2.1.10(a)(2)) provides that:

> (i) In the case involving any discharge limit, emission limit, environmental standard, analytical method or monitoring requirement, the record of the proposed permit must include a written explanation by ADEQ of the rationale for the proposal, demonstrating that any technical requirements or standards are based upon generally accepted scientific knowledge and engineering practices.
>
> (ii) For any standard or requirement that is identical to a duly promulgated and applicable regulation, this demonstration may be satisfied by reference to the regulation. In all other cases, the department must provide its own justification with appropriate reference to the scientific and engineering literature or written studies conducted by the department.

Id.

The Permit and the Responsive Summary provide numerous references to scientific and engineering literature and written studies which served as the basis for the permitting decision. See, JX-1, Page 16 of Fact Sheet (List of Sources); JX-7, Response #3 (page 5); Response #6a (page 6); Response #7 (page 7); Response #9a (page 10); Response #10a (page 11); Response #11d (page 13); Response #13a (page 15); Response #14c (page 17); Response #18e,f (page 24); Response #20b, c, e, f, h, i, j (pages 31-33); Response [to Louisiana comment] #21a (page 36); Response #22b, d, f (pages 36-37); Response [to LDEQ comment] #44a-l (pages 64-66). However, because Louisiana did not identify any particular discharge limit, environmental standard, analytical method or monitoring requirement that it considered improper, it is not possible for the Commission to evaluate whether the particular limit or standard at issue is based on a regulation or a science based study. See, *In re Southland Septic Service, Inc.,* Arkansas Pollution Control and Ecology Commission, Docket No. 06-008-P, Order No. 6 (Sept. 26, 2007)

(when the issue before the Commission does not relate to a discharge limit, environmental standard, analytical method or monitoring requirement, Section 2.1.10(a)(2) does not apply).

Challengers argue that a problem with river depths used as an input for one of the many water quality models that were run is sufficient to eliminate the scientific basis for all permit decisions. However, the challengers cannot identify any permit limit that was based on erroneous modeling results. Moreover, when the error was corrected, the modeling results were shown to be the same, and the permit limits did not change, the challengers offered no proof to rebut the conclusion that the error was not material.

Several witnesses addressed the issue of the river depth that was used for the QUAL2K modeling. Channel geometry, and in particular river depth, is one of the inputs to the QUAL2K water quality model. River depth was measured in the field, and used to calculate the average channel geometry (trapezoidal). Channel geometry determines how much water can flow through the river channel, which determines the velocity. Corn, Tr. 1995. River depth also affects the reaeration rate and the sediment oxygen demand. Thus, river depth affects a number of components in the QUAL2K model, and because those impacts tend to counterbalance each other, in the modeling for this project river depth did not have an impact on the final results. Corn, Tr. 1953.

QUAL2K is a dynamic model, and utilizes velocity as one of many factors to calculate water quality impacts. Velocity can have an impact on the model results. A faster moving river will generally predict water quality impacts further downstream than a slower moving river—because the pollutants move further downstream as they are assimilated. Duerr, Tr. 191; Corn, Tr. 1995. If a river is deeper, and therefore moving more slowly, the pollutants will be degraded

closer to the source. Maner, Tr. 1687. A deeper river would make the DO impacts occur closer to the discharge point. Maner, Tr. 1689.

LDEQ understood that the river depths used for the QUAL2K modeling would be the same field data used for the Multi-SMP model. Duerr, Tr. 267, 269; Phillips, Tr. 1248-1249. GBMc used actual field data, for river depth, rather than the COE HEC model because the field data was more recent, and more reliable than the COE HEC model. The COE HEC model was based on 20 year old measurements. Phillips, Tr. 1289.

In its comments on the nutrient modeling report, LDEQ stated that the COE HEC model yielded a deeper average depth and a slower velocity. LA-17, page 2; Duerr, Tr. 201, 218. GBMc responded, pointing out that the use of the previously collected channel geometry was appropriate, and that the model accurately predicted the field measured dissolved oxygen. Additionally, adjusting the river depths to reflect a deeper river had no impact on the results. JPG-128, page 2. These comments from LDEQ led to extensive discussions between LDEQ, ADEQ and EPA.

A conference call was held between LDEQ, ADEQ and EPA on August 23, 2006 which included a discussion of the river depth issue. JPG-218. EPA's chief modeler expressed his view that the issue raised by LDEQ was irrelevant to the model results, stating that the difference in river depths "would be compensating and would not impact the bottom line." JPG 218; Duerr Tr. 232. Several witnesses addressed this point.

Mr. Maner testified that when he reviewed the June, 2006 Nutrient Modeling Report, he had questions about the velocity that was used for the Ouachita River. Mr. Maner testified that he had done a lot of work on the Ouachita River and was familiar with its hydrologic characteristics. Mr. Maner had his staff look more closely at the river velocity used and its

impact on the model results. In October of 2006 GBMc was asked by ADEQ to perform a model simulation with a slower velocity, and the results were provided to ADEQ. JPG-129; Maner, Tr. 1770; 1790. As a result of this additional scientific investigation, Mr. Maner was comfortable that the issue of river depth raised by LDEQ did not affect the final results, and that the Ouachita River was going to be protected. Maner, Tr. 1688; 1781.

The additional scientific investigation requested by Mr. Maner also addressed Louisiana's concern over river depths. The October 2006 QUAL2K model simulation requested by Mr. Maner included changing the river depth input to the model to reflect the deeper depths suggested by LDEQ. The result of this simulation was that there was negligible difference in the model results. JPG 129; Phillips, Tr. 1282-1285. This QUAL2K model simulation demonstrated that river depth does not have a significant impact on the results. This is largely due to the fact that the river is already quite deep—13 to 14 feet. Increasing the depth to 17 or 18 feet as suggested by LDEQ did not change the results. Phillips, Tr. 1285.

This QUAL2K model simulation satisfied Martin Maner and ADEQ, but not LDEQ. At the request of LDEQ the QUAL2K model was re-run, using the COE HEC model to add river depths to the QUAL2K model. JPG 130; Phillips, Tr. 1286. This additional modeling run was reported in the Revised Nutrient Modeling Report, February, 2007. JX 13; Phillips, Tr. 1291-1292. As it turned out, the COE HEC data used by GBMc for this additional modeling run had errors in it. It is this additional modeling exercise, requested by LDEQ, which is the basis for LDEQ's position that the permit was based on "flawed modeling." Duerr, Tr. 203. The "only objection" LDEQ raised with respect to the Revised Nutrient Modeling Report was the river depth generated from the erroneous COE HEC model. Duerr, Tr. 237. However, Mr. Duerr was not sure whether this QUAL2K model run was used as a basis for the permit. Duerr, Tr. 221.

The basis for the errors in the COE HEC model has been well documented. When ADEQ asked GBMc to re-run the QUAL2K model using the COE data requested by LDEQ, GBMc used a version of the COE HEC model obtained from the COE to generate additional river depth data. Phillips, Tr. 1288. However, LDEQ compared the river depths it had generated from its version of the COE HEC model to the river depths generated from the version of the COE HEC model provided to GBMc, and found that the GBMc river depths were shallower in some reaches than those obtained by LDEQ. LA-17. GBMc contacted the COE, and was advised that it had the correct version of the model and that the LDEQ data was incorrect. JPG 131, Phillips, Tr. 1286-1288; 1440.

During discovery of this proceeding, LDEQ disclosed that the version of the COE model provided to GBMc by the COE included an error in the computer coding which improperly excluded the impact of the Thatcher and Felsenthal dams on river depth. LA 21; Duerr Tr. 203-206. As a result, the river depths that the COE model predicted were off by a few feet in some reaches of the river. GBMc brought this discrepancy to the attention of the COE, and the COE confirmed the error. Phillips, Tr. 1295. LDEQ was asked how it preferred to resolve this issue.

During his deposition, taken during discovery in this proceeding, Mr. Duerr testified that field data was the most reliable source of river depth inputs for the QUAL2K models. Duerr, Tr. 234. He preferred field data to the COE HEC model because the COE HEC model is based on field data that is about 20 years old. Duerr, Tr. 234. He thought that collecting additional field data to generate additional river depths "would be a very good idea." Duerr, Tr. 234. Mr. Duerr agreed that once the river depths are worked out through a sufficient number of field measured cross sections, the modeling issues would be resolved. Duerr, Tr. 237.

In order to respond to the issue LDEQ had raised during the deposition, and put the modeling issues to rest, GBMc did the additional field work as suggested by Mr. Duerr. A work plan was prepared, and the additional river depths were measured in August of 2007. The depths were consistent with the prior measurements, with the exception of areas where dredging had taken place. Downstream of the discharge location, nearer Felsenthal, where field data had not been collected previously, the river was deeper than previously estimated. Phillips, Tr. 1306. The additional field measured river depths were then used in the QUAL2K model, as LDEQ had recommended, and a Revised Report was generated. JX 16.[3] Notably, the Revised Report confirmed the results of the model simulation that Martin Maner had requested in October of 2006--changes in river depth had no impact on the results. Phillips, Tr. 1308. Every QUAL2K model run, at varying river depths, showed that the discharge limits in the permit were adequate to protect water quality. The reason is that the model output is not sensitive to these types of variations in river depth. Phillips, Tr. 1442-1443.

Throughout this proceeding LDEQ has characterized the issue as one in which ADEQ has issued a permit in reliance upon a water quality model that does not include the impacts of the Thatcher and Felsenthal dams. This is an inappropriate characterization of the issue. The impacts of the Thatcher and Felsenthal dams were taken into account in the modeling. There were three QUAL2K modeling reports, and only one of them used the COE derived river depths.

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[3] Louisiana no longer argues that JX-16 is not admissible. JX-16 was admitted by Stipulation, signed by all parties, before the hearing commenced. This is a *de novo* review, based on the record developed in this proceeding, leading to a final decision by the Commission. There is no time limit on the relevance of evidence that the Commission may consider and post permit evidence is admissible. Regulation 8. Section 2.5.16(c) ("The Administrative Hearing Officer shall receive into evidence any testimony or other evidence that is admissible under the Arkansas Rules of Evidence, but evidence may be excluded if it is irrelevant, immaterial, or unduly repetitious."); *In the Matter of Umetco Minerals Corp, Wilson Mine*, Docket No. 06-003 P Order No. 12 (Aug. 3, 2007). JX-16 is not only admissible, but relevant to the issues.

An additional QUAL2K model run with a simulated deeper river was also undertaken. All of the QUAL2K modeling runs, in addition to the Multi-SMP model, showed that the permit limits were protective of water quality.

Mr. Maner explained why the COE model with the dams coded out did not impact the results. The dams vary the depth of the river, and river depth affects the velocity. Velocity is the parameter that the model uses to predict water quality impacts. What is important is whether the stream velocity is being fairly replicated by the model. Maner, Tr. 1676. Mr. Maner testified that once the QUAL2K model replicates the stream velocity that is actually there, then the model has accounted for the effect that the dam will have. Maner, Tr. 1677. Mr. Maner was confident that the stream velocity used in the QUAL2K model was appropriate when he signed the permit. When additional river depths were measured, and the results of the prior models were confirmed, Mr. Maner's confidence was proven to be appropriate.

Furthermore, in a collateral proceeding, the Commission has already examined the modeling reports that Louisiana is questioning, and has found that those reports represent "generally accepted scientific knowledge and engineering practices." *See In the Matter of Amendments to Regulation No. 6, Regulations for State Administration of the National Pollutant Discharge Elimination System (NPDES)*, Docket No. 07-002-R, Minute Order No. 07-47 (decision hereto attached).[4] In Docket No. 07-002-R the Commission adopted the following permitting standard for discharges of phosphorus into Segment 2D of the Ouachita River (the segment that the joint pipeline will discharge into):

Reg. 6.402 Discharge of Treated Wastewater to the Ouachita River

No permit for the discharge of treated wastewater into the Ouachita River commencing at

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[4] Like permit decisions, rules must also be supported by "generally accepted scientific knowledge and engineering practices." Ark. Code Ann 8-4-202(d)(4)(A)(i).

or downstream of the H.K. Thatcher Lock and Dam in segment 2D of the Ouachita River Basin shall authorize a total phosphorous limit in excess of the following:

* * *

(B) A proposed permit with a design flow greater than 13.5 MGD but less than 20.0 MGD shall have a **total phosphorous mass limit calculated using a total phosphorous concentration of 1.0 mg/l for the months of November through June and 0.7 mg/l total phosphorus for the months of July through October.**

(C) The above mass calculations are considered to be on a monthly average basis. A daily maximum mass limit, if applicable, will be 1.5 to 2.0 times the monthly average mass limit.

(D) At the director's discretion, the permit may include concentration limits in addition to the mass limit(s).

The same GBMc Nutrient Modeling Study that was introduced in this hearing was also the "scientific" basis for the new Regulation No. 6 phosphorus standard. This is documented in the Responsive Summary for the amendments to Regulation No. 6:

A Nutrient Modeling Study for the El Dorado joint pipeline was performed on February 13, 2007 to predict the effects of phosphorus in the Ouachita River downstream of the proposed discharge point which was approximately 1.5 miles downstream of the H.K. Thatcher Lock and Dam.

Page 20 of the Nutrient Modeling Study estimates the downstream chlorophyll-a concentration during the critical months of July-October with a discharge flow rate 13.5 MGD and a total phosphorus concentration of 1 mg/l to be equivalent to the Ouachita River baseline chlorophyll-a concentrations. An increase in chlorophyll-a concentration for the critical months is predicted at a flow of 20 MGD. The Department adjusted the total phosphorus concentration limit of 1mg/l by using a 13.5:20 = 0.7 flow ratio so there will be no net increase of chlorophyll-a from the higher flow.

Therefore, based on the above information, the Department agrees to revise Section 6.401(H) from draft APCEC Regulation No. 6.

Id.

The Commission used the GBMc Nutrient Modeling Report as the "scientific" basis for its rulemaking decision. Furthermore, the rationale for the nutrient loading rate for the Ouachita

River established through Regulation 6 is identical to the rationale Martin Maner described for the establishing the nutrient loading rate in the pipeline permit.

Importantly, the "sound science" rule under which the challengers bring this challenge provides, "For any standard or requirement that is identical to a duly promulgated and applicable regulation, this demonstration may be satisfied by reference to the regulation." Ark. Code Ann. §8-4-203(c)(2)(B)(ii). The permit limit is identical to the requirements of Regulation No. 6, Section 6.402. Thus, Regulation No. 6, Section 6.402 provides the appropriate basis for the nutrient permit limit, and no further "sound science" is required.[5]

Although one run of the QUAL2K model used a COE HEC hydrology model that produced incorrect river depths, the variation in river depth did not impact the model results, or the loading rates. The evidence demonstrated that other Multi-SMP and QUAL2K modeling runs used correct river depths measured in the field, and that the difference in river depths did not impact the results of the models. The loading rates established in the permit were appropriate and based on sound science and good engineering practice.

D. ADEQ Met Its Statutory Obligations to Protect the Water Quality of the Ouachita River in Louisiana (Louisiana Request, Issue 3, pages 5-6; LEAN Request, Issue IV, pages 14-17)

Louisiana argues that Section 401(a)(2) of the Federal Clean Water Act, 33 U.S.C. § 1341(a)(2) establishes the legal standard which required ADEQ to ensure that the pipeline discharge would not violate Louisiana's water quality standards. 33 U.S.C. § 1341(a)(2)

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[5] While JPG may have a right to claim that this new rule should not be applied in this permitting decision, it does not so claim. JPG agrees to the application of this rule. Should the Commission choose to not rely upon its new Regulation No. 6 requirement to satisfy "sound science" for this Request for Review, it nonetheless has an abundance of "sound science" to rely upon. Furthermore, a remand of the permit so ADEQ can further document the "sound science" for the permit limit would serve no purpose. During a remand, the issue of "sound science" would be satisfied by reference to the new Reg. 6.

applies to a determination by the EPA Administrator that Louisiana's water quality will be impacted. 33 U.S.C. § 1341(a)(2) identifies the duties that ADEQ would have in the event EPA had notified ADEQ that the pipeline discharge would violate the water quality standards of Louisiana.

40 CFR 123.44 codifies the procedure outlined in 33 U.S.C. § 1341(a)(2) for resolving disputes between the permitting state and the affected state. According to 40 CFR 123.44, if the affected state objects to the permit, the affected state should communicate its objections to the permitting state. 40 CFR 123.44(b). If the permitting state believes the permit will not violate the affected state's water quality and a dispute arises, the affected state can request a hearing with the EPA. 40 CFR 123.44(e). At the conclusion of the hearing, EPA will resolve the dispute and determine whether the permit will violate the affected state's water quality. 40 CFR 123.44(g). Thus, for a dispute between Louisiana and Arkansas regarding the impact of the pipeline on the water quality of the Ouachita River in Louisiana, Arkansas is not responsible for resolution of that dispute; EPA is. In this case, Louisiana never requested a hearing with the EPA to resolve the dispute between itself and ADEQ.

The relative responsibilities of LDEQ, ADEQ and EPA were described by the United States Supreme Court in *International Paper Co. v. Ouellette*, 479 U.S. 481 (1987):

> While source States have a strong voice in regulating their own pollution, the CWA contemplates a much lesser role for States that share an interstate waterway with the source (the affected States). Even though it may be harmed by the discharges, **an affected state only has an advisory role in regulating pollution that originates beyond its borders.** Before a federal permit may be issued, each affected State is given notice and the opportunity to object to the proposed standards at a public hearing. An affected State has similar rights to be consulted before the source State issues its own permit; the source State must send notification and must consider the objections and recommendations submitted by other States before taking action. Significantly, however, **an affected State does not have the authority to block the issuance of the permit if it is dissatisfied with the proposed standards. An affected State's only recourse is to apply to**

the EPA Administrator, who then has the discretion to disapprove the permit if he concludes that the discharges will have an undue impact on interstate waters.

Id. at 490-491. The responsibility to approve or disapprove a permit that might impact the water quality of a downstream affected state lies with EPA.

Mr. Maner testified that ADEQ relies upon EPA Region 6 to ensure that an ADEQ permit does not violate the water quality standards in Louisiana, because both Arkansas and Louisiana are in Region 6. Maner, Tr. 1810. Mr. Maner testified that he had extensive communication with EPA. Maner, Tr. 1647. Mr. Maner testified that EPA initially had some specific objections to the pipeline permits (unrelated to Louisiana water quality), but changes were made to the permit to address EPA's concerns and EPA formally withdrew its objections. ADEQ 23; Maner, Tr. 1648, 1653.

Mr. Shafii testified that ADEQ has a memorandum of agreement with EPA which requires ADEQ to submit permits to EPA for review. ADEQ submitted the pipeline permits to EPA for review pursuant to that MOA. JPG 174-175; Shafii, Tr. 1902. EPA formally approved the permits, pursuant to the MOA. ADEQ 23; Shafii, Tr. 1903. If ADEQ did not satisfy EPA's objections to the permits, EPA could have taken over the permits and wrote them. Shafii, Tr. 1903. For example, if EPA believed that the permits would have violated the Louisiana water quality standards, EPA would have told ADEQ what changes needed to be made, and if those changes were not made, EPA would have taken over those permits and wrote them. Shafii, Tr. 1904. EPA never stated that the pipeline permit might cause a violation of the Louisiana water quality standards. Shafii, Tr. 1904.

EPA issued formal comments on many of the reports, including the June, 2006 Final Nutrient Modeling Report. JPG 125 (no substantive objections were raised by EPA, and no substantive changes to the modeling or the pipeline permits were recommended).

Mr. Shafii testified that he had meetings with EPA in Dallas to discuss the pipeline permit and the permit was approved by EPA. If the permit was going to violate the water quality standards of either Arkansas or Louisiana, EPA would not have approved it. Shafii, Tr. 1869-1870.

And in fact, EPA formally approved the permits. Tr, 1903; ADEQ 23.

ADEQ satisfied all of the Clean Water Act procedures for addressing concerns by a downstream affected state.

E. The Discharges Under the Permits Appropriately Protect the Water Quality of the Ouachita River in Louisiana (LEAN Request, Issue IV, pages 14-16)

1. As Stated Above, ADEQ Met Its Statutory Responsibilities to Protect the Water Quality of the Ouachita River In Louisiana

LEAN and STO argue that ADEQ Violated 40 CFR 122.4(d) by failing to include conditions in the permit that would ensure compliance with Louisiana's water quality standards. 40 CFR 122.4(d) implements the Clean Water Act provision discussed above, 33 U.S.C. § 1341(a)(2).[6] Before this statutory and regulatory standard comes into effect, there must be a finding by EPA that Louisiana's water quality standards are being impacted. *International Paper Co. v. Ouellette, id.*

EPA has not found that Louisiana's water quality standards are being impacted, and EPA has not made any recommendations for changes to the permit. Accordingly, no additional conditions are required to "ensure compliance with Louisiana's water quality standards."

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[6] Challengers agree. See, Challengers' Post Hearing Brief, page 9.

It is important to note that Louisiana did not join in this argument during the adjudicatory hearing or in the post hearing brief. The position of Louisiana on the impacts of the pipeline discharge on the Louisiana Water Quality Standards is important to the consideration of this issue.

Shortly after the joint pipeline was announced in 2005, Mr. Dugan Sabans, Senior Environmental Scientist with the LDEQ Water Quality Assessment Division, began coordinating with ADEQ's Martin Maner. On April 1, 2005 Mr. Sabans told Mr. Maner that

> We feel the key is to discuss our coordination with ADEQ and that fact that you are processing the permit modifications much as we do. We have also been reminding individuals that the present discharges already flow through Louisiana waters and eventually reach the Ouachita River above Monroe. **Our review of Louisiana water quality data to date has not shown any impact** from those discharges to Louisiana waters and we are continuing to review the data.

JPG 213.

