



## **TETRA TECH, INC.**

3200 Chapel Hill - Nelson Highway  
Cape Fear Building - Suite 105  
P.O. Box 14409  
Research Triangle Park, NC 27709  
Telephone: (919) 485-8278      Telefax: (919) 485-8280

## **MEMORANDUM**

**To:            Technical Advisory Council Members**

**From:        Trevor Clements, Jon Butcher, and Kimberly Brewer**

**Subject:     June 29, 2006 Technical Advisory Council Conference Call Summary**

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A conference call for the Lake Maumelle Technical Advisory Council (TAC) was convened June 29, 2006 at 3:30 pm Central Time. Eleven members were in attendance, along with several guests (see attached attendance list) including Keith Brown, PE, the State Permits Branch Engineering Supervisor for the Arkansas Department of Environmental Quality (ADEQ). Trevor Clements moderated the call and was supported in technical discussion by Dr. Jon Butcher, PH, Kimberly Brewer, AICP, and Barry Tanning on behalf of the Tetra Tech, Inc. (Tt) Lake Maumelle project team.

Following roll call, Trevor summarized the context for the meeting. The last several TAC calls have focused discussion on methods and results for evaluating options under the two proposed management approaches: those are the Non-engineering/Land Conservation approach and the Performance Standards/Land Conservation approach. One of the issues brought forth by TAC members was the technical basis for establishing more stringent performance standards in Critical Area A relative to Critical Area B. Tetra Tech indicated that it had considered the shorter travel times to the water supply intake and, based on relative risk for threats such as *Cryptosporidium*, believed that the more stringent pollutant runoff standards were justified.

Tetra Tech was also asked to research administration and enforcement costs and in doing so, the issue of spills from wastewater collection and pumping systems was raised. One question was whether a potential spill event posed more risk than potential impacts from nondischarging systems. While this was being brought up, information was relayed that local sanitarians were not approving drip irrigation systems, which comprised one of the alternatives being recommended for community non-discharging systems. Based on this uncertainty, Tetra Tech wanted to obtain additional information from the local sanitarians, state health department, and DEQ regarding the nondischarging systems and their viability for application in the management plan. Additionally, the team wanted some risk assessment to support identifying the least risky options for handling wastewater.

Trevor indicated that the purpose of the call was to allow the Council to hear what has been learned from these discussions and analyses, and to further discuss whether there is sufficient information to move forward with recommendations for handling wastewater in the watershed management plan.

### **Information Learned from Discussions with Local and State Sanitarians**

Bruno Kirsch summarized discussions that he held with local sanitarians that prompted the need for further investigation. Bruno had forwarded Tetra Tech's Management Evaluation Memos to the sanitarians for review and comment on what was being considered by the team. One local sanitarian indicated that state

regulatory authorities had instituted a moratorium on drip irrigation systems, one of the recommendations for community nondischarging systems. Follow up conversations with state agency staff have helped to clarify matters. Bruno asked Keith Brown, PE, the State Permits Branch Engineering Supervisor for ADEQ to join the call to provide more details. [Note: Robert Hart with the Arkansas Department of Health had also planned to participate in the meeting but was called away on business at the last minute.]

Keith noted that the moratorium only applied to permitting of drip irrigation systems for individual households. The state is not approving application of drip irrigation for individual lots because of the system's relative complexity and need for maintenance. For the individual sites, the state has been recommending cap and fill systems where conventional septic tank installations alone are insufficient but where portions of the lot have low enough slope to establish capping fields. Keith stated that the state has not found cap and fill systems to be a problem. They have considerable experience with these systems and are observing good results. However, as with any waste system, he emphasized the importance of proper maintenance.

