Exhibit A

Statement of Basis and Purpose

BEFORE THE ARKANSAS POLLUTION
CONTROL AND ECOLOGY COMMISSION

IN RE: PETITION BY CENTRAL ARKANSAS WATER TO INITIATE RULEMAKING TO AMEND REGULATION NO. 6, REGULATIONS FOR STATE ADMINISTRATION OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)	)	DOCKET NO. 08-003-R

CENTRAL ARKANSAS WATER'S
STATEMENT OF BASIS AND PURPOSE

Petitioner, Central Arkansas Water ("CAW"), submits the following Statement of Basis and Purpose:

I. Background

1. The Arkansas Pollution Control and Ecology Commission is given and charged with the power and duty to adopt, modify, or repeal rules and regulations implementing and effectuating the powers and duties of the Commission and ADEQ under the Arkansas Air and Water Pollution Control Act, Ark. Code Ann. § 8-4-202(a) and (b).

2. The Arkansas Air and Water Pollution Control Act and APC&EC Regulation No. 8 give any person the right to petition the Commission for the issuance, amendment or repeal of any rule or regulation. Ark. Code Ann. § 8-4-202(c); APC&EC Regulation No. 8, § 3.4.

3. On February 8, 2008, Central Arkansas Water ("CAW") filed a Petition to Initiate Third-Party Rulemaking to Amend Regulation No. 6, Regulations for State Administration of the National Pollutant Discharge Elimination System (NPDES) ("the Petition"). CAW petitioned to amend Regulation No. 6 to prohibit all surface discharges, with the exception of permitted stormwater discharges, in the Lake Maumelle basin.

4. On March 28, 2008, the Commission voted to initiate the Third Party Rulemaking process. As part of the process for soliciting public comments, the Commission directed that public hearings be held in both North Little Rock and Perryville. The hearings were held on May 27, 2008 and June 2, 2008. The public comment period expired at 4:30 p.m. on June 16, 2008.

5. The Commission directed both CAW and ADEQ to file a Statement of Basis and Purpose and Responsive Summary as required by Regulation No. 8.815, Sections (A)(1) and (2). In accordance with the Commission's direction, CAW files the following Statement of Basis and Purpose and accompanying Responsive Summary.

II. Basis and Purpose

6. CAW supplies drinking water to 17 cities and communities in central Arkansas. CAW currently serves a population of nearly 400,000 people and estimates that it will serve a population of 575,000 by the year 2050.

7. Lake Maumelle is one of two principal sources of drinking water for CAW. It was built in the late 1950's for a cost in 2006 dollars of $34 million. However, the cost to replace this high quality source of drinking water today would greatly exceed the original cost. Lake Maumelle is one of the cleanest water supply lakes in this region of the country. One of the primary reasons for the high quality of the water is that much of the watershed has remained undeveloped. However, potentially up to 53 percent of the land area of the watershed is developable. Lake Maumelle is in close proximity to the City of Little Rock and adjacent to the Highway 10 corridor, which adds to development pressure. The impact of future development

on the Lake Maumelle watershed is a significant concern to CAW and to those citizens whose health and safety depend on the quality of its water.

8. To address these concerns, in 2004 CAW convened a Task Group for Watershed Management. The Task Group comprised governmental and non-governmental organizations representing both state and local interests. The Task Group reviewed the existing watershed management plan and recommended that CAW contract with an expert watershed management consulting firm to assist in developing and implementing a scientifically-based watershed management plan. CAW selected Tetra Tech, Inc. to provided the necessary consulting services. The final result of efforts of CAW, stakeholders, and state and local agencies and institutions was the Lake Maumelle Watershed Management Plan issued in February 2007. A copy of the Lake Maumelle Watershed Management Plan was attached to the Petition as Exhibit F6. A Summary of the Technical Basis for the Lake Maumelle Watershed Plan was attached to the Petition as Exhibit F1.

9. The Lake Maumelle Watershed Management Plan was developed with extensive participation by citizens groups, rate payers, elected officials, property owners, and environmental and recreational groups. A panel of technical advisors, whose members included local, state and federal governmental entities, planning agencies and universities, provided input on technical issues. Four public meetings provided information to interested parties and allowed direct participation in the planning process.

