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File Name State Programs *(from index)*

Sub File Name ASR *(from index)*

Sub-Sub File Name Wichita

Year (calendar) 2003

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Comments/Keywords

MEMO ASR permit & accounting system

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Memorandum

Burns & McDonnell
SINCE 1898

Date: February 28, 2003

To: David Pope
Jim Bagley
Tom Huntzinger
David Warren
Jerry Blain
Dave Stous

From: Jeff Klein

Re: WICHITA
ASR Phase 1
ASR Permit and Accounting System
B&McD Project No. 29886

1. A meeting was conducted in Topeka at KDWR's office on February 28, 2003 at 10:00 a.m. to discuss permits and the accounting system for the ASR project. The following people were in attendance:

Jerry Blain	–	City of Wichita
Jim Bagley	–	KDWR
Tom Huntzinger	–	KDWR
Will Gilland	–	KDWR
Mark Jennings	–	KDWR
Jeff Klein	–	Burns & McDonnell
Bruce Falk	–	KDWR Stafford Field Office

2. General:

- For the demonstration project the City obtained a term permit and constructed the diversion well. They proved induced infiltration and recovery and a water right was issued.
- Some people are concerned the City will pump diversion wells whenever they want and violate minimum stream flow criteria.
- KDWR has received letters from some locals with concerns about water quality. These were forwarded to KDHE.

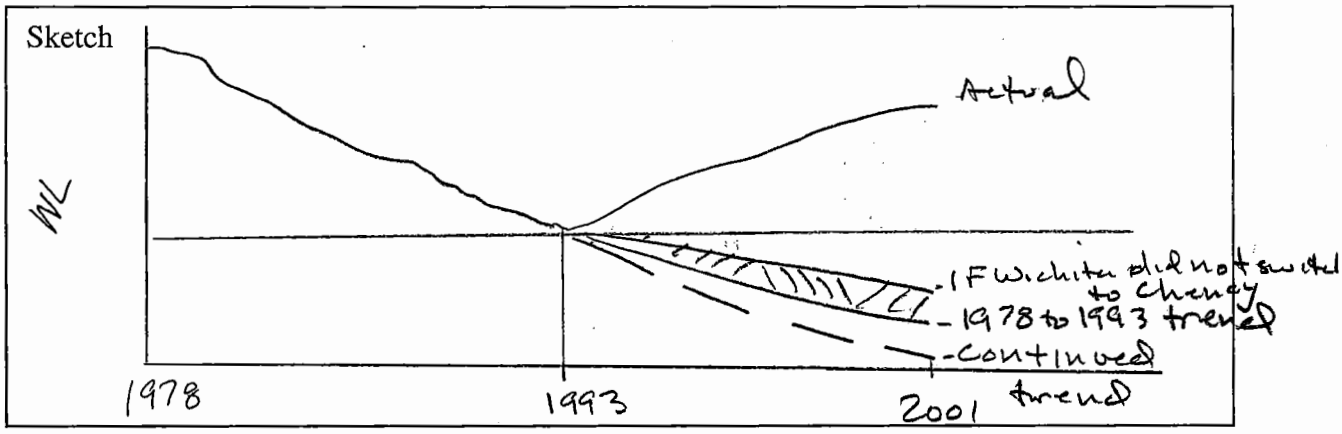
3. Modeling:

- The groundwater model is an excellent tool but is not better than real data.
- KDWR allows for modeling, field measurements or a combination in their regulations to prove induced infiltration/recovery.
- KDWR needs something defensible; the model must demonstrate annually, the number of recharge credits and where are they available.
- The model can helps address impairment issues if they arise.
- The modeling is moving in the right direction. The accounting method and dynamics are accurately shown in the model. The model should be refined as more data is collected.
- Suggested we get Jim and Dave together in our office to run some scenarios, review the model and answer any questions.
- Model is the holistic tool on how the aquifer works.

