



STATE OF ARKANSAS
DEPARTMENT OF POLLUTION CONTROL & ECOLOGY

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July 20, 1998

Mr. Charles R. Nestrud
Chisenhall, Nestrud & Julian, P.A.
First Commercial Bank Building
400 West Capitol, Suite 2840
Little Rock, Arkansas 72201

Re: **El Dorado Chemical Company**
Consent Administrative Order
NPDES Permit No. AR0000752
EPA I.D. No. ARD001700657

Dear Chuck:

Enclosed is a final proposal for a Consent Administrative Order (CAO) to resolve the multimedia issues we have been discussing over the past few months regarding El Dorado Chemical Company. This proposal is offered for settlement purposes only and includes modifications made pursuant to EDC's comments on the June 6, 1998, version of the draft CAO which were included in your July 8, 1998, letter. ADPC&E appreciates your time and El Dorado Chemical's time along with the efforts of Woodward-Clyde to reach an agreement on these complex issues.

The following response is offered to explain how the CAO has been modified since the June 6, 1998, draft (Note: The numbers reference the comment numbers in your July 8, 1998, letter):

1. The language EDC requested for page 2, paragraph 1, line 3 was incorporated word for word.
2. After conferring with an EPA Drinking Water representative out of Washington, D.C., ADPC&E has elected to incorporate EDC's proposed language at page 4, paragraph 6, lines 3 and 5 with the minor change to include the words "primary drinking water standard." There is a secondary drinking water standard for sulfate. The remaining suggested language has been incorporated word for word.

3. The suggested language for page 4, paragraph 7, line 6 was incorporated word for word.

ADPC&E does not agree with EDC with regard to the second comment and suggested language for page 4, paragraph 7, line 9. CAO 95-070 clearly referenced Regulation 22, section 22.1205 (h) or (i) as being applicable. Section 22.1205 (h)(1) required EDC to use the MCL for nitrate. Although the suggested language was not added, the language EDC requested be deleted from this paragraph was deleted.

4. The first sentence of the language EDC requested for page 11, paragraph 23, line 4 was incorporated word for word. The wording of this paragraph was modified to acknowledge receipt of the revised plan submitted on July 9, 1998. However, ADPC&E has not had an opportunity to completely review the Revised Waste Minimization Plan. Furthermore, ADPC&E does not believe it is appropriate to officially approve or accept a plan in the Findings of Fact section of a CAO.
5. The language EDC requested for page 13, paragraphs (c) and (d) was incorporated word for word.
6. EDC requested paragraph 4 on pages 15 & 16 be deleted. Section A of paragraph 4 has been modified to more accurately reflect the intention behind CAO 95-070. There is no intent to duplicate work listed in paragraph 4 and paragraph 5 (which has also been modified). Section B of paragraph 4 has been deleted as requested by EDC.
7. Portions of the language EDC requested for paragraph 5 on page 16 were incorporated word for word while portions were paraphrased. However, ADPC&E does not agree to defer establishment of a groundwater protection standard. It is ADPC&E's position that there is already an MCL established for nitrates. The main difference conceptually here is that ADPC&E does not want to wait 5 years to evaluate the risk. The idea behind paragraphs 4 & 5 as written now is to go ahead and gather all the information needed to evaluate the risk which includes information on possible remediation.
8. EDC suggested deleting paragraph 6 on page 17. This paragraph required EDC to revise the Emergency Response Plan. ADPC&E received a revised plan on July 9, 1998, and the language of this paragraph will be revised to acknowledge that fact. However, ADPC&E has not yet completed its evaluation of the revision to insure that it complies with the requirements.

9. EDC suggested changing the first sentence of paragraph 7 on page 17 to approve the Revised Waste Minimization Plan and to delete the 2nd and 3rd sentences of this paragraph. Although ADPC&E received this revised plan on July 9, 1998, ADPC&E has not completed a full review of this document. However, the paragraph was revised to acknowledge receipt of the plan. Also, the first sentence of this paragraph is necessary for ADPC&E to officially make the determination that EDC failed to meet the performance standards for the BFS upgrade as required by CAO 95-070. This step is necessary so that ADPC&E may allow EDC to submit the Revised Waste Minimization Plan.

10. EDC suggested revising paragraph 8 on page 18 to reflect a total penalty for this CAO to be \$42,000 which has already been satisfied through the SEP for the emergency notification system in El Dorado. The June 6, 1998, draft proposed a \$188,700 penalty. However, \$125,000 of this amount is actually a carry over from CAO 95-070 which EDC can be credited for if EDC implements an ADPC&E approved Revised Waste Minimization Plan. In actuality, the June 6, 1998, draft only imposed an additional penalty of \$63,700. ADPC&E has reviewed the proposed penalty amount and for settlement purposes only is offering EDC this CAO which will impose an additional penalty of \$58,700 to the \$125,000 carry over from CAO 95-070. As we have already agreed, the \$42,000 SEP has already been satisfied. This leaves a remaining amount of \$16,700. ADPC&E has approved another SEP to the Mercury Task Force for EDC to receive \$15,000 credit with a final penalty payment due in the amount of \$1,700.

In addition to the changes identified above. ADPC&E has agreed to delete paragraph 12 on page 7 which is the basis for the reduction in the penalty amount.

Please review the CAO with your client and if in agreement, have it signed by the proper company official and return it to me no later than thirty (30) days from the date of this letter. I will forward the signed CAO to the Director and upon execution, we will return a copy to you with a public notice date.

Mr. Charles R. Nestrud
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Thank you for your attention to this matter. Should you have any questions or comments, feel free to contact me by telephone at (501) 682-0743 or by E-mail at jackson@adeq.state.ar.us.

Sincerely,



Nelson E. Jackson
Attorney

cc: Randall Mathis
Becky Keogh
Larry Wilson
Mike Bates
Chuck Bennett
David Brown
✓ Gerald Delavan
Marysia Jastrzebski
Art Riddle
Joe Williford

ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY

IN THE MATTER OF:

**EL DORADO CHEMICAL COMPANY
EL DORADO, ARKANSAS 71731-0231
EPA ID No. ARD001700657
NPDES PERMIT No. AR0000752**

LIS 98 -

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; A.C.A. § 8-4-101 et seq.), the Arkansas Hazardous Waste Management Act (Act 406 of 1979, as amended; A.C.A. §8-7-201 et seq.), the Arkansas Remedial Action Trust Fund Act, A.C.A. § 8-7-501 et seq. as amended, the Arkansas Pollution Control and Ecology Commission (hereinafter "APC&EC") Regulation 7: Civil Penalties, and APC&EC Regulation 23: Hazardous Waste Management (hereinafter "Regulation No. 23").

Pursuant to the authority of A.C.A. §8-4-207(1)(B), the Director of the Arkansas Department of Pollution Control & Ecology (hereinafter "ADPC&E") is authorized to set schedules of compliance for facilities permitted under the Arkansas Water Pollution Control Act necessary to assure compliance with both applicable state and federal effluent limitations.

The issues herein, as they pertain to the El Dorado Chemical Company, El Dorado, Union County, Arkansas (hereinafter "Respondent") having been settled by the agreement of the Respondent and ADPC&E, it is hereby agreed and stipulated by all parties that the Order and Agreement be entered herein. By entering into this Order, Respondent neither admits or denies the Findings of Fact or the existence of any alleged violation.

