

MINUTES OF THE HOUSE ENVIRONMENT COMMITTEE

The meeting was called to order by Chairperson Joann Freeborn at 3:30 P.M. on January 31, 2006 in Room 231-N of the Capitol.

All members were present except:

Representative Vaughn Flora- excused

Committee staff present:

Raney Gilliland, Legislative Research Department
Emalene Correll, Legislative Research Department
Lisa Montgomery, Revisor of Statutes Office
Pam Shaffer, Committee Secretary

Conferees appearing before the committee:

Lane Letourneau, Department of Agriculture, Division of Water
Kent Weatherby, General Counsel for the Kansas River Water District No. 1
Greg Wilson, Consultant for Marais des Cygne River Water Assurance District No. 2
Fred Rogge, General Manager, Cottonwood/Neosho River Basins Water Assurance District No. 3

Others attending:

See attached list.

Chairperson Freeborn requested everyone to please sign the guest list being passed around. She announced the agenda for Thursday, February 2 would be bill requests, a review on research and extension programs by Fred A Cholik, Dean of Agriculture, Kansas State University, and a hearing on **HCR5029 - Congress urged to ban MTBE in gasoline by January 2, 2010.**

Chairperson Freeborn also announced that at this time there is no plans to pass **HCR5028 - Concurrent Resolution encourgaing KTA to require service area operators to offer fuels containing ethanol and biodiesel** out of committee.

Everyone has the following handouts in front of them: 1) A letter from C. Edward Peterson of the Mid America Regional Council (MARC) regarding the legislative proposal that would require all gas sold in the state of Kansas contain 10% ethanol by the 2010. (See attachment 1) 2) The fiscal note for **HB2683 - Addition to membership of the Kansas water authority** (See attachment 2)

Bill requests were taken, Woody Moses, requested a bill regarding appropriation of water for beneficial use (See attachment 3). Representative Hayzlett moved to introduce the bill, Representative Johnson seconded. Motion carried.

Chairperson Freeborn opened the hearing on **HB2683 - Addition to membership of the Kansas water authority**

Kent Weatherby, General Counsel for the Kansas River Water District No. 1, proponent testified (See attachment 4).

Kent Weatherby read a letter from Carl Nuzman, Chairman, Kansas-Lower Republican Rivers Basin Advisory Committee, proponent. (See attachment 5)

Greg Wilson, Consultant, Board of Directors of the Marais des Cygne River Water Assurance District No. 2, proponent testified. (See attachment 6)

Fred Rogge, General Manager for the Cottonwood/Neosho River Basins Water Assurance District No. 3, proponent testified. (See attachment 7)

Bill Callaway, Clay Center Public Utilities Commission, opponent, a copy of his written testimony was given to each committee member. (See attachment 8)

CONTINUATION SHEET

MINUTES OF THE House Environment Committee at 3:30 P.M. on January 31, 2006 in Room 231-N of the Capitol.

Joe Fund, Kansas Water Office, neutral testified (See attachment 9)

Questions and discussion followed the testimony.

Chairperson Freeborn closed the hearing.

Chairperson Freeborn introduced Lane Letourneau, Department of Agriculture, Division of Water who gave a briefing on Senate Bill 364, which the 2004 Legislature passed. This bill required the Kansas Department of Agriculture's Division of Water Resources to work with the Kansas Geological Survey to study and make recommendations on three items: 1) Study water banking as it relates to sand and gravel pits. 2) Calculate the amount of water lost to evaporation and assess its effect on consumptive use, with special emphasis given to salt cedar (tamarisk), a plant that consumes a lot of water. 3) The legislature asked to know more about pollution and flood control impacts of diverting water runoff into sand and gravel pits. This direction from the Legislature came without funding. The agencies involved reallocated funds in current budgets to start the project, but \$66K is needed to complete it, which they will possibly ask for next year. (See attachment 10)

Questions and discussion followed Mr. Letourneau's briefing.

Chairperson Freeborn adjourned the meeting at 4:55. The next scheduled Environment Committee meeting is February 7.

HOUSE ENVIRONMENT COMMITTEE GUEST LIST

DATE: 01/31/06

NAME	REPRESENTING
LANE LETOURNEAU	KDA - DWR
Kent Weatherby	Kansas River Water Assur. Dist
Greg Wilson	Marian de Cysne #2
FRED ROGGE	COTTONWOOD/NEOHO RIVER BASINS WATER ASSURANCE DIST.
Amber Kollman	Rep. Dan Johnson
Mary Jane Stankiewicz	KAEP
Susan Hayman	Ks Coop Council
Chris Wilson	Ks Bldg Industry Ass'n
Jim Smith	WA BA
M.S. Mitchell	Wichita
Jennifer Lyon	Pruett, Smith, + Assoc.
Steve Swaffar	Ks Farm Bureau
Gor Furd	KWB
Earl D. Lewis, Jr. PE	KWB
Lindsey Douglas	Hein Law Firm