LDEQ and ADEQ continued discussions. ADEQ and LDEQ developed a strategy that would allow ADEQ to issue the Pipeline Permits, but protect LDEQ in the event some unexpected problem surfaced. Ms. Emilise Cormier, another Senior Environmental Scientist with the LDEQ Water Quality Assessment Division, wrote a memo on January 25, 2006 outlining the proposed strategy. Ms. Cormier recommended that ADEQ perform in stream sampling in Arkansas and that LDEQ perform in stream sampling in Louisiana (Tr. 93). This sampling program was implemented. Romanowsky, Tr. 21. The purpose of that monitoring program is to establish some baseline conditions prior to the pipeline discharge, so that LDEQ will have something to compare water quality after the initiation of the pipeline discharge. Duerr, Tr. 224. Ms. Cormier confirmed that ADEQ planned to proceed with issuing the permit with a re-opener clause, so that the permit could be reopened and revised if sampling indicated a need to do so. Romanowsky, Tr. 97-98. The permit includes the re-opener clause referenced in

Ms. Cormier's email. JX-1, Condition 7; Duerr Tr. 225-226. LDEQ does plan to continue the monitoring program after the pipeline is constructed, and LDEQ would ask ADEQ to reopen the Pipeline Permit should any issues arise that may need to be addressed. Duerr, Tr. 227.

Although ADEQ and LDEQ continued discussions, LDEQ's position regarding the impact of the joint pipeline on Louisiana water quality had not changed, as expressed in an April 5, 2006 memo from the Deputy of LDEQ, Karen Geautreax:

> From the beginning, there has been expressed concern that the discharges to the Ouachita River in Arkansas will have an adverse impact on the Ouachita River in Louisiana even though it would have to flow approximately 30 miles downstream and through an impoundment. It is known that the present discharge from the same facilities under discussion already enter the Ouachita River above Monroe and through smaller tributaries of the Ouachita and have for years. The pipeline project proposes to pipeline these same discharges to the Ouachita River directly instead of through tributaries.

JPG 214. Neither Mr. Sabans, Ms. Cormier, nor Ms. Geautreax testified during the hearing. Rather Louisiana presented testimony from their subordinates, Barbara Romanowsky and Richard Duerr.

Barbara Romanowsky, the Administrator for the Water Quality Division of LDEQ testified for the State of Louisiana. Ms. Romanowsky testified that on several occasions prior to, during, and after the close of the comment period, LDEQ made requests to ADEQ that additional modeling be performed to assess the potential impacts of the pipeline discharge on water quality in Louisiana. None of the exhibits she introduced into evidence, which documented the requests for additional modeling, were offered as evidence of the adequacy of the modeling. (Romanowsky, Tr. 67-70). Ms. Romanowsky was not offered as an expert and did not offer any opinions regarding the adequacy of the modeling that was performed. In fact, Ms. Romanowsky testified that as of the date of her testimony LDEQ had no position as to whether there would be any adverse impacts from the joint pipeline. Romanowsky, Tr. 121.

Mr. Duerr testified that LDEQ has not done the sort of modeling that would allow LDEQ to determine whether nutrients would have an adverse impact on water quality. Duerr, Tr. 143. He testified that he could offer no conclusions as to the impacts of the pipeline in Louisiana. Duerr, Tr. 233-234. His objection to the GBMc models was succinctly stated in response to a question from the AHO:

R. So your objection to the models that GBMc did is just simply things that you think had been left out, but you don't have any way of showing whether or not, had you done your own model, you would have come up with the same information?

B. Yes. We can't make a judgment as to what results we would get it we were to do our own modeling. I think that is just simply a fair statement.

Duerr, Tr. 269-270. Louisiana presented no testimony that the joint pipeline would have an adverse impact on the water quality of the Ouachita River in Louisiana.

The Ouachita River in Louisiana is listed as impaired for dissolved oxygen, and is on a Court ordered 303(b) list as impaired due to nutrients. LEAN Ex. 18, page ii. Accordingly, a TMDL has been prepared. LEAN Ex. 18 (the "Louisiana TMDL"). According to the nutrient modeling done for the Louisiana TMDL, the water quality of the Ouachita River is not significantly impacted by increased nutrient levels in the Ouachita River. LEAN Ex. 18, page 16. As a result, no TMDL was prepared for nutrients in the Ouachita River, and nutrients are not regulated in NPDES permits that discharge into the Ouachita River in Louisiana. LEAN Ex. 18; Sulkin, Tr. 437-438. The official position of Louisiana on whether nutrients affect the Ouachita River water quality is reflected in the Louisiana TMDL:

> [W]hen oxygen-demanding substances are controlled and limited in order to ensure that the dissolved oxygen criterion is supported, nutrients are also controlled and limited.

LEAN Ex. 18, page ii. Mr. Duerr testified that in NPDES permits issued in Louisiana for discharges into the Ouachita River, the same official statement is made:

> [W]hen oxygen demanding substances are controlled and limited in order to ensure that dissolved oxygen criteria is supported, nutrients are also controlled and limited.

This means that in Louisiana, as long as the oxygen demanding substances (CBOD and ammonia) are regulated, there is no need to regulate nutrients, and Louisiana does not regulate nutrients in its NPDES permits for discharges into the Ouachita River. Duerr, Tr. 2145, 2146. Both CBOD and ammonia are limited in the pipeline permit, and challengers have presented no claim regarding the CBOD or ammonia permit limits.

Mr. Corn, who did modeling work that was a source of information for the Louisiana TMDL, explained why Louisiana does not regulate nutrients in the Ouachita River. Mr. Corn testified that the Ouachita River actually needs nutrients to have a healthy algae population. Without nutrients, the Ouachita River would have lower DO. Corn, Tr. 1933. This is reflected in the modeling performed by Mr. Corn, work that was accepted by ADEQ, LDEQ and EPA. Corn, Tr. 1933-1934. The Louisiana TMDL has been used by LDEQ for at least one permit, the West Monroe Permit in Louisiana. Corn, Tr. 1934. Louisiana regulates the oxygen demanding materials in the Ouachita River (CBOD and ammonia) and has found that they do not need to regulate nutrients in the Ouachita River. Louisiana does not put nutrient limits in their NPDES permits for discharges into the Ouachita River. Corn, Tr. 1936.

In other words, Louisiana has intervened in this permit appeal to express its concern about nutrients that are discharged into the Ouachita River through Arkansas permits, but Louisiana has no concern if nutrients are discharged into the Ouachita River through Louisiana permits.

As stated above, ADEQ has complied with its responsibilities to protect the water quality of the Ouachita River in Louisiana. EPA has not found that Louisiana's water quality standards

are being impacted, and EPA has not made any recommendations for changes to the permit. Accordingly, ADEQ is not required to impose any additional conditions to "ensure compliance with Louisiana's water quality standards." The challengers failed to prove that the pipeline discharge will violate any Louisiana water quality standard.

2. ADEQ Required the JPG to Perform Extensive Water Quality Modeling to Assess the Impacts of the Pipeline on Water Quality

The impact of the joint pipeline discharge on various water quality parameters was assessed, in part, through four water quality models.

- The **MULTI-SMP** model is the model used by ADEQ for dissolved oxygen modeling. The Multi-SMP model was used to establish the permit limits for the oxygen demanding pollutants in the Pipeline Permits. The Multi-SMP model covered a 20 mile stretch of the Ouachita River where the impacts of the joint pipeline on dissolved oxygen were predicted to occur. JPG-111-112.
- The **QUAL2K** model was selected to model the impacts of nutrients in the Ouachita River, and as a comparison to the dissolved oxygen results derived from the MULTI-SMP model. The QUAL2K model extended significantly further downstream than the MULTI-SMP model, covering a 73 mile stretch of the river beginning upstream of the proposed discharge, just upstream of where Smackover Creek joins with the Ouachita River, and terminating one mile downstream of the Felsenthal Lock and Dam, just upstream of the paper mill discharge at Coffee Creek. JX-13.
- The **WASP** (water quality analysis simulation program) model was selected to model dissolved oxygen and nutrients in the backwater areas of the Felsenthal National Wildlife Refuge ("NWR"). WASP was selected because it is a three dimensional dynamic box model that can simulate the eutrophication of phosphorus in a complex

lake system. This model was used to simulate the eutrophication in the Crooked-S slough, one of the shallow, backwater lake areas in the Felsenthal NWR. This area was identified by the Arkansas Game and Fish Commission as one of the most sensitive areas to dissolved oxygen depletion in the backwater lake areas of the Felsenthal NWR. JX-13.

- The **AQUATOX** model was selected because it could simulate the impact that the proposed pipeline effluent would have on the growth of rooted aquatic macrophytes in Crooked-S Slough. This issue was being addressed because excessive aquatic vegetation is a problem in Felsenthal, and a concern was raised regarding whether the nutrients from the joint pipeline might make that problem worse. JX-13.

The Multi-SMP Modeling (LEAN Request, Issue IV.A, pages 15-16). The modeling for the joint pipeline began in August of 2004 when ADEQ approved a work plan for obtaining river depth field data for the Ouachita River in the area of the proposed pipeline. JPG 111-112; Phillips, Tr. 1211-1214. The river depths were obtained as prescribed by the work plan, and submitted to ADEQ. JPG 113; Phillips, Tr. 1215. The river depths were used as inputs to the Multi-SMP model, and a report was provided to ADEQ and EPA. JPG 114; Phillips, Tr. 1216. The Multi-SMP model was used to derive the wasteload allocation for the oxygen demanding pollutants from the proposed pipeline. Phillips, Tr. 1217. The Multi-SMP model predicted, as is the case for all such models, that the proposed pipeline would create an oxygen demand. The purpose of the model is to determine whether the oxygen demand will result in a violation of the dissolved oxygen standard in the Ouachita River. The Multi-SMP model predicted that with the addition of the discharge from the joint pipeline, the dissolved oxygen in the Ouachita River would remain in compliance with the water quality standards, and that the oxygen demand would

recover right away. Phillips, Tr. 1217; 1326-1327. The Multi-SMP model demonstrated that the dissolved oxygen in the Ouachita River recovered well upstream of the Felsenthal Reservoir. Maner, Tr. 1768.

EPA reviewed the Multi-SMP model report, and incorporated the loading rates from the Multi-SMP model into the WQMP, and approved the loading rates as the appropriate loading rates for the Pipeline Permit. JPG-217 (July, 2005 EPA memo); Phillips, Tr. 1218; Shafii, Tr. 1856. ADEQ cannot issue a permit unless those limits are in the WQMP. Shafii, Tr. 1856. The WQMP for the Pipeline Permit was publicly noticed, and at the request of Richard Mays, attorney for STO, a public hearing was held on the WQMP update. The WQMP is now final. JPG 170-171; Shafii, Tr. 1899. The decision to update the WQMP was not appealed.

The regulatory procedure for establishing the permit limits is important. EPA reviewed and approved the Multi-SMP model, and used those results to establish the loading rates to be incorporated into the WQMP. A public hearing was held on the WQMP and the loading rates were finalized. The WQMP loading rates were then incorporated into the Joint Pipeline Permit. The WQMP that EPA approved is what was ultimately placed into the WQMP by ADEQ, and into the Pipeline Permit. JX 1; JPG 173, Shafii, Tr. 1900; Maner, Tr. 1765.

Mr. Maner testified that the Multi-SMP model was appropriate for establishing the loading rates for the oxygen demanding pollutants. Maner, Tr. 1766. The coefficients used for the Multi-SMP model were developed in conjunction with EPA, and were based on work ADEQ did in the Ouachita River below Camden. Maner, Tr. 1766. Mr. Maner testified that the manner in which ADEQ requires the Multi-SMP model to be run makes the model very conservative. The model assumes that the maximum pollutant load from the discharge will occur at a time when the Ouachita River is at its lowest flow and the temperature is at its highest. It is known

that these events will not occur at the same time. Maner, Tr. 1661-1662. Another conservative factor is that Multi-SMP does not account for the positive impacts of photosynthesis, which is known to increase DO in the Ouachita River. Phillips, Tr. 1573-1574. The Multi-SMP model was run correctly in this case and resulted in very conservative loading rates for the Pipeline Permits. Maner, Tr. 1662.

The loading rates established from the MULTI-SMP model (CBOD and ammonia) were approved by EPA, and EPA also approved an update to the WQMP to adopt the loading rates. The WQMP is now final. Once the WQMP has been updated, the NPDES Permit **must** incorporate the limits established in the WQMP update. 40 C.F.R. 130.6(f). The challengers have presented no modeling results or any other evidence that would indicate that the loading rates for CBOD and ammonia that were incorporated into the WQMP and the permit were insufficient. Since Louisiana does not regulate nutrients if CBOD and ammonia are limited in the permit, the pipeline permit appropriately addresses the impact of nutrients on the water quality of the Ouachita River in Louisiana.

The Multi-SMP model clearly demonstrated that the joint pipeline would not cause a violation of the dissolved oxygen water quality criteria in the Ouachita River, and that the effects of the joint pipeline on dissolved oxygen in the Ouachita River were fully assimilated well upstream of the Felsenthal NWR and even further upstream of Louisiana waters. JPG-114.

The Nutrient Modeling. In June of 2005, concerns were raised to ADEQ by other agencies regarding the nutrients in the pipeline effluent and the potential impact of those nutrients on dissolved oxygen and the growth of nuisance aquatic vegetation in the backwater areas of Felsenthal NWR. Phillips, Tr. 1219. These concerns led to the additional modeling.

All of the nutrient modeling was carried out pursuant to a work plan that was reviewed and approved by ADEQ in advance of the modeling effort. JX 10. It was important to have an approved work plan because significant field work was proposed, three or four times the level of effort normally required for an NPDES permit. Phillips, Tr. 1227. ADEQ requested comments on the proposed nutrient modeling work plan from the various agencies that had expressed an interest, compiled all the comments it received from the various agencies, and submitted the combined comments to GBMc on July 28, 2005. JPG 117. GBMc addressed the comments and added several items to the work plan. JPG 118; Phillips, Tr. 1235-1236. The nutrient modeling work plan was approved by ADEQ and GBMc proceeded to implement it. Phillips, Tr. 1236.

The QUAL2K Modeling Addressed An Appropriate Stretch of the Ouachita River (LEAN Request, Issue IV.A, page 15; Issue IV.B, page 16). LEAN and STO argue that ADEQ should have required the QUAL2K model to extend to the Louisiana state line.

In the Responsive Summary, ADEQ stated that:

> Data collection in the Ouachita River was restricted to reaches above the Felsenthal dam. There was no calibration point in the river below the dam. However, the model was set-up to allow predictions below the dam for a distance of 1 mile. Predictions were restricted to only one mile below the dam as the oxygen demand had already been exerted by this point

JX-7, Response 44e, page 64.

The challengers argue that the modeling should have extended to the Louisiana state line so that the impacts of the joint pipeline on the Ouachita River in Louisiana could be assessed. However, in the letter LDEQ submitted to ADEQ on April 29, 2005, which led to the additional nutrient modeling, LDEQ had requested that the modeling extend only to the Felsenthal dam. JPG 221, Romanowsky, Tr. 99. Consistent with that request, GBMc prepared the work plan for additional modeling, and the work plan provided that "data collection and subsequent modeling

will be completed on multiple stations," the last of which was station OUA-3, located "just upstream of the Felsenthal Lock and Dam." JX-10, page 2. ADEQ recommended that station OUA-3 "remain upstream of the lock and dam." JPG-117, second bullet point. Mr. Duerr also testified that how far downstream the modeling should extend is a judgment call. Duerr, Tr. 245. Notably, none of the challengers did any modeling to assess the impacts of the pipeline discharge on the Ouachita River in Louisiana, although LDEQ had advised both ADEQ and EPA in August of 2006 that they would do so.

The modeling predicted that there would be no change in the DO in the Felsenthal NWR (neither in the backwaters nor in the river at the dam) with the addition of the pipeline discharge. Accordingly, there would be no change in water quality in Louisiana. Corn, Tr. 1945. Any modeling that was done below Felsenthal NWR would have the same water quality with or without the pipeline. Phillips, Tr. 1269-1270. The re-aeration that occurs as the Ouachita River flows over the Felsenthal dam provides additional oxygen. Phillips, Tr. 1271; Corn, Tr. 1948 ("The dam reoxygenates the system. This pipeline project is not going to effect that reoxygenation because of the natural turbulence coming across the dam.").

The challengers have presented no modeling results using a longer stretch of the Ouachita River to prove that the results would have been different if a longer stretch had been used. The stretch of the Ouachita River selected for the QUAL2K modeling was appropriate.

3. The Biological Effect of Increased Nutrients Will Not Adversely Effect the Water Quality of the Ouachita River in Louisiana (LEAN Request, Issue IV, pages 14-17)

The challengers argue that the increased nutrients from the joint pipeline were not evaluated by ADEQ. As stated above, challengers have the burden of proof. If challengers contend that the increase in nutrients from the pipeline discharge will cause a violation of some

water quality standard in Louisiana, challengers must identify the standard at issue and prove that the increased nutrients will violate that standard. The only standard identified by the challengers is La. Admin. Code 1113B.8, which prohibits nutrient conditions that produce aquatic growth to the extent that it creates a public nuisance. This standard was raised in this case for the first time in the post hearing brief of the challengers. It was not raised in any of the Requests for Review, it was not raised in any of the pre-hearing briefs, and it was not mentioned in any of the testimony. No witness related the increased nutrients to any problem with aquatic growth, and no witness suggested that a public nuisance might occur. Aside from the fact that it is too late to raise a new issue, the challengers have presented no proof that the pipeline discharge will cause a violation of this standard.

Mr. Maner testified that he was not particularly concerned with the impact of nutrients on the Ouachita River, because phosphorus is not generally a problem in free flowing streams like the Ouachita River. Maner, Tr. 1655. Mr. Corn testified that the Ouachita River actually needs nutrients and that without nutrients, the Ouachita River would have lower DO. Corn, Tr. 1933. The QUAL2K water quality modeling in the Ouachita River showed that the slight increase in nutrients from the joint pipeline actually raised the DO in the Ouachita River. JX-16, Figure 3.13, page 11. That beneficial effect is consistent with the modeling work Mr. Corn has done on the Ouachita River in Arkansas and Louisiana. Corn, Tr. 1933, 1937.

The challengers have failed to prove that the increased nutrients from the pipeline will cause a violation of any water quality standard applicable to the Ouachita River in Louisiana.

B. <u>The Mercury Limits in the Joint Permit and the Individual Permits are Consistent with the Mercury TMDL (LEAN Request, Issue II, pages 6-13; STO Request, Mercury Issue, pages 3-4)</u>

1. and 2. **The Joint Permit and the Individual Permits Comply With the TMDL Requirements and the Mercury TMDL (LEAN Request, Issue II.D, pages 9-13)**

The Ouachita River watershed has been identified as impaired due to an excess of mercury detected in the flesh of fish in certain areas of the watershed. As a result, EPA performed a TMDL for the Ouachita River watershed. Thornton, Tr. 621. The purpose of the TMDL is to identify the reductions required to bring the fish in the watershed into compliance with the safe consumption criteria. Thornton, Tr. 626. The Mercury TMDL was prepared because the level of mercury in fish flesh exceeded the fish consumption action level of 1 mg/kg, which violated the narrative water quality standard that the waters be fishable. Thornton, Tr. 628-629. The Mercury TMDL looked at the reductions required to attain the fish consumption action level. Thornton, Tr. 634.

The Mercury TMDL identified 176 facilities with NPDES permits within the Ouachita River watershed, 43 of which were municipalities. Only one industrial NPDES permit had a mercury limit and none of the municipal treatment plants had a mercury limit. As part of the TMDL evaluation, ADEQ did representative sampling for five of the municipal treatment facilities, using the more sensitive ultra trace level analysis, and found an average mercury concentration of 0.015 ug/l of mercury in the treated effluent of the municipal treatment plants. For purposes of establishing the existing mercury load, the average mercury concentration of 0.015 ug/l was assumed to be present in the effluent of all municipal facilities. Importantly, the TMDL noted that under this assumption, all of the 176 facilities with NPDES permits contributed less than 1% of the total quantity of mercury in the watershed. The majority of the mercury was found to come from naturally occurring sources and from industrial sources of air pollution. The TMDL concluded that the existing load of mercury to the Ouachita River was too

great, and developed a strategy for reducing that load. For purposes of wasteload allocation, **no loading rate was established for any NPDES permitted source**. The TMDL stated that municipal treatment facilities' would be required to comply with the **existing** water quality standard for mercury, 0.012 ug/L. Since compliance with the water quality standards has always been required, the TMDL did not impose any new restrictions on any NPDES point source. The TMDL also noted that none of the water quality sampling performed in the Ouachita River found concentrations of mercury in the Ouachita River that exceeded the water quality criteria.[7]

Mr. Sulkin testified that his interpretation of the Mercury TMDL is that Table 4.14 shows that no mercury was available for allocation to the joint pipeline or to any of the pipeline participants. Sulkin, Tr. 364-366; 748. Mr. Sulkin testified that the joint pipeline permit includes a mercury limit that allocated mercury to the joint pipeline in violation of the mercury TMDL. Sulkin, Tr. 366.

Mr. Sulkin's position is that Lion Oil Company, El Dorado Chemical and Great Lakes Chemical should receive a "0" allocation until the TMDL is re-written to allocate an amount of mercury to those facilities. Sulkin, Tr. 748. Mr. Sulkin acknowledged that his opinion is different from that expressed by Dr. Thornton, the author of the TMDL. Sulkin, Tr. 728. Mr. Sulkin first proposed this "no new permit" theory in *Sierra Club and Lousiana Environmental Action Network v. EPA,* 49 ERC 1788 (D.C. E. La 1999) where he proposed, on behalf of LEAN and the Sierra Club, that Louisiana be prohibited from issuing new permits for discharges of pollutants into waterbodies listed as impaired for that pollutant until the court ordered TMDL was completed. EPA disagreed, proposing that new permits should be allowed so

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[7] Excessive mercury was found in fish flesh, which is bio-accumulated through the food chain.

long as they would not, in the opinion of the state permitting authority, cause or contribute to a violation of the water quality standards. *Id.* at 1814. The Court held that:

> When a water is already violating water quality standards, allowing additional discharges of a pollutant makes the eventual development of a total maximum daily load even more difficult. Nonetheless, for the reasons explained below, the EPA should be allowed to allow the issuance of new permits when the permitting agency has made a determination that a specific discharge will not cause or contribute to the attainment or maintenance of water quality standards.

