

October 1, 2010

CITY OF WICHITA  
WATER PRODUCTION - PUMPING  
455 N MAIN ST 8TH FLOOR  
WICHITA KS 67202

Re: Appropriations: File Nos. 47,440; 47,448; 47,449;  
47,450; 47,451; 47,452; and 47,453

Dear Sir or Madam:

There is enclosed a Findings and Order for the City of Wichita's Aquifer Storage and Recovery Project - Phase II, concerning the above referenced applications. Attached to this order are the approvals of applications and permits to appropriate water authorizing you to proceed with construction of the proposed diversion works (except those dams and stream obstructions regulated by K.S.A. 82a-301 through 305a), to divert such unappropriated water as may be available from the source and at the locations specified in the permits, and to use it for the purposes and at the locations described in the permits.

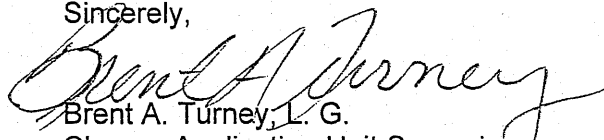
Your attention is directed to the enclosures and to the terms, conditions, and limitations specified in the order and in the permits. You must complete and submit an operations plan for approval prior to commencing project activities. Please note that you may only divert water when the index cell containing the ASR well has been determined to have available recharge credits.

Failure to notify the Chief Engineer of the Division of Water Resources of the completion of the diversion works within the time allowed, or within any authorized extension of time thereof, will result in the dismissal of these permits. Enclosed are forms which may be used to notify the Chief Engineer that the proposed diversion works have been completed.

All requests for an extension of time to complete the diversion works, or to perfect the appropriations, must be submitted to the Chief Engineer before the expiration of time originally set forth in the permits to complete the diversion works or to perfect the appropriations. If for any reason, you require an extension of time, you must request it before the expiration of time set forth in these permits. Failure to comply with this regulation will result in the dismissal of your permits or your water rights. Any request for an extension of time shall be accompanied by the required statutory fee, which is currently \$100.00 for each file.

There is also enclosed an information sheet setting forth the procedure to obtain Certificates of Appropriation which will establish the extent of your water rights. If you have any questions, please contact our office at 785-296-3495. If you wish to discuss a specific file, please have the file number ready so that we may help you more efficiently.

Sincerely,

  
Brent A. Turney, L. G.  
Change Application Unit Supervisor  
Water Appropriation Program

BAT:dws  
Enclosures  
pc: Stafford Field Office  
Equus Beds Groundwater Management District No. 2



KANSAS DEPARTMENT OF AGRICULTURE  
Joshua Svaty, Secretary of Agriculture

DIVISION OF WATER RESOURCES  
David W. Barfield, Chief Engineer

**Findings and Order  
In the Matter of the City of Wichita's  
Aquifer Storage and Recovery Project in  
Harvey and Sedgwick Counties, Kansas**

**Findings**

1. That in a Findings, Conclusion and Order dated August 8, 2005, on file in the office of the Chief Engineer, In the Matter of the City of Wichita's Applications To Operate an Aquifer Storage and Recovery Project in Harvey and Sedgwick Counties, Kansas ("Original Order"), the Chief Engineer approved Appropriation of Water, File Nos. 45,567, 45,568, 45,569, 45,570, 45,571, 45,572, 45,573, 45,574, 45,575, 45,576, and 46,081 proposing the appropriation of water for beneficial use.
2. That the Order had 24 Conditions including, but not limited to designation of the basin storage area and index cells for the project area, locations of the index wells, approved model and accounting methodology, and reporting requirements.
3. That in a Findings and Order dated August 1, 2006, ("Modified Order"), the Chief Engineer modified the Original Order approving Appropriation of Water, File Nos. 45,567, 45,568, 45,569, 45,570, 45,571, 45,572, 45,573, 45,574, 45,575, 45,576, and 46,081, specifically permit Condition Nos. 9, 12, 14, 17, 20, and 23, pertinent to bank storage wells.
4. That on September 18, 2009, the Chief Engineer issued a Findings and Order approving Appropriation of Water, File Nos. 46,627; 46,714; 46,715; 46,716; 46,717; 46,718; 46,719; 46,720; 46,721; 46,722; 46,723; 46,724; 46,725; 46,726; 46,727; 46,728; 46,729; 46,730; 46,731; 46,732; 46,733; 47,178; 47,179; 47,180; and 47,181.
5. That in a Findings and Order dated December 21, 2009, the Chief Engineer modified the original Order and Modified Order, to be referred to as the "City of Wichita's Aquifer Storage and Recovery Project in Harvey and Sedgwick Counties, Kansas", without referencing specific file numbers in the title of the Orders; and Condition No. 23 of the Modified Order was revised to allow the project review to extend through 2010.
6. That on December 11, 2009, the City of Wichita (City) filed Application, File No. 47,440; and subsequently on January 6, 2010, the City filed Applications, File Nos. 47,448; 47,449; 47,450; 47,451; 47,452; and 47,453, proposing the appropriation of groundwater (recharge credits) for municipal use.
7. That these new applications represent merely a continuance of Phase II of the Aquifer Storage and Recovery (ASR) project, wherein surface water will be diverted from the Little Arkansas River by means of a surface water intake (authorized under Appropriation of Water, File No. 46,627), treated, and injected into the Equus Beds Aquifer, to be later withdrawn by means of the same aquifer storage and recovery wells for municipal purposes.

