



Water Supply Availability Work Group

April 25, 2013 - Meeting Summary

Lonoke, Arkansas

This document provides a summary of the Water Supply Availability Work Group (Work Group) meeting held on April 25, 2013 in Lonoke, Arkansas at the Arkansas Rural Water Association Training Facility. The Work Group is assisting the Arkansas Natural Resources Commission (ANRC) with the preparation of the update to the Arkansas Water Plan. Over the next 18 months several Work Groups (a Demand Work Group has been meeting since December 2012) will assist ANRC in completing some of the more technical elements of the water plan update. Public Outreach and Stakeholder Involvement meetings will also be held over the next 18 months and the data and information developed with the assistance of the work group will be shared and discussed at these meetings. Please visit <http://www.arwaterplan.arkansas.gov/> for more information and about the water plan update.

This meeting summary is not intended to be a verbatim transcription of the meeting. The summary outlines the major discussion items and general comments and discussion topics that were raised during the meeting. Finally, CDM Smith and FTN Associates are Engineering and Water Resources consulting firms that are assisting ANRC with the water plan update. Members of these firms are referred to as Planning Consultants in the meeting Summary. Planning Consultant Nicole Rowan and Bill Fernandez with CDM Smith were the primary speakers regarding the overall planning process, fish and wildlife flows, and groundwater availability. The Planning Consultants Roger Dodds and Jim Malcom with FTN presented on surface water availability and water quality.

The meeting began at 2:05 p.m. Edward Swaim, ANRC welcomed the Work Group members and outlined the overall purpose of the meeting and acknowledged that ANRC Commission Neil Anderson is attending and has been a strong leader in Arkansas water use and planning. Edward noted that the members of the Work Group come from all across the state and outlined that the issues range from water quality in Illinois River to food production in east Arkansas and having a broad representation of expertise from all over the state is a great benefit to the Work Group effort. Edward concluded by thanking Dennis Sternberg, Arkansas Rural Water for hosting the meeting.

Nicole Rowan, CDM Smith began the agenda by initiating introductions starting with the water planning team members and recognized Todd Fuguitt, ANRC, Rick Brown and Bill Fernandez with CDM Smith, Linda Johnson, Rodger Dodds, and Jim Malcom with FTN Associates. The Work Group members and guests introduced themselves. The Arkansas Game and Fish Commission was recognized for their financial and technical contributions to the water plan update.

The Planning Consultant summarized the meeting handouts and outlined the agenda for the day emphasizing the focus of the meeting will be to provide an overview of the methods and approaches outlined in the Supply Availability White Paper. A PowerPoint presentation was utilized to help guide the meeting and provides additional details on the meeting content. The presentation is available for review on the water plan website.



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The Planning Consultant outlined the schedule for the Water Plan update highlighting the completion date is slated for November 2014 and noted the major technical phases of demand, supply, and solutions to address any shortfalls between supply and demand. The Planning Consultant noted that there will also be ongoing public outreach and stakeholder involvement throughout the planning process and the next set of meetings will take place in June and that more details can be found on the Arkansas Water Plan Update Website – www.arwaterplan.arkansas.gov.

The Work Group process was then summarized and will include meeting by conference call and information will be exchanged via e-mail. Additionally if necessary the schedule provides for a July face-to-face meeting. The supply availability Work Group's efforts will then be shared across the state in October/November timeframe at locations across the state.

The objectives of the state water plan, as outlined in statute, were summarized emphasizing how the Work Group can help address both the technical and social aspects and needs of Arkansas. Next an overview of why the water plan is being updated was presented noting that a lot of additional data has been collected since the last water plan and how we use and value water has changed. The science and information that we will collect will help reflect these changes and help ensure sufficient water to meet the needs of our citizens and the environment.