Id.

Consistent with the holding in *LEAN v EPA,* both the Mercury TMDL and the permit provide that the pipeline discharge will not cause or contribute to a violation of the water quality standard for mercury in the Ouachita River.

In addition to the Federal Court in Louisiana, Several witnesses disagreed with Mr. Sulkin's interpretation of the Mercury TMDL. Dr. Thornton, who authored the Mercury TMDL under a contract with EPA, testified that the Mercury TMDL does not state that there should be no mercury allowed under NPDES permits. Thornton, Tr. 637. The TMDL looked at the predominant sources of mercury to determine whether reductions from the predominant sources will result in achieving the TMDL goal. Thornton, Tr. 638. NPDES sources made up less than 1% of the source of mercury. Thornton, Tr. 638. The major sources of mercury identified in the TMDL are natural (geologic and soils) and atmospheric (air emissions). Thornton, Tr. 652.

Dr. Thornton testified that Table 4.14 of the Mercury TMDL does not represent all of the NPDES sources of mercury. Table 4.14 only represents the NPDES point sources for which load estimates were made. There were more NPDES sources than are reflected in Table 4.14, but there was no information about the mercury levels in the effluent of those facilities, so they were not included in Table 4.14. Those additional NPDES sources are included in the appendix of the

Mercury TMDL. Thornton, Tr. 647-648. Dr. Thornton testified that it would be incorrect to interpret Table 4.14 to mean that just because an NPDES source is not listed in Table 4.14, that it has no mercury allocation. That was not the intent of Table 4.14. Thornton, Tr. 660.

Dr. Thornton explained why the pipeline participants, and the other 170+ industrial sources were not included in Table 4.14. EPA did not ask FTN to investigate the other NPDES sources to determine whether there was mercury in their effluent or how much. EPA's focus was on the predominant sources. Thornton, Tr. 658. The Mercury TMDL focused on achieving reductions from the air emission sources through implementation of new federal regulations requiring mercury reductions. Thornton, Tr. 653. The other strategy was implementation of best management practices to control soil erosion from the natural sources. Thornton, Tr. 654. With respect to NPDES point sources, the strategy was to maintain compliance with the mercury water quality criteria of 0.012 ug/L. Thornton, Tr. 654.

Dr. Thornton offered the opinion that if ADEQ issued an NPDES permit that imposed the mercury water quality criteria as the basis for deriving a permit limit, that approach would be consistent with the Mercury TMDL. Thornton, Tr. 655. Dr. Thornton testified that this approach is what the TMDL recommended for NPDES point sources. Thornton, Tr. 660, 676. Dr. Thornton explained that the purpose of the TMDL was to achieve a reduction in mercury to an established standard, and the established standard for the Ouachita River is the mercury water quality criteria. Thornton, Tr. 655. The reductions specified in the TMDL came from air emission sources, not NPDES point sources. The strategy outlined in the Mercury TMDL is that NPDES point sources must comply with the water quality numeric criteria of 0.012 ug/L. Thornton, Tr. 676.

Mo Shafii testified that the Mercury TMDL was issued by EPA and is implemented though the WQMP. The WQMP for the joint pipeline does not have a maximum load value for mercury. Shafii, Tr. 1861; 1881. There is no such WQMP update for mercury, because the Mercury TMDL did not include a waste load allocation for industrial NPDES sources. EPA would have issued a proposed WQMP update for mercury that ADEQ would have incorporated into the WQMP, similar to the one EPA issued for the oxygen demanding pollutants--JPG 173. 40 C.F.R. 130.7(d)(2). EPA did not do that. EPA did review the permit, including the mercury limit, and approved it. Shafii, Tr. 1900-1902. Had EPA interpreted the Mercury TMDL as establishing loading rates for the NPDES facilities, EPA would not have approved the permits.

Mr. Maner testified that in order to address a narrative standard in a permit, he needs an objective basis. In the case of nutrients and mercury, he had numeric values to apply. Maner, Tr. 1750. Mr. Maner testified that he could not defend a mercury limit of "0" as being required to protect against mercury manifesting itself in fish flesh. Maner, Tr. 1750. The permit limit was not put in because there is mercury in the effluent. There is no information that there is mercury in the effluent. Rather, the permit limit was put in the permit because there is a fish advisory, and Mr. Maner believed he should have a permit limit that would be protective. The water quality criteria for mercury, which represents the safe level of mercury in the Ouachita River, is the appropriate standard. Maner, Tr. 1758-1760.

Mr. Maner testified that there is no known mercury in the effluent of any of the pipeline participants. Maner, Tr. 1850.[8] Mr. Maner testified that the mercury limit in the permit was set to insure that the pipeline discharge remained in compliance with the mercury water quality criteria of 0.012 ug/L (12 nanograms), which is the value EPA said should be applicable in the

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[8] This testimony addresses LEAN Request, Issue II.C.2, page 8.

water column (the Ouachita River). Maner, Tr. 1746. Mr. Maner testified that he disagreed with the statement that ADEQ had no authority to issue a permit which established a permit limit for mercury. Basing a permit limit on the 0.012 ug/L (12 nanogram) water quality criteria complies with the Mercury TMDL. Maner, Tr. 1850.

Mr. Shafii testified that the TMDL states that ADEQ must apply the water quality criteria for mercury, which is how the Pipeline Permit was written. Shafii, Tr. 1862.

Ms. Reiber testified that the Mercury TMDL did not apply to the joint pipeline permit. Reiber, Tr. 547. The mercury water quality criteria in Regulation No. 2 was established at a level that will protect against the accumulation of excess mercury in fish flesh through bioaccumulation. Regulation No. 2, pages 5-6; Reiber, Tr. 548; Blubaugh, Tr. 1114. Therefore, the water quality criteria established in Regulation No. 2 for mercury was set at a level that will protect aquatic life from the adverse impacts of mercury. Blubaugh, Tr. 1116-1117.[9] The permit limit for mercury complies with the water quality criteria for mercury. Reiber, Tr. 558. By following the mercury water quality criteria from Reg. 2, the pipeline effluent would not create mercury toxicity. Reiber, Tr. 565-566. By requiring the pipeline effluent to have a concentration of mercury that is less than the water quality criteria established in Regulation No. 2, there will be no mercury bioaccumulation and the water quality will be preserved. Reiber, Tr. 567. See, Regulation No. 2, Section 2.508, page 5-6 ("Mercury based on bioaccumulation of residues in aquatic organisms, rather than toxicity.")

The manner in which ADEQ addressed the TMDL actually went beyond what the TMDL calls for because under the procedure established by the CPP for setting permit limits, there was

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[9] This testimony addresses LEAN Request, Issue II.C.4, page 9.

no need to place a limit on mercury in the permit. Blubaugh, Tr. 982. The CPP is the policy that explains how the water quality standards are incorporated into permit limits. Shafii, Tr. 1857.

Mr. Blubaugh provided an explanation of how the Pipeline Permit limits were consistent with the Mercury TMDL. Each of the applicants submitted a priority pollutant scan of their individual effluent as part of the application for the joint pipeline permit. Blubaugh, Tr. 947. The test method used was the test method prescribed in the CPP for mercury analysis, Method 245.1, with a detection limit of 0.2 mg/L. Blubaugh, Tr. 947. Based on that test method, no mercury was detected in the effluent of any of the pipeline participants. Reiber, Tr. 576; Blubaugh, Tr. 947. The individual permits which authorize the discharge of treated effluent into the joint pipeline include a "non detect at 0.2 mg/L" permit limit.[10] Blubaugh, Tr. 947. With respect to the pipeline permit, the permit limit for mercury is based on the "reasonable potential" calculation in the CPP. Under the CPP, if the concentration of a particular metal is less than the amount that would create a "reasonable potential" to exceed the water quality criteria for that metal, the permit need not include a numerical limit for that metal. JX-17, Attachment IV (Region 6 Approach, Establishing Reasonable Potential); *In the Matter of Umetco Minerals Corp, Wilson Mine*, Docket No. 06-003 P Order No. 12 (Aug. 3, 2007).

Rather than place a "monitor and report" limit in the permit, ADEQ imposed a numerical limit that represented the "reasonable potential" value. In this manner, the mercury in the pipeline effluent can never exceed the value that would create a reasonable potential to exceed the water quality criteria for mercury in the Ouachita River. Shafii, Tr. 1863-1864. Accordingly, it would have been consistent with the CPP, and with the Commission's decision in *In re Umetco,* if ADEQ had not included a mercury limit in the permit at all. The decision to include a

[10] Because the individual permits do not authorize a discharge directly into the Ouachita River, the mercury limits in the individual permits is not relevant.

mercury limit was actually more protective than what is required by the CPP and prior decisions of the Commission for writing NPDES permits.

Louisiana also disagrees with Mr. Sulkin's interpretation of the Mercury TMDL. When LDEQ issued a permit for Graphics Packaging, an industrial facility that discharges into the Ouachita River, it applied the same Mercury TMDL, did not include a mercury limit in the permit, and explained why the Mercury TMDL did not apply:

> *Mercury*
> *The TMDL Report for Ouachita River Mercury was finalized on June 13, 2002. The TMDL report identified atmospheric deposition and nonpoint sources as the major sources of mercury with point sources representing less than 1 percent. One industry (with a mercury permit limit) and 4 municipal wastewater treatment plants were identified as point sources. This permittee was not identified as a wastewater source of mercury, but pulp and paper mills were identified as sources of air emissions of mercury contributing to the atmospheric deposition of mercury. Therefore, the reductions in mercury emissions are expected to be achieved through the air quality regulations (MACT). JPG Exhibit 33 (Proferred), Fact Sheet, page 20*

Mr. Shafii also testified that Arkansas and Louisiana have the same water quality criteria for mercury, so if the permit does not violate the Arkansas standard, it will not violate the Louisiana standard either. Shafii, Tr. 1889.

The permittees have not asked for permission to discharge mercury into the Ouachita River through the joint pipeline. Reiber, Tr. 576. Rather, the three industries that will participate in the pipeline obtain their process makeup water from the Ouachita River, use that water in their industrial process, and will discharge that water back into the Ouachita River through the pipeline. None of the industries are known to have mercury in their processes, but they would have whatever mercury may be present in the water they use from the Ouachita River. If mercury were detected in the effluent of any of the pipeline participants when the new, more sensitive test method is used, the source of that mercury would likely be the mercury that is

already present in the Ouachita River. If the Mercury TMDL were interpreted to prohibit the discharge of any mercury from an industrial source, then every industrial source that uses the Ouachita River as a source of process water would be in violation of its permit. McDaniel, Tr. 1199-1201.[11]

Dr. Joe Nix testified that the mercury that is present in the sediments in Felsenthal is almost exactly the same concentration as the mercury that is present in the rocks in the Ouachita mountain area. In other words, the mercury is already there. Nix, Tr. 611. Adding a small blip of mercury to what is already there would not likely result in higher concentrations of mercury in fish flesh. Nix, Tr. 611.

The Mercury TMDL states, in Section 4.8.1, that NPDES sources should comply with the numerical water quality criteria for mercury in Regulation No. 2.

As an additional protection, the permit condition which requires biomonitoring implements the CPP procedure for addressing potential toxicity. The CPP states that the Toxics Strategy, which is implemented through the biomonitoring permit condition, is designed to avoid the potential impacts associated with bioaccumulation. JX-17, page III-5 ("The intent of the strategy is that there shall be no discharge of any wastewater from any source which . . . results in aquatic bio-accumulation which endangers human health."). See also discussion in Section C.2., below at pages 55-56.

ADEQ could have imposed a "monitor and report" limit for mercury in the permits, and the fact that ADEQ imposed a numerical limit based on the "reasonable potential" calculation did not violate the terms of the Mercury TMDL. See, *Dioxin/Organochlorine Center v. Rasmussen*, 1993 WL 484888 (W.D. Wash. Aug. 10, 1993)("While a TMDL should consider all

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[11] This testimony addresses LEAN Request, Issue II.C.2, pages 8-9.

discharges of a pollutant, nothing in the relevant statutes or regulations explicitly requires that a TMDL set waste load allocations for all point sources or load allocations for all nonpoint sources"). The Mercury TMDL does not preclude the issuance of permits for new sources, and it does not require that all applicants for permits be granted a 0.00 mg/L mercury limit. Under the CPP and prior decisions of this Commission, ADEQ could have issued the Joint Pipeline Permit with no requirement to test for mercury, or with a requirement that mercury be monitored and reported with no numerical limit. The decision to include a numerical permit limit for mercury and be more protective should not be construed as a decision to authorize the discharge of mercury. The numerical permit limit was set at a level that would ensure that there is no reasonable potential to exceed the numerical water quality criteria for mercury. There is no information that any of these facilities even have mercury in their effluent.

C. The Pipeline Permit Properly Implements Regulation 2.508 through the Biomonitoring Requirements (STO Request, page 7)

1. The Pipeline Permit Does Not Violate Regulation 2.508, the Narrative Toxicity Standard

Regulation 2, Section 2.508 provides a narrative toxicity standard which protects streams from toxicity. LEAN and STO argue that the permit limit for mercury will violate this standard.

Mr. McDaniel was responsible for conducting biomonitoring testing of simulated pipeline effluent to determine whether the pipeline effluent had the potential to cause toxicity in the Ouachita River, as that term is defined in Regulation No. 2, Section 2.508. McDaniel, Tr. 1123, 1130-1131. Mr. McDaniel did one simulated biomonitoring test in 2003 which used a composite sample of the effluent from each of the pipeline participants.

In a biomonitoring test, the test organisms are exposed to the effluent at various concentrations to replicate the mixing that occurs in the receiving stream. McDaniel, Tr. 1132.

The effluent passed at 100%, indicating that even if no mixing with the Ouachita River was allowed, the effluent was not toxic. JPG 102; McDaniel, Tr. 1133. At the request of ADEQ, Mr. McDaniel performed a more extensive biomonitoring test to simulate the various combinations of effluent from the pipeline participants, the conditions of mixing the effluent from multiple sources within the pipeline, and the travel time inside the pipeline from the source to the proposed Ouachita River discharge location. McDaniel, Tr. 1135-1136. Again, the effluent passed the biomonitoring at 100% effluent. JPG 104; McDaniel, Tr. 1137. This test was very conservative because the joint pipeline effluent will mix with the Ouachita River, and under the toxicity testing protocol outlined in the CPP and incorporated into the Pipeline Permit, the effluent is only required to pass toxicity testing at 16% effluent. JX 1.

The Pipeline Permit also requires biomonitoring of the effluent monthly that appropriately implements the Toxics Strategy outlined in Appendix D of the CPP, pages 24-44. The Toxics Strategy is the strategy adopted by ADEQ to implement the narrative toxicity water quality standard. JX-17, page III-5 (Toxics Strategy) and Appendix D (Implementation Procedures for Toxic Substances). The monthly frequency is conservative when compared to what would typically be required by ADEQ. Based on the Toxics Strategy of the CPP, the biomonitoring frequency would typically be once per quarter. JX-17, page D-39. This monthly testing requirement will assess whether the effluent is toxic on an ongoing basis. If mercury is present in the effluent, the toxic effects of that mercury will also be evaluated through the monthly biomonitoring tests. McDaniel, Tr. 1199; 1206-1207.

Mr. McDaniel testified that in his opinion the discharge from the joint pipeline will not result in toxicity in the Ouachita River or the Felsenthal NWR. McDaniel, Tr. 1156.

The challengers have not established, by a preponderance of the evidence, that the terms and conditions contained in the Pipeline Permits are not appropriate to avoid a violation of the narrative water quality standards for toxicity set forth in Regulation 2, 2.405 and 2.508. The terms and conditions contained in the Joint Pipeline Permit appropriately implement the Toxics Strategy of the CPP. Accordingly, the terms and conditions contained in the Joint Pipeline Permit are appropriate to avoid a violation of the narrative water quality standards for toxicity set forth in Regulation 2, 2.405 and 2.508.

The Pipeline Permits contain appropriate terms and conditions to comply with the narrative toxicity requirements of Regulation 2.405 and 2.508.

The simulated biomonitoring testing undertaken by JPG demonstrates that the joint pipeline discharge is unlikely to cause a violation of the narrative water quality standards for toxicity set forth in Regulation 2, 2.405 and 2.508.

2. The Pipeline Permit Does Not Interfere With the Designated Uses of the Ouachita River—Fishing and Swimming (STO Issue, page 6)

The purpose of Regulation No. 2, the Water Quality Standards, is stated in Section 2.102-Purpose:

> The standards are designed to enhance the quality, value and beneficial uses of the water resources of the State of Arkansas, to aid in the prevention, control and abatement of water pollution, to provide for the protection and propagation of fish and wildlife and to provide for recreation in and on the water. . . It is further the purpose of these regulations to designate the uses for which the various waters of the State shall be maintained and protected; to prescribe the water quality standards required to sustain the designated uses; and to prescribe regulations necessary for implementing, achieving and maintaining the prescribed water quality.

Regulation 2.102. Regulation No. 2 has a specific standard for mercury, 0.012 ug/L. As explained above, the permit includes a limit that will protect the water quality criteria for mercury in the Ouachita River. By complying with the water quality standards, the permit protects the designated uses of the Ouachita River—fishing and swimming.

The Toxics Strategy is also specifically designed to protect the designated uses of the Ouachita River—fishing and swimming. As stated in the Toxics Strategy:

> The actual intent of the strategy is that there shall be no discharge of any wastewater from any source which:
>
> 1. Results in the endangerment of any drinking water supply;
> 2. Results in aquatic bio-accumulation which endangers human health;
> 3. Results in any instream acute or chronic aquatic toxicity; or
> 4. Violates any other applicable general or numerical state water quality standard.
>
> The goal of the [Toxics Strategy] is to assure that there are 'no toxic materials in toxic amounts' in waters of the United States.

JX-17, page III-5. Accordingly, the biomonitoring condition in the permit, which implements the Toxics Strategy as outlined in the CPP, and protects the narrative toxicity standard in Regulation No. 2, will protect the designated uses of the Ouachita River—fishing and swimming.

E. The Joint Permit Appropriately Considered Background Zinc Levels (LEAN Request, Issue III, pages 13-14)

1. ADEQ Followed the CPP Procedure for Calculating "Reasonable Potential" Which Specified that the Background Concentration of Zinc Should be Considered to be Zero

LEAN and STO argue that ADEQ set permit limits that fail to protect water quality in the Ouachita River because ADEQ assumed that there is no background level of zinc in the Ouachita River.

Mr. Sulkin testified that the permit limit for zinc is based on an assumption that the Ouachita River has no background concentration of zinc. Sulkin, Tr. 377. Mr. Sulkin testified that sampling stations above and below the proposed discharge location report zinc in the Ouachita River. Sulkin, Tr. 381, 384. Mr. Sulkin offered the opinion that the available data from the ADEQ sampling stations should have been averaged, and that average should have been used in the calculation to establish the permit limit for zinc. Sulkin, Tr. 383.

The CPP specifies the decision making process for using background concentration in the "reasonable potential" calculation at page D-47. Under the CPP, if background concentrations had been used in the "reasonable potential" calculation, and a "reasonable potential" had been found, ADEQ would have imposed a "monitor and report" limit for zinc in the permits. The fact that ADEQ not only required "monitor and report" but also imposed a numerical limit based on the "reasonable potential" calculation is more restrictive than the CPP would authorize.

The challengers did not run the reasonable potential screen in the CPP using any set of data that they believe is appropriate for background zinc. Moreover, the challengers fail to acknowledge that if they did perform this calculation, the result would not support their cause. If the reasonable potential **were exceeded**, taking background into account, the result would be that ADEQ would be required to impose a "monitor and report" permit limit—which is **less restrictive** than the permit limit that was imposed.

2. The Upstream and Downstream Zinc Sampling Data Was Not Reliable and Was Properly Excluded from Consideration by ADEQ

The stretch of the Ouachita River into which the pipeline will discharge is not on the 303(d) list. Additionally, the stretches of the Ouachita River above the discharge and below the discharge are not listed for development of a TMDL because the data is not reliable. The data that Mr. Sulking proposes to use comes from sampling stations located within those stretches of the Ouachita River above and below the stretch into which the pipeline will discharge. However, the 303(d) list states that those reaches are listed for the purpose of gathering additional information to determine whether an impairment really exists. JX-9 Arkansas Water Quality Limited Waterbodies (Streams) (Categories 5a-5e), page 4 (Ouachita River is listed for zinc in reaches 005 (below the discharge reach) and 004 (above the discharge reach). The category or impairment for reaches 005 and 004 is listed as "Category 5d" which means "Waters which need

data verification to confirm use impairment (additional sampling, biological assessment) before a TMDL is scheduled. . . Streams listed in Category 5d are those that need additional field verification in order to determine the accuracy of the assessment." JX-9, pages 1-2.

Loretta Reiber testified that the closest sampling station with zinc data was for a different reach of the Ouachita River, and was 25 miles upstream of the proposed discharge location. Furthermore, the upstream and downstream sampling stations are located on reaches of the Ouachita River that are listed as impaired for zinc. The reach of the Ouachita River that the joint pipeline will discharge into is not listed as impaired for zinc, so there is not a problem with zinc in that stretch of the river. Reiber, Tr. 654; Shafii, Tr. 1866. According to Ms. Reiber, the data from the upstream and downstream monitoring stations were not appropriate for calculating permit limits for the joint pipeline. Reiber, Tr. 544-546. Mr. Blubaugh agreed. Blubaugh, Tr. 1090-1091.