Keith stated that drip irrigation technology is relatively new to Arkansas, even though it is used extensively elsewhere in the southeast. They only have a couple of years experience with drip irrigation, but initial system applications appear to be working well. Most of the applications to date have been in northwest Arkansas, and Keith indicated that the Arkansas Department of Health (ADH) is monitoring them frequently (monthly). ADEQ is involved with ADH in large systems (>5,000 gallons per day), whereas ADH alone oversees the systems with flows less than that level. State permits include monitoring requirements and effluent (i.e., leaving treatment and entering the drip field) limits (typically 15 mg/L BOD and 15 mg/L TSS). Keith indicated that several types of treatment can be used, for example fixed film, recirculating sandfilter, or trickling filter. The predominant form of treatment appears to be fixed film. In summary, Keith stated that he believed that drip irrigation remains a viable option for community systems if designed, installed, and maintained properly. However, state staff would not recommend applying the drip irrigation systems in Critical Area A until more experience is gained and it can be demonstrated that their application would not pose unacceptable risks.

TAC members asked several questions:

*What is required for area and are there slope limitations?* Drip fields are sized by soil hydraulic capacity of the drip zone. Typically involves a pressure system with ½ inch lines at 6 to 12 inches depth in the soil. Pumps alternately dose different zones. There is also a requirement for reserve areas, so the total area required for drip irrigation can be quite large. Fifteen (15) percent is the maximum slope recommended for the technology, with lines placed on the contours of the topography. It was noted that the slope requirement for Cap and Fill systems is slightly lower, less than 12 percent slope. Although a development area may have steeper slopes, this means locating sufficient area on site for the cap and fill fields or drip irrigation zones that are below these maximum values.

*What happens with these systems when there is an electrical outage?* In a typical drip irrigation system, wastewater travels from the house to the septic tank where solids are separated. The liquid from the septic tank is then pumped to the treatment plant, and after treatment the effluent is transferred to the soil through the drip irrigation lines. During an electrical outage, therefore, wastewater would remain in the septic tanks.

*Can the systems overflow?* Septic tanks are designed to provide storage during typical power outages. However, it is possible to have overflows if there is an extended power outage and waste continues to be discharged into the system (i.e., power is out, but water supply is still on with wastewater continuing to drain to the septic system).

Discussion then turned to whether the state regulatory agencies would be able to support a nondischarge requirement under existing regulations. This question had been posed to Harold Seifert, PE, who oversees the ADH Drinking Water programs. Per consultation with state attorneys, the Department indicates that this will require new rule-making. TAC members discussed various options that might be used such as a

Water Quality Management Program amendment. Dick Cassat said that the amendment would still need to go through public comment and rule-making, and that adopting a site-specific standard would require public comment, rule-making, and legislative approval (due to the Administrative Procedures Act). This will require further research and effort to establish the best path(s) forward for implementation of the recommendation.

### **Scoping Level Risk Assessment**

Dr. Jon Butcher briefly summarized the draft memo regarding wastewater risks sent earlier in the day and dated 6/29/06. The memo documented a scoping level analysis that was set up to answer the question: if wastewater collection or pump stations were to collectively fail in Critical Area A, would the consequences of the event be worse than if other wastewater treatment systems (i.e., nondischarging) were applied. Dr. Butcher cautioned that the analysis was performed at a scoping level only, appropriate to the comparative analysis question being posed. The risk assessment focused on *Cryptosporidium* because it persists in the environment and is difficult to treat. It compared the risk posed by 300 homes on a centralized collection system that pumps out of the watershed to 300 homes with onsite wastewater disposal. The analysis showed that the risk from pumping wastewater out of the watershed was lower (less risky) than using non-discharging systems for the same number of houses. Based on these results and the recommendations of the state staff, Tetra Tech is sticking with its original recommendation of pumping wastewater out of the watershed for the option of applying Performance Standards to any development allowed in Critical Area A.