The Planning Consultant then outlined the major technical phased of the project summarizing demand and demand subsectors, supply, and then once supply is complete gaps between supply and demands will be quantified and if necessary solutions to address these water supply gaps will be developed. This information will be added to existing information and policies and procedures which form the foundation of the water plan. New information and data along with input from the public will then be incorporated to generate the comprehensive update to the water plan.

The meeting focus then turned more specifically to summarizing how supply and demand are incorporated into the water plan and how the resource assessment aka supply availability will utilized.

Question: Do we have sufficient historical trend data on the resources?

Answer: Yes, we have good historical water supply and demand data over the last several decades.

The overall approach to data collection and analysis was discussed noting the tradeoff between sufficiency of data, quality of data, and budget. The resource availability data will be aggregated by 5 major planning regions and data will also be summarized by major resource units such as watershed and groundwater aquifers.

The major factors to consider for supply assessment were outlined including; physical supply, water law, and infrastructure. Legal availability was highlighted noting that overall riparian law and property rights are foundational to water use, and rules such as ANRC Title 3, provide guidance and conditions for programs such as the non-riparian water use program.

Bill Fernandez, CDM Smith presented the draft groundwater methods that will be used in the water plan update. The discussion began by showing the major aquifers, critical groundwater designations and withdrawal rates by county (three criteria for critical designation were outlined: 1) declines of 1 foot or more per year, 2) saturated thickness where there is a 50% or greater reduction in aquifer thickness in relation to the aquifer formation, and changes/impacts related to groundwater quality).



The Planning Consultant noted the MERAS model will be important an important tool to help us understand the aquifer(s) under current and future conditions. The Planning Consultant then outlined how the United State Geological Survey (USGS) model can be used with the demand forecast to allow an estimate of what that groundwater use will affect groundwater conditions (storage and water levels) and availability. The planning team will also look at other aquifers used in the state to assess generally the water use and availability from a mass balance perspective to allow us to gain and understanding of use and resource availability.

The Planning Consultant then summarized the scenarios that the USGS is conducting to assess general conditions within the Mississippi Alluvium and the Sparta Aquifer to complete and initial overview of the aquifer under different hypothetical conditions termed scenarios. These scenarios include:

1. Optimized pumping totals from the USGS sustainable yield models
2. Average pumping for each model cell of the Alluvial Aquifer from 2000 to 2005
3. Include drawdown constraints equal to an altitude of approximately 50 percent of the predevelopment saturated thickness of the alluvial aquifer

The water planning team will then add additional scenarios on availability that have different constraints.

- Simulate Future Water Use Under Various Aquifer Thresholds
 - Current ANRC target level used to attain sustainable yield
 - Lower thresholds
 - Economic-based thresholds
 - Develop a mining related alternative that would estimate the length of time to deplete the resource at current and/or future withdrawal levels
- Compare Results of Simulations with Various Aquifer Thresholds

Question: How will demands be developed daily?

Answer: No, they will be monthly and summarized annually for the 10 year planning increments.

Roger Dodds, FTN Associates and then outlined the approach to surface water. The Planning Consultant highlighted that the surface water approach will bring in existing operations, data, and statistical analysis. Physical availability of water will be updated based on the quantification locations at major measuring gauges used for the last water plan. In cases where gauges were discontinued new gauge location(s) will be incorporated. In addition for some locations that are more complex in terms of water use we will incorporate some additional quantification locations.

Next there was a discussion of how data is collected in relation to Arkansas statute of rule. The terms Safe Yield, Excess Surface Water, and Allocation During Shortage were discussed (see PPT presentation for details). It was noted that United State Army Corps of Engineers major projects will be summarized in terms of current water allocation and the process for reallocation.



A brief overview of the Interstate Compacts that Arkansas is party to (Arkansas River and Red River) was provided. It was pointed out that to the extent possible the water plan will explain and mesh the Interstate Compact provisions with current operations and available data.

Question: In the vision and goals document there is a goal for looking at allocation during the times of shortage. How will the plan look at the administrative procedure for declaring drought and method for determining allocation during storage?