Mr. Shafii also testified that the data available to ADEQ regarding background levels of zinc in the Ouachita River came from a monitoring station that was 25 miles away, too far upstream of the proposed discharge location to be considered a reliable source of data. Under the CPP, ADEQ could not use that data. Shafii, Tr. 1865.

F. The Pipeline Permit will not Interfere with the Existing Fishery Use in Felsenthal Reservoir (LEAN Request, Issue V, pages 17-21; STO Request, page 6).

The purpose of Regulation No. 2, the Water Quality Standards, is stated in Section 2.102-Purpose:

> The standards are designed to enhance the quality, value and beneficial uses of the water resources of the State of Arkansas, to aid in the prevention, control and abatement of water pollution, to provide for the protection and propagation of fish and wildlife and to provide for recreation in and on the water. . . It is further the purpose of these regulations to designate the uses for which the various waters of the State shall be maintained and protected; to prescribe the water quality standards required to sustain the designated uses; and to prescribe

> regulations necessary for implementing, achieving and maintaining the prescribed water quality.

Regulation 2.102. As discussed above, the permit includes limits for the oxygen demanding substances (CBOD and ammonia) and JPG provided water quality models which demonstrated that the pipeline discharge will have no effect on the dissolved oxygen levels in the Ouachita River and the Felsenthal NWR. The permit includes a limit for phosphorus, and JPG has provided water quality models which demonstrate that the pipeline discharge will have no effect on the nutrient narrative water quality standard. By complying with the water quality standards, the permit protects the designated uses of the Ouachita River—fishing and swimming.

The Toxics Strategy is also specifically designed to protect the designated uses of the Ouachita River—fishing and swimming. As stated in the Toxics Strategy:

> The actual intent of the strategy is that there shall be no discharge of any wastewater from any source which:
>
> 1. Results in the endangerment of any drinking water supply;
> 2. Results in aquatic bio-accumulation which endangers human health;
> 3. Results in any in stream acute or chronic aquatic toxicity; or
> 4. Violates any other applicable general or numerical state water quality standard.
>
> The goal of the [Toxics Strategy] is to assure that there are 'no toxic materials in toxic amounts' in waters of the United States.

JX-17, page III-5. Accordingly, the biomonitoring condition in the permit, which implements the Toxics Strategy and protects the narrative toxicity standard in Regulation No. 2, will further protect the designated uses of the Ouachita River—fishing and swimming.

The permit contains appropriate terms and conditions to avoid a violation of the water quality standards and therefore will protect the existing fishery use of the Ouachita River.

1. **The WASP Modeling Did Examine the Joint Pipeline's Impact on Minimum Dissolved Oxygen in the Felsenthal NWR (LEAN Request, Issue V.A, pages 18-20)**

and

2. The Joint Pipeline Discharge Will Not Lower Minimum Dissolved Oxygen the the Backwater Areas of the Felsenthal NWR (LEAN Request, Issue V.B, page 20)

The challengers argue that the pipeline discharge will depress dissolved oxygen levels in the backwater areas of Felsenthal NWR, causing fish kills. As described above, the problems in Felsenthal NWR are the result of natural conditions. These problems result in fish kills in the backwater areas of the Felsenthal NWR, as reported by the Arkansas Game and Fish Commission:

> Reports of light fish kills due to low dissolved oxygen concentrations during the late summer in stagnant, highly vegetated areas of the refuge were reported again in 2003. . . These areas are usually in or near dense aquatic vegetation that is in the process of decomposing. . . Three or four days of cloudy [weather] or a slight rise in the reservoir water level pushes a slug of deoxygenated water through small localized areas that contain pockets of fish. . . And the fish become stressed and can not make it to larger bodies of oxygenated water.

Olive, Tr. 332-334. According to Mr. Olive, the fish kills that were reported in the above referenced report of 2003 conditions are now worse than they were in 2003. Olive, Tr. 333.

These low dissolved oxygen conditions caused by natural phenomena are not violations of the water quality standards. Regulation No. 2, Section 2.401.

The dissolved oxygen concentrations during the late summer naturally depress at night during the critical (warm temperature) season, when photosynthesis ceases, and rise again during the day, when photosynthesis resumes. This natural phenomenon is known as the diurnal oxygen swing. The water quality standards allow for a 1 mg/L diurnal dissolved oxygen depression for an 8 hour period to account for this natural phenomenon. Reg. 2, Section 2.505(C).

The challengers have presented no modeling to show that the pipeline discharge will have any impact on the dissolved oxygen condition in the Ouachita River or the Felsenthal NWR.

The WASP model demonstrated that the pipeline discharge would have no impact on the dissolved oxygen levels of the Felsenthal NWR. GBMc even calibrated the model to simulate the low DO conditions (below 2.0 mg/L) that occur in the backwater areas of Felsenthal NWR, and the model did not detect any change when the pipeline effluent was added. JX-7, Response 20h, pages 34-35 (and Figure 2); Phillips, Tr. 1264. None of the modeling predicted any impact on DO from the pipeline. Phillips, Tr. 1265; JPG-127, pages 3-4.

GBMc took field measurements of dissolved oxygen which recorded the diurnal dissolved oxygen swing that occurred in the Ouachita River and the backwater areas of Felsenthal at specific monitoring locations. JX 14.

Mr. Phillips testified that water quality is calibrated to average conditions, and that the calibration was a good fit for the model. Phillips, Tr. 1540. Mr. Phillips also testified that he did not use the "average" DO value for the calibration, rather he used a value less than the average, which provided a more conservative calibration. Phillips, Tr. 1562.

Mr. Phillips also explained how the diurnal oxygen data was used in the modeling. He stated that the diurnal oxygen data collected provided an indication of what types of swings the dissolved oxygen levels had in the Ouachita River and in the backwater areas of Felsenthal. Phillips, Tr. 1242. In the Ouachita River the diurnal swing is approximately 0.8 mg/L, which means that the oxygen levels dip down during the night about 0.8 mg/L and rise back during the day. The water quality standards allow a diurnal depression of 1.0 mg/L. Phillips, Tr. 1243. As long as the modeling shows that the water quality criteria is maintained, and you know from field measurements that the diurnal depression is less than 1.0 mg/l, then the water quality standards are maintained. Phillips, Tr. 1467; 1560. Mr. Phillips testified that the pipeline effluent would have no impact on the level of diurnal oxygen depression, and is actually predicting a net

increase in overall oxygen levels in the backwater areas as a result of the pipeline discharge. Phillips, Tr. 1561.

Mr. Corn testified that in his opinion the pipeline discharge will not have an impact on the diurnal oxygen swings. This is based on the lack of algae in the Ouachita River, which confirms that most of the nutrients that the algae use are uptaken a long time before they reach Felsenthal NWR. Corn, Tr. 1944 ("most of the nutrients that the algae use are uptaken a long time before they reach Felsenthal Reservoir."). Mr. Corn and Mr. Phillips both testified that the diurnal DO would actually improve as a result of the pipeline discharge, due to the increase in photosynthesis that the increased nutrients would generate. Phillips, Tr. 1262-1263; Corn, Tr. 1944.

Although the WASP modeling did project an increase in chlorophyll-a (JX-13, Figure 6.32), the WASP modeling did not project any impact on dissolved oxygen (JX-13, Figure 6.33). ("Dissolved oxygen levels predicted by the model in the Felsenthal system remain virtually unaffected by the additional nutrients and accompanying phytoplankton increases resulting from the pipeline") JX-13, page 96. Furthermore, after this modeling was done, ADEQ reduced the allowed loading of phosphorus, which reduced the level of chlorophyll-a by 30% during the critical (summertime) conditions. As explained by Mr. Maner, this additional reduction in phosphorus will insure that there will be no impact on growth of aquatic vegetation. *See* discussion in Section G.2. below, page 66.

The challengers did not present any modeling results that would prove that the water quality criteria for dissolved oxygen will be violated, taking into account the allowance for natural conditions and the diurnal swing of 1.0 mg/L provided by Regulation No. 2, Section

2.401 and 2.505(C). The pipeline discharge will not interfere with the existing fishery in the Felsenthal NWR.

G. The Joint Pipeline Discharge Will Not Violate the Narrative Nutrient Water Quality Standard (LEAN Request, Issue V.B, page 20; Issue VI, pages 21-23; STO Request, Nutrients Issue, pages 1-3)

1. The Felsenthal NWR Has Excess Aquatic Vegetation Due to Natural Conditions

The concern regarding the water quality impacts of joint pipeline discharge was whether the addition of nutrients from the pipeline discharge would impact the growth of nuisance aquatic vegetation in the backwater areas of Felsenthal NWR. Felsenthal NWR is located approximately 45 river miles downstream of the pipeline discharge.

In order to assess the impact of the joint pipeline discharge on the Felsenthal NWR, it is important to understand the current, natural condition of Felsenthal NWR. For the last four years, Jason Olive has been the assistant district fisheries management biologist for South Central Arkansas, which includes the Felsenthal Reservoir. Olive, Tr. 279. Over the past four years, Mr. Olive has observed 15-20 fish kills in the backwater areas of Felsenthal. Olive, Tr. 280. The backwater areas of Felsenthal are already at least 90% covered with rooted aquatic vegetation—any species of aquatic vegetation that occurs in Arkansas is present. Olive, Tr. 281. The vegetation has made areas of the reservoir inaccessible to recreationists for part of the year, which contributes to low DO levels in the backwater areas and fish kills. Olive, Tr. 282.

Felsenthal NWR was created with the completion of the Felsenthal Lock and Dam in 1984, which raised the water level, thereby increasing the area covered in water from 5,000 to 15,000 acres. The additional 10,000 acres is shallow—less than three and one half feet deep. Olive, Tr. 327. The shallow backwater areas are ideal for the establishment of aquatic

vegetation. By the late 1980's much of the additional 10,000 acres was completely (100%) covered with aquatic vegetation, which also expanded into the initial 5,000 acre reservoir—covering about 2,000 acres of that area. Olive, Tr. 328. In order to control the aquatic vegetation, the Arkansas Game and Fish Commission has applied herbicides at two to three times the recommended application rates. Olive, Tr. 332. Light fish kills occur every summer in the backwater areas because fish become stranded in oxygen deficient water. The fish kills occur in those areas that are in or near dense aquatic vegetation that is in the process of decomposing. Olive, Tr. 334. When the reservoir level is raised to flood the backwater areas for waterfowl, a slug of this low DO water is then pushed through backwater areas with pockets of fish that have become trapped, and those fish die in the low DO water. Olive, Tr. 334.

Roland McDaniel is familiar with Felsenthal from his fishing experiences, and from his responsibilities when he was employed by ADEQ. McDaniel, Tr. 1137. Mr. McDaniel provided a description of Felsenthal similar to Mr. Olive and the AG&F reports. Mr. McDaniel attributes the fish kills that occur in the backwater areas of Felsenthal NWR to the management of Felsenthal as a green tree reservoir. McDaniel, Tr. 1139-1140. Green tree reservoirs, like Felsenthal, are managed for waterfowl, and are not designed for good fish habitats. Phillips, Tr. 1621.

Mr. Maner testified that the reason that Felsenthal has a macrophyte problem is because the water level fluctuates seasonally, and creates backwater areas where these dying plants occur. Felsenthal is not a typical reservoir. Maner, Tr. 1707.

EPA agrees that the macrophyte problem in Felsenthal is a natural condition caused by the management of the reservoir as a greentree reservoir for waterfowl hunting. JPG 125, page 5; Phillips, Tr. 1258.

The WASP model was run to assess the impact of the pipeline discharge on the water quality in the Felsenthal NWR, in particular the DO. Phillips, Tr. 1343-1345. When the joint pipeline discharge was added to the background conditions, there was no difference in dissolved oxygen. Phillips, Tr. 1347.

The AQUATOX model was run to assess the impact of the pipeline discharge on the aquatic vegetation in the Felsenthal NWR. The AQUATOX modeling predicted that the nutrients from the pipeline discharge will have no impact on growth of aquatic plants in the backwater areas of Felsenthal. Phillips, Tr. 1363-1364, 1367.

Several witnesses explained why the nutrients from the pipeline will not impact the water quality and aquatic vegetation in the Felsenthal NWR.

The main reason the AQUATOX and WASP models do not predict an impact on water quality is that the Felsenthal NWR already has plenty of nutrients in the sediments—phosphorus is present at 600 mg/kg and nitrogen is present at 6,000 mg/kg. The aquatic vegetation already has more nutrients than they could ever need for growth. A little more nutrient from the pipeline will not make any difference. Phillips, Tr. 1267. The aquatic plants draw nutrients from the sediments, and when they die off those nutrients will recycle back to the sediments each year. Phillips, Tr. 1347.

Mr. Corn testified that the levels of nutrients in the sediments in the backwater areas of Felsenthal are some of the highest numbers he has seen. Mr. Corn testified that in his opinion there is already plenty of nutrients for the aquatic vegetation to utilize. Corn, Tr. 1968.

Another reason the AQUATOX and WASP models do not predict an impact on water quality is that under critical conditions very little, if any of the nutrients in the pipeline discharge make their way to the backwater areas of Felsenthal. Mr. Phillips explained that the backwater

areas of Felsenthal are nearly or completely cut off from the main channel of the Ouachita River under low flow conditions. The field data collected by GBMc also demonstrated that during summertime low flow conditions, when the conditions in the backwater areas of Felsenthal were the worst, only a minute amount of flow from the Ouachita River reached those backwater areas. Phillips, Tr. 1266; 1482.

Another reason the AQUATOX and WASP models do not predict an impact on water quality is that the form of phosphorus that is available to stimulate plant growth is inorganic phosphorus. The water quality modeling demonstrated that the pipeline discharge will not increase the inorganic phosphorus entering Felsenthal. JPG-127. The inorganic form of phosphorus that is available to stimulate the growth of aquatic vegetation has been taken up before the pipeline discharge reaches Felsenthal. JPG-127.

Mr. McDaniel explained why the pipeline effluent would not contribute to fish kills in Felsenthal. His opinion was based on several factors. First, the fish kills occur in the backwater areas of Felsenthal during low flow, summertime conditions. Under those conditions the flow from the Ouachita River, which would include the pipeline effluent, does not get back into most backwater areas. The water quality modeling has demonstrated that the oxygen demanding wastes have assimilated well upstream of Felsenthal so there is not a dissolved oxygen issue related to the pipeline effluent in Felsenthal. McDaniel, Tr. 1138.

Mr. McDaniel also testified that in his opinion the pipeline effluent would not contribute to excessive growth of nuisance species. McDaniel, Tr. 1140. Mr. McDaniel's opinion is that there is already an excess of nutrients in Felsenthal, and that the plants already have more nutrients than they need to grow. Mr. McDaniel testified that the real limiting factor to additional growth of aquatic vegetation in Felsenthal is not nutrients, but rather light availability

and light penetration. McDaniel, Tr. 1141. The aquatic plants need light, including light penetration to the roots, and when the plants become abundant their own biomass shuts out the sun light. Also, the limited open water areas exist in those locations where water depth prevents light penetration to the bottom, preventing plant growth. Essentially, the plants already have all the nutrients they need, and continue to grow until they shut themselves out from the sun or can't grow due to water depth. McDaniel, Tr. 1142.

Mr. Olive agrees that Felsenthal already has excessive nutrients. Olive, Tr. 322. Dr. Nix testified that if the levels of nutrients in Felsenthal are already high, adding a small amount may not impact the existing conditions. Nix, Tr. 613.

The challengers did not run the AQUATOX or WASP models (or any other model), and presented no modeling results that would indicate that a different permit limit for phosphorus (or any other parameter) would be necessary to comply with the narrative nutrient water quality standard, Regulation No. 2, Section 2.402. Nor have the challengers presented any models to prove that any of the permit terms or conditions should be changed, based on any changes in the model inputs or model calibration they espouse.

The pipeline discharge will not violate the narrative nutrient water quality standard.

2. The Increased Levels of Nutrients Allowed in the Permit Will Not Cause An Increase in Nuisance Algae or Aquatic Vegetation (LEAN Request, Issue VI.A, page 22)

Mr. Maner testified that in response to comments received from the AG&FC, the USF&W and others, he reviewed more carefully the potential impact of the pipeline discharge on the Felsenthal NWR, and that led to the imposition of an extremely restrictive phosphorus limit. ADEQ Ex. 23; Maner, Tr. 1655.

Initially, when ADEQ issued the draft permit, the phosphorus limit was based on a limit of 1.0 mg/L monthly average that applied year round. Maner, Tr. 1656. Mr. Maner selected that limit because it represented the limit of known technology that is available to reduce phosphorus. Maner, Tr. 1782. The nutrient modeling performed by GBMc used the permit limit proposed in the draft permit as the loading rate of nutrients to be discharged by the joint pipeline. Using the phosphorus load allowed by the draft permit, the QUAL2K nutrient modeling performed by GBMc predicted that the chlorophyll-a in the Ouachita River at Felsenthal would be about 14 ug/L, which Mr. Maner testified could be considered a nutrient enriched environment. Mr. Maner used the QUAL2K model rather than the WASP or the AQUATOX model to set the phosphorus limit in the permit. Maner, Tr. 1775.

Mr. Maner then made the decision to reduce the allowable amount of phosphorus during the critical period (the summer months) so that the chlorophyll-a at Felsenthal would be 10 ug/L or less. He therefore reduced the allowable load of phosphorus in the permit based on a ratio of 10 to 14, which reduced the allowed phosphorus load during the critical period (the summer months) by 30%. Maner, Tr. 1656; 1852. Mr. Maner testified that this was a simple approach, which put the phosphorus permit limit at a level such that there would not be an exceedance of 10 ug/L of chlorophyll-a in the Ouachita River. Mr. Maner testified that chlorophyll-a is a good indicator of macrophyte growth because chlorophyll-a is an indicator of algae growth. Algae, single cell organisms, will respond more quickly to increases in phosphorus than aquatic macrophytes. Mr. Maner stated that by controlling chlorophyll-a in the Ouachita River, any impacts on macrophytes in the backwater areas of Felsenthal would be eliminated. Maner, Tr. 1704-1705.

Mr. Maner testified that in his opinion the phosphorus limit in the pipeline permit will be protective of macrophyte growth in Felsenthal. Maner, Tr. 1737. The phosphorus permit limit was established to address the narrative standard which protects against growth of nuisance aquatic vegetation. Maner, Tr. 1748.

Mr. Maner testified that in his opinion if the permit limits are attained, the discharge from the joint pipeline will not stimulate algal growth or cause objectionable algal densities in violation of Reg. 2, Section 2.509. Maner, Tr. 1654.

Mr. Maner testified that in his opinion the pipeline permit will not allow discharges that will stimulate the growth of nuisance species in violation of Reg. 2, Section 2.402. Maner, Tr. 1654.

Mr. Corn testified that the approach used by ADEQ to regulate phosphorus by maintaining the chlorophyll-a at less than 10 ug/L is a very conservative approach. AquAeTer had collected considerable background chlorophyll-a data from the Ouachita River in the area of Felsenthal, and 10 ug/L was the low end of the range of values that were measured. By establishing a phosphorus limit that will maintain a level of 10 ug/L chlorophyll-a, ADEQ is maintaining a level of chlorophyll-a that is less than most of the background values; i.e. the chlorophyll-a concentrations that are out there naturally. Corn, Tr. 1947-1948.

Mr. Corn testified that ADEQ's approach is very conservative because it maintains chlorophyll-a at 10 ug/L, even though EPA considers 50 ug/L chlorophyll-a to be the level of concern. Corn, Tr. 1965. Mr. Corn also testified that inorganic phosphorus is the form that is available to plants and algae to grow. The modeling demonstrates that at a pipeline discharge of 1 mg/L of phosphorus, inorganic phosphorus in the Ouachita River decreases to close to background well before the Ouachita River reaches Felsenthal NWR. Therefore, reducing the

phosphorus loading by another 30% during the critical (summertime) season is not really necessary and is a very conservative approach. JPG-127.

The effect of ADEQ reducing the allowed loading of phosphorus in the final permit also has an effect on the conservative nature of the modeling. After the modeling was completed, ADEQ reduced the allowable load of nutrients by 30% during the critical months. Accordingly, the nutrient water quality models all over predict impacts—because the phosphorus in the joint pipeline effluent has been reduced by 30%. JX 1; Phillips, Tr. 1316.

The permit limit for phosphorus is appropriate, and is consistent with the loading recently approved by the Commission for discharges into the Ouachita River through the recent amendment of Regulation No. 6. *See, In re Adoption of Revisions to Regulation No. 6, Regulations for State Administration of the National Pollutant Discharge Elimination System (NPDES)* DOCKET NO. 07-002-R, Minute Order No. 07-__ (December 7, 2007).

3. The AQUATOX Modeling Shows that There Will Be No Adverse Impact from Aquatic Vegetation

a. GBMc Did Not Pre-Determine the AQUATOX Results Before Collecting Plant Data

Prior to a meeting at ADEQ in June of 2005, GBMc did a very preliminary model run with AQUATOX to evaluate how *Myriophyllum* responded to the introduction of additional nutrients to the backwater areas of Felsenthal NWR. At the time, *Myriophyllum* was the only rooted aquatic macrophyte that was supported by AQUATOX. Phillips, Tr. 1220, 1223-1224. The results of that preliminary modeling, which indicated that the discharge would not result in an increased growth of macrophytes, were presented at a meeting at ADEQ, where representatives of AG&F, USF&W and ADEQ were present. JPG 115; Phillips, Tr. 1220. The parameters of the proposed pipeline and the scope of the proposed modeling were outlined by

ADEQ (Martin Maner) during that meeting. Following that meeting, GBMc also presented the results of the preliminary modeling in the Nutrient Modeling Work Plan. JX 10.

b. GBMc Used One Plant that Does Grow in the Felsenthal NWR to Predict the Joint Pipeline's Impact on Nuisance Species in the Felsenthal NWR, and Used Another Plant as a Surrogate (LEAN Request, Issue VI.B, pages 22-23)

The AQUATOX model is a calibrated water quality model that predicts the impacts of the joint pipeline discharge on growth of aquatic macrophytes in the backwater areas of Felsenthal. Phillips, Tr. 1358-1360. GBMc collected field data in the Summer of 2005 and the Winter of 2006, and calibrated the model to that field data. Phillips, Tr. 1358-1360. The important question for this model was not to predict with precision the growth rate of macrophytes in Felsenthal, but rather to predict what impact, if any, occurs when additional nutrients from the pipeline discharge are added to the backwater areas of Felsenthal. Phillips, Tr. 1360; 1506-1510. GBMc did a simulation to make sure that the model would react to changes in the system. It ran a simulation that changed the level of light, and the model reacted by predicting additional plant growth. This showed that the model was reasonably calibrated, and that it would predict changes in plant growth in response to changes in environmental conditions. Phillips, Tr. 1527-1528.

