

THE STATE



OF KANSAS

**KANSAS DEPARTMENT OF AGRICULTURE**

**DIVISION OF WATER RESOURCES**

David W. Barfield, Chief Engineer

*Joshua Svaty, Acting Secretary of Agriculture*

**In the Matter of the  
Findings and Order  
For the City of Wichita's Aquifer Storage and Recovery Project- Phase II**

**Applications to Appropriate 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**

**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 February 12, 2007, the City of Wichita (City) filed Applications, File Nos. 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; and 46,733; and on October 8, 2008, Applications, File Nos. 47,178; 47,179; 47,180; and 47,181, proposing the appropriation of groundwater for beneficial use. File No. 46,627 was filed on November 13, 2006 proposing the appropriation of surface water from the Little Arkansas River.
5. That the new applications comprise a part 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 (to be authorized under Application, 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.
6. 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.

7. 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.
8. That on March 30, 2009, the Chief Engineer served notice of a Public Hearing, to be held on April 29, 2009, in the matter of the applications identified in Paragraph No. 3, of these findings, by mail to the City, GMD #2, and water right owners of record in the office of the Chief Engineer who had expressed concern or interest in the applications. The Chief Engineer also gave notice by publication in area newspapers regarding the Public Hearing, in the above mentioned matter.
9. That on April 29, 2009, under the authority of K.A.R. 5-12-3, a Public Hearing was convened in accordance with notices issued by the Chief Engineer; that it was attended in person by several representatives of the Kansas Department of Agriculture Division of Water Resources; City of Wichita representatives; GMD 2 staff/board members, Daniel Dyck, land owner; Eugene Wendling, land owner; and other interested parties. A total of eighteen individuals attended the hearing and five of them provided testimony during the hearing.
10. That on May 1, 2009, the hearing officer provided a memorandum to the Chief Engineer, describing the comments expressed at the hearing. The hearing officer concluded that the comments demonstrate benefit to the public and are therefore favorable to the approval of the applications. Letters were sent to both Daniel Dyck and Eugene Wendling on May 20, 2009 responding to their concerns and comments expressed at the public hearing.
11. 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.
12. 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.
13. That GMD #2 recommended that an additional monitoring well network of six (6) wells be installed as shown in Attachment 1 of this order.
14. 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.
15. That as agreed in the M.O.U., GMD #2 recommended that a waiver of the applicable well spacing requirements due to the unique nature of the recharge and recovery wells and related benefits.
16. 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.

**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. 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, shall be and are hereby approved, as set out in Attachments 2 through 26, 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 applicant shall install an additional monitoring well network of six (6) wells to monitor the aquifer storage and recovery project, at the locations depicted on the attached map in Attachment 1. The monitoring wells must be drilled and completed at depths correlating to the recharge and recovery zone of the aquifer. The monitoring wells will be used for water sample collection, water level measurements, and testing purposes.

- 16. 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.
- 17. 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.

**Petition for Review**

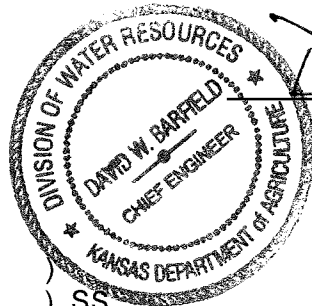
Pursuant to K.S.A. 2004 Supp. 82a-711 and K.S.A. 2004 Supp. 82a-1901(a), if aggrieved by this Initial Order, the applicant may petition for administrative review in accordance with the provisions of the Kansas Administrative Procedure Act, K.S.A. 82a-77-501 et seq. The petition must be filed within 15 days after the date of service of this Initial Order and must set forth the basis for review. The petition for administrative review shall be in writing and shall be submitted to:

Joshua Svaty, Acting Secretary of Agriculture  
Kansas Department of Agriculture  
109 SW 9<sup>th</sup> Street, 4<sup>th</sup> Floor  
Topeka, Kansas 66612  
Fax: (785) 368-6668

**Effective Date of Order; Final Agency Action**

Unless a later date is stated herein, this Initial Order shall become effective and shall become a final agency action, as defined in K.S.A. 77-607(b), without further notice to the parties, if a petition for administrative review has been filed, as set forth herein, and the Secretary has issued an order stating that review will not be exercised. If no party has filed a petition for administrative review by the Secretary and the Secretary has not given written notice of intention to exercise review, this Initial Order shall become effective and shall become a final agency action thirty (30) days after its service. K.S.A. 77-530.

Dated at Topeka, Kansas, this *18<sup>th</sup>* day of *September*, 2009.

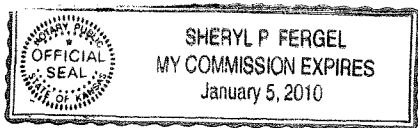


*David W Barfield*

David W. Barfield, P.E.  
Chief Engineer  
Division of Water Resources  
Kansas Department of Agriculture

State of Kansas )  
County of Shawnee ) SS

The foregoing instrument was acknowledged before me this *18<sup>th</sup>* day of *September*, 2009, by David W. Barfield, P.E., Chief Engineer, Division of Water Resources, Kansas Department of Agriculture.