FINDINGS OF FACT

1. The Respondent's facility (hereinafter "facility"), located at 4500 North West Avenue in El Dorado, Union County, Arkansas, is a manufacturer of commercial chemical products.
2. In 1983 the Respondent acquired the facility from Monsanto Corporation. The facility was initially constructed in the early 1940's for the production of sulfuric acid, nitric acid, ammonium nitrate fertilizers, and industrial grade ammonium nitrate and has been manufacturing substantially the same products since that time. The Respondent's facility consists of nine (9) discrete manufacturing plants (the Sulfuric Acid Plant, the North and South Nitric Acid Concentrators, three Nitric Acid Plants, two Ammonium Nitrate Plants, and the UHDE Concentrated Nitric Acid Plant), the loading/unloading areas, and the tank storage areas.
3. The NPDES Permit, number AR000752 (hereinafter "NPDES Permit") was transferred to the Respondent in 1986. On May 31, 1990, the NPDES Permit was reissued to the Respondent to become effective July 1, 1990, with an expiration date of January 31, 1995. The NPDES Permit authorized discharge in accordance with the Arkansas Water and Air Pollution Control Act and the regulations promulgated thereunder. The NPDES Permit allowed the Respondent to have four (4) outfalls: Outfall 001 for treated process streams; Outfall 002 for excess process stormwater runoff; Outfall 003 for treated domestic wastewater; and Outfall 004 for excess stormwater runoff.

4. The Respondent submitted a Notice of Intent (NOI) dated December 7, 1992, for coverage under NPDES General Stormwater Permit ARR00A000 and ADPC&E granted the coverage by letter dated December 8, 1992. The facility was given tracking number ARR00B036 (hereinafter "Stormwater Permit"). The Stormwater Permit allows the Respondent to have three (3) stormwater outfalls: Outfall 005 receives stormwater from the south side of the plant including areas around the boiler house, along the entrance road for the facility, runoff from parking lots, runoff from areas surrounding administration buildings, and roof drains from maintenance shops; Outfall 006 receives stormwater runoff from the north side of the warehouse, boiler house, and a portion of the area where rail hopper cars are maintained; Outfall 007 receives stormwater from the north side of the plant including a salvage yard, scrap metal pile, a portion of hopper car cleaning operations, and nonindustrial runoff from a large wooded area. The Stormwater Permit requires periodic sampling of the stormwater from these outfalls.

5. From December 7, 1992, until present stormwater samples collected for Outfalls 005 and 007 have been taken from a location past the outfalls where the stormwater was commingling with off-site nonindustrial or other facility discharges prior to sampling in violation of the Stormwater Permit. In May of 1997, the Respondent proposed to ADPC&E a project to relocate Outfalls 005 and 007 (which includes Outfall 006), to add stormwater Outfalls 008 and 009, with the possibility of modifying Outfalls 006 through 009 into one outfall, Outfall 006.

6. Beginning at an unknown time but, known to be in existence on or about June 19, 1996, the Respondent has identified contamination of the shallow groundwater aquifer beneath the Respondent's property. A Phase II Groundwater Investigation was performed for the Respondent by Woodward-Clyde, hereafter referred to as (WC) and submitted to ADPC&E on June 19, 1996. This groundwater investigation report revealed nitrate

contaminated groundwater in and around the plant site, above the USEPA Safe Drinking Water Act Maximum Contaminant Level (MCL) of 10 mg/L in ten (10) of twenty-two (22) monitoring wells, with the highest observed nitrate concentration being 1,010 mg/L. There is no primary drinking water standard MCL for sulfate. Sulfate concentrations in excess of the proposed USEPA MCL of 500 mg/L were observed in five (5) of twenty-two monitoring wells, with the highest values observed being 809 mg/L. Concentrations of chromium and dissolved lead were less than the MCL of 0.05 mg/l adopted in Appendix III of Regulation 22 for hexavalent chromium and lead. Detected lead concentrations in groundwater were attributed to naturally occurring lead in the soils at the facility by WC.

7. In May of 1995, the Respondent entered into Consent Administrative Order No. 95-070 with ADPC&E (hereinafter "CAO 95-070") which became effective June 10, 1995. CAO 95-070 provided, among other items, that the Respondent would "undertake a monitoring program designed to assess the groundwater quality for the constituents nitrates, sulfates, lead, and chromium in the areas affected by the process wastewater treatment system, including Lake Lee, Lake Killdeer and the plant drain system; the area in which the nitric acid concentrator is located and all product loading and unloading areas." The Respondent completed this assessment. These areas were suspected to be sources of releases of nitrates, sulfates, lead and chromium to groundwater. Pursuant to CAO 95-070, the Respondent submitted a report entitled "Development of Risk-Based Target Monitoring Levels" to ADPC&E. As part of that effort, the Respondent characterized the wastewaters and stormwaters, and initiated a project to trace the extensive underground plant drain system from the source to its point of discharge. The Respondent has initiated dye testing of the plant drain system to identify the sources of each effluent stream, and to characterize the volume and constituents of the influent streams. As a result of this, the Respondent found and reported to ADPC&E that the underground plant drain system allows some process waters, under certain flow scenarios, to commingle with

stormwater in violation of both the NPDES Permit and the Stormwater Permit. These conditions were not identified in the Final Report entitled "Development of Risk-Based Target Monitoring Levels" dated February 1997, as contributing to surface and groundwater contamination that presents a risk of concern. That February 1997 report determined that the human health risks caused by the ground water contamination in and around the plant site were acceptable to a domestic water well located 4.7 miles down gradient from the Respondent's facility. As a result of a meeting on September 30, 1997 between ADPC&E and the Respondent, the Respondent revised this report to include the human health risk to a commercial water well located 1.3 miles down gradient. Water from commercial water wells is not generally used for drinking water. However, this closest commercial water well was evaluated as though it was used for drinking water. The revised report, dated December 1997, concluded that the estimated human health risks are acceptable for all receptor populations evaluated. However, due to the fact that surface and groundwater contamination was confirmed, the Respondent recommended a comprehensive evaluation of the plant wastewater and stormwater collection and treatment systems. The Respondent has completed and submitted to ADPC&E as part of the Final Report entitled "Addendum to Risk-Based Target Monitoring Levels" dated April 1997, an initial characterization of the wastewater streams.

8. Concurrently, the Respondent has been in discussions with the Water Division of ADPC&E regarding the reissuance of the NPDES Permit, which the Respondent and ADPC&E contemplate will include additional treatment component(s) for ammonia removal in addition to reviewing all effluent limits.

9. CAO 95-070 addressed certain NPDES compliance issues discovered during a March 21, 1994, inspection. In a letter dated May 20, 1994, to ADPC&E, the Respondent indicated that those issues were corrected. The Respondent has taken steps to eliminate any potential discrepancies in its sampling and reporting practices,

and since January 1, 1997, the Respondent has relied upon outside laboratories to generate its NPDES data (with the exception of pH, temperature, dissolved oxygen and flow which must be measured at the facility).

10. On May 5, 1997, the Respondent experienced a sodium hydroxide spill which was released from NPDES stormwater outfall 005 to surface waters of the State in violation of A.C.A. §8-4-217. The boiler house operator observed a leak of sodium hydroxide originating from a two (2) inch PVC pipe valve, located at or near the bottom of the feed vessel. The operator then allowed the sodium hydroxide to be released through a floor drain located inside the boiler house. As defined in APC&EC Regulation No. 23, §260.10, "generation" means the act or process which results in the production of waste materials. The operator mistakenly believed that the floor drain located inside the boiler house was connected by design to the on-site wastewater collection system and drained to the on-site day pond. The facility operators were prepared to respond to the sodium hydroxide release once it entered the on-site day pond. When the expected flow failed to materialize at the day pond, the facility operators began investigating other potential release points. This failure to accurately predict the on-site and eventual off-site release pathway is a violation of APC&EC Regulation 23 §265.31, which requires facilities to be maintained and operated to minimize the possibility of any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to soil or surface water which could threaten human health or the environment. As a consequence, the spilled sodium hydroxide was allowed to exit the site unimpeded at NPDES outfall 005, which discharges to surface water. The actual release to the surface water is defined as a violation of APC&EC Regulation 23 §2(d) engaging in hazardous waste management in such a manner or place as to create or as is likely to be created a public health hazard or to cause water or air pollution within the meaning of the Arkansas Water and Air Pollution Control Act.