8. That aquifer storage and recovery means the artificial recharge, storage and recovery of water and consists of apparatus for diversion, treatment, recharge, storage, extraction and distribution of water.
9. That the City and Equus Beds Groundwater Management District No. 2 (GMD #2) entered into a Memorandum of Understanding (M.O.U.), dated December 3, 2008, documenting the agreements made between the City and GMD #2, as to the proposed permitting, construction, and operation of Phase II of the aquifer storage and recovery project, a copy of which was subsequently received in the office of the Chief Engineer, Division of Water Resources, Kansas Department of Agriculture (DWR) on January 20, 2009.
10. That as referenced by GMD #2 in their recommendation of approval, and to maintain consistency with the Phase I ASR project, the new applications shall be subject to the pertinent conditions established in the "Original Order", and as modified by the August 1, 2006 ("Modified Order"), more specifically identified as follows:
  - A. That passive recharge credits shall not be allowed.
  - B. That the basin storage area and index cells for the project are as set forth in Attachment 2 to the Original Order.
  - C. That the locations of the index wells and the index water levels for the basin storage area shall be as set forth in Attachments 3 and 4 to the Original Order.
  - D. That the Model and accounting methodology remains as previously submitted, until otherwise modified by formal written approval of the Chief Engineer.
  - E. That if the City develops an improved model or methodology to account for water stored in the basin storage area that is approved by the Chief Engineer after consideration of the recommendation of the GMD #2, that the Chief Engineer may approve such improved methodology without the necessity of holding additional public hearings.
  - F. That the project shall be operated so that the measured water levels, and the water levels predicted by the Model, stay at or below the highest index water level any time water is being recharged into the basin storage area.
  - G. That water shall only be injected into the basin storage area by means of the injection wells when the water level at any required monitoring well located within 660 feet of an injection well is 10 feet or more below the land surface elevation at those observation wells; that recharge credits may be withdrawn from a cell only when recharge credits are available from the cell and the static water level at its index well is above the lowest index level; however, water may be recharged when the static water level is below the lowest index level in that well.
  - H. That the City by June 1 each year shall report an accounting of water diverted from the surface water intake and recharged into the basin storage area in the Equus Beds Aquifer; that the Report shall be submitted to the Chief Engineer and GMD #2. The accounting shall use the Model and the accounting methodology described herein.

In addition, the accounting reports shall meet the requirements of K.A.R. 5-12-2, including specifically addressing the following items for each cell in the basin storage area:

- Natural and artificial recharge;
- Groundwater inflow and outflow;
- Evaporation and transpiration;
- Groundwater water diversions from all non-domestic wells;
- Infiltration from streams;
- Groundwater discharge to streams; and
- The calculated recharge credits.

That the final determination of available recharge credits in each cell in the basin storage area shall be made by the Chief Engineer, upon consideration of the report required in Paragraph No. 9, above, and any recommendation by GMD #2. The Chief Engineer shall make the final determination in writing.

- I. That each ASR well shall be equipped with water flow meters, meeting the requirements of K.A.R. 5-22-4, to separately and accurately record the total quantity of water injected into and diverted by each well.
- J. That the source water used for artificial recharge shall not degrade the ambient groundwater quality use in the basin storage area, and shall comply with source water definition in K.A.R. 5-1-1; that the monitoring well network shown in Attachment 1 of this order is hereby approved; that the monitoring wells shall be drilled and completed at depths correlating to the recharge and recovery zone of the aquifer for the ASR wells for water sample collection, water level measurements and testing purposes; that the water level monitoring at any ASR well site shall be automated with a frequency not to exceed six hours; that before installation of any ASR well, the City shall submit a plan that includes water level monitoring as well as water quality monitoring to establish baseline ambient groundwater quality, which is sufficient to prevent impairment of the water quality beyond a reasonable economic limit, to GMD #2 for review and comment and the Chief Engineer for approval; that the plan should also be consistent with any requirement which KDHE may impose for any UIC permits KDHE may issue pertaining to the ASR wells.
- K. That surface water intake quantities, aquifer injection quantities and water level data shall be reported by the City to the Chief Engineer and GMD #2 as follows:
  - Each month for the first year of operation;
  - Each calendar quarter for the second year of operation;
  - By March 1 each year thereafter; or
  - Other intervals as may be required by the Chief Engineer to properly evaluate the project.
- L. That on or before June 1, of each calendar year, the City shall submit to the Chief Engineer and GMD #2, an annual accounting report for water in the basin storage area, utilizing the Model; that shall meet the requirements of K.A.R. 5-12-2.