The AQUATOX model was calibrated to both *Hydrilla* and *Myriophyllum*. *Hydrilla* is an aquatic macrophyte that is present in Felsenthal, and *Myriophyllum* is the only other aquatic macrophyte that was available in the AQUATOX library. *Hydrilla* and *Cabomba* plants were collected, and weighed, to determine the mass of these macrophytes that existed in the backwater areas of Felsenthal. *Cabomba* is an aquatic macrophyte that is abundant in Felsenthal. Phillips, Tr. 1362. *Cabomba* was not a plant species that was supported by AQUATOX. Both

Myriophyllum and *Cabomba* are facultative species that draw nutrients from the water column and/or the sediments, and the AQUATOX data library supports *Myriophyllum*. Therefore, AQUATOX was calibrated to *Myriophyllum*, as a surrogate for *Cabomba*. Phillips, Tr. 1362.

Mr. Blancher testified that *Myrophyllum* should not have been used as a substitute for *Cabomba* in the AQUATOX model. Mr. Blancher's concern is that *Myrophyllum* obtains its nutrients primarily from sediments, whereas *Cabomba* obtains its nutrients primarily from the water column, and as a result *Myrophyllum* was a poor substitute for *Cabomba*. Blancher, Tr. 481. He offered the opinion that GBMc should have created a data filter for *Cabomba* for the AQUATOX model by in-putting biological plant characteristics of *Cabomba* into the AQUATOX model. Blancher, Tr. 480-481. Although Mr. Blancher believed this would be a relatively easy exercise, he did not identify the *Cabomba* biological plant characteristics that could have been used, or even identify where they could be obtained. Blancher, Tr. 482-483. Mr. Blancher did not offer any water quality modeling to support his testimony, or to refute any of the AQUATOX modeling results presented by GBMc.

Mr. Blancher offered no opinion with respect to the AQUATOX model results for *Hydrilla*, an aquatic plant that does exist in Felsenthal and which is supported by AQUATOX. Mr. Phillips testified that the calibration for *Hydrilla* matched up well to the field data collected. Phillips, Tr. 1515-1518.

The use of *Myriophyllum* for the AQUATOX modeling was part of the approved work plan for the AQUATOX modeling which was developed after presentation of the preliminary AQUATOX modeling results to AG&F, USF&W and ADEQ June of 2005. GBMc presented the preliminary *Myriophyllum* AQUATOX results and proposed to use *Myriophyllum* for the AQUATOX modeling. JPG 115; Phillips, Tr. 1220.

Myriophyllum is one of the aquatic vegetation species that is supported by AQUATOX and *Myriophyllum* shares characteristics with *Cabomba*, a species that is present in Felsenthal. No one at the meeting expressed any problem with the use of *Myriophyllum*. It was also discussed and agreed during that meeting that AQUATOX would be used in a simplistic approach. Phillips, Tr. 1225-1226. GBMc prepared the AQUATOX modeling work plan using a simplistic approach, with *Myriophyllum* as the AQUATOX calibration species. Phillips, Tr. 1224. ADEQ approved the work plan.

Although only *Myriophylum* was included in the approved work plan, GBMc added *Hydrilla* because AQUATOX had added that plant species to its library after the work plan was approved, and *Hydrilla* is a species known to be present in Felsenthal. Phillips, Tr. 1245-1246. No one had ever questioned the use of *Myriophyllum* as a calibration plant species until after the AQUATOX modeling was completed. Mr. Phillips testified that he had considered replicating *Cabomba* through a literature search, but there was not sufficient biological plant information available for *Cabomba* to undertake this task and ensure good results. Phillips, Tr. 1246-1247; 1524. The two species in the AQUATOX data base that were used, *Hydrilla* and *Myriophyllum*, had already been verified by EPA as being accurate for modeling, so those two species were used. Phillips, Tr. 1620-1621. Furthermore, Mr. Phillips explained that the way the AQUATOX model works, even if GBMc had changed some of the plant coefficients in an attempt to replicate *Cabomba*, the output would have been the same because there are already ample amounts of nutrients available, and there would be no increase in plant biomass. AQUATOX predicts growth response of biomass, and with the abundance of nutrients already in the system, the pipeline discharge does not change the biomass. Phillips, Tr. 1512-1514.

Mr. McDaniel testified that in his opinion the plant species that were selected for the AQUATOX modeling were appropriate, because from a biological standpoint *Cabomba* is quite close to *Myrophillium*. Both *Myriophyllum* and *Cabomba* obtain nutrients from either the water column or the sediments. McDaniel, Tr. 1145-1147. Replicating *Cabomba* through a literature search of plant characteristics would have added unnecessary uncertainty to the modeling results because very few of the necessary plant characteristics were available in the literature. McDaniel, Tr. 1158; Phillips, Tr. 1531. Mr. Phillips testified that because both *Cabomba* and *Myriophyllum* can obtain nutrients from either the water column or the sediments, the fact that there are ample nutrients in the sediments made *Myriophyllum* an appropriate surrogate for *Cabomba*. Phillips, Tr. 1478-1480.

The challengers did not replicate *Cabomba* and calibrate the AQUATOX model to *Cabomba* to demonstrate that the pipeline discharge would add sufficient nutrients to cause excessive growth of *Cabomba* or have any impact on the growth of *Cabomba*.

The AQUATOX model was appropriately calibrated to *Hydrilla* and to *Myriophyllum* as a surrogate for *Cabomba*.

c. GBMc's Nutrient Model Calibrations Were Reasonable (LEAN Request, Issue V.C, pages 20-21)

The three additional water quality models that were used for the nutrient modeling, QUAL2K, WASP and AQUATOX, were "calibrated" water quality models. A calibrated water quality model requires collection of field data to document the water quality of the waterbody. The water quality model is then "calibrated" by adjusting certain coefficients within prescribed ranges, so that the model fairly predicts the actual water quality that was measured during the field study.

The field data for the model calibration was collected in the Summer of 2005 and the winter of 2006. JX-12. Jason Olive took DO samples at the same times that GBMc took its calibration samples within Felsenthal, and his results were similar to the DO samples obtained by GBMc. Olive, Tr. 339. After the field data was collected, and the models were calibrated, GBMc submitted an Interim Calibration Report to ADEQ to document the calibration exercise. The Interim Calibration Report was also distributed for comment. JX 12. ADEQ compiled all the comments it received on the Interim Calibration Report and forwarded the combined comments to GBMc in May and June of 2006. ADEQ asked GBMc to finish the nutrient modeling report and submit it by June 1, 2006, which it did. JX 13; Phillips, Tr. 1239, 1409. GBMc responded to the comments on the Interim Calibration Report on June 16, 2006. JPG 122; Phillips, Tr. 1244.

The modeling experts for the opponents who addressed calibration agreed that there is considerable judgment involved in calibrating a water quality model. Mr. Duerr testified that ultimately it is a judgment call as to how much field data is sufficient for the particular project. Duerr, Tr. 219, 242-243. Mr. Duerr also testified that different modelers will have different opinions as to how to set up and calibrate a model. Duerr, Tr. 244. Importantly, Mr. Duerr testified that he had no opinion on the GBMc calibration of the QUAL2K model, and stated that he would not offer an opinion without first running the model himself to see what difficulties he had in calibration. Duerr, Tr. 236-237.

Mr. Sulkin testified that all modeling includes certain assumptions, and that there are many judgment calls that go into the modeling effort. Sulkin, Tr. 440. Mr. Blancher testified that how a model is calibrated is a judgment call. Blancher, Tr. 537. Neither Mr. Sulkin nor Mr. Blancher ran any water quality models to test the calibrations performed by GBMc.

The precision of calibration does not necessarily impact the results of a model when the question is whether the addition of nutrients will have an impact. Phillips, Tr. 1525.

Mr. Phillips described the calibration of the models, and testified that the calibration was very conservative, and that the coefficients were adjusted conservatively and within the allowable guidelines. JX-13; Phillips, Tr. 1349-1351. For example, the DO calibration for the QUAL2K model was adjusted below the observed data, which would conservatively predict lower DO than the observed data. Phillips, Tr. 1562. The calibration for the WASP and AQUATOX models over-estimated the level of nutrients that would enter the backwater areas from the pipeline because the models assumed that there would be no reductions in nutrients in the 40 river miles between the point of discharge and the backwater areas through uptake and degradation. Phillips, Tr. 1257-1258. This conservative assumption over-estimated the levels of nutrients that would reach the backwater areas of Felsenthal. Phillips, Tr. 1351-1352. The modeling also showed that inorganic phosphorus, which is the form that is available for macrophyte growth, returns to background before it reaches Felsenthal. JX 13, page 3; Phillips, Tr. 1259. The field data also demonstrated that flow from the Ouachita River (which would include nutrients from the pipeline discharge) did not reach those backwater areas during the critical (summertime) season. Phillips, Tr. 1266; 1482.

Mr. Maner testified that the models were calibrated reasonably and that he was comfortable with the final values that were used for the model. The only concern Mr. Maner had related to the stream velocity used for the Ouachita River in the QUAL2K model. As discussed in the section above on in river hydrology, Mr. Maner investigated the velocity issue specifically, and resolved it to his satisfaction. Maner, Tr. 1787.

Ms. Beck testified that the model calibrations were very conservative because all of the nutrient modeling was done under critical, summertime conditions, based on a proposed phosphorus load that is actually 30% higher than the final permit allows. After the models were run, ADEQ revised the permit and reduced the allowable phosphorus load during critical conditions by 30%. Beck, Tr. 2084.

Ms. Beck testified that the calibrations for the QUAL2K and WASP models were reasonable and conservative. The model under-predicted dissolved organic phosphorus, which is very conservative. Beck, Tr. 2009-2010. Ms. Beck testified that if anything, the conservative calibrations would cause the models to over predict water quality impacts. Beck, Tr. 2010.

Ms. Beck, who coordinated the review of the water quality models with EPA, testified that she relied upon EPA to assist her in reviewing the water quality models. QUAL2K, WASP and AQUATOX are all models supported by EPA which is important because that means EPA stands behind the models. Beck, Tr. 2002. Phil Hutchinson was Ms. Beck's main contact at EPA. He reviews all of the water quality models that Ms. Beck submits for changes to the WQMP. Ms. Beck asked Mr. Hutchinson for assistance in this project because these were EPA approved models and she was not too familiar with WASP and AQUATOX. Ms. Beck testified that EPA had no complaints about any of the calibrations. Beck, Tr. 2010. EPA was provided copies of all of the comments filed on the various modeling reports so they could assist ADEQ in the review. EPA did not ask that any of the calibrations be changed. Beck, Tr. 2072-2073.

Mr. Corn testified that the GBMc water quality model calibration was very conservative. He stated that GBMc always used conservative coefficients and values for the calibration. Corn, Tr. 1939. By using this conservative approach, Mr. Corn testified that any error would have been on the side of maximizing the predicted impacts to water quality. Corn, Tr. 1939.

Mr. Olive's anecdotal testimony about his observations of aquatic vegetation growth does not have any relevance to the modeling. His statements were not based on any biomass measurements, which is what is required to calibrate AQUATOX. Mr. Olive has no expertise to relate his anecdotal testimony to how AQUATOX actually projects biomass growth. Olive, Tr. 2155-2156.

In its Responsive Summary, ADEQ explained the apparent problem Mr. Olive described:

> The AQUATOX model is one of the few models available that is capable of modeling macrophyte growth. It is based on the most current science available and is the only model supported by EPA that will predict macrophyte growth. It was calibrated to a limited data set so its ability to perfectly mimic annual growth cycles may be limited. The AQUATOX model's ability to predict differences in biomass caused by changing variables (water quality, temperature, light, etc.) should not be compromised by the limited field set.
>
> The models were reasonably calibrated.

H. Taste and Odor (STO Request, Taste and Odor Issue, pages 4-5)

STO raised as an issue that the joint pipeline discharge would cause a violation of the taste and odor narrative water quality standard. (STO Pre-Hearing Brief, Issue #4). This issue was not raised in the Post Hearing Brief but was re-raised by STO in their Request for Oral Argument.

The taste and odor standard is found in Regulation No. 2, Section 2.407, which provides as follows:

> **Reg. 2.407 Taste and Odor**
> Taste and odor producing substances shall be limited in receiving waters to concentrations that will not interfere with the production of potable water by reasonable water treatment processes, or impart unpalatable flavor to food, fish or result in offensive odors arising from the waters or otherwise interfere with the reasonable use of the water.

Mr. Maner stated that the pipeline will have a diffuser, and that there should be no odor issue or violation of the narrative water quality standard for odor. Maner, Tr. 1793. Mr. Phillips agreed that there will be no odor associated with the discharge. Phillips, Tr. 1211.

STO has not established, by a preponderance of the evidence, that the terms and conditions contained in the Pipeline Permits are not appropriate to avoid a violation of the narrative water quality standard for taste and odor set forth in Regulation 2, 2.407.

The joint pipeline will be installed at the bottom of the Ouachita River with a diffuser, and that the discharge will not result in offensive odors or otherwise result in a violation of Regulation No. 2, Section 2.407.

I. The Challengers have the Burden of Proof, and the Presented No Evidence that the Joint Pipeline Discharge will Violate Any Water Quality Standard (LEAN Request, Issue VII, pages 23-25)

1. The Challengers Arguments Are Not Based on Any Scientific Studies Because the Challengers Did Not Undertake any Water Quality Modeling

- **Louisiana**

After the June, 2006 Nutrient Modeling Report was filed, LDEQ requested an electronic copy of the QUAL2K model. The electronic files were received by LDEQ on July 13, 2006. Duerr, Tr. 176. On August 8, 2006, immediately after LDEQ had received the electronic modeling files from GBMc, LDEQ had advised ADEQ and EPA that "in the next few months" it planned to do its own modeling to assess the impacts of the pipeline. JPG 218; Romanowsky, Tr. 109-110; Duerr, Tr. 227-231.

The modeling LDEQ planned to do would have extended from Smackover Creek in Arkansas to the Columbia Dam in Louisiana. Duerr, Tr. 269. From the electronic files provided

to LDEQ it would have been easy for LDEQ to do its own modeling. Phillips, Tr. 1367; 1407-1408; 1421.

LDEQ had also been requested by a member of the Louisiana legislature to do its own modeling. Romanowsky, Tr. 113. LDEQ had advised the Rep. Walsworth that LDEQ was going to do its own modeling but it never did any modeling. Romanowsky, Tr. 113. Immediately after the permit was issued, Rep. Walsworth wanted an explanation from Ms. Romanowsky as to why LDEQ had not run its own model. JPG 218; Romanowsky, Tr. 113.

Mr. Duerr testified that LDEQ has not done the sort of modeling that would allow LDEQ to determine whether nutrients would have an adverse impact on water quality. Duerr, Tr. 143. He testified that he could offer no conclusions as to the impacts of the pipeline in Louisiana. Duerr, Tr. 233-234. His objection to the GBMc models was succinctly stated in response to a question from the AHO.

S. So your objection to the models that GBMc did is just simply things that you think had been left out, but you don't have any way of showing whether or not, had you done your own model, you would have come up with the same information?

C. Yes. We can't make a judgment as to what results we would get if we were to do our own modeling. I think that is just simply a fair statement.

Duerr, Tr. 269-270.

Mr. Dueur confirmed that LDEQ has done no modeling, and he could not provide any information that would support a different permit limit. Duerr, Tr. 242.

- **LEAN**

Mr. Blancher was the modeling expert presented by LEAN. Mr. Blancher did not run any models for this project, and his opinions were not based on any modeling that he performed. Mr. Blancher presented no modeling data that would support a different loading rate for any of the pollutants in the joint pipeline, such as CBOD, phosphorus, ammonia, etc. Blancher, Tr.

532-533. Mr. Blancher did not perform any modeling simulations that would determine how the water quality of the Ouachita River might be impacted by any of the problems he discussed in his testimony. Blancher, Tr. 533. Mr. Blancher had an electronic copy of the QUAL2K model, but never asked for an electronic version of the WASP or AQUATOX models.

Mr. Corn testified that if Mr. Sulkin, Mr. Blancher, Mr. Duerr, or others were really concerned about the modeling results, they could have easily re-run the models with other inputs. They could have checked the sensitivity of the models to different adjustments. If they were concerned about river depth, for example, they could have adjusted the river depth to see what the impact would be on the model results. Corn, Tr. 1949.

- **STO**

STO did not present any expert testimony relating to water quality models.

2. In Contrast to the Challengers Lack of Scientific Evidence, the Opinions of the Witnesses for ADEQ and the JPG are Based on Science

As stated above, ADEQ and JPG have presented substantial water quality modeling evidence to support the effluent limits in the permit and the opinions provided by their expert witnesses.

Mr. Maner testified that in his opinion the discharge limits for the joint pipeline permit are based on generally accepted scientific knowledge and engineering practices. Maner, Tr. 1658, 1660. Mr. Maner testified that in his opinion the discharge from the joint pipeline will not result in the impairment of any designated use in either the Ouachita River or the Felsenthal NWR. Maner, Tr. 1656. Mr. Maner testified that in his opinion the discharge from the joint pipeline will not result in a violation of any of the water quality standards, including both the

narrative standards and the numeric criteria. Maner, Tr. 1657. Mr. Maner did a sufficient review of the modeling data that was submitted to form this opinion. Maner, Tr. 1765.

Mr. Shafii testified that in his opinion the pipeline permit will not impair any of the existing uses in the Ouachita River or the Felsenthal NWR, and will not violate any of the Arkansas water quality standards. Shafii, Tr. 1869-1870. Mr. Shafii testified that he wrote the permits to be more stringent than required by the applicable regulations. In his professional judgment this was the best permit that could be drafted. Shafii, Tr. 1860. For example, neither Arkansas nor Louisiana has a water quality criterion for phosphorus. But this permit has a permit limit for phosphorus. Shafii, Tr. 1861.

Mr. Shafii testified that currently each of the permittees is discharging treated effluent into small streams where there is no background flow. With the pipeline, all of the effluent will be combined and then mixed into the Ouachita River. The pipeline will be a better environmental solution. Shafii, Tr. 1868-1869; 1894-1895.

Ms. Beck testified that in her opinion the permit limits in the pipeline are supported by generally accepted scientific knowledge and engineering practices, and that the pipeline discharge would not violate the Arkansas water quality standards. Beck, Tr. 2013.

Greg Phillips testified that in his opinion the discharge from the joint pipeline will not result in an impairment of any of the designated uses for either the Ouachita River or the Felsenthal NWR. Phillips, Tr. 1370. Mr. Phillips testified that in his opinion the discharge from the joint pipeline will not result in an adverse effect on water quality in the Ouachita River or the Felsenthal NWR. Phillips, Tr. 1371. Mr. Phillips testified that in his opinion the discharge from the joint pipeline will not result in a detectible adverse change in the water quality in the State of Louisiana. Phillips, Tr. 1371.

Mr. Corn testified that the pipeline discharge will not cause a violation of the DO water quality standard in the Ouachita River in either Arkansas or Louisiana, and that the pipeline discharge will actually increase the DO in the Ouachita River. Corn, Tr. 1945. Mr. Corn testified that in his opinion the discharge from the joint pipeline will not result in an impairment of the designated uses in the Ouachita River or the Felsenthal NWR. Corn, Tr. 1949. Mr. Corn testified that in his opinion the discharge from the joint pipeline will not result in a violation of any of the water quality standards in Arkansas or Louisiana. Corn, Tr. 1949-1950. Mr. Corn testified that in his opinion the discharge from the joint pipeline will improve the dissolved oxygen in the Ouachita River in Felsenthal and Louisiana. Corn, Tr. 1949.

Louisiana, LEAN and STO have not established by a preponderance of the evidence that any of the terms and conditions of the Joint Pipeline Permit should be changed to protect water quality.

Louisiana, LEAN and STO have not presented any modeling that refutes the results of the modeling that was introduced into evidence. Louisiana, LEAN and STO have not presented any water quality modeling that would support different permit terms and conditions.

The terms and conditions in the Pipeline Permits were based on water quality modeling that was appropriate to the task of establishing such terms and conditions, that the terms and conditions in the Pipeline Permits were based on sound science and good engineering practice, and that the terms and conditions in the Pipeline Permits are adequate to maintain the water quality standards and the designated uses in the Ouachita River and the Felsenthal NWR.

IV. MORE DETAILED RESPONSE REGARDING THE CHALLENGERS' REQUESTE RELATED TO THE ISSUES RAISED BY THE JOINT PIPELINE GROUP (LEAN Request, Issue I, pages 4-6)

JPG raised 15 issues in this appeal, but during the course of the hearing the Permittees and ADEQ resolved the issues raised in the JPG appeal. The AHO accepted some, but rejected two of the proposed settlement terms at this time. LEAN has objected to one of the settlement terms, which appears to be a typographical error in the Recommended Decision.