11. The total amount of sodium hydroxide spilled was reported to be approximately two thousand three hundred (2300) gallons of 50% concentration. The Respondent engaged the services of HAZTECH, Inc., a hazardous materials emergency response team to assist in neutralizing the released material. Both ADPC&E and the Respondent monitored the pH of the receiving tributary during the response effort and reported pH ranging up to 12.5 s.u. indicating the pH of the material spilled was higher. Therefore, the spilled sodium hydroxide, which by the act of the operator, resulted in the production of a solid waste as defined in APC&EC Regulation No. 23, §261.2, and as a further consequence of that act a point of generation for a characteristic hazardous waste (D002) for corrosivity as defined in APC&EC Regulation No. 23, §261.3(a)(2)(I). A release, into the environment, of a hazardous substance with a pH equal to or greater than 12.5 s.u. constitutes a release of a characteristic hazardous waste, (D002) for corrosivity.

12. A fish kill occurred in an unnamed tributary to Flat Creek as a result of the sodium hydroxide spill. This is an unlawful action as defined by A.C.A. §8-4-217. However, ADPC&E inspectors observed fewer than 100 dead fish of eight (8) species.

13. On September 9, 1997, ADPC&E conducted a Hazardous Waste Compliance Evaluation Inspection (CEI) of the Respondent's facility. During that CEI the inspector identified other violations of APC&EC Regulation No. 23. The Respondent generates D002 characteristic hazardous waste at this facility during the production of sulfuric acid and nitric acid. A portion of the acid wastes generated are released into the environment. The remaining acid wastes are collected in a Resource Conservation and Recovery Act (RCRA) exempt treatment unit for elementary neutralization. These hazardous wastes are transported to the elementary neutralization unit via the 3rd Street sewer. A caustic solution is added to the acids at a point downstream from the 3rd Street sewer. The Respondent's 1996 Annual Report did not include the total amount of D002 characteristic

hazardous waste generated and treated on-site. The Respondent subsequently revised its Annual Report which was submitted to ADPC&E on September 26, 1997. However, this revised 1996 Annual Report did not include the total amount of D002 characteristic hazardous waste that was treated on-site in violation of Regulation 23, §262.41(e). The elementary neutralization is excluded from regulation in APC&EC Regulation No. 23 §265.1(c)(10) and 270.1(c)(2)(v). APC&EC Regulation No. 23 §261.4(a)(2) excludes from regulation, industrial wastewater discharges that are point source discharges subject to regulation under the Clean Water Act. The exclusion applies only to the discharge, it does not apply to the wastewaters while they are being collected, stored, or treated before the discharge. Therefore, these hazardous waste streams should be reported on the Annual Report. This reporting failure was also cited during the March 1994 CEI. The Respondent failed to report leaks and spills of D002 characteristic hazardous waste in its 1994 and 1995 Annual Reports.

14. Additionally, as noted in the CEI performed on September 9, 1997, a portion of the acid wastes generated on-site by the Respondent are released into the environment. The Respondent recorded the release of approximately 18,203 gallons of nitric acid and sulfuric acid in its 1996 spill control log. Between January 7, 1997 and August 28, 1997, approximately 2,107 gallons of nitric acid and sulfuric acid were spilled. The repeated occurrence of release at the Respondent's facility is indicative of the Respondent's failure to maintain the facility in a manner which minimizes the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment in violation of Regulation No. 23, §265.31.

15. In addition to the violations mentioned above, recent violations of the Respondent's NPDES permit as reported on the Discharge Monitoring Reports are as follows:

OUTFALL 002

<u>Date</u>	<u>Parameter</u>	<u>Limit</u>	<u>Reported</u>
2/97	pH	6 - 9 s.u.	2.6 s.u.

OUTFALL 003

<u>Date</u>	<u>Parameter</u>	<u>Limit</u>	<u>Reported</u>
4/97	NH3N Mo. Avg. Mass	2.1 lbs/day	4.67 lbs/day
	NH3N Daily max. Mass	3.3 lbs/day	9.26 lbs/day
	NH3N Mo. Avg.	15 mg/l	19.4 mg/l
	NH3N Daily max.	23 mg/l	38.7 mg/l

16. The Respondent notified ADPC&E by letter dated May 21, 1997, to Ms. Orene Robertson, that the microorganisms in the treatment pond had been replaced. That letter further stated that the results of samples taken on April 3, 1997, indicated that the NH3-N concentration was back down below permitted levels

17. The Respondent also reported the following NPDES violations on the Discharge Monitoring Reports:

OUTFALL 001

<u>Date</u>	<u>Parameter</u>	<u>Limit</u>	<u>Reported</u>
10/97	Nitrogen, Nitrate	2043 lbs/day (30-day)	2079 lbs/day (30-day)
11/97	Nitrogen, Ammonia	1852 lbs/day (30-day)	2126 lbs/day (30-day)
11/97	Nitrogen, Nitrate	2043 lbs/day (30-day)	3019 lbs/day (30-day)
11/97	Nitrogen, Nitrate	4160 lbs/day (daily max.)	5302 lbs/day (daily max.)

18. The Respondent notified ADPC&E by letter dated December 16, 1997 to the NPDES Enforcement Section that the flow rate had been reduced by over 50% and more denitrification microorganisms were added. The Respondent stated that it believed the violations were a result of a seasonal pond turn over and that more analytical work indicated that there was lost efficiency in the denitrification microorganisms during the pond turn over and due to the drop in pond temperature.

19. In CAO 95-070 the Respondent agreed to pay a civil penalty of \$150,000. That civil penalty was to consist of a \$25,000 cash payment and an obligation to perform environmentally beneficial Supplemental Environmental Projects (SEPs) with a value of \$125,000. The Respondent paid the \$25,000 cash payment and initiated steps as outlined in CAO 95-070 for the SEPs. The SEPs were to include performance standards of a 25% reduction of sulfates in the facility's wastewater effluent and a 50% reduction in the usage of sulfuric acid in the Boiler Feed System (BFS) which was to be supported by written documentation. CAO 95-070 also stated that in the event ADPC&E determines that the Respondent failed to meet the performance standards the Respondent would receive no credit, or as determined solely by ADPC&E, a partial reduced credit toward offsetting the \$125,000 SEPs obligation of the civil penalty. CAO 95-070 further provided that in the event ADPC&E determined that the Respondent failed to meet one or both of the performance standards, the Respondent would upon written notification by ADPC&E provide written certification to ADPC&E that the Respondent has a Waste Minimization "program in place" for the facility's operations.

20. The wastewater effluent from the BFS commingles with wastewater and stormwater runoff and exits the Respondent's facility at Outfall 001. The Respondent did report total sulfates on the Discharge Monitoring Reports (DMRs) for Outfall 001 each month during the period in question. The DMRs indicate that there was no apparent reduction of sulfates in the facility's wastewater effluent. On or about March 26, 1998, the

Respondent further reported an 8.3% reduction in the usage of sulfuric acid in the BFS. The Respondent and ADPC&E agree that the Respondent failed to meet the required performance standards specified in CAO 95-070 and should receive no credit toward the obligation to perform a SEP for the BFS upgrade.

21. The Respondent submitted a Waste Minimization Plan to ADPC&E on June 26, 1997. However, upon review of the Waste Minimization Plan initially submitted, it appeared that the plan did not contain any additional time and resources to be spent by the Respondent and did not address all the hazardous waste generated. In particular the Waste Minimization Plan did not address the hazardous waste generated by the leaks and spills of sulfuric and nitric acids.