- M. That the City of Wichita shall simultaneously submit to the Chief Engineer and GMD #2 a formal report containing a description and scaled map of the as-built aquifer storage and recovery project.
  - N. That the Chief Engineer also specifically retains jurisdiction in this matter with authority to make such reasonable reductions in the approved rate of diversion and quantity authorized to be perfected, and such changes in other terms, conditions, and limitations set forth in this approval and permit to proceed as may be deemed necessary to protect the public interest.
11. That the GMD #2 Board of Directors have reviewed each of the new applications listed above and recommended them for approval, subject to specific conditions.
  12. That use of the proposed ASR wells be authorized by the Kansas Department of Health and Environment (KDHE) as Class V Underground Injection Control (UIC) wells and that minimum water quality standards for effluent be approved by KDHE for organic and inorganic compounds, pesticides and bacteria; that the water recharged into the aquifer through the ASR wells comply with the source water definition in K.A.R. 5-1-1.
  13. That as agreed in the M.O.U., the GMD #2 Board of Directors recommended a waiver of the applicable well spacing requirements as necessary due to the unique nature of the recharge and recovery wells and related benefits.
  14. That GMD #2 recommends in order to establish baseline ambient groundwater quality prior to recharge, water quality analyses shall be completed at the applicant's expense for sample collected from: a) domestic wells for which access can be obtained located within and immediately adjacent to each index cell in which recharge will occur, b) the proposed ASR wells, and c) all monitoring wells located in the index cells in which recharge will occur.
  15. That there have been two previous public hearings concerning the ASR project, with the most recent held on April 29, 2009. The proposed wells described in these pending applications were depicted on a site map distributed to all who attended the meeting. In addition, there have been many other discussions and meetings with area landowners and well owners.
  16. That at the April 29, 2009 Public Hearing a total of eighteen individuals attended the hearing and five of them provided testimony during the hearing. A landowner at the meeting noted that one of the proposed wells would be installed on his property. The hearing officer concluded that the comments demonstrated benefit to the public and are therefore favorable to the approval of the applications.
  17. That the proposed applications represent only a continuance of the ASR Phase II project and the applications will be subject to the same permit conditions and limitations established for the previous files. Therefore, because the area landowners were made aware of the proposed wells during previous meetings and hearings, no public hearing will be necessary for these pending new applications.

Order

NOW, THEREFORE, the following are the decisions of the Chief Engineer:

1. That the City's applications to appropriate water for beneficial use, under File Nos. 47,440; 47,448; 47,449; 47,450; 47,451; 47,452; and 47,453, shall be and are hereby approved, as set out in Attachments 1 through 7, which are hereby made part of this Order.
2. That passive recharge credits shall not be allowed.
3. That the basin storage area and index cells for the project are as set forth in Attachment 2 to the Original Order, In the Matter of the City of Wichita's Applications To Operate an Aquifer Storage and Recovery Project in Harvey and Sedgwick Counties, Kansas dated August 8, 2005.
4. That the locations of the index wells and the index water levels for the basin storage area shall be as set forth in Attachments 3 and 4 to the Original Order, In the Matter of the City of Wichita's Applications To Operate an Aquifer Storage and Recovery Project in Harvey and Sedgwick Counties, Kansas dated August 8, 2005.
5. That the Model and accounting methodology remains as previously submitted, until otherwise modified by formal written approval of the Chief Engineer.
6. That if the City develops an improved model or methodology to account for water stored in the basin storage area that is approved by the Chief Engineer after consideration of the recommendation of the GMD #2, that the Chief Engineer may approve such improved methodology without the necessity of holding additional public hearings.
7. That the project shall be operated so that the measured water levels, and the water levels predicted by the Model, stay at or below the highest index water level any time water is being recharged into the basin storage area.
8. That water shall only be injected into the basin storage area by means of the injection wells when the water level at any required monitoring well located within 660 feet of an injection well is 10 feet or more below the land surface elevation at those observation wells. This condition must be maintained until such time that the applicant can demonstrate that allowing recharge water to exceed this level would be in the public interest. If the applicant can document that an alternative (shallower) water level would be protective of the public interest, the applicant may petition the Chief Engineer to modify or remove this requirement. That recharge credits may be withdrawn from a cell only when recharge credits are determined to be available from the cell and the static water level at its index well is above the lowest index level; however, water may be recharged when the static water level is below the lowest index level in that well.
9. That the City by June 1 each year shall report an accounting of water diverted from the surface water intake and recharged into the basin storage area in the Equus Beds Aquifer; that the Report shall be submitted to the Chief Engineer and GMD #2. The accounting shall use the Model and the accounting methodology described herein.