*Sheryl P Fergel*  
Notary Public

## CERTIFICATE OF SERVICE


On this 24<sup>th</sup> day of September, 2009, I hereby certify that the foregoing Findings and Order, and Approval of Application and Permit to Proceed, 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, dated September 18, 2009 were mailed postage prepaid, first class, US mail to the following:

CITY OF WICHITA  
WATER & SEWER DEPARTMENT  
455 N MAIN  
WICHITA KS 67202

With photocopies to:

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

Stafford Field Office

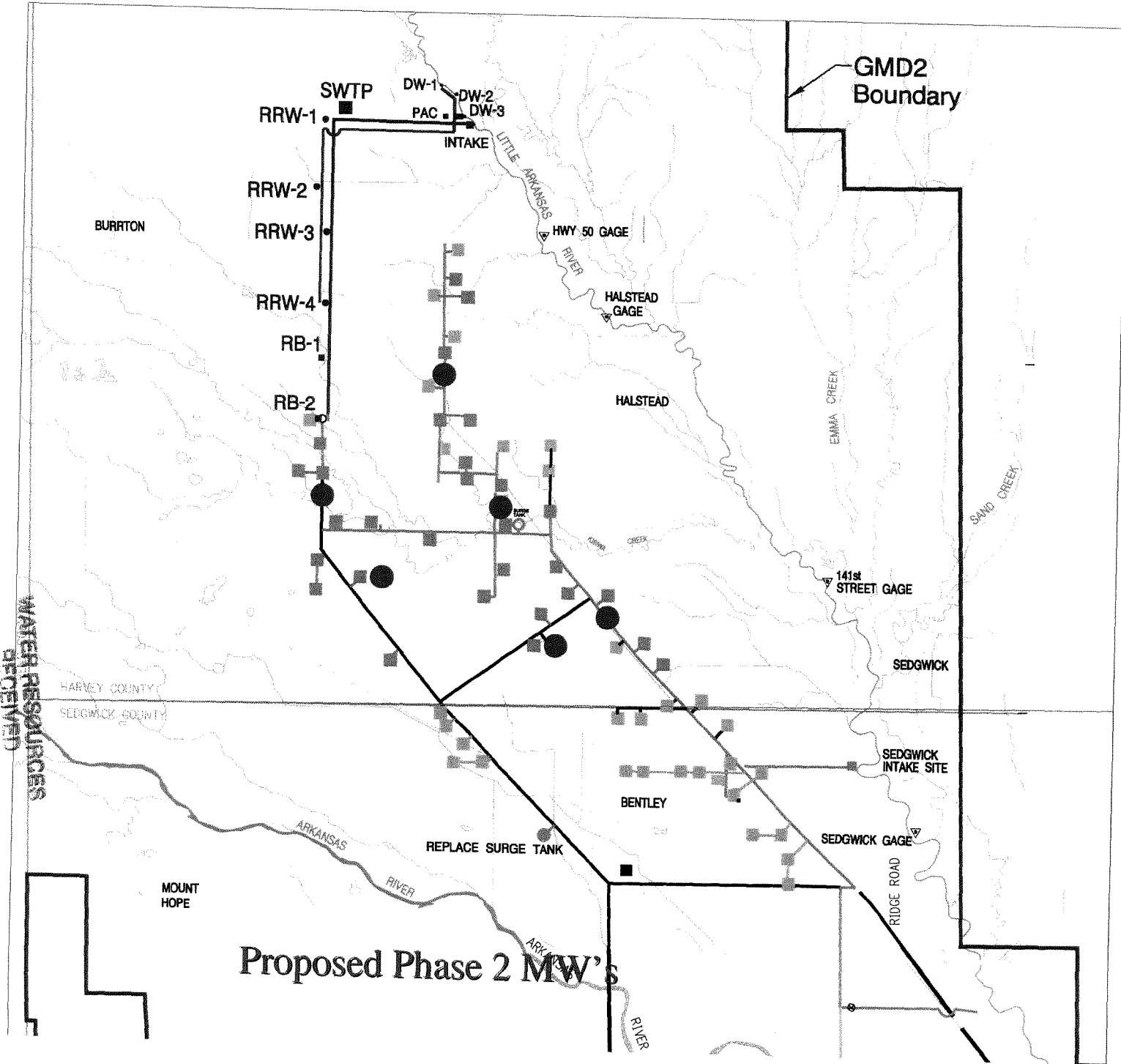
  
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Division of Water Resources



List of Attachments to Order

1. Map of Additional Monitor Well Network for Phase II ASR
2. Approval of Application and Permit to Proceed, File No. 46,627
3. Approval of Application and Permit to Proceed, File No. 46,714
4. Approval of Application and Permit to Proceed, File No. 46,715
5. Approval of Application and Permit to Proceed, File No. 46,716
6. Approval of Application and Permit to Proceed, File No. 46,717
7. Approval of Application and Permit to Proceed, File No. 46,718
8. Approval of Application and Permit to Proceed, File No. 46,719
9. Approval of Application and Permit to Proceed, File No. 46,720
10. Approval of Application and Permit to Proceed, File No. 46,721
11. Approval of Application and Permit to Proceed, File No. 46,722
12. Approval of Application and Permit to Proceed, File No. 46,723
13. Approval of Application and Permit to Proceed, File No. 46,724
14. Approval of Application and Permit to Proceed, File No. 46,725
15. Approval of Application and Permit to Proceed, File No. 46,726
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23. Approval of Application and Permit to Proceed, File No. 47,178
24. Approval of Application and Permit to Proceed, File No. 47,179
25. Approval of Application and Permit to Proceed, File No. 47,180
26. Approval of Application and Permit to Proceed, File No. 47,181





**Proposed Phase 2 MW's**

WATER RESOURCES  
DEVELOPED

JAN 05 2009

KS DEPT OF AGRICULTURE

SCANNED