22. On September 30, 1997, ADPC&E and the Respondent met to discuss, among other things, the issues surrounding the July 1997 Waste Minimization Plan submittal. As a result of this conversation the Respondent revised the Waste Minimization Plan to include the leaks and spills of sulfuric and nitric acids. That revised Waste Minimization Plan was submitted to ADPC&E on December 11, 1997. Additional comments were provided by ADPC&E on June 5, 1998, and responses to these comments were submitted on July 8, 1998, along with a newly Revised Waste Minimization Plan.

ORDER AND AGREEMENT

Therefore, the parties do hereby stipulate and agree:

1. This Order shall supersede CAO 95-070 in its entirety, and CAO 95-070 shall no longer be effective upon the effective date of this Order. However, there is no intent by the parties to duplicate the work required by

CAO 95-070. Any work required by this Order which has already been accomplished by the Respondent may be deemed satisfaction of that requirement of this Order provided the requirement has been approved in writing by ADPC&E.

2. The Respondent shall complete a comprehensive evaluation of all plant processes which contribute to the wastewater and stormwater effluent and undertake a facility-wide wastewater evaluation and pollutant source control program and wastewater minimization program consisting of the following milestone components:

(a) The Respondent shall complete dye testing of the plant drain system to identify the sources of each effluent stream, and to characterize the volume and constituents of the influent streams.

(b) Upon completion of the source control activities, the Respondent shall characterize the flow and constituents of the various wastewater and stormwater streams and compare the results to applicable water quality criteria. At a minimum this characterization shall be in accordance with Attachment "A."

(c) The Respondent is authorized to modify Stormwater Outfalls 006 through 009 for the purpose of reducing the number of sampling locations. Stormwater runoff from areas which drain to new Stormwater Outfalls 007, 008, and 009 may be redirected to existing Stormwater Outfall 006. The runoff will be rerouted along the railroad tracks, prior to commingling with non-industrial runoff. With this modification, stormwater discharges from the northern portions of the facility will drain to Stormwater Outfall 006. All other industrial runoff will be monitored at Stormwater Outfall 005. After these modifications, sampling of Stormwater Outfall 006 will be re-initiated, and the facility

SWPPP will be modified to reflect the changes to the facility.

(d) In addition to the monitoring requirements imposed by the Stormwater and NPDES permits, the Respondent shall also monitor and report the effluent characteristics as set forth in Attachment "A" during the Wastewater Characterization Study.

(e) On or before August 1, 1999, the Respondent shall submit a Final Report of the Wastewater Characterization and Water Quality Evaluation to ADPC&E. This Final Report shall include an engineering drawing of the plant drain system and the influent sources, the results of the wastewater and stormwater characterization, and water quality evaluation.

(f) The Respondent shall initiate an engineering evaluation of the treatment alternatives, and conduct such pilot plant testing as may be appropriate. ADPC&E and the Respondent agree to work cooperatively throughout this project and to exchange information to enable the Respondent's planning efforts to proceed so that an NPDES permit application may be completed.

(g) On or before August 1, 1999, the Respondent shall submit a technically complete revised NPDES permit application to ADPC&E.

(h) ADPC&E shall evaluate the revised NPDES permit application and shall make every effort to issue a draft NPDES permit as soon as possible with appropriate effluent limits. It is contemplated that it will take at least 60 days from the date a complete NPDES permit application is received by ADPC&E to issue a draft NPDES permit. Due to the fact that there are several factors beyond

ADPC&E's control regarding the issuance of a final permit, (i.e., public comments, facility comments, requests for hearing, etc.), ADPC&E cannot commit to issue a final NPDES permit. ADPC&E shall follow the procedures outlined in APC&EC Regulation 8 and shall make every effort to expedite the process where possible. However, it is contemplated that it will take approximately 60 days from the date of issuance of a draft NPDES permit to issue a final NPDES permit for this facility.

(i) The Respondent shall submit final design plans for the additional wastewater treatment component(s) to ADPC&E for approval on or before August 1, 2000. The final design shall include plans to either line Lake Lee to meet a hydraulic conductivity standard of 1.0×10^{-7} cm/sec or to close Lake Lee within 180 days after the substitute treatment/neutralization system is in place.

(j) The Respondent shall construct and have operational the additional treatment system component(s) on or before August 1, 2001.

(k) The Respondent shall be in compliance with final effluent limits of the applicable NPDES permit on or before February 1, 2002.

(l) The Respondent shall submit quarterly reports of its progress in completing this project to the NPDES Enforcement Section of the Water Division. The first report shall be due on or before July 15, 1998, and subsequent reports shall be due on or before the 15th day of the month following the end of each subsequent calendar quarter until the Respondent has achieved compliance with the final effluent limits for six (6) consecutive months. The quarterly reports shall identify the work completed during the prior quarter and the results achieved, the work planned for the coming quarter, and a

projected schedule for completion of the project.

3. Until final agency decision regarding the issuance of the revised NPDES permit, the Respondent shall comply with the terms and conditions of the NPDES permit which became effective July 1, 1990.

4. In response to ADPC&E's concerns about contaminated groundwater beneath the EDC Plant site, the Respondent shall conduct the activities identified below within sixty (60) days of the effective date of this Order or as otherwise indicated herein:

(a) In accordance with ADPC&E Reg. 22.1205(g)(1)(i) the Respondent shall characterize the nature and extent of releases of nitrates into groundwater by installing additional monitoring wells as necessary to determine whether nitrate contaminated groundwater has migrated beyond the Respondent's property boundaries. If additional monitoring indicates nitrate concentrations in groundwater are above the established Maximum Concentration Levels found in the Primary and Secondary Drinking Water Regulations of the Safe Drinking Water Act (MCL's), and are found to be beyond the Respondent's property boundaries, the Respondent shall determine the exact nature, extent, location and concentration of the nitrate contamination offsite, by whatever means necessary, which may include the installation of additional monitoring wells beyond EDC property boundaries. The Respondent shall submit a work plan for additional offsite groundwater monitoring and assessment activities to the ADPC&E for review and approval within thirty (30) days of the effective date of this Order. This workplan shall include a schedule of significant dates for installing wells, sampling groundwater and submission of sample analysis to the ADPC&E. The Respondent shall implement the approved monitoring and assessment activities workplan within thirty (30) days of

receipt of written approval from ADPC&E. The Respondent shall notify the ADPC&E Water Division at least one week in advance of taking any groundwater samples from newly installed groundwater monitoring wells offsite and shall, upon request from ADPC&E, assist ADPC&E in obtaining split samples for analysis.

(b) If ADPC&E determines groundwater contamination has occurred beyond the EDC property boundaries above the established MCL's, in accordance with Reg. 22.1205(g)(1)(iii) the Respondent must notify all persons who own land or reside on the land that directly overlies any part of the plume of groundwater contamination.

(c) If ADPC&E determines groundwater contamination has occurred beyond the EDC property boundaries above the established MCL's, the Respondent shall notify and/or submit documentation to the ADPC&E summarizing the data collected pursuant to paragraph 4(a) above, and according to the approved schedule. In accordance with Reg. 22.1205(g)(1)(iv) the Respondent shall initiate an assessment of corrective measures as required by §22.1206(a) within 90 days of the date the ADPC&E is notified or receives the sample analysis. In accordance with §22.1206(c) the Corrective Measures Assessment shall include an analysis of the effectiveness of potential corrective measures in meeting all requirements and objectives of the remedy described under §22.1207; Selection of Remedy.