4. Issues:

- Is all the water in storage recharge?
- How much of the recharge is the City entitled?
- Model needs to tell us what water levels would be without recharge.
- Water quality issue without recharge. No action results in chloride contamination of the aquifer.
- The pure water level basis.
- Wichita's water rights plus a few senior irrigation water rights use the safe yield. Post 1978, irrigation took off, exceeding the safe yield and lowering aquifer levels. The well field area continually declined, it was just a matter of rate.
- Starting in 1993, the City reduced pumpage from the Equus Beds and increased pumpage from Cheney. The City is not pumping 20,000 AFY from the wellfield, which has caused the recovery.

- The area is not in safe yield if the City uses their water rights.
- For a simplistic approach for administration and demonstration to the public, Wichita cannot pump recharge credits below 1993 water levels.
- KDWR – City can claim credit for water recharged, accounted for, and its fate. The model is required to determine all these factors.
- Based on the natural recharge phenomena, safe yield is exceeded. If Wichita puts only part of their water to beneficial use, they should be entitled to credit.
- History proves continued declines in water levels until Wichita changed primary sources. Wichita pumped their water rights from a conjunctive use standpoint.
- The aquifer can be viewed as an underground reservoir or 38 interconnected reservoirs, 38 index cells in the accounting system.
- The Chief Engineer will consider recharge credits for water not pumped. City will need full simulations of analysis with and without recharge and with and without City not pumping Equus Bed WF to prove increase in storage and determine what portion of recovery Wichita is entitled since 1993.
- Look at USGS historical storage changes from 1940 to current and provide to KDWR. A graph of January water levels from 1940 to most current data will be developed.
- Model versus Actual Water Level:
  - Passive versus induced recharge.
  - Is Wichita entitled to saved water? If so, how much?
  - History shows safe yield is exceeded.
- Model complete area to show impact of not changing City pumping philosophy (no action). Then model what happened.
- Differentiate passive recharge and natural recharge in water budget.
- Call KDWR with data needs. The model is missing several years pumping data to 2001.



- Using water levels incorporates passive recharge until well pumpage exceeds 1993 levels.
- Which differential should Wichita request – the difference between current and 1993 or current and modeled continued decline if Wichita did not change pumping schemes?
- At this time, the City is not claiming all the water, just water above the January 1993 level.
- KDWR understands the 1993 bottom approach.
- A scenario needs to be modeled to address initiating the ASR Phase 1 (10 MGD) in 1993. Segregate passive versus induced recharge.

5. ASR Permits

- No separate ASR permit is required. Regulations tie the process together.
- City needs a permit to withdraw water from new wells and existing wells.
- An accounting system must be finalized.
  - What has been recharged?

- Where is it located?
- Issue recharge credits; like a bank account; can't overdraft.
- Define area, storage volume, and accounting methodology.

- City has surface water rights in the Little Arkansas River; about 1000 SF near Sedgwick.
- With first application, state that this permit application is the first in a series of permits for the ASR project. This helps tie the permit and future applications to the regulations.
- Application for Phase 1 should consist of seven diversion wells, three recharge wells, and three recharge basins. A public hearing will be required.
- File for the permanent permit for the diversion wells. Some conditions, such as proving induced infiltration / recovery, may be listed. This water is not part of the rivers safe yield.
- File permits for recovery wells as part of the ASR project. Need for maintenance / redevelopment.

6. Schedule:

- Public hearing and a comment period will be required. KDWR needs the model information as soon as possible to expedite the process and prepare for the public hearing.
- GMD2 will be asked to comment.
- Need applications and enough of the accounting to present accounting system for a public hearing.

7. Action Items:

- KDWR recommends maximizing diversion well quantity in the permit, up to 10 MGD all year spread over the seven wells. Quantity dictates cost of permit and can be adjusted down based on hydrologic data.
- B&McD was directed to model three scenarios:

- Scenario 1 - 1993 to 2001 if City had not changed supply scheme.
- Scenario 2 – 1993 to 2001 with City change in supply scheme.
- Scenario 3 – 1993 to 2001 with City change in supply scheme and 10 MGD ASR Phase 1.

- City will complete the applications.