January 20, 2006

Joann Freeborn
Select Joint Committee on Energy Member
1904 N 240th Rd
Concordia, KS 66901

Dear Representative Freeborn:

On behalf of the Mid-America Regional Council (MARC) Air Quality Forum, designated by the States of Kansas and Missouri as the air quality planning organization for the Kansas City region under Section 174 of the Clean Air Act, I am writing in regard to a legislative proposal that would require that all gasoline sold in the State of Kansas contain ten percent ethanol (E10) by the year 2010. While there are clearly benefits to using fuels derived from renewable resources, an E10 mandate has the potential to negatively impact air quality in the Kansas City region. We want to make you aware of these potential impacts and suggest some ways to promote ethanol without jeopardizing the region's air quality status.

As you perhaps know, the Kansas City region successfully met the new, stricter federal eight-hour ozone (smog) standard in 2005. However, air quality modeling suggests there is a high probability that the region will violate the standard within the next several years unless the emissions that cause ozone are further reduced. Current scientific tools (including the official model used by the U.S. EPA to estimate motor vehicle emissions) indicate that increased use of E10 fuels in the Kansas City region will increase these emissions. While research is continuing on the impact of this increase on ozone levels, we are concerned about any new fuel-related policies or requirements that could make it more difficult for the region to maintain its clean air status. Violations of the ozone standard would not only affect public health, but they would require new air quality regulations. These regulations would, in turn, increase the cost of doing business in Kansas City and would make the region less competitive in attracting new business development and investment dollars.

We want to make you aware of policy options that could accomplish both the objective to promote ethanol as a motor fuel and the objective to protect Kansas City's clean air status. These are outlined briefly below:

- **Eliminate the volatility waiver for E10 fuels.** Adding 10 percent ethanol to gasoline increases the overall volatility of the fuel, which is the primary reason that E10 increases the emissions that cause ozone. E10 is currently granted a waiver from state and federal

Chair
Ronald L. Shaffer
Mayor
Prairie Village, Kan.

1st Vice Chair
Gary Mallory
Presiding Commissioner
Cass County, Mo.

2nd Vice Chair
Tom Cooley
Commissioner
Unified Government
of Wyandotte County/
Kansas City, Kan.

Treasurer
Carol McCaslin
Presiding Commissioner
Clay County, Mo.

Secretary

Executive Director

House Environment Committee
January 31, 2006
Attachment 1

volatility requirements. Eliminating this waiver for E10 marketed in the Kansas City region during the high ozone season (June 1 through September 15) would enable the region to use E10 without adverse air quality impacts. This would necessitate mixing the ethanol with a less volatile base gasoline. Technical issues associated with supplying a lower-volatility blendstock to the Kansas City market would need to be discussed with petroleum refiners.

- **Exempt the Kansas City region from an E10 mandate during the ozone season (April through October).** The greatest threat of ozone violations occurs from June 1 through September 15 each year. Exempting the region from an E10 mandate during these months would somewhat mitigate the adverse air quality impact.
- **Promote the use of E85 fuel in the Kansas City metropolitan area.** Ethanol by itself is less volatile than gasoline, and higher-ratio blends of ethanol and gasoline are also less volatile than E10 fuel. Flexible-fuel vehicles have special engines that can operate either on gasoline or a mixture of 85 percent ethanol/15 percent gasoline (E85). There are many such vehicles already in operation in the Kansas City area, although there are very few service stations that sell E85 fuel. Aggressively promoting flexible-fuel vehicles and E85 refueling stations in the region could increase ethanol use throughout the year without adversely affecting air quality during the ozone season.

If an E10 mandate is implemented in the Kansas City area in the absence of any effort to mitigate the emissions impact, please be aware that new requirements to reduce emissions from other sources may be needed to offset the increased emissions from E10.

We appreciate your consideration and look forward to working with you and your colleagues in the legislature to craft an approach that meets our mutual objectives. If you have any questions or desire additional information, please call James Joerke, MARC Air Quality Program Manager, at 816-701-8259.

Sincerely,



C. Edward Peterson
Chair, Air Quality Forum

January 31, 2006

The Honorable Joann Freeborn, Chairperson
House Committee on Environment
Statehouse, Room 143-N
Topeka, Kansas 66612

Dear Representative Freeborn:

SUBJECT: Fiscal Note for HB 2683 by House Committee on Environment

In accordance with KSA 75-3715a, the following fiscal note concerning HB 2683 is respectfully submitted to your committee.

HB 2683 would add one member to the Kansas Water Authority. The new member would be appointed by the Governor and must be a member of a state water assurance district.