Answer: The physical availability will inform this issue and the information can be used to assess current policy and procedures.

Nicole Rowan, CDM Smith then outlined the status of the effort to update and incorporate information on fish and wildlife flows. The Planning Consultant noted the following points: Excess surface water calculation must incorporate instream flow needs. The first step will be to update the calculation using additional data and application of the Arkansas Method for calculating excess surface water. In regard to safe yield the definition will be revisited. Next the Planning Consultant discussed the following recommendations from the subgroup on Fish and Wildlife flows:

- Revise excess surface water calculations to update flow calculation using the Arkansas Method
- Develop resource mapping based on available GIS datasets
- Evaluate the Arkansas Method to assess whether it adequate for use excess surface water calculations in the future and recommend other methodologies if appropriate
- Evaluate and assess additional methods for establishing minimum instream flows
- Potentially "pilot" implementation of other fish and wildlife methods in areas of the state where surface water availability has been a concern

Jim Malcom, FTN Associates discussed water quality. The Planning Consultant began this discussion focusing on surface water quality and made the following points regarding the plan update:

- First steps will be to update the abundant water quality data that has been develop over the last couple decades. Sources from the various state and federal agencies (USGS and ADEQ) will be collected to update long-term trends and new information including: dissolved oxygen, nutrient, bacteria and sediment.
- Incorporation of changed conditions will in part be influenced by the criteria that are used to assess these changes including items such as Clean Water Act 303 (d) listing.
- Emerging issues will also be considered and some of this information may come from the demand work group.

The Planning Consultant the outlined the approach to groundwater quality and made the following points:

- The approach will be similar to surface water current quality, changes, trends, and the supporting data will bring assessed using all the data that has been collected and categorized since the last water plan.
- Key parameters will be different than surface water and will include major inorganic ions, pH, and conductivity.



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- A relook at previous groundwater issues will be completed to evaluate the status of these issues and major changes.

The Work Group then took a Break and upon reconvening the Planning Consultant asked the Group about general questions regarding the information presented.

Comment: I know that there is an effort in Cross County to try to move from well water to surface water. Also Jacksonville and Cabot are to be off of groundwater wells by 2023/2024. Jacksonville will be working with Central Arkansas Water. The water plan should summarize these changes and consider other planning studies such as the MetroPlan.

Question: Will climate change be considered?

Answer: There is not a lot of data out there documenting this topic. We will include a qualitative description of the results Global Climate Models and change predictions in Arkansas. Since there is some uncertainty regarding when and how climate may change we will try to look at this topic from an adaptation perspective; meaning we want to identify resources that might be most vulnerable to shifts in temperature or precipitation and outline some basic strategies to adapt to potential changes.

Comment: In southeast Arkansas the main concern is having a sufficient and reliable supply for agricultural. There are limited supplies and our water project has not been fully funded.

Comment: I think the water plan update should include collection of information from some of the larger water providers (Beaver, Central Arkansas Water etc.) to include information about their long term planning procedure. We need to take what has already been done and figure out how to incorporate it into our Water Plan and not duplicate effort.

Question/Comment: I appreciate funding for the stressor response study for the Arkansas River compact. We are seeing issues with water quality standards and are using some local approaches to challenges that could be a model for more statewide needs and challenges. I also think we should be more proactive with Oklahoma on the joint agreement regarding water quality it seem Oklahoma is more organized that Arkansas and it would be good to get more awareness and support for some of the issues.

Comment: In regard to water quality water treatment technology has likely affected long term trends. We need to identify how the treatment was changed and when so we can incorporate that into the analyses.

Edward Swaim, ANRC concluded the meeting and welcomed people to listen in and provide input into any meeting either Work Group or public meetings and encouraged folks to be engaged and visit the website for more information.

The meeting concluded with each subgroup meeting to discuss meeting availability.