In addition, the accounting report shall meet the requirements of K.A.R. 5-12-2, including specifically addressing the following items for each cell in the basin storage area:

- a. Natural and artificial recharge;
  - b. Groundwater inflow and outflow;
  - c. Evaporation and transpiration;
  - d. Groundwater water diversions from all non-domestic wells;
  - e. Infiltration from streams;
  - f. Groundwater discharge to streams; and
  - g. The calculated recharge credits.
10. That the final determination of available recharge credits in each cell in the basin storage area shall be made by the Chief Engineer, upon consideration of the report required in Paragraph No. 9, above, and any recommendation by GMD #2. The Chief Engineer shall make the final determination in writing.
  11. That each ASR well shall be equipped with water flow meters, meeting the requirements of K.A.R. 5-22-4, to separately and accurately record the total quantity of water injected into and diverted by each well.
  12. That the source water used for artificial recharge shall not degrade the ambient groundwater use in the basin storage area, and shall comply with the source water definition in K.A.R. 5-1-1; that the water level monitoring at any ASR well site shall be automated with a frequency not to exceed six hours; that before operation of the proposed ASR wells, the City shall submit an operation plan that includes water level monitoring as well as water quality monitoring to establish baseline ambient groundwater quality, and which is sufficient to prevent impairment of the water quality beyond a reasonable economic limit to GMD #2 for review and comment, and the Chief Engineer for approval; that the plan should also be consistent with any requirements which KDHE may impose for any UIC permits KDHE may issue pertaining to the ASR wells.
  13. That surface water intake quantities, aquifer injection quantities and water level data shall be reported by the City to the Chief Engineer and GMD #2 as follows:
    - a. Each month for the first year of operation;
    - b. Each calendar quarter for the second year of operation;
    - c. By March 1 each year thereafter; or
    - d. Other intervals as may be required by the Chief Engineer to properly evaluate the project.
  14. That on or before June 1, of each calendar year, the City shall file an annual report with GMD #2, that shall contain the water balance in the basin storage area, and any additional information specified in K.A.R. 5-22-10.
  15. That the City of Wichita shall simultaneously submit to the Chief Engineer and GMD #2 a formal report containing a description and scaled map of the as-built aquifer storage and recovery project.





## CERTIFICATE OF SERVICE

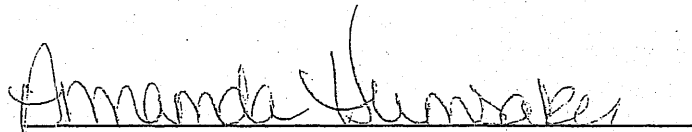
On this 1<sup>st</sup> day of October, 2010, I hereby certify that the foregoing Findings and Order, and Approval of Application and Permit to Proceed, File Nos. 47,440; 47,448; 47,449; 47,450; 47,451; 47,452; and 47,453, dated September 28 2010 were mailed postage prepaid, first class, US mail to the following:

CITY OF WICHITA  
WATER PRODUCTION - PUMPING  
455 N MAIN ST 8<sup>TH</sup> FL  
WICHITA KS 67202

With photocopies to:

EQUUS BEDS GROUNDWATER MANAGEMENT DISTRICT NO 2  
313 SPRUCE  
HALSTEAD KS 67046-1925

Stafford Field Office



Division of Water Resources

List of Attachments to Order

1. Approval of Application and Permit to Proceed, File No. 47,440
2. Approval of Application and Permit to Proceed, File No. 47,448
3. Approval of Application and Permit to Proceed, File No. 47,449
4. Approval of Application and Permit to Proceed, File No. 47,450
5. Approval of Application and Permit to Proceed, File No. 47,451
6. Approval of Application and Permit to Proceed, File No. 47,452
7. Approval of Application and Permit to Proceed, File No. 47,453