In discussion of the draft assessment memo, some members thought it posed an unrealistic scenario. Three hundred homes would be served by multiple pump stations, and it was believed to be unlikely that all would fail simultaneously. Trevor reminded TAC members that the current Performance Standards provisions for Critical Area A did not include a housing density cap, so defining number of houses on a collection system is not a cut and dried assumption. It is possible that electrical outages during a storm would affect an entire area, so that multiple pump stations could be affected. Additionally, the main purpose of the assessment was to determine whether pumping collected wastewater out of the watershed could be more risky than using nondischarging systems for the same number of houses.

Some members thought the assumptions were too conservative and others questioned whether they were conservative enough. Tetra Tech indicated that although many other assumptions could be made in a risk assessment, those applied for this analysis provided a reasonable basis for answering the question at hand (i.e., which option was more risky?).

One member stated that we should not forget about other types of spills, including those caused intentionally (i.e., terrorism). Another member countered that terrorism could come from many different locations including highway crossings and boats on the reservoir.

Since the analysis was just completed and memo just received, several members said that it would be helpful to have more time to look things over. The Tetra Tech team agreed, and asked for members to provide any additional comments and/or recommendations to Tetra Tech (copying the other TAC members) by July 10.

Tetra Tech thanked the Council members for their participation, and the call was adjourned.

# Lake Maumelle Technical Advisory Council Call Attendance

Date: June 29, 2006

	<b>MEMBER NAME</b>	<b>REPRESENTING</b>
<b>P</b>	Mr. Dick Cassat	Arkansas Department of Environmental Quality
<b>P</b>	Mr. Roger Miller	Arkansas Department of Health & Human Services
<b>NP</b>	Mr. John Shannon	Arkansas Forestry Commission
<b>NP</b>	Mr. Ken Brazil, P.E.	Arkansas Natural Resources Commission
<b>P</b>	Ms. Stephanie Hymel	Audubon Arkansas
<b>P</b>	Mr. Bruno Kirsch, Jr., P.E.	Central Arkansas Water
<b>P</b>	Ms. Munsell McPhillips, Ph.D.	Deltic Timber Corporation
<b>P</b>	Mr. Walter Malone	Little Rock Department of Planning & Development
<b>NP</b>	Mr. Jim McKenzie	Metroplan, A Council of Local Governments
<b>P</b>	Ms. Ashley Pope	Pulaski County Department of Planning & Development
<b>P</b>	Mr. Alan Clingenpeel	U.S. Forest Service
<b>P</b>	Mr. Reed Green, Ph.D.	U.S. Geological Survey
<b>P</b>	Mr. Carl Stapleton, Ph.D.	University of Arkansas at Little Rock
<b>P</b>	Mr. Morris Cranmer, Ph.D.	University of Arkansas for Medical Sciences
	<b>OTHERS IN ATTENDANCE</b>	
<b>P</b>	Mr. Keith Brown	Arkansas Department of Environmental Quality
<b>P</b>	Ms. Kimberly Brewer	Tetra Tech, Inc.
<b>P</b>	Mr. Jon Butcher, Ph.D.	Tetra Tech, Inc.
<b>P</b>	Ms. Shaní Canada	Central Arkansas Water
<b>P</b>	Mr. Trevor Clements	Tetra Tech, Inc.
<b>P</b>	Ms. Marie A. Crawford	Central Arkansas Water
<b>P</b>	Mr. Herb Dicker	Policy Advisory Council Primary Member/Ratepayer – Little Rock Neighborhoods
<b>P</b>	Ms. Patricia Dicker	Policy Advisory Council Primary Member/Elected Official - Pulaski County
<b>P</b>	Ms. Nicole Lacy	Central Arkansas Water
<b>P</b>	Mr. Charles Nestrud	Policy Advisory Council Primary Member /Legal Counsel for Deltic Timber Corporation
<b>P</b>	Ms. Kathleen Oleson	Policy Advisory Council Alternate Member/League of Women Voters of Pulaski County
<b>P</b>	Mr. Barry Toning	Tetra Tech, Inc.