10. Tetra Tech developed extensive watershed and lake models to evaluate and predict how the water quality would respond to various management initiatives. The models allowed a determination of allowable pollutant loads to the lake. The models were developed in

accordance with a Modeling Quality Assurance Project Plan. The Modeling Quality Assurance Plan was attached to the Petition as Exhibit F2.

11. Tetra Tech first performed a baseline modeling analysis. The purpose of the baseline analysis was to establish points of reference to guide plan development. This was accomplished by comparing existing conditions in the lake and watershed to potential future conditions, assuming that no additional management policies or programs are established (i.e., existing management policies and programs continue to be applied without change in the future). Through this comparison, stakeholders are able to see what impacts might occur if no action is taken and to better understand the magnitude of what should be addressed by the management plan to achieve the established goals and objectives.

12. Based on research and review of the watershed, consultation with resource agency and academic experts, and best professional judgment, Tetra Tech selected key indicators for evaluation in Lake Maumelle: chlorophyll *a* concentration, total organic carbon (TOC) concentration, Secchi disk depth, and fecal coliform concentration. Chlorophyll *a* is an indicator of algae. The water quality target for the mid and lower lake were set to prevent nuisance algae blooms that can emit toxins, foul treatment equipment, and cause taste and odor problems. TOC is an indicator of complex organic materials in the watershed. The water quality targets for TOC were set to prevent disinfection byproducts from reaching levels that threaten public health. Secchi depth is a measure of water clarity. The water quality targets for Secchi depth were set to ensure adequate removal of disease-causing organisms. Key watershed loading parameters related to the lake conditions included the phosphorus series, nitrogen series, sediment, organic material, and bacteria.

13. Following a thorough model selection process, Tetra Tech developed a linked watershed model (HSPF) and lake response model (CE-QUAL-W2) framework to conduct the baseline analysis. The watershed model predicts flows and conveyance loads to the lake, while the lake model simulates lake response. The HSPF model provides a continuous simulation of flow and pollutant delivery within the watershed and stream network leading to the lake at an hourly time step. Development and calibration of the watershed model is described in detail in the *Lake Maumelle Watershed and Lake Modeling – Model Calibration Report*, a copy of which was attached to the Petition as Exhibit F3. The model was calibrated to observations for 1997-2004 and model performance validated to observations for 1989 to 1996.

14. The CE-QUAL-W2 model simulates the movement and quality of water within Lake Maumelle on a daily time step. The model operates in two spatial dimensions: longitudinal and vertical. Calibration (1991-1992) and validation (2002-2004) of this model is also described in Exhibit F3. The lake model uses input from the HSPF watershed model and predicts variation in management targets, such as algal concentration, within the lakes. Together, the HSPF and CE-QUAL-W2 models provide a comprehensive simulation of loads from the watershed and in-lake impacts.

15. After consultation with technical and policy advisers, Tetra Tech developed two scenarios describing potential future development: Scenario 1 – characterized by large lot development and, Scenario 2 – characterized by denser development near the lake. Differences between the modeling applications for the two scenarios provided stakeholders with an understanding of the sensitivity of lake water quality response to different levels of pollutant loading reflective of different development density levels. The Scenario Evaluation Methods and Analysis are documented in Exhibit F4 to the Petition.

16. In order to simulate the impact of future point and non-point source contaminants on Lake Maumelle, Tetra Tech worked closely with local planners, engineers, and agency resource staff to establish representative assumptions for the parameters that would drive the analyses: population increase, residential and commercial development patterns, type of waste treatment, roads, and land cover characteristics. Landsat data, U.S. Census Bureau data, and county tax parcel data provided the basis for establishing existing population and land use/land cover, including the location of residential and commercial property. Input from local planners and engineers helped to identify where the future development would occur and at what density levels. As a result, Tetra Tech estimated that approximately 51,000 of the 88,000 total acres in the watershed could be developed.