(d) In accordance with the requirements of §22.1207; Selection of Remedy, the Respondent, based on the results of the Corrective Measures Assessment conducted under §22.1206, shall select a remedy that at a minimum meets the standards listed in §22.1207(b). Selection criteria - remedies must: 1) be protective of human health and the environment; 2) attain the established MCL's for nitrates and/or

any other contaminants identified by groundwater sampling off EDC Property boundaries; and 3) control the source(s) of releases to reduce or eliminate, to the maximum extent practical, any further releases of contaminants to groundwater that may pose a threat to human health and/or the environment. The Respondent, in evaluating selection of a remedy and developing a schedule under §22.1207(b) shall consider the evaluation factors listed in §22.1207(c)(1) through §22.1207(d)(8). The Respondent may elect to utilize the work previously submitted in the Development of Risk-Based Target Monitoring Levels (RBTML) Document to evaluate the factors of §22.1207(c)(1) through §22.1207(d)(8) that are associated with potential risks to human health and the environment from releases of contaminants. However, if the information contained in the RBTML Document is to be utilized, the Respondent must at a minimum address all of the deficiencies, comments and concerns expressed by the Hazardous Waste Division in the memo drafted by Tammy Hynum dated April 6, 1998 beginning on page 2, as attached hereto as Attachment "B."

(e) In accordance with §22.1207(e) the ADPC&E Director may determine remediation of known contaminants in groundwater in and around the EDC plant site is not necessary upon completion by the Respondent of the Selection of Remedy process. The Director's decision shall be based on ADPC&E's review of the Selection of Remedy documentation and/or any other information presented by the Respondent in fulfillment of the terms and conditions of this Order. In the event the ADPC&E Director makes a determination that remediation of groundwater is unnecessary, the ADPC&E Director shall reserve the right to reevaluate this determination based upon additional monitoring data collected pursuant to this Order. If the ADPC&E Director determines remedial action for contaminated groundwater is warranted, the Respondent shall proceed with Implementation of the Corrective Action Program under §22.1208.

5. In order to effectively monitor and track groundwater contamination in and around the EDC plant site, the Respondent shall within 90 days of the effective date of this Order, submit to ADPC&E, for review and approval a groundwater monitoring and sampling plan for nitrates, sulfates, chromium and lead. The Respondent may utilize any applicable portions of the proposed five year groundwater monitoring plan to satisfy this requirement. However, this plan shall include a time line of significant events, a milestone schedule of specific dates and a schedule for reporting frequency. The groundwater monitoring program shall be designed to evaluate the concentrations of nitrate, sulfate, chromium and lead in any plume migrating offsite. Upon approval by ADPC&E, the Respondent shall carry out the monitoring plan and the milestone dates shall be incorporated into this Order as if set forth word for word. As a part of this monitoring program, the Respondent shall submit quarterly and annual reports for each year the monitoring program is continued. The quarterly reports shall be due on the 25th day of the month following the previous monitoring quarter. The annual reports shall be due on or before March 1st for the previous year. Both the quarterly and annual reports shall at a minimum contain the following:

- A) a site map showing locations of all monitoring wells sampled,
- B) the results of all monitoring conducted, and
- C) site maps showing the location and concentration of known contaminate plumes.

ADPC&E reserves the right to extend the length of time designated for sampling monitoring wells, modify the constituents sampled for, modify the sampling frequency and/or change well sampling locations to address changes in circumstances and assist in the evaluation process.

6. On July 9, 1998, the Respondent submitted a revised Emergency Response Plan to ADPC&E to address the comments raised in Penny Wilson's review of the plan dated June 8, 1998, as attached hereto as Attachment "C." ADPC&E has not completed its review of this plan to insure that it addresses all the issues properly and this plan shall be subject to the requirements of paragraph 10.

7. By this Order, ADPC&E hereby makes the determination that the Respondent failed to meet the performance standards as set forth in CAO 95-070 for the BFS upgrade and ADPC&E hereby provides written notification to the Respondent to submit a second revised Waste Minimization Plan to the Hazardous Waste Division of ADPC&E. The revised Waste Minimization Plan shall include an implementation and milestone schedule for the performance of all waste minimization recommendations provided for in the plan and shall at a minimum address the issues raised in Penny Wilson's review of the plan dated June 5, 1998, as attached hereto as Attachment "D." The Respondent submitted a Revised Waste Minimization Plan on July 9, 1998. However, ADPC&E has not completed its review of this plan to insure that it addresses all the issues properly. The revised plan recommendations and schedule of implementation shall be subject to the requirements of paragraph 10 below. The Respondent shall receive up to \$25,000 per year credit, up to the \$125,000 total for implementing any work conducted after January 1, 1998, in furtherance of an approved revised Waste Minimization Plan or approved portion of the Plan. The Respondent must submit documentation of its expenditures for the Waste Minimization Plan on or before January 30th of each year for the previous year's activities. In the event the Respondent is not able to document \$25,000 in expenditures, the Respondent shall pay the remainder of the \$25,000 for that year as a civil penalty.

8. In compromise and full settlement of the violations specified in the Findings of Fact, Respondent agrees to pay a civil penalty of One Hundred Eighty-three-ThousandSeven-HundredDollars (\$183,700). In addition to the terms as set forth in paragraph 7 above, the Respondent shall satisfy a portion of this civil penalty in the form of Supplemental Environmental Projects (SEPs) approved in writing by ADPC&E.

(a) ADPC&E hereby approves a SEP in the amount of Forty-two Thousand Dollars (\$42,000) for an emergency notification system for the El Dorado 911 Center. This SEP has already been satisfied. The Respondent shall receive credit in the amount of Forty-two Thousand Dollars (\$42,000) toward payment of the civil penalty agreed upon in this Order; and

(b) ADPC&E hereby approves a SEP in the amount of Fifteen Thousand Dollars (\$15,000) for the Mercury Task Force made payable to the Arkansas Game and Fish Foundation.

Both the remaining civil penalty amount and the SEP payments are due within ninety (90) days of the effective date of this Order and shall be mailed by certified mail or hand delivered to:

Arkansas Department of Pollution Control & Ecology
Attn: Al Eckert, Legal Division Chief
8001 National Drive
P.O. Box 8913
Little Rock, Arkansas 72219-8913.

In the event that Respondent fails to pay the remaining civil penalty amount or the SEP payments within the prescribed time, ADPC&E shall be entitled to attorneys fees and costs of collection in addition to the stipulated penalties listed in paragraph 11.

9. All submittals required by paragraph 2 of the Order and Agreement shall be submitted by Certified Mail

or hand delivered to Art Riddle, NPDES Enforcement Supervisor, Water Division, ADPC&E, 8001 National Drive, P.O. Box 8913, Little Rock, Arkansas 72219-8913 with copies for David Brown, Enforcement Coordinator, Hazardous Waste Division and Gerald Delavan, Senior Geologist Water Division. The submittals required by paragraphs 4 and 5 of the Order and Agreement shall be submitted by Certified Mail or hand delivered to Gerald Delavan with copies to Art Riddle and David Brown. The submittals required by paragraphs 6 and 7 of the Order and Agreement shall be submitted by Certified Mail or hand delivered to David Brown with copies to Art Riddle and Gerald Delavan.

10. All requirements by the Order and Agreement are subject to approval by ADPC&E. In the event of any deficiencies, Respondent shall, within thirty (30) days of the receipt of written notification by ADPC&E, submit any additional information or changes requested, or take additional actions as specified by ADPC&E. Failure to adequately respond to the notice of deficiency within thirty (30) days constitutes a failure to meet a deadline and subjects Respondent to the civil penalties established in paragraph 11 below, provided that such notice clearly declares that failure to respond within thirty (30) days of receipt is a failure to meet requirements established by this Order.

11. If Respondent fails to submit to ADPC&E any reports or plans, or meet any other requirement of this Order within the applicable deadline established in the Order, the Respondent agrees to pay penalties for delay in the following amounts:

- a. First day through the tenth day: \$500.00/day;
- b. Eleventh day through the twentieth day: \$750.00/day;
- c. Twenty-first day through the thirtieth day: \$1,000.00/day; and
- d. Each day beyond the thirtieth day: \$2,500.00/day.