The Recommended Decision, at page 55 (which discusses zinc) contains a typographical error requesting that the permit language be revised to state that "The receiving stream for Outfall 010 (the Ouachita River) is not listed on the 303d list for mercury or zinc." The inclusion of "mercury" in this sentence is a typographical error. The testimony presented (Blubaugh,Vol. 6, p 944; Reiber, Tr. 654; Shafii, Tr. 1866) and the proposed findings submitted by ADEQ and JPG discussed zinc, and all parties acknowledge that the Ouachita River is on the 303d list for mercury, which is why a TMDL was performed.

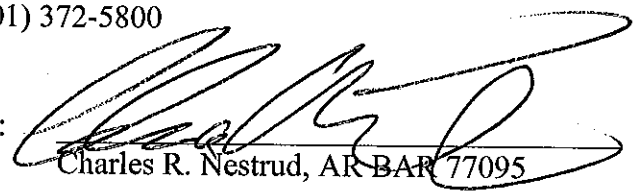
The testimony regarding zinc was that the 303d list, Joint Exhibit 9, identifies specific reaches within specific hydrologic units that are listed as impaired for zinc. The joint pipeline will not discharge into any of those reaches. Blubaugh, Vol. 7, page 1089-1090; See also Reiber, Tr. 654; Shafii, Tr. 1866. The reference to mercury in this statement of the Recommended Decision appears to be a typographical error. To correct the typographical error, the sentence which the Recommended Decision directs to be added to the permits should read: " The specific stream reach of the Ouachita River into which the joint pipeline will discharge through Outfall 010R is not on the 303d list for zinc."

V. CONCLUSION

The Recommended Decision considered seven days of testimony, including extensive expert testimony. The Recommended Decision should, with the exception of correcting one typographical error, be affirmed.

Respectfully Submitted,

CHISENHALL, NESTRUD & JULIAN, P.A.
400 W. Capitol Ave., Suite 2840
Little Rock, Arkansas 72201
(501) 372-5800

By: 
Charles R. Nestrud, AR BAR 77095

CERTIFICATE OF SERVICE

I, Charles R. Nestrud, do hereby certify that I have served a copy of the foregoing pleading upon the following attorneys of record by U.S. Mail, postage prepaid, this 11th day of June, 2008.

Dara Hall
Benjamin Jones
Jamie Ewing
Chief Counsel
ADEQ
5301 Northshore Drive
Little Rock, AR 72118

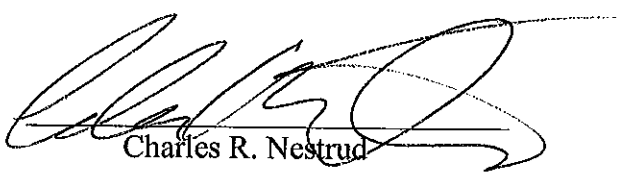
Mr. Thomas David Carruth
152 Madison Street
Box 91
Clarendon, AR72029

Jill Witkowski
Tulane Environmental Law Clinic
6329 Freret Street
New Orleans, LA 70118

Mark Hayes
Arkansas Municipal League
P.O. Box 38
North Little Rock, AR 72115

Ms. Megan Terrell
Assistant Attorney General
P.O. Box 94005
Baton Rouge, LA 70804-9005

Mr. Richard Mays
Mays Law Firm
2000 Hwy. 25 E. North, Ste. A-2
Heber Springs, AR 72543



Charles R. Nestrud

ADEQ

A R K A N S A S
Department of Environmental Quality

June 11, 2008

Judge Michael O'Malley
101 East Capitol
Ste 205
Little Rock, Arkansas 72201

Dear Judge O'Malley:

Please find enclosed ADEQ's Response to Requests for Oral Argument.

Sincerely,

Jamie Ewing,
Attorney Specialist

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

IN THE MATTER OF:

EL DORADO WATER UTILITIES
NPDES PERMIT No. AR0049743
NPDES PERMIT NO. AR0049743C

GREAT LAKE CHEMICAL CORPORATION **DOCKET No. 07-006-P**
NPDES PERMIT No. AR0001171

LION OIL COMPANY
NPDES PERMIT NO. AR0000646

EL DORADO CHEMICAL COMPANY
NPDES PERMIT No. AR0000752

EL DORADO WATER UTILITIES
GREAT LAKE CHEMICAL CORPORATION
LION OIL COMPANY
EL DORADO CHEMICAL COMPANY
NPDES PERMIT No. AR0050296

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY'S RESPONSE TO REQUESTS FOR ORAL ARGUMENT

The Arkansas Department of Environmental Quality ("ADEQ"), by and through its attorneys, Dara Hall, Jamie Ewing and Benjamin Jones, do submit this Response to Requests for Oral Argument filed by the State of Louisiana ("Louisiana") and the Louisiana Environmental Action Network ("LEAN").

As the Administrative Hearing Officer ("AHO") has determined that Save the Ouachita and Kent Stegall did not file a timely Request for Oral Argument, this Response will not address those arguments.

I. Introduction

ADEQ supports the Recommended Decision of the AHO and respectfully requests that the Commission adopt his Recommended Decision with one minor exception for a typographical error. As brought forth in LEAN's Request for Oral Argument, paragraph (b) on Page 65 of the Recommended Decisions orders that the permit language be changed to state that the receiving stream for the pipeline discharge is not impaired for zinc and mercury. LEAN is correct that no party requested that permit be changed to state the receiving stream is not impaired for mercury. As the AHO clearly discusses issues related to mercury impairment in other parts of the Recommended Decision, this statement can only be an unintended typographical error. The AHO was presented with seven days of testimony, thousands of pages of exhibits, and dozens of legal issues to examine; he is to be commended for the clear organization and reasoning of the Recommended Decision.

Essentially, the lengthy arguments of Louisiana and LEAN can be characterized in a very simple fashion: they want more. More data, more modeling, more tests, more time. This permit was unique for the state of Arkansas and the Department did not take lightly its duty to issue a permit that is protective of the environment. This permit went through a very lengthy review process; multiple water quality models and toxicity tests were run to assess the effects of the proposed discharge. As the following brief arguments will show, Louisiana and LEAN have misinterpreted the law and the AHO's Recommended Decision should stand.

II. ADEQ Provided Louisiana with Opportunity to Submit Comments on the Draft Permit as Required by Federal Regulations.

Louisiana objects to the AHO's finding that ADEQ offered Louisiana a meaningful opportunity to comment prior to issuance of the permit. Louisiana argues that ADEQ effectively foreclosed its ability to assess the impact of the joint pipeline on the water quality of the

Ouachita River in Louisiana. The Clean Water Act imposes specific obligations on the source state and on the affected state. First, Louisiana is entitled to notice of the application and an opportunity for a public hearing, in order to:

> insure that the public, and any other State the waters of which may be affected, receive notice of each application for a permit and to provide an opportunity for public hearing before a ruling on each such application;... See 33 U.S.C. §1342(b)(3)

Louisiana does not dispute that it received notice of the permit application. The record clearly reveals that Louisiana filed numerous written comments throughout the permit review and made a formal statement during the public hearing. ADEQ clearly satisfied its statutory obligations.

Second, Louisiana is required to provide written recommendations, and ADEQ must either accept them or provide reasons for not doing so. See 33 U.S.C. §1342(b)(5) ("[the affected state] may submit written recommendations to the permitting State (and the Administrator) with respect to any permit application and, if any part of such written recommendations are not accepted by the permitting State, that the permitting State will notify such affected State (and the Administrator) in writing of its failure to so accept such recommendations together with its reasoning to do so.").

In this case, Louisiana never made any recommendations or lodged any objections. Louisiana acknowledged that it has no recommendations for changes to the permit and Louisiana never attempted to do its own models or studies, despite telling ADEQ and EPA that it intended to perform such tests. This issue is no more than a bald attempt by Louisiana to delay the permit indefinitely.

The United States Supreme Court rejected a similar attempt by a downstream state to block a permit in *International Paper Co. v. Ouellette*, 479 U.S. 481 (1987), and described the coordination process in clear and understandable terms:

> While source States have a strong voice in regulating their own pollution, the CWA contemplates a much lesser role for States that share an interstate waterway with the source (the affected States). Even though it may be harmed by the discharges, an affected state only has an advisory role in regulating pollution that originates beyond its borders. Before a federal permit may be issued, each affected State is given notice and the opportunity to object to the proposed standards at a public hearing. An affected State has similar rights to be consulted before the source State issues its own permit; the source State must send notification and must consider the objections and recommendations submitted by other States before taking action. *Significantly, however, an affected State does not have the authority to block the issuance of the permit if it is dissatisfied with the proposed standards. An affected State's only recourse is to apply to the EPA Administrator, who then has the discretion to disapprove the permit if he concludes that the discharges will have an undue impact on interstate waters.*
>
> *Id.* at 490-491 (emphasis added).

Louisiana's arguments are neither accurate nor supported by the Clean Water Act or case law. The ultimate discretion to approve or disapprove the lies with Environmental Protection Agency ("EPA"). Louisiana submitted all of its complaints to EPA. However, EPA formally approved the permits. See Transcript at 1903; Exhibit ADEQ-23. ADEQ satisfied all of the Clean Water Act procedures for addressing concerns by a downstream affected state. Therefore, the AHO did not err in finding that Louisiana was provided an opportunity to submit meaningful comments on the permit.

III. The Permit Decision was Based on the Totality of the Permit Review Process, Not Just One Modeling Run.

The opponents of this permit focus on small, specific portions of the permitting review process and try to overemphasize the importance of one modeling run or the opportunity to comment on one report. When, in reality, the Department required the permit applicants to complete a thorough and comprehensive permit review process. The applicants utilized four separate water quality models and performed several other necessary tests and studies. When the Department reviews a permit application to determine if a permit should be issued, federal and

state regulations do not require that certain water quality models must be run and certain results obtained. Rather, water quality models are just one tool used to prove the ultimate standard of whether or not the NPDES permit should be issued: will this discharge result in a violation of water quality standards?

The modeling run that utilized the Corps of Engineers HEC-RAS data was performed at the request of the State of Louisiana. This is the same data and modeling runs that Louisiana argued against throughout these proceedings. At the request of Louisiana, GBMc obtained the data from the Corps and was given a faulty set of electronic data that provided one input, river depths, for the QUAL2K model. Yes, the data was incorrect and that specific modeling run did not accurately reflect river conditions. But the ultimate permit conditions were based on many modeling runs and actual field data collected by GBMc. GBMc used a variety of models approved and supported by the EPA to provide data to the Department in the use of calculating permit conditions. That is the intent of the statutory requirement that permit limits be supported by "sound science" -- to make sure that the models used to calculate permit limitations have been vetted and accepted by the scientific community. The law cannot be read to require that the permit limits be remanded to the Department if, on the whole, the modeling performed by GBMc was based upon generally-accepted scientific knowledge and engineering practices and did not show that the discharge would violate water quality standards.

IV. ADEQ Assured that Louisiana's Water Quality Standards were not Violated.

Louisiana tries to hold ADEQ to a higher standard than is actually intended by federal regulations. Following the interpretation of the State of Louisiana, any permit applicant

proposing to discharge into any waterbody that ultimately reached the waters of Louisiana would have to determine the effect that its discharge would have when combined with all other discharges in the waterbody. That is not the standard set out in the federal regulations. Based on the totality of the permit review process, ADEQ determined that the proposed pipeline discharge would not violate Arkansas' water quality standards and would not violate the standards of Louisiana.

V. ADEQ Correctly Assumed a Background Concentration of Zero for the Segment of the Ouachita River into which the Proposed Pipeline would Discharge

LEAN objects to the AHO's finding that ADEQ did not err when using a background level of zero for zinc in the segment of the Ouachita River into with the pipeline will discharge. However, the method suggested by LEAN for establishing a permit limit for zinc is not correct and does not follow the procedure outlined in the Continuing Planning Process ("CPP") for determining permit limits for metals. Indeed, if the CPP were followed strictly, no zinc limit at all would have been included in the Pipeline Permit because analysis of the pipeline discharge showed no "reasonable potential" to exceed water quality standards. However, the Permittees agreed to the stricter numerical limit that was included in the permit. The AHO was correct in finding that ADEQ was reasonable in the using a background concentration of zero for zinc.

VI. ADEQ Properly Interpreted The Mecury TMDL

The Ouachita River watershed has been identified as impaired due to an excess of mercury detected in the flesh of fish in certain areas of the watershed. As a result, EPA performed a TMDL for the Ouachita River watershed. Thornton, Tr. 621. The purpose of the TMDL was to identify sources of mercury in the watershed and the reductions required to bring the fish in the watershed into compliance with the safe consumption criteria. Thornton, Tr. 626.

The major sources of mercury identified in the TMDL were natural sources and air emissions. Thornton, Tr. 652. Dr. Thornton, who authored the Mercury TMDL under a contract with EPA, testified that the Mercury TMDL does not state that there should be no mercury allowed under NPDES permits as LEAN alleges. Thornton, Tr. 637.

Dr. Thornton offered the opinion that if ADEQ issued an NPDES permit that imposed the mercury water quality criteria as the basis for deriving a permit limit, that approach would be consistent with the Mercury TMDL. Thornton, Tr. 655. Dr. Thornton testified that this approach is what the TMDL recommended for NPDES point sources. Thornton, Tr. 660, 676. Dr. Thornton explained that the purpose of the TMDL was to achieve a reduction in mercury to an established standard, and the established standard for the Ouachita River is the mercury water quality criteria. Thornton, Tr. 655.

Mr. Maner testified that there is no known mercury in the effluent of any of the pipeline participants. Maner, Tr. 1850. Mr. Maner testified that the mercury limit in the permit was set to insure that the pipeline discharge remained in compliance with the mercury water quality criteria of 0.012 ug/L (12 nanograms), which is the value EPA said should be applicable in the water column (the Ouachita River). Maner, Tr. 1746. LEAN would like to alarm you by stating that the permit allows the discharge of a large quantity of mercury. This is a distortion of the truth. The permit allows a discharge of 12 nanograms per liter which is in accord with the water quality criteria for mercury in the Ouachita River and, as stated above, in compliance with the TMDL as well.

VII. Conclusion

ADEQ reviewed the pipeline permit application for nearly two years. ADEQ sought input from the federal and state agencies in Arkansas and Louisiana, and from the public. The

Department did not hesitate to require more modeling and more tests from the permit applicants; at the end of this exhaustive process, ADEQ issued a permit that was protective of the environment. The Recommended Decision is fair and reasonable and ADEQ respectfully requests that the Commission adopt the Recommended Decision.

Respectfully Submitted,
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118

By: _____
Jamie L. Ewing, Attorney Specialist
ADEQ, Legal Division

CERTIFICATE OF SERVICE

I, Jamie L. Ewing, do hereby certify that I have served a copy of the foregoing pleading upon the following parties/attorneys of record by electronic mail, this 11th day of June, 2008.

T. David Carruth
PO Box 91
Clarendon, AR 72029

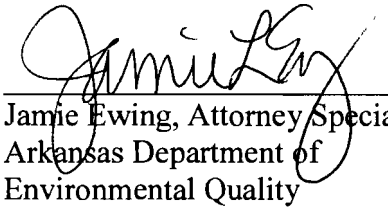
Charles Nestrud
Chisenhall, Nestrud & Julian, P.A.
400 W Capitol, Ste 2840
Little Rock, AR 72201

Jill M Witkowski/ Matthew Fraser
Patrick Buller/ Rina Eisenberg
6329 Freret Street
New Orleans, LA 70118

Richard H Mays
2000 Hwy 25 E. North, Ste A-2
Heber Springs, AR 72543

Ryan M Seidemann/Megan K Terrell
Latonya L. Ozene
Assistant Attorneys General
Civil Division/ Lands & Natural Resources
Post Office Box 94005
Baton Rouge, LA 70804-9005

Ann Hill, Legal Division
Louisiana Department of Environmental Quality
PO Box 4302
Baton Rouge, LA 70821-4302



Jamie Ewing, Attorney Specialist
Arkansas Department of
Environmental Quality

On May 8, 2008, Michael O'Malley, Administrative Hearing Officer ("AHO"), issued Order No. 9 (Recommended Decision) in Docket No. 07-006-P (Consolidated), which is a case styled: In the Matter of El Dorado Joint Pipeline Group Permits.

1. Order No. 9 affirmed the joint pipeline permit and individual permits issued by the Arkansas Department of Environmental Quality in part, and reversed and remanded, in part.

2. The following matters were reversed and remanded to the Director with the following instructions:

a. Mercury – Method 245.7 is to be substituted for Method 245.1.

b. Zinc – The language in the joint pipeline permit on Page 2, Paragraph 7(A) of the Fact Sheet shall be revised as follows: "The receiving stream for Outfall 010 (the Ouachita River) is not listed on the 303d list for mercury and zinc." This same sentence also shall be included in the appropriate paragraph in the Fact Sheet of the individual permits.

c. Individual permits – The following language shall be included in the individual permits as follows:

> Condition 5, Part III, OTHER CONDITIONS of the City Permit; Condition 2, Part III, OTHER CONDITIONS of the Lion Permit; Condition 2, Part III, OTHER CONDITIONS of the GLCC Permit; and Condition 2, Part III, OTHER CONDITIONS of the EDCC Permit should be replaced with the following: "Once the discharge to the Pipeline has commenced, Permittee shall notify ADEQ within 24 hours of any emergency or maintenance even that results in diverting wastewater from Outfall 010 to another permitted outfall. For non emergency and non maintenance events that may result in diverting wastewater from Outfall 010 to another permitted outfall,

the Permittee must provide notice and an explanation of the anticipated diversion to ADEQ at least two weeks in advance of such event; and ADEQ may, in its discretion, condition of diversion of wastewater from Outfall 010 to another permitted outfall as may be reasonable necessary to protect human health and the environment."

d. Construction Permit – It shall be amended by adding a condition that states: "The commencement date for construction may be extended due to financing constraints, or for other good cause shown."

e. Sampling – Condition 5, Part III, shall be amended to state as follows:

> Grab samples may be taken within 100 feet from the Ouachita River for the comparison sampling, provided that the flow measured at the location of the grab sample must be representative of the flow measured by the composite sampler.

f. Typographical errors – The GLCC permit and EDCC permit contain errors in the description of wastewater sources. The description of the wastewater in the GLCC Permit for Outfall 002 shall be revised as follows:

> Outfall 002 – stormwater runoff, wastewaters from Outfall 001 and Outfall 002 at Great Lakes Chemical Company's South Plant (NPDES Permit AR0000680)

The description of the wastewater in the EDCC permit for Outfall 001 shall be revised as follows:

> Outfall 001 – treated process and contaminated storm water."

3. The Petition for Declaratory Order filed by the Arkansas Municipal League is dismissed.

4. This docket is closed.

The record compiled in this docket by the AHO and Order No. 9 came before the Commission at its June 27, 2008 meeting. After considering the matter, the Commission adopts and affirms, without modification, Order No. 9 (Recommended Decision) entered on May 8, 2008.

COMMISSIONERS

_____ **L. Bengal**	_____ **L. Sickel**
_____ **S. Henderson**	_____ **J. Simpson**
_____ **D. Hendrix**	_____ **W. Thompson**
_____ **C. McGrew**	_____ **E. Valdez**
_____ **D. Samples**	_____ **B. White**
_____ **T. Schueck**	_____ **R. Young**
_____ **J. Shannon**	

_____ **SUBMITTED BY: Michael O'Malley PASSED: 06/27/08**
Chair

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

IN THE MATTER OF:

CoBar Contracting, Inc.,
Elderidge Ranch Project
Saline County

LIS NO. ~~08-~~ 07-042
AFIN 60-00797

2008 JUN -5 PM 2:22
AR. POLLUTION CONTROL & ECOLOGY COMMISSION
FILED

CONSENT ADMINISTRATIVE ORDER

This Consent Administrative Order (hereinafter "Order") is issued pursuant to the authority of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended, Ark. Code Ann. ' 8-4-101 et seq.) and the regulations issued thereunder (hereinafter collectively referred to as "the Act").

Pursuant to the authority of Ark. Code Ann. §8-4-207(1)(B), the Director for the Arkansas Department of Environmental Quality (hereinafter ADEQ) is authorized to set schedules of compliance for facilities permitted under the Act necessary to assure compliance with both applicable state and federal effluent limitations, including, but not limited to, those mandated by the National Pollutant Discharge Elimination System Program (hereinafter "NPDES") under section 402 of the Federal Water Pollution Control Act, 33 U.S.C. §1342 as well as under sections 301, 318, and 405 of the Federal Water Pollution Control Act, 33 U.S.C. §1311, 33 U.S.C. §1328 and 33 U.S.C. §1345; and Arkansas Pollution Control and Ecology Commission Regulations 2, 6, 7 & 8.

The issues herein having been settled by the agreement of CoBar Contracting, Inc., Elderidge Ranch Project (hereinafter the "Permittee") and ADEQ, it is hereby agreed and

stipulated that the following **FINDINGS OF FACT** and **ORDER AND AGREEMENT** be entered herein.

FINDINGS OF FACT

1. CoBar Contracting, Inc., Elderidge Ranch Project, is located in Saline County, Arkansas. The Permittee operates a construction site of approximately 40 acres pursuant to the conditions of NPDES General Permit for Facilities Discharging Storm Water Associated with Construction Activity Located in the State of Arkansas - ARR150221 (hereinafter "the Permit") issued by the authority of ADEQ.