17. Under Scenario 1 (predominantly Large Lot), it was estimated that approximately 8400 new residences would be added to the watershed. Under Scenario 2 (denser development near the lake), approximately 15,000 new residences would be added. These compare to approximately 400 residences under existing conditions.

18. **Under either scenario, future water quality conditions would not meet the target water quality levels.** Excessive levels of sediment, phosphorus, nitrogen and total organic carbon loading from future land use changes and new sources would threaten public health, water supply operations and recreation. There would be an increased risk of disease-causing organisms and an increased risk of toxic substances entering the water supply. The greatest impacts would be from increased algae blooms, increased complex organic materials, and increased turbidity. Algae blooms may emit toxins, foul equipment and cause taste and odor problems. The excessive presence of complex organic materials contribute to disinfection byproducts (toxic and cancer causing substances) that may threaten human health. Increased

turbidity indicates that the water supply will be more difficult and costly to treat to ensure that disease causing organisms do not threaten human health. The Baseline Modeling Analysis is documented in Exhibit F5 to the Petition.

19. As a result of the modeling studies and discussions with the Technical Advisory Council, a number of measures were developed to control sediment, phosphorus, TOC and pathogen loading in the watershed. However, the largest potential sources are those associated with new developments and the wastewater from those new residences and significant management methods must be directed to those sources.

20. Tetra Tech evaluated the total additional pollutants from new developments that could be loaded into the lake while still meeting target water quality levels. **Direct surface wastewater discharges were found to pose the most greatest threat. Significantly, if any direct wastewater discharges are allowed into the lake, it will be impossible to meet lake water quality targets.** Non-point source loading and stormwater require 100 percent of the allowable load for new developments. **Accordingly, the preferred option to allow a reasonable level of development in the watershed while protecting the quality of the drinking water supply is a complete prohibition on the direct surface discharge of wastewater other than stormwater into the Lake Maumelle Basin.**

21. The proposed amendment to Regulation No. 6 to prohibit discharges of wastewater, except stormwater discharges permitted under the NPDES stormwater discharge program, in the Lake Maumelle Basin is necessary to ensure orderly development of the Lake Maumelle Basin while maintaining a quality of drinking water necessary for public health and welfare.

22. Lake Maumelle is unique for the following reasons:

a. The extensive calibrated and verified water quality modeling of both the Lake Maumelle basin and the Lake itself support the need for prohibiting surface discharge of wastewater in the Lake Maumelle basin. The modeling demonstrates that at "build-out" Lake Maumelle will not meet the water quality targets for clean water if there are surface discharges of wastewater (other than discharges permitted under the NPDES stormwater discharge program), even with phosphorus limits of 1 part per million (ppm), the NPDES permit value typically required by ADEQ if phosphorus is a concern.

b. Central Arkansas Water owns Lake Maumelle.

c. Lake Maumelle was built for the single purpose of a public water supply and is the primary source of drinking water for the largest metropolitan area in the state.

d. Pharmaceuticals are an emerging contaminant of concern regarding drinking water, and surface discharges of sanitary wastewater are the primary pathway these enter a water supply.

e. There are currently no surface discharges of wastewater in the Lake Maumelle basin. Further, there are no discharges of sanitary wastewater (a primary source of pharmaceuticals and endocrine disrupting compounds) in the basin and the Lake is free of pharmaceutical chemicals.

f. Lake Maumelle is highly susceptible to water quality deterioration due to its shallow, low alkalinity water.

g. Viable alternatives to surface discharge treatment plants exist; including septic tanks where the site is suitable, septic tanks with "cap and fill" or "mound systems" if the soil is a limiting factor; drip irrigation systems or pump and treat out of the basin.

23. The evidence submitted in this rulemaking, including Exhibits F1-F6 to the Petition, which are incorporated by reference into this Statement of Basis and Purpose, demonstrates that the proposed amendment to Regulation No. 6 is based upon generally accepted

scientific knowledge or engineering practices.

III. Conclusion

24. CAW therefore requests that the Commission adopt the proposed amendment to Regulation No. 6.

Respectfully Submitted,

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