These stipulated penalties may be imposed for delay in scheduled performance and shall be in addition to any other remedies or sanctions which may be available to ADPC&E by reason of Respondent's failure to comply with the requirements of this Order. ADPC&E reserves its right to collect other penalties and fines pursuant to its enforcement authority in lieu of the stipulated penalties set forth above.

12. If any event causes or may cause delay in the achievement of compliance by Respondent with the requirements of this Order, Respondent shall notify ADPC&E, in writing, as soon as reasonably possible after it is apparent that a delay will result, but in no case after the deadline has passed. The written notice shall describe in detail the anticipated length of delay, the precise cause of delay, the measures taken and to be taken to minimize the delay, and the timetable by which those measures are implemented.

13. The ADPC&E may grant a written extension of any provision of this Order, provided that Respondent requested such an extension in writing and provided that the delay or anticipated delay has been caused by circumstances beyond the control of and without the fault of Respondent. 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 fault of Respondent and the length of delay attributable to such circumstances shall rest with Respondent. Failure to notify ADPC&E promptly, as provided in paragraph 12 above, shall be sufficient grounds for denying an extension.

14. Nothing contained in this Order shall be construed as a waiver of ADPC&E's enforcement authority over alleged violations not specifically addressed herein; nor does this Order exonerate past, present, or future conduct which is not expressly addressed herein. Nothing contained herein shall relieve Respondent of any

other obligations imposed by any local, state, or federal laws, nor shall this Order be deemed in any way to relieve Respondent of its responsibilities for obtaining or complying with any necessary permits or licenses.

15. This Order is subject to public review and comment in accordance with A.C.A. § 8-4-103(d) and is therefore not effective until thirty (30) days after public notice of the Order is given. ADPC&E retains the right and discretion to rescind this Order based on comments received within the thirty-day public comment period or based on any other considerations which may subsequently come to light.

SO ORDERED THIS _____ DAY OF _____, 1998.

RANDALL MATHIS
DIRECTOR

APPROVED AS TO FORM AND CONTENT;
EL DORADO CHEMICAL COMPANY

BY: _____
(Signature)

(Typed or Printed Name)

TITLE: _____

DATE: _____

ATTACHMENT "A"

Outfall 001-treated process streams:

Monitor and report quarterly for:

Cadmium, Total*
Chromium, Hex*
Copper, Total*
Lead, Total*
Mercury, Total*
Nickel, Total*
Selenium, Total*
Silver, Total*
Zinc, Total*
Cyanide*
Chloride

Outfall 004-stormwater from ammonium nitrate area:

Monitor and report quarterly for:

Nitrate Nitrogen
Cadmium, Total*
Chromium, Hex*
Copper, Total*
Lead, Total*
Mercury, Total*
Nickel, Total*
Selenium, Total*
Silver, Total*
Zinc, Total*
Cyanide*
Chlorides
Sulfates

Acute Biomonitoring (follow requirements of general permit ARR00A000, Part 5.C.1 and 2)

All other outfalls which include stormwater:

At least three (3) representative samples during the conditions necessary to perform the waste characterization and at a minimum monitor for:

Ammonia Nitrogen

Nitrate Nitrogen

Cadmium, Total*

Chromium, Hex*

Copper, Total*

Lead, Total*

Mercury, Total*

Nickel, Total*

Selenium, Total*

Silver, Total*

Zinc, Total*

Cyanide*

Chlorides

Sulfates

Acute Biomonitoring (follow requirements of general permit ARR00A000, Part 5.C.1 and 2.)

Influent to Lake Kildeer:

At least two (2) representative samples during the conditions necessary to perform the waste characterization and at a minimum monitor for:

pH

Ammonia Nitrogen

Nitrate Nitrogen

Cadmium, Total*

Chromium, Hex*

Copper, Total*

Lead, Total*

Mercury, Total*

Nickel, Total*

Selenium, Total*

Silver, Total*

Zinc, Total*

Cyanide*

Chloride

Sulfates

Chronic Biomonitoring (follow requirements of Part III, Section 8 of NPDES Permit No. AR000752)

- * If any individual analytical test results is less than the minimum quantification level (MQL) listed below, a value of zero (0) may be used for that individual result for the Discharge Monitoring report (DMR) calculations and reporting requirements.

Pollutant	EPA Method	MQL (µg/l)
Cadmium	213.2	1
Chromium H	218.4	10
Copper	220.2	10
Lead	239.2	5
Mercury	245.1	0.2
Nickel	200.7	40
Selenium	270.2	5
Silver	272.2	2
Zinc	200.7	20
Cyanide	335.2	10

The permittee may develop a matrix specific method detection limit (MDL) in accordance with Appendix B of 40 CFR Part 136. For any pollutant for which the permittee determines a site specific MDL, the permittee shall send to ADPC&E, NPDES Permits Branch, a report containing QA/QC documentation, analytical results, and calculations necessary to demonstrate that a site specific MDL was correctly calculated. A site specific minimum quantification level (MQL) shall be determined in accordance with the following calculation:

$$\text{MQL} = 3.3 \times \text{MDL}$$

Upon written approval by the NPDES Permits Branch, the site specific MQL may be utilized by the permittee for all future Discharge Monitoring Report (DMR) calculations and reporting requirements.

ATTACHMENT "B"

ARKANSAS DEPARTMENT OF POLLUTION CONTROL & ECOLOGY

MEMORANDUM

TO : Gerald Delavan, Senior Geologist, Water Division

FROM : Tammie J. Hynum, Toxicologist, Haz. Waste Division ~~SH~~

DATE : April 6, 1998

SUBJECT : "Development of Risk-Based Target Monitoring Levels" for El Dorado Chemical Company, El Dorado, Arkansas

=====
This memorandum is in response to your written request dated March 26, 1998 for technical assistance in reviewing the subject report for El Dorado Chemical Company (EDC). This memorandum will attempt to answer the questions posed in your request and provide a list of concerns based on a review of the report.

"According to section (h), because MCLs for the constituents of concern (nitrates, sulfates, lead, zinc) have already been established under the SDWA, EDC does not have an option of developing alternate groundwater protection standards (GWPS) as stated in section (i)." I agree with the statement EDC does not have the option of developing alternate GWPS according to Regulation 22, Section 1205 (i). What EDC can do is follow 1205 (h)(3), which states for constituents for which the background level is higher than the MCL identified under subparagraph (h)(1) of this section, the background concentration can become the GWPS. However, "background" as used in 1205 (h)(3) must be established appropriately and effectively. In discussing this issue of "background" with several co-workers, it has been determined compliance with this subparagraph would indicate EDC has adequately placed their wells and conducted quarterly sampling for a 12 month period. Based on validation and review of this data, a true representative background number for said constituent could be established.

"EDC used section (i) and the EPA protocols listed therein to develop the risk assessment." The report does discuss development of an alternative groundwater protection standard. However, it is mentioned several times throughout the report EDC opted to use the MCL for nitrate in establishing their Target Monitoring Level (TML).

"Have they utilized the proper section of Regulation 22 for implementation of the RA and have they generated the RA by considering all the necessary factors referenced in Regulation 22, 1207(c)?" The section of the CAO provided mandated EDC undertake a monitoring program designed to assess the groundwater quality for the constituents nitrates, sulfates, lead, and chromium in several impacted areas onsite. EDC was to submit a groundwater monitoring work plan describing said monitoring plan. In the event the results of the monitoring plan demonstrate a release of constituents to the groundwater which exceed background, EDC was to establish GWPS pursuant to Section 1205(h) or (i) of Regulation 22. Then, if indicated, EDC shall undertake an Assessment of Corrective Measures, Selection of Remedy and Implementation of the Corrective Action Program (Section 1206, 1207, and 1208). If my understanding of the CAO is correct, EDC is following the phased approach discussed in the CAO. They have attempted to establish GWPS and the next step would be, if indicated, to move into the areas defined in 1206, etc. In reviewing this subject report, it seems EDC is justifying a continuing groundwater monitoring program in lieu of corrective measures.