2. On February 14, 2005, an inspection was conducted by an ADEQ Water Division Field Inspector at the Elderidge Ranch Project. The inspection revealed the following violations:

a. The Notice of Intent as originally submitted states the site is approximately five (5) acres when the construction project is actually for a forty (40) acre lake and subdivision;

b. The Storm Water Pollution Prevention Plan (SWPPP) was not available for review by ADEQ personnel at the time of the inspection in violation of Part II, Section A, Paragraph 2 (a), and Part II, Section B, Paragraph 7 of the Permit;

c. Erosion control measures (ECMs) were not installed, improperly installed, and not adequately maintained in violation of Part I, Section C, Paragraph 3 (a) of the Permit;

d. Site inspections were not being performed, or inspection records were not being maintained on site, in violation of Part II, Section A, Paragraph 4 (e)(i-iii) of the Permit;

e. The Permittee was not tracking rainfall data to ensure inspections are conducted within 24 hours of the end of a storm that is 0.5 inches or greater as required by Part II, Section A, Paragraph 4 (e) of the Permit;

f. The site was not properly posted in violation of Part I, Section B, Paragraph 7 (e) of the Permit;

g. There was evidence of storm water sediment discharge and a direct discharge of process wastewater from the gravel washer, to the South Fork of the Saline River, in violation of A.C.A. §8-4-217(a)(2); and

h. A gravel mining and washing facility is operating at the site without an NPDES general permit, in violation of A.C.A. §8-4-217(b)(1)(E).

3. Notice of the Inspection was sent to the Permittee on February 16, 2005. A response, dated March 7, 2005, was received by the Department on March 14, 2005, and stated the following (in summary):

a. The Notice of Intent should have read "approximately 25 acres". The acreage shown was an approximation using phases of the project;

b. The SWPPP was placed onsite in a mobile building;

c. Silt fencing had been installed but was obscured at the time of the inspection. Additional silt fencing will be installed along the South Fork of the Saline River and any other area showing significant erosion;

d. The site was posted;

e. A rain gauge was installed;

f. Inspections will be performed;

g. The gravel washing operation will remain in a complete re-use/re-cycle mode until an NPDES Permit can be issued; and

h. The unintended direct discharge to the receiving stream was stopped immediately after the inspection on February 14, 2005. Since then the gravel washing operation has operated in its intended mode of complete re-use and re-cycle of wash water utilizing hydraulic capacity/storage using retention ponds built as part of the lake project. To allow flexibility for future discharges NPDES permit applications will be submitted for issuance of a general NPDES permit.

4. On May 20, 2005, an inspection was conducted by an ADEQ Water Division Field Inspector at the Elderidge Ranch Project. The inspection revealed the following violations:

a. The erosion control measures in place, specifically silt fencing which has been knocked down, are not being properly maintained, in violation of Part I, Section C, Paragraph 3 (a) of the Permit;

b. New levees have been constructed onsite to retain process water. The levees are poorly designed and made of native soils. One of the levees on the south side of the site had recently washed out, resulting in an unpermitted discharge of process wastewater into the South Fork of the Saline River, in violation of A.C.A. §8-4-217(a)(2);

c. Three (3) unpermitted discharges were occurring through the newly constructed levee on the south edge of the site, in violation of A.C.A. §8-4-217(a)(2); and

d. A white PVC pipe, approximately eight (8) inches in size, was installed through the levee in one of the large sedimentation basins. The facility representative

stated that the facility had discharged through this pipe, into the South Fork of the Saline River, since February 14, 2005, in violation of A.C.A. §8-4-217(a)(2).

5. Notice of the Inspection was sent to the Permittee on May 24, 2005. A faxed response, dated June 13, 2005, was received by the Department on June 13, 2005. The response stated the following:

a. Silt fence repair had commenced; all silt fences will soon be in place and effective;

b. The levee on the south side of the site is being repaired and will not allow future discharges; and

c. The white PVC pipe was installed during levee construction to facilitate a permitted discharge once the NPDES permit is issued. The onsite representative was confused since he has limited knowledge of the permitting process and was simply indicating that he believed a discharge would occur once the wash water was tested (after issuance of an NPDES permit). No discharge occurred through the pipe, and no intentional discharges of wash water have occurred from the entire site. The PVC pipe was permanently capped at the time of the inspection and has not been used as a conveyance of wastewater and will not be used until an NPDES permit has been issued.

6. A revised Notice of Intent (NOI) for the Elderidge Ranch Project was received by the Department on April 21, 2005. The NOI states the total amount of soil to be disturbed is 36.67 acres. A Storm Water Pollution Prevention Plan (SWPPP) was submitted with the revised NOI. The SWPPP was found to be incomplete. In a letter dated May 6, 2005, the Department requested a revised SWPPP be submitted by May 27, 2005. A revised SWPPP has not been received by the Department.

7. On May 20, 2005, the ADEQ Mining Division conducted an inspection of the Permittee's Open-Cut Mining Permit 608-MN, "Elderidge Ranch Project", in Saline County, AR. In a certified letter dated July 22, 2005, the ADEQ Mining Division notified the Permittee of inspection deficiencies resulting from the May 20, 2005 inspection. The Permittee was notified that an inspection was conducted and instances of non-compliance with The Arkansas Surface Mining and Reclamation Code (Regulation 15) were observed during the inspection. Additionally, the Permittee was notified that the ADEQ Mining Division had determined it was necessary for the Permittee to modify Open-Cut Mining Permit 608-MN as specified below:

a. The mining plan needs to be amended if the operator intends to discharge water under an NPDES permit issued by the ADEQ Water Division, since the approved mining plan included no discharge. If this is not the intent of the operator, the discharge pipe needs to be removed. All discharges must cease pending resolution of discharge permitting with the ADEQ Water Division;

b. A variance from the 100-foot buffer zone for the water intake pump is needed to correct non-compliance with the permit or the pump needs to be removed and disturbed bank restored. If a variance is requested under APC&EC Regulation 15.310 for the pump area, ADEQ will consider documentation that shows the water intake is either permitted or specifically exempted from permitted by the Arkansas Soil and Water Conservation Commission (ASWCC);

c. The mining reclamation plan (and possibly bond determination) needs to be amended to include restoration of the disturbed stream bank at the water intake pump area and affected land inside the 100-foot undisturbed buffer zone. Silt fences, as required by

other environmental laws, are considered part of the affected land in the mining operation and must be at least 100 feet (no clearing and grubbing within the buffer zone) from the ordinary high water mark in accordance with APC&EC Regulation 15.402(G). The construction of the earthen dam or levees in reclamation must also be at least 100 feet (toe of the slope) from the ordinary high water mark of the river and maintain a 3 horizontal to 1 vertical slope as stipulated in APC&EC Regulation 15.308(A)(4)(a);

d. A mining and reclamation construction plan for the proposed lake prepared by an Arkansas Registered Professional Engineer must be submitted to demonstrate compliance with APC&EC Regulation 15.402(E). The intent of this plan is to integrate and coordinate all aspects of mining, environmental controls during operations, reclamation, construction scheduling, construction quality assurance, and provide adequate protection of the public through the implementation of sound engineering practices. Construction design plans and specifications for the construction of earthen dams or levees for the proposed lake approved by the ASWCC are acceptable for the construction quality assurance, provided that they show compliance with applicable sections of Regulation 15 and Open-Cut Mining Permit 608-MN. The plan must also provide corrective actions for all disturbed areas with the 100-foot buffer zone; and

e. The ADEQ Mining Division requested a response in writing to all items listed in the letter within 30 days of receipt of the letter. The certified letter was signed for on July 25, 2005. As of January 31, 2007, the ADEQ Mining Division did not receive a response to the July 22, 2005 letter.

8. In a letter dated November 29, 2005, Permittee stated the following:

a. No discharge of process wastewater from the gravel washing operation has occurred to the River. A tributary is to be the receiving stream for discharges for permitted activities within the project site;

b. Silt fences have been in place through the duration of the project and bmps continue to be implemented;

c. Permittee made a concerted effort to check with regulators before construction started;

d. Hope Engineers did not correctly and/or adequately inform Permittee about NPDES permitting requirements or the significance of the project's close proximity to an ERW. The SWPPP developed by Hope Engineers was found to be deficient by ADEQ;

e. In November, 2004 Department staff visited the site and told Mr. Charles Tanskerley that "everything looked okay" with the project. Permittee made a good faith effort to avoid accidental or unavoidable problems by checking with regulators;

f. A timber company had clear cut surrounding areas of the project site and did not implement bmps. Therefore, Permittee inherited the problems caused by the timber/logging company;

g. The Permittee took immediately positive steps to comply with ADEQ regulations;

h. The Permittee did not intentionally violate any environmental regulations or law; and

i. The Permittee began in March, 2005 to obtain an NPDES permit. The permit was filed in May, 2005. In June, 2005 the Permittee was notified by ADEQ that the project could be permitted under the NPDES General Gravel Washing Permit, ARG500000. In

June, 2005, a Notice of Intent and check was submitted to ADEQ. The Permittee stated that ADEQ apparently misplaced the Notice of Intent and the Check.

9. On January 13, 2006, the Department sent a letter to the Permittee requesting detailed information regarding the submission of the missing Notice of Intent and Check. The Permittee provided a copy of the front page of the NOI and a copy of the check in a letter dated February 9, 2006.

10. In a certified letter dated February 13, 2006, the Department notified the Permittee that an internal investigation revealed the Department had no record of receiving the information, and requested that the Permittee complete a Notice of Intent and submit it with payment by March 1, 2006. A response was not received.

11. On June 21, 2006, the Department faxed a notice to the Permittee stating the Notice of Intent and check to obtain an NPDES General Gravel Washing Permit for the Elderidge Ranch Project had not been received. The Notice of Intent, back-dated to July 13, 2005, and check No. 14972, dated June 22, 2006, was received by the Department on June 23, 2006. Permit Number ARG500018 was issued on August 11, 2006.

12. As of May 20, 2008, Permittee states that the gravel washing operation has ceased on the site.

13. A.C.A. §8-4-217(a)(2) states that it shall be unlawful to place or cause to be placed any sewage, industrial waste, or other wastes in a location where it is likely to cause pollution of any waters of this state; and A.C.A. §8-4-217(a)(3) states that it shall be unlawful for a person to violate any provision of a Permit issued under this chapter by ADEQ. Therefore, as a result of the foregoing violations committed by the Permittee, the following actions are proposed to be ordered herein pursuant to A.C.A §8-4-103(b).

THEREFORE, the following actions are proposed to be ordered herein and the following civil penalties are proposed to be assessed pursuant to A.C.A. § 8-4-103.

ORDER AND AGREEMENT

Therefore, the parties do hereby stipulate and agree that:

1. The Permittee shall immediately cease all unpermitted discharges. Any bypass ditches, channels, or other unpermitted discharge points shall be closed in such a manner as to prevent future unpermitted discharges. Within thirty (30) days of the effective date of this Order, the permittee shall submit to the Department a corrective action report describing the actions taken to eliminate all discharge points and bypass ditches and channels.

2. Within thirty (30) days of the effective date of this Order, the Permittee shall obtain the services a professional engineer licensed in the State of Arkansas. The engineer shall conduct an evaluation of the site, including levees, ponds, pumping stations, and the gravel washing operation for compliance with all applicable regulations.

3. Within sixty (60) days of the effective date of this Order, the engineer, with the concurrence of the Permittee, shall submit a corrective action report describing the results of the evaluation of the site. The report shall include any corrective actions, with a milestone schedule, that shall be taken as a result of the evaluation.

4. In accordance with the statement by the Permittee recited in paragraph 12 above of the Findings of Fact, within thirty (30) days of the effective date of this order, the Permittee shall submit a Notice of Termination (NOT) for Permit Number ARG500018. Permittee shall obtain any necessary permits for other activities conducted on the site.

5. Within fifteen (15) days of the effective date of this Order, the Permittee shall submit to the Department a revised and complete SWPPP in accordance with the checklist provided to Permittee by the Department on May 20, 2008.

6. Beginning thirty (30) days after the effective date of this Order, the Permittee shall submit copies of the site inspection reports every three (3) months, for the next two (2) years. The site inspection reports shall contain at a minimum the following information:

a. Name and signature of the person conducting the site inspection;

b. Site description, listing all areas of the site requiring storm water erosion controls, including the type of controls installed;

c. Site Changes, listing any additional areas of the construction site that require storm water erosion controls, including a description of storm water erosion controls installed in each additional area, and including any ditches, channels, or levees constructed;

d. Type of Erosion Controls, listing the condition of each type of erosion control for each area noted during the inspection, any type of maintenance required, and the date it was accomplished, including sediment basins, silt fences, hay bales, seeding, sodding, mulching, velocity dissipaters, brush lines, and any additional types of storm water erosion control measures being used;

e. A copy of the revised site map showing the location of any erosion control measures have been installed or changed;

f. The following certification: "I certify under penalty of law that the information included in this report is true, accurate, and complete to the best of my knowledge, and was prepared under my direction or supervision in accordance with a system designed to

assure that qualified personnel gather and evaluate the information submitted. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) regulations that authorize the storm water discharges with industrial activity from the construction site, as identified as part of this certification."

g. The dated signature and title of the Permittee.

7. All submissions required by this Order are subject to the stipulated penalties listed in Paragraph 11 of this Order. All required submissions shall be mailed to the attention of:

Arkansas Department of Environmental Quality
Water Division
NPDES Enforcement Section
5301 Northshore Drive
North Little Rock, Arkansas 72118

8. In compromise and full settlement of the civil penalties for violations (specified in the Findings of Fact), the Permittee agrees to pay to ADEQ, the following:

a. For the violations found during the February 14, 2005 inspection, the sum of Five Thousand Dollars ($5,000.00);and

b. For the violations found during the May 20, 2005 inspection, the sum of Five Thousand Dollars ($5,000.00).

9. Therefore, the total sum of civil penalties hereby assessed the Permittee is Ten Thousand Dollars ($10,000.00) as a voluntary civil penalty. Payment of the penalty shall be made in eighteen (18) monthly installments of seventeen (17) installments of Five Hundred Fifty Dollars ($550.00) and a final installment of Six Hundred Fifty Dollars ($650.00). The first installment payment shall be made within thirty (30) days after

publication and on the same date of the following seventeen (17) months. Publication shall occur on or about the 10th day following the month the CAO is executed. All payments shall be made payable to the Arkansas Department of Environmental Quality and mailed to the attention of:

Arkansas Department of Environmental Quality,
The Fiscal Division,
5301 Northshore Drive
North Little Rock, Arkansas 72118

10. All submittals required by this Order are subject to approval by ADEQ. In the event of any deficiency, the Permittee shall within fifteen (15) days of notification by ADEQ submit any additional information requested. Failure to adequately respond to the notice of deficiency within fifteen (15) days constitutes a failure to meet a deadline and is subject to the civil penalties established in paragraph 11 below.

11. Failure to meet the requirements of this Order including failure to respond by the time limits contained herein constitutes a violation of said Order. If the Permittee should fail to meet any such requirements or deadlines, the Permittee consents and agrees to pay, on demand, to ADEQ civil penalties according to the following schedule:

a.	First day through the tenth day:	$100.00 per day
b.	Eleventh day through the twentieth day:	$200.00 per day
c.	Twenty-first day through thirtieth day:	$300.00 per day
d.	Each day beyond the thirtieth day:	$500.00 per day

These stipulated penalties for delays in performance shall be in addition to any other remedies or sanctions which may be available to ADEQ by reason of the Permittee's failure to comply with the requirements of this Order.

12. If any event, including but not limited to an act of nature, occurs which causes or may cause a delay in the achievement of compliance by the Permittee with the requirements or deadlines of this Order, the Permittee shall so notify ADEQ, in writing, as soon as reasonably possible after it is apparent that a delay will result, but in no case after the due dates specified herein. The notification shall describe in detail the anticipated length of the delay, the precise cause of the delay, the measures being taken and to be taken to minimize the delay, and the timetable by which those measures will be implemented.

13. ADEQ may grant an extension of any provision of this Order, provided that the Permittee requests such an extension in writing and provided that the delay or anticipated delay has or will be caused by circumstances beyond the control of and without the fault of the Permittee. The time for performance may be extended for a reasonable period but in no event longer than the period of delay resulting from such circumstances. The burden of proving that any delay is caused by circumstances beyond the control of and without the fault of the Permittee and the length of the delay attributable to such circumstances shall rest with the Permittee. Failure to notify the ADEQ promptly, as provided in paragraph 12 of this section, shall be grounds for a denial of an extension.

14. This Order is subject to public review and comment in accordance with A.C.A. ' 8-4-103 (d) and Arkansas Pollution Control and Ecology Commission Regulation No. 8 and shall not be final until thirty (30) days after public notice is given. ADEQ retains the right to rescind this Order based upon the comments received within the thirty-day public comment period. Notwithstanding the public notice requirements, the corrective actions necessary to achieve compliance with the terms of the permit shall be taken immediately.

15. In accordance with Subsection 2.5.15 of APC&EC Regulation No. 8, the Request for Oral Argument in this matter is hereby withdrawn and no further Commission action is requested. However, as provided by Regulation No. 8, this matter is subject to being reopened upon Commission initiative or in the event a petition to set aside this CAO is granted by the Commission.

16. Nothing in this Order shall be construed as a waiver by ADEQ of its enforcement authority over alleged violations not specifically addressed herein. Also, this Order does not exonerate the Permittee from any past, present, or future conduct which is not expressly addressed herein, nor does it relieve the Permittee of its responsibilities for obtaining any necessary permits.

SO ORDERED THE 4th DAY OF June, 2008

Steve Martin for
Teresa Marks, Director

APPROVED AS TO FORM AND CONTENT:

BY: Cobar Contracting Inc by Sharon Tankersley
(Signature)

COBAR CONTRACTING, INC. BY SHARON TANKERSLEY
(Typed or printed name)

TITLE: VICE PRESIDENT
(Typed or printed title)

DATE: MAY 30, 2008

ARKANSAS POLLUTION CONTROL & ECOLOGY COMMISSION
101 EAST CAPITOL
SUITE 205
LITTLE ROCK, ARKANSAS 72201
PHONE: (501) 682-7890
FAX: (501) 682-7891

June 5, 2008

CERTIFIED MAIL 7007 1490 0003 3819 9719
Richard C. Downing, P.A.
PO Box 3585
801 W. Third St.
Little Rock, AR 72203

Jamie Ewing
Arkansas Department of
Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118

RE: In The Matter of Co-Bar Contracting, Elderidge Ranch Project, Docket No. 08-001-NOV

Dear Ms. Ewing and Mr. Downing:

On June 5, 2008 you filed a Consent Administrative Order ("CAO") in the above-referenced docket. Pursuant to Regulation No. 8, Section 2.5.15, the appeal has been withdrawn and no further action is required by the parties or administrative hearing officer in order to close this docket. Therefore, this docket is officially closed. However, the Commission may reopen the docket if it initiates a review of the CAO or if it grants a petition to set aside the CAO.

The administrative hearing officer will report this matter to the Commission at its next meeting, which is scheduled for Friday, June 27, 2008. Please contact me if you have any questions.

Respectfully,

Michael O'Malley

Michael O'Malley
Administrative Hearing Officer

ARKANSAS POLLUTION CONTROL & ECOLOGY COMMISSION
101 EAST CAPITOL
SUITE 205
LITTLE ROCK, ARKANSAS 72201
PHONE: (501) 682-7890
FAX: (501) 682-7891

June 11, 2008

CERTIFIED MAIL 7007 2560 0001 2212 9866
Troy Gaston
Walters, Gaston & Ridgley
Highway 10 Spur West
1405 W. Center, 3rd Floor
Greenwood, AR 72936

Dara Hall
Arkansas Department of
Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118

RE: In the Matter of B & J Coal Company; Docket No. 07-005-NOV

Dear Mr. Gaston and Mr. Hall:

On June 10, 2008 you filed a Consent Administrative Order ("CAO") in the above-referenced docket. Pursuant to Regulation No. 8, Section 2.5.15, the appeal has been withdrawn and no further action is required by the parties or administrative hearing officer in order to close this docket. Therefore, this docket is officially closed. However, the Commission may reopen the docket if it initiates a review of the CAO or if it grants a petition to set aside the CAO.

The administrative hearing officer will report this matter to the Commission at its next meeting, which is scheduled for Friday, June 27, 2008. Please contact me if you have any questions.

Respectfully,

Michael O'Malley

Michael O'Malley
Administrative Hearing Officer

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

IN THE MATTER OF:

B&J COAL COMPANY
1700 WOODS ROAD
HACKETT, AR

AFIN: 66-00443

LIS 08- 063

2008 JUN 10 PM 3:34

AR POLLUTION CONTROL & ECOLOGY COMMISSION

CONSENT ADMINISTRATIVE ORDER

This **CONSENT ADMINISTRATIVE ORDER ("CAO")** is issued pursuant to the authority of the Arkansas Surface Coal Mining and Reclamation Act of 1979 (Act 134 of 1979, as amended by Act 647 of 1979) and the regulations promulgated by the Arkansas Pollution Control and Ecology Commission including, but not limited to, Regulation No, 20: the Arkansas Surface Coal Mining and Reclamation Code; and Regulation No. 8: Administrative Procedures. The issues herein having been settled by the agreement of B&J Coal Company (hereinafter "Respondent") and the Director of the Arkansas Department of Environmental Quality (hereinafter "ADEQ"), it is hereby agreed and stipulated that the following **FINDINGS OF FACT** and **ORDER AND AGREEMENT** be entered herein.

FINDINGS OF FACT

1. On or about June 25, 2007, ADEQ conducted an inspection of Coal Mining Permit No. 0421-MC pursuant to the Arkansas Surface Coal Mining and Reclamation Code (ASCMRC), Regulation 20. The inspection revealed the following violations:

- Failure to maintain liability insurance. Violation of ASCMRC 800.60.
- Failure to conduct contemporaneous reclamation. Violation of ASCMRC 816.100.

2. On or about July 2, 2007, ADEQ issued Notice of Violation (NOV), TAG-002-07, 1 of 2, pursuant to ASCMRC Section 843.12 for: failure to maintain liability insurance in accordance with ASCMRC 800.60. The abatement date for NOV TAG-002-007, 1 of 2, was July 26, 2007.

3. On or about July 2, 2007, ADEQ issued Notice of Violation (NOV), TAG-002-07, 2 of 2, pursuant to ASCMRC Section 816.100 for: failure to conduct contemporaneous reclamation. The abatement date for NOV, TAG-002-07, 2 of 2 was July 26, 2007.