"Is the RA itself properly prepared and presented? Do the conclusions match the known groundwater data?" The risk assessment report may be prepared according to the approved plan (October 1996) referenced in the introduction. However, the approved plan, which I have not seen or reviewed, may not conform to the typical risk assessment standards the HWD follows. Regulation 22 requires the GWPS be determined for Appendix II constituents unless approval is given. Nitrates were the only constituent assessed. The CAO at least suggested nitrates, sulfates, lead, and chromium. Again, the approved plan may allow for nitrates only being evaluated, but this is an unknown at this time to me. It is impossible to answer whether the conclusions match the known groundwater data because the complete data package was not submitted as part of this report.

The following bullet points outline the concerns based on the review of this report (note: this review is based on typical risk assessment standards followed by the HWD):

Executive Summary

- ▶ Page ES-1, third paragraph: Risk assessment like procedures were utilized in this report, but the report discusses the results of the TML established for nitrates. This paragraph indicates this approach was presented in a workplan subsequently approved by ADPC&E on October 31, 1996. This is not the typical risk assessment standard the HWD would accept in evaluating a site.

- ▶ Page ES-1, fourth paragraph: The receptor population is limited in scope (i.e., only addresses off site child and adult resident).
- ▶ Page ES-1, fifth paragraph: Nitrate is the only COC evaluated. The CAO required an assessment of at least nitrates, sulfates, lead, and chromium. Regulation No. 22 requires GWPS be established for Appendix II constituents.
- ▶ Page ES-2, Ecological Evaluation: This section is limited in scope. The "site evaluation" referenced for Lake Kildeer and the small unnamed creek is not included in the report. The last sentence does not account for possible surface water contamination below the point of outfall 001. The CAO requires Lake Lee, Lake Kildeer, plant drainage system, nitric acid concentration area, and all product loading and unloading areas to be evaluated for potential impact from the process wastewater treatment system. These other areas are not discussed in the body of this report.
- ▶ Page ES-3, last paragraph: The TML was established for the onsite monitoring wells where the nitrate concentration in said wells would be below the MCL at the defined receptor location. The defined receptor used in establishing the TML is offsite. The TML does not account for exposure to an onsite receptor. It seems EDC calculated a TML for as a "not to exceed" point of the MCL at an offsite location. This does not account for onsite exceedance of the MCL. There are other aspects of exposure to groundwater other than a drinking water source. Dependent on the appropriately defined COCs, the groundwater pathway should be evaluated for inhalation, ingestion, and/or dermal exposures to said COCs.
- ▶ Page ES-4, Conclusions and Recommendations: The receptors evaluated are limited in scope. The establishment of TMLs for offsite receptors does not take into account onsite receptors. MCLs were not established to be "risked" away. The suggested 5-year semiannual groundwater monitoring program for nitrate is limited to four wells when EDC reports having 17 wells onsite. This seems limited in scope.

Introduction

- ▶ Page 1-1, first paragraph: The language indicates EDC's objective was to establish a human health risk-based target monitoring level (TML) for nitrate. No onsite receptors were evaluated nor were all COCs related to the areas of the site defined in the order evaluated. This report did not represent

a risk assessment for all pathways of concern nor all of the COCs of concern for the site; only nitrates in the groundwater for off site receptors. The result does not tell the risk the nitrates in the groundwater pose to current and/or possible future receptors. It only conveys what level is not to be exceeded onsite to avoid an excess of the MCL for nitrate in the offsite receptor well(s).

- ▶ Page 1-2, last paragraph: This sentence comments an ecological evaluation was conducted, but the evaluation is not included in the report. The HWD requests, at a minimum, a survey for Federal and State endangered and threatened animals and plants are conducted. Once this has been accomplished, the HWD recommends a facility follow the EPA guidance for conducting ecological risk assessments (June 1997). This guidance lays out the procedures for conducting problem formulation, toxicity evaluations, exposure estimates, and risk calculations for ecological aspects. Appendix A of this guidance document contains a checklist for conducting an ecological screening and sampling event.

Data Evaluation and Identification of Constituents of Concern

- ▶ Page 2-1, second paragraph: The Phase II Groundwater Assessment Report is referenced as containing the comparison of the COCs to published health criteria, including primary MCLs and EPA proposed corrective action levels. What about secondary MCLs? What is meant by EPA proposed corrective action levels?

Exposure Assessment

- ▶ Page 4-1, Section 4.1, first paragraph: The third sentence states "Because the current land use is industrial, there is no realistic exposure potential for on-site receptor population to groundwater." The zoning of the site has no impact on the receptor population unless there is specific language in the deed prohibiting groundwater use onsite. A preliminary assessment conducted on EDC in 1992 indicated EDC had onsite wells used for potable, process water and fire fighting events. In addition, other contaminated media, such as the soil exposure pathway, could impact the groundwater; groundwater migration pathway can impact the surface water migration pathway. This report is centered around the use of groundwater for drinking water purposes. However, dependent on the COCs there are other routes of exposure to groundwater besides ingestion (i.e., inhalation, dermal). The statement "no use of groundwater from the shallow aquifer for drinking

water" does not account for process water or fire fighting events use. This needs to be more clearly addressed in a risk assessment.

- ▶ Page 4-1, Section 4.1, second and third paragraphs: The scope of the receptors is too limited. The evaluation of groundwater for drinking water only is limited in scope based on other possible exposures to groundwater.
- ▶ Page 4-2, Section 4.1: The well survey has not been submitted as part of this report. There seems to be a lot of assumptions made as to the current use of these wells based on the fact city water is available. The survey to support these assumptions should be part of the risk assessment report.
- ▶ Page 4-3, Section 4.2.1: *"The migration of nitrate in the groundwater of the Cockfield formation to a water well used for drinking water is the pathway of concern."* Is the focus of the "risk" to determine unacceptable exposure for drinking water purposes only or to determine whether groundwater poses a risk to the defined receptors? This report is focused on drinking water exposure solely and does not account for other potential exposures related to groundwater.
- ▶ Page 4-5, first bullet item: The same comment as issued previously. There are other ways to be exposed to groundwater besides drinking water consumption.
- ▶ Page 4-5, second bullet item: Discussion is focused on the probability of a current city of El Dorado resident installing a private water well for drinking water consumption. What about the residents outside the city limits? What about the receptors onsite?
- ▶ Page 4-6, Section 4.3.1: The equations presented in this section represent intake factors. These factors do not take into account the concentration of the chemical in the media being evaluated.
- ▶ Page 4-7, Section 4.4: Lake Kildeer, the discharge (outfall 001) and the creek receiving said discharge are the only areas mentioned for being evaluated. What about the other areas onsite which are listed in the CAO? There is no mention of a survey being requested by the Arkansas Natural Heritage Commission (ANHC) on the existence of endangered and/or threatened species or plant life on or near the site.

- ▶ Page 4-9, Section 4.4.1: The same comments apply to this section as mentioned previously in relation to the potential ecological receptors and the flow rate of the creek.

Fate and Transport Modeling of Contaminants

- ▶ Page 5-1, Section 5.1: This section discusses the horizontal transport of nitrate. The model has simulated the TML or the MCL of nitrate would not be exceeded for the nearest downgradient receptor domestic well in about 7,250 years nor to the nearest downgradient receptor commercial well in about 3,000 years. What about the condition of the water at the site and the interim points between?

Target Monitoring Level Development

- ▶ Page 6-1, Section 6.0: Show all the data inputs for deriving the Chronic daily intake, target hazard quotient, and reference dose (i.e., show your work).
- ▶ Page 6-1, Section 6.0, third paragraph: Nitrates were the only COC evaluated in this report. Therefore, the only source of noncarcinogenic toxicity data should be obtained from IRIS. The HWD sets the priority for obtaining toxicity information in the following order: IRIS, HEAST, and then other EPA references.
- ▶ Page 6-2, Section 6.2: MCLS at all receptor points, whether onsite or offsite, should be used. The language for comparing TMLs with modeling results is confusing. The last paragraph of this section (6.2) on page 6-3 indicates MCLs were utilized to be conservative, since the MCL is lower than the calculated TML. MCLs should not be exceeded.
- ▶ Page 6-4: EDC has applied an attenuation factor (AF) to the maximum onsite nitrate concentration and the maximum concentration simulated to reach an offsite receptor. In summary, EDC has stated the MCL times the Nitrate AF (MCL x AF) yields an acceptable monitoring level for onsite wells. This is a step to establish action levels for their groundwater protection program as related to the onsite monitoring wells. This is not how a human health or ecological risk assessment (baseline) would be conducted. In addition, these onsite TMLs are back calculated from an offsite receptor standpoint and do not account for onsite potential exposure.

Conservative Risk Factors

- ▶ Page 7-1, Section 7.1: There is a statement the amount of nitrate present was estimated using conservative interpretations of the data. The data should be presented as part of this report to allow a quality review of the data to take place.
- ▶ Page 7-3, second paragraph: Again, there is mention of individuals within the city limits installing private wells. The installation should not be limited to city limits. Secondly, there is reference to primary source of the groundwater. What about secondary uses?
- ▶ Page 7-3, third paragraph: The survey for private wells was limited to use within the city limits. What about installation of private wells outside the city limits?

Project Conclusions and Recommendations

- ▶ Page 8-3: EDC has proposed to conduct a five year groundwater monitoring program for four wells. There were ten of the seventeen monitoring wells sampled which exceeded the nitrate MCL. Why only propose sampling for these four locations and not of at least the 10 wells that exceeded the MCL or the seventeen monitoring wells? After all, EDC comments in this report the data contained "gaps".

Tables

- ▶ Table 3.1: Footnote (A) is defined as USEPA Region IX PRGs for obtaining the oral and dermal reference dose for nitrate. IRIS is the appropriate reference for obtaining this information. Where Region IX has the RfDs listed in their table, the most current RfD obtained from IRIS should be used (note: the 1.6 is the most current IRIS number).

Figures

- ▶ Figure 4.1: If onsite wells are located EDC property for potable use, process use, and/or fire fighting events, these wells should be identified.
- ▶ Figure 4.2: What about onsite receptors (i.e., workers)? The Air Pathway may be incomplete in relation to volatilization of nitrate, but what about any other COCs? What about soil to groundwater releases? What about groundwater to surface water releases?

Appendix C

- ▶ Page C-16: The last sentence on this page tells how far the waste can travel and not exceed the MCL at a defined receptor location. How is this protective of the entire human health and ecological population? The objective of the CAO is to monitor and determine if further assessments are needed. This report seems to try and "risk" away established numbers such as MCLs.

In summary, the document entitled "Development of Risk-Based Target Monitoring Levels (December 1997)" does not follow the typical risk assessment strategy used by the HWD. However, it may adhere to the approved work plan mentioned in the text of this report (ADPC&E approved October 31, 1996). There are additional pathways and receptors which should be addressed in a site specific risk assessment to aid in determining the full potential for protection of human health and the environment.

If I can answer any further questions or help in any other way, please contact me at X-20856.

Jammie

cc: Mike Bates
Joe Hoover

ATTACHMENT "C"

ARKANSAS DEPARTMENT OF POLLUTION CONTROL & ECOLOGY

MEMORANDUM

TO : DAVID BROWN, ENFORCEMENT COORDINATOR, HWD
THROUGH : DENNIS GREEN, INSPECTOR SUPERVISOR, HWD *JW*
FROM : PENNY J. WILSON, INSPECTOR, HWD *PJW*
DATE : JUNE 8, 1998
SUBJECT : EL DORADO CHEMICAL COMPANY'S EMERGENCY RESPONSE PLAN

=====
I have reviewed El Dorado Chemical Company's (EDC) Emergency Response Plan as requested. I have the following comments regarding my review of this Plan:

1. Section 3.2, Initial Response, #5.; This item lists the agencies to notify in the event of an emergency situation and refers to the Appendix II Call List. The local ADPC&E office is listed to be contacted, but is not included in the Appendix II Call List.
2. Appendix II, Incident Command Personnel; The body of the Plan mentions contacting HazTech as the Outside Emergency Response Contractor, but does not list their telephone number in this section.
3. Appendix III, Department Rally Points; This section describes which Departments are included in the Area Rally Points. It does not describe or show where the Rally Points are.
4. Appendix V, Fire Emergency; This section describes the procedures to take in case of a fire and when to contact the local Fire Department. However, the Plan does not include arrangements agreed to by the local Fire Department.
5. Appendix IX, Hazardous Waste - Less Than 90-Day Storage; This section does not include procedures to take in case of a leak, spill, or release from this area.
6. Appendix X, Emergency Equipment Locations; In Appendix IV, Chemical Releases, the procedures for responding to small releases included using soda ash for neutralization and sand bags for containment. However, these items were not included in the list of emergency equipment.

7. Appendix XI, Emergency Rescue Guidelines; This section includes contacting 911 to report the need for medical assistance. However, it does not include arrangements agreed to by the local Hospital.
8. The Plan did not include a description of any arrangements agreed to by the local Police Department.

ATTACHMENT "D"

ARKANSAS DEPARTMENT OF POLLUTION CONTROL & ECOLOGY

MEMORANDUM

TO : DAVID BROWN, ENFORCEMENT COORDINATOR, HWD
THROUGH : DENNIS GREEN, INSPECTOR SUPERVISOR, HWD
FROM : PENNY J. WILSON, INSPECTOR, HWD
DATE : JUNE 5, 1998
SUBJECT : EL DORADO CHEMICAL COMPANY'S REVISED WASTE MINIMIZATION PLAN

=====
I have reviewed El Dorado Chemical Company's (EDC) Revised Waste Minimization Plan as requested. I have the following comments regarding my review of this Plan:

1. Section 3.2, Hazardous Waste Amounts by Year, Page 3-8, Table 1; For reporting year 1993, Table 1 lists 57,000 pounds of Total Hazardous Waste Managed On-Site. According to the 1993 Annual Report that I have, this amount was not reported. How did EDC come up with this amount of waste generated and why wasn't it included in the Annual Report?
2. Section 3.2, Hazardous Waste Amounts by Year, Page 3-8; In the narrative following Table 1, the Plan states that "the total amounts of hazardous waste managed on-site are from de minimus leaks and spills of nitric or sulfuric acid which result in low pH wastewater". Regulation No. 23 Section 261.3(a)(2)(iv)(D) defines "de minimus" losses as those from normal material handling operations; minor leaks of process equipment, storage tanks or containers; leaks from well maintained pump packings and seals; sample purgings; etc. The amounts of D002 waste that EDC has reported to the Department are not de minimus losses.
3. Table 4, Waste Minimization Strategies for EDC Hazardous Waste Streams, Pages 4-2 through 4-4; The Suggested Technologies or Procedures do not address the condition of the 3rd Street Sewer that is used as a conveyance for the corrosive wastes.
4. Table 4, Waste Minimization Strategies for EDC Hazardous Waste Streams, Pages 4-2 through 4-4; The schedules for implementing the Suggested Technologies or Procedures need to be included in the Plan.