4. On or about July 2, 2007, the ADEQ Russellville Field Office notified the Respondent of NOV, TAG-002-07, 1 of 2, and 2 of 2 via certified mail. On or about July 17, 2007, the United States Postal Service (USPS) returned the certified mail to the ADEQ Russellville Field Office due to the failure of the Respondent to claim the certified mail.

5. On or about July 9, 2007, the ADEQ Main Office notified the Respondent of the NOV, TAG-002-07, 1 of 2, and 2 of 2 via certified mail. Additionally, the Respondent was also notified of its right to an Informal Public Hearing pursuant to ASCMRC Section 843.15; and notified of its right to a formal hearing under Section 29 of the ASCMRC.

6. The return receipt indicates delivery of the certified mail to the Respondent

occurred on July 10, 2007. ADEQ did not receive a request for hearing from the Respondent on the issuance of NOV, TAG-002-07 1 of 2, and 2 of 2.

7. On or about July 26, 2007, ADEQ inspected Permit No. 0421-MC to determine if NOV, TAG-002-07, 1 of 2, and 2 of 2 were abated by the permittee. The inspection revealed that NOV, TAG-002-07, 1 of 2, and 2 of 2 were not abated.

8. On or about August 3, 2007, ADEQ issued Cessation Order TAG-002-07 1 of 2, and 2 of 2 due to the failure of the Respondent to abate NOV TAG-002-07 1 of 2 and 2 of 2. ADEQ notified the Respondent of the issuance of Cessation Order, TAG-002-07 1 of 2, and 2 of 2 via certified mail.

9. On or about August 28, 2007, the Respondent requested an informal public hearing pursuant to ASCMRC Section 843.15.

10. On September 21, 2007, an Informal Public Hearing was held at the ADEQ Russellville Field Office with the Respondent (Mr. Johnny Johnson, Partner, B&J Coal Company, and his wife, Mrs. Johnson).

11. Also in attendance for ADEQ: MR. Wayne Van Buren, Geologist Supervisor, Coal Program, ADEQ Surface Mining & Reclamation Division; Mr. James Stephens, Chief, ADEQ Surface Mining & Reclamation Division; and Ms. Risa Parker, Enforcement Administrator, ADEQ Surface Mining & Reclamation Division. Ms. Parker served as the Informal Hearing Officer.

12. On October 9, 2007, the Respondent was notified of the Informal Hearing Officer's affirmation of the issuance of Cessation Orders TAG-002-07, 1 of 2 and 2 of 2. Additionally, pursuant to ASCMRC Section 845.15(b)(2), the combined civil penalty assessment for the Respondent's failure to abate Cessation Orders

TAG-002-07, 1 of 2 ($750 per day for 30 days=$22,500), and 2 of 2 ($750 per day for 30 days=$22,500) is $45,000.

ORDER AND AGREEMENT

WHEREFORE, the Respondent and ADEQ do hereby stipulate and agree:

1. By August 1, 2008, the Respondent shall have the soil/waste material of all non-vegetated pond embankments of Coal Mining Permit 0421-MC analyzed by an ADEQ Certified Laboratory to determine the acid content of the material.
2. By August 15, 2008, the Respondent shall disclose to ADEQ, in written format, the following information: sampling site name, sampling site location, depth of sampling point, and laboratory results for each non-vegetated pond embankment analyzed.
3. By August 1, 2008, the Respondent shall have the acid content of each impoundment present on Coal Mining Permit 0421-MC analyzed by an ADEQ Certified Laboratory.
4. By August 15, 2008, the Respondent shall disclose to ADEQ, in written format, the following information: sampling site name, sampling site location, depth of sampling point, and laboratory results for each impoundment analyzed.
5. By September 30, 2008, the Respondent shall submit for ADEQ approval, in written format, the lime loading rates which will be utilized to achieve and maintain the pH of each impoundment at the level required by Coal Mining Permit 0421-MC and the ASCMRC. The Respondent shall obtain written authorization from ADEQ of the lime loading rates and lime application methods prior to initiating reclamation activities.

7. The Respondent agrees and consents to voluntarily forfeit the bond in the amount of $16,000 dollars which the Respondent posted in favor of ADEQ to ensure reclamation of Coal Mining Permit 0421-MC so that the re-vegetation or other necessary work that is needed to complete the reclamation may be accomplished by ADEQ.

8. The Respondent agrees and consents to ADEQ that should the bond referenced in Paragraph 7 of the **ORDER AND AGREEMENT** be unavailable for forfeiture to ADEQ, that the Respondent will provide funds to ADEQ up to the amount of $16,000 dollars for ADEQ to complete reclamation of Coal Mining Permit 0421-MC in accordance with ASCMRC.

9. The civil penalty assessment of Twenty Two 'Thousand and Five Hundred dollars ($22,500.00) on the violation described in Paragraph 2 of the **FINDINGS OF FACT** is hereby waived by agreement of the Respondent and ADEQ.

10. The civil penalty assessment of Twenty Two 'Thousand and Five Hundred dollars ($22,500.00) on the violation described in Paragraph 3 of the **FINDINGS OF FACT** is hereby waived by agreement of the Respondent and ADEQ.

11. In compromise and full settlement of civil penalties for the violations described in Paragraph 3 of FINDINGS OF FACT the Respondent agrees to forfeit the bond referenced in paragraph 7 of the **FINDINGS OF FACT.**

12. The publication of this CAO shall occur on or about the l0th day of the month following the date this CAO is executed.

13. This CAO is subject to public review and comment in accordance with A.C.A. 58-4-103(d) and is therefore not final until thirty (30) days after public notice of the Order is given. The ADEQ retains the right and discretion to rescind this Order based on comments received within the thirty-day public comment period.

14. Failure to meet any requirement or deadline of this CAO constitutes a violation of said CAO. If the Respondent should fail to meet any such requirements or deadlines, the Respondent consents and agrees to pay on demand to the ADEQ, civil penalties according to the following schedule:

(A) First day through the tenth day: $100.00 per day

(B) Eleventh day through the twentieth day: $150.00 per day

(C) Twenty-first day through the thirtieth day: $200.00 per day

(D) Each day beyond the thirtieth day: $250.00 per day

These stipulated penalties for delay in performance shall be in addition to any other remedies or sanctions which may be available to the ADEQ by reason of the failure of the Respondent to comply with the requirements of this CAO.

15. If any event, including, but not limited to natural disasters, occurs which causes or may cause delay in achievement of compliance by the Respondent with the requirements or deadlines created by this CAO, it shall be the responsibility of the Respondent to notify ADEQ in writing, as soon as reasonably possible after it is apparent delay will result, but in no case after the due dates specified above. This notification shall describe in detail the anticipated length of the delay and the precise cause of the delay.

16. The ADEQ may grant an extension of any provisions of this CAO, provided that

the Respondent requests such an extension in writing and provided that the delay or anticipated delay has been or will be caused by circumstances beyond the control of the Respondent and without fault of the Respondent.

17. The time for performance may be extended for a reasonable period, but in no event longer than the period of delay resulting from such circumstances.

18. The burden of proving that any delay is caused by circumstances beyond the control of and without fault of the Respondent and the length of delay attributable to such circumstances shall rest with the Respondent. Failure to notify the ADEQ promptly, as provided in **PARAGRAPH 15** of the **ORDER AND AGREEMENT**, may be grounds for denying an extension.

19. As provided by APC&EC Regulation No. 8, this matter is subject to being re-opened upon Commission initiative or in the event, a petition, to set aside this CAO is granted by the Commission.

20. Nothing in the CAO shall be construed as a waiver by the ADEQ of its enforcement authority over violations not specifically addressed herein. In addition, this CAO does not purport in any way to relieve the Respondent of its responsibility for obtaining any necessary permits; nor does it exonerate the Respondent from any past, present, or future conduct which is not expressly addressed herein.

SO ORDERED this 4th day of June, 2008

Steve Martin
TERESA MARKS, DIRECTOR ADEQ

APPROVED AS TO FORM AND CONTENT:

B&J COAL ~~COMPANY~~

Troy Gaston (Signature)

Troy Gaston (Typed or printed name)

DATE: 6/4/08

ADEQ

ARKANSAS
Department of Environmental Quality

MEMORANDUM

To: Commission Members

From: Ryan Benefield, P.E., Chief, Hazardous Waste Division

Date: June 2, 2008

Subject: Permit Modifications Issued for the Month of May 2008

The following Permit Modifications were issued by the Technical Branch of the Hazardous Waste Division during the month of May 2008:

Permit Modifications

- Pine Bluff Arsenal Demilitarization 29H Class 1 Permit Modification (Clarification of Table for Metal Parts Furnance); approved May 9, 2008.
- Clean Harbors 10H Class 1 Permit Modification (Day Feed Tanks Containment Coating Replacement); approved May 2, 2008.
- Clean Harbors 10H Class 1 Permit Modification (Containment Coating Replacment for Tanks 201-204/Tanks 008-011); approved May 13, 2008.

From: Owen, Pamela
Sent: Tuesday, June 03, 2008 7:49 AM
To: Goff, Patricia (Commission)
Cc: Goff, Pat (Director Off); Bates, Mike
Subject: Commission Report Air Division Permits for May, 2008. Hard Copy to follow.

Commission Query					
FACILITY	**CSN**	**REQUESTS**	**PERMIT TYPE**	**PERMIT NUMBER**	**FINAL**
SWEPCO - Harry D. Mattison	7200695	MODIFICATION	TITLE V	2114-AOP-R2	05/15/2008
Arkansas Electric - John L. McClellan Generating Station	5200055	TITLE V RENEWAL	TITLE V	0181-AOP-R4	05/15/2008
CMC Joist and Deck	2900090	TITLE V RENEWAL	TITLE V	1092-AOP-R4	05/15/2008
Georgia-Pacific - Crossett Paper	0200013	MODIFICATION	TITLE V	0597-AOP-R12	05/15/2008
Associated Electric Coop - Dell Power Plant	4700448	MODIFICATION	TITLE V	1903-AOP-R6	05/19/2008
Firestone Tube Co.	5800012	DE MINIMIS	MINOR	0485-AR-4	05/19/2008
Acme Brick	3600004	TITLE V RENEWAL	TITLE V	1515-AOP-R3	05/19/2008
Virco Manufacturing	2300462	MODIFICATION	MINOR	1834-AR-3	05/20/2008
Owens Corning Composite Materials, LLC	6600294	MODIFICATION	TITLE V	0747-AOP-R2	05/22/2008
Gates Corporation	0400111	DE MINIMIS	MINOR	0378-AR-12	05/26/2008
Mueller Copper Tube Products	1900004	MINOR MOD	TITLE V	1027-AOP-R6	05/26/2008
D & D Properties	7000014	NEW	MINOR	2154-A	05/26/2008
Planters Cotton Oil Mill, Inc.	3500025	MODIFICATION	TITLE V	1427-AOP-R9	05/26/2008
Precision Packaging	6000985	MODIFICATION	MINOR	1127-AR-5	05/28/2008
Harvest Rice, Inc.	2100058	DE MINIMIS	MINOR	0735-AR-7	05/28/2008
North American Pipe Corporation	1700012	MODIFICATION	MINOR	1772-AR-2	05/28/2008
Potlatch - Cypress Bend	2100036	MINOR MOD	TITLE V	0271-AOP-R8	05/28/2008

ADEQ
ARKANSAS
Department of Environmental Quality

Memorandum

TO : **Arkansas Pollution Control and Ecology Commission**

FROM : **Bryan Leamons, Engineer Supervisor, Solid Waste Division**

DATE : **June 5, 2008**

SUBJECT : **Monthly Permit Decisions**

During May 2008, the Solid Waste Management Division issued the following permits:

Permit Number	Facility Name and Action	Effective Date
0087-STSW-SC	City of Ozark Transfer Station (TS) – Reissue General Permit	5/2/08
0299-S1	IESI Cherokee Village Class 1 LF – Minor Modification	5/2/08
0083-S4	IESI Cherokee Village Class 4 LF – Administrative Change	5/2/08
0032-SCYW-MC	City of Beebe Compost – Reissue General Permit	5/13/08
0002-STSW-SC	Dallas County SW Authority (TS) – Reissue General Permit	5/14/08
0099-STSW-SC	City of Manila (TS) – Reissue General Permit	5/20/08
0085-STSW-MC	Grant County (TS) – Reissue General Permit	5/20/08
0198-S1-R2	EMS Class 1 LF – Minor Modification	5/22/08
0284-S3N	Green Bay Packaging Class 3N – Administrative Change	5/23/08

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

TO: Commission Members

FROM: Steve Drown, Chief, Water Division SD

DATE: June 5, 2008

SUBJECT: Water Permits Issued During the Month of May

The following individual permits were issued by the Permits Branch of the Water Division during the month of May. In accordance with APC&EC Regulation No. 8, these individual permits became effective on or before June 1, 2008, unless public comments were received. If comments were received, those permits will become effective on or after July 1, 2008. In addition to the individual discharge permits, no-discharge permits, construction and industrial stormwater general permits, and individual general permits are also listed below.

Individual Discharge Permits

Permit Number	Facility Name	Permit Action	County
AR0001830	Green Bay Packing Inc.-Arkansas Kraft Division	modification	Conway
AR0021431	City of Dewitt	renewal	Arkansas
AR0033278C	City of Fort Smith-"P" Street WWTP	construction	Sebastian
AR0033430	Marked Tree Wastewater Treatment Facility	renewal	Poinsett
AR0033863	City of Harrisburg	renewal	Poinsett
AR0035491	City of Lamar	renewal	Johnson
AR0036536	City of Greenbrier	renewal	Faulkner
AR0036749	Arkadelphia Human Development Center	renewal	Clark
AR0042781	City of McDougal	renewal	Clay
AR0042927	Pulaski County Special School District - Auxiliary Service Facility	renewal	Pulaski
AR0046639	Benton County Stone Co., Inc.	renewal	Benton
AR0046680	City of Sulphur Rock	renewal	Independence
AR0049794	Halliburton Energy Services, Inc.	renewal	Hot Spring
AR0049859	City of Letona	renewal	White

NO-DISCHARGE PERMITS			
Permit Type: A = Agricultural B = Salt Water Disposal I = Industrial M = Municipal I = UIC Class I			
Permit No.	**Facility Name**	**County**	**Permit Type**
00033-WG-LA	Location Service, Inc.	Van Buren	I
00034-WG-LA	Location Service, Inc.	Pope	I
00039-WG-LA	SEECO, Inc.	Van Buren	I
00031-WG-LA	Location Service, Inc.	Conway	I
00036-WG-LA	Location Service, Inc.	White	I
00030-WG-LA	Location Service, Inc.	White	I
00035-WG-LA	Location Service, Inc.	Conway	I
00032-WG-LA	Location Service, Inc.	White	I
00041-WG-LA	Location Service, Inc.	White	I
00042-WG-LA	Location Service, Inc.	Faulkner	I
00045-WG-LA	Location Service, Inc.	White	I
4387-WG-CW-4	Ninar, LLC	Lonoke	I
00046-WG-LA	Location Service, Inc.	White	I
5014-W	Barnette & Sons, Inc.	Union	I
4958-W	L & G Operating, LLC	Columbia	I
0258-WG-SW-2	Jamie Oil, Inc.	Union	B
0717-WG-SW	Shuler Drilling	Lafayette	B
0463-WG-SW-1	ARKLATX Operating Company	Ouachita	B
0720-WG-SW	Marty Shelton, Inc.	Union	B
4166-WR-5	Benton County Foods, LLC	Benton	A

Stormwater Construction Permits			
Permit Number	**Permittee**	**Project Name**	**County**
ARR152648	City of Bentonville	SW 8th Street West Extension	Benton
ARR152653	Coco Mountain Development, LLC	Mountain Ranch	Washington
ARR152661	Mount Vernon Enola School District	Baseball Field	Faulkner
ARR152664	Rausch-Coleman Valley View, LLC	Highlands Square South	Washington
ARR152665	Tenaris Hickman L.P.	New Pipe Layout Area	Mississippi
ARR152666	500 Shady Grove, LLC	Country Club Place	Garland
ARR152668	Jimmy Sorrells of Sorrells Brothers, Inc.	Sorrells Hwy 35 Ministorage	Saline

Stormwater Construction Permits			
Permit Number	Permittee	Project Name	County
ARR152669	EWI Inc.	Talley Road Subdivision	Pulaski
ARR152670	Magnolia Regional Medical Center	Magnolia Replacement Hospital	Columbia
ARR152671	UHS of Springwoods, LLC	Springwoods Behavioral Health	Washington
ARR152672	Clayco Realty Group	Multi-Tenant Building No. 2, Arkansas Research Technology Park	Washington
ARR152673	FED LLC	Paradise Heights Estates	Baxter
ARR152674	Main Street Argenta, Inc.	Smarthouse Way Brownfields Site	Pulaski
ARR152675	Searcy AVIV, LLC	Byrd Haven Replacement Facility	White
ARR152676	BRT Development	Pleasant Hills Subdivision	Garland
ARR152677	A.H.T.D. - Construction Division	Denby Creek Str. & Apprs. (S)	Montgomery
ARR152678	A.H.T.D. - Construction Division	Hwy. 167 Bypass (Sheridan)(Gr.&Strs.)	Grant
ARR152679	A.H.T.D. - Construction Division	Rushing Road Extension (West Memphis)(S)	Crittenden
ARR152680	Crowley's Ridge Development Council	Brookvale Subdivision	Craighead
ARR152681	Entergy Transmission	Maumelle East 115 kV Transmission Line	Pulaski
ARR152682	Johnny Brock Excavating	Morris School Rd. Pit II	White
ARR152688	Russellville School District	RHS PAC and Science Center	Pope
ARR152690	Jim Benton	Air-tight Self Storage	Washington
ARR152692	New Life Tabernacle Church	New Life Tabernacle Church	Benton

Stormwater Industrial Permits		
Permit Number	Facility Name	County
ARR000379	Austin Ready Mix-Beebe	White
ARR00C400	Baxter County Newspapers, Inc.	Baxter
ARR000378	Bonds Excavating Enterprises Inc. - Cave Springs	Benton
ARR000381	Elkins Generating Station	Benton
ARR000382	Electrocraft Arkansas, Inc.	White
ARR000377	Section 13 Mine	Saline

Individual General Permits		
PmtNbr	Facility Name	County
ARG500039	Quality Rock, Inc.	Conway
ARG500040	Quality Rock, Inc.	White
ARG670456	DeSoto Gathering Company	Conway
ARG670457	DeSoto Gathering Company	Conway
ARG670458	DeSoto Gathering Company	Conway
ARG670459	DeSoto Gathering Company	Conway
ARG670460	Arkansas Midstream Gas Services Corp.	White

Individual General Permits		
PmtNbr	Facility Name	County
ARG670461	Arkansas Midstream Gas Services Corp.	White
ARG670462	Arkansas Midstream Gas Services Corp.	Faulkner
ARG670463	Arkansas Midstream Gas Services Corp.	White
ARG670464	Arkansas Midstream Gas Services Corp.	White
ARG670465	Arkansas Midstream Gas Services Corp.	White
ARG670466	Arkansas Midstream Gas Services Corp.	White
ARG670467	Arkansas Midstream Gas Services Corp.	Faulkner
ARG670468	CenterPoint Energy Gas Transmission	Pope
ARG670469	Natural Gas Pipeline Company of America LLC	Clark
ARG670470	Arkansas Western Gas	Benton
ARG670471	DeSoto Gathering Company	Van Buren
ARG670472	Arkansas Midstream Gas Services Corp.	Faulkner
ARG670473	Arkansas Midstream Gas Services Corporation	White
ARG670475	De Soto Gathering Company	Pope
ARG670476	Texas Eastern Transmission, LP	White

ADEQ
ARKANSAS
Department of Environmental Quality

MEMORANDUM

TO: Arkansas Pollution Control and Ecology Commission

FROM: James F. Stephens, Chief, Surface Mining and Reclamation Division

DATE: June 12, 2008

SUBJECT: Monthly Permit/Authorization Decisions

Since the last report, the Mining Division has issued the following permits/authorizations:

Non-Coal Mining Permit (New)

0673-MN	G Bar Construction	Howard County

Non-Coal Mining Permit (Renewal)

0375-MN-A5	Hanson Aggregates	Ouachita County

Quarry Authorization (Renewal)

0031-MQ-A1	Martin Marrietta Materials	Polk County

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY
SOLID WASTE DIVISION - RECYCLING & MARKETING BRANCH

MEMORANDUM:

TO: Pat Goff, Commissioners Office

FROM: ADEQ Tax Credit Program

DATE: 060908

SUBJECT: Monthly Report

Title of Company: Shred Smart, Inc.
Amount requested: $2,560.00
Amount approved: $768.00
Date approved: 051608

Title of Company: Shred Smart, Inc
Amount requested: $5,128.53
Amount approved: $1,538.56
Date approved: 051608

Title of Company: Goldman & Company, Inc.
Amount requested: $5,255.00
Amount approved: $1,576.50
Date approved: 051608

Title of Company: Hendren Plastics, Inc.
Amount requested: $69,500.00
Amount approved: $20,850.00
Date approved: 051408

Title of Company: CAPS Transport, Inc.
Amount requested: $8,913.10
Amount approved: $2,499.00
Date approved: 052308

Title of Company: Tri-State Iron $& Metal
Amount requested: $57,772.85
Amount approved: $17,331.86
Date approved: 060208

Title of Company: Methvin Sanitation, Inc.
Amount requested: $13,900.00

Amount approved: $4,170.00
Date approved: 060608

Title of Company: Methvin Sanitation, Inc.
Amount requested: $14,386.50
Amount approved: $4,315.95
Date approved: 060608

Title of Company: Methvin Sanitation, Inc.
Amount requested: $4,950.00
Amount approved: $1,485.00
Date approved: 060608