Estimated State Fiscal Effect				
	FY 2006 SGF	FY 2006 All Funds	FY 2007 SGF	FY 2007 All Funds
Revenue	--	--	--	--
Expenditure	--	--	\$2,670	\$2,670
FTE Pos.	--	--	--	--

The Kansas Water Office indicates that the addition of one member to the Authority would cost an additional \$2,670 from the State General Fund. The expenditures would include travel and per diem expenses to reimburse members who attend Authority meetings. The budget for the Kansas Water Office includes expenditures budgeted for the Kansas Water Authority. With the exception of the members who are state agency personnel, Kansas Water Authority members are not considered full-time equivalent employees. Any fiscal effect resulting from the

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The Honorable Joann Freeborn, Chairperson
January 31, 2006
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passage of this bill would be in addition to amounts recommended in *The FY 2007 Governor's Budget Report*.

Sincerely,

A handwritten signature in cursive script that reads "Duane A. Goossen".

Duane A. Goossen
Director of the Budget

cc: Joe Fund, Water Office

KAPA Bill Request

Amending 82a-714a

Chapter 82a.--WATERS AND WATERCOURSES

Article 7.--APPROPRIATION OF WATER FOR BENEFICIAL USE

82a-714a. Same; completion of works; extension of time; certificate of appropriation; fees. [See Revisor's Note] (a) Upon the completion of the construction of the works and the actual application of water to the proposed beneficial use within the time allowed, the applicant shall notify the chief engineer to that effect. The chief engineer or the chief engineer's duly authorized representative shall then examine and inspect the appropriation diversion works and, if it is determined that the appropriation diversion works have been completed and the appropriation right perfected in conformity with the approved application and plans, the chief engineer shall issue a certificate of appropriation in duplicate. The original of such certificate shall be sent to the owner and shall be recorded with the register of deeds in the county or counties wherein the point of diversion is located, as are other instruments affecting real estate, and the duplicate shall be made a matter of record in the office of the chief engineer.

(b) Not later than 60 days before the expiration of the time allowed in the permit to complete the construction of the appropriation diversion works or the time allowed in the permit to actually apply water to the proposed beneficial use, the chief engineer shall notify the permit holder by certified mail that any request for extension of such time must be filed with the chief engineer before the expiration of the time allowed in the permit.

(c) Unless the applicant requests an extension or the certificate has not been issued due to the applicant's failure to comply with reasonable requests for information or to allow the opportunity to examine and inspect the appropriation diversion works, as necessary for certification, the chief engineer shall certify an appropriation:

(1) Before July 1, 2004, if the time allowed in the permit to perfect the water right expired before July 1, 1999; or

(2) not later than five years after the date the applicant notifies the chief engineer of the completion of construction of the works and the actual application of water to the proposed beneficial use within the time allowed, in all other cases.

If the chief engineer fails to issue a certificate within the time provided by this subsection, the applicant may request review, pursuant to K.S.A. 2004 Supp. 82a-1901 and amendments thereto, of the chief engineer's failure to act.

(d) Except for works constructed to appropriate water for domestic use or for existing works previously inspected, each notification to the chief engineer under subsection (a) shall be accompanied by a field inspection fee of \$200, or commencing July 1, 2002, and ending June 30, 2010, a fee of \$400. For works constructed pursuant to 82a-734 the each

notification to the chief engineer under subsection (a) shall be accompanied by a field inspection fee of \$100. Failure to pay the field inspection fee, after reasonable notice by the chief engineer of such failure, shall result in the permit to appropriate water being revoked, forfeiture of the priority date and revocation of any appropriation right that may exist.

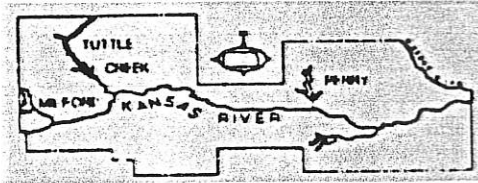
(e) A request for an extension of time to: (1) Complete the diversion works; or (2) perfect the water right, shall be accompanied by a fee of \$50, or commencing July 1, 2002, and ending June 30, 2010, a fee of \$100.

(f) A request to reinstate a water right or a permit to appropriate water which has been dismissed shall be filed with the chief engineer within 60 days of the date dismissed and shall be accompanied by a fee of \$100, or commencing July 1, 2002, and ending June 30, 2010, a fee of \$200.

(g) All fees collected by the chief engineer pursuant to this section shall be remitted to the state treasurer as provided in K.S.A. 82a-731, and amendments thereto.

History: L. 1945, ch. 390, § 14; L. 1957, ch. 539, § 20; L. 1985, ch. 339, § 3; L. 1990, ch. 362, § 1; L. 1999, ch. 130, § 6; L. 2002, ch. 181, § 23; L. 2004, ch. 85, § 18; July 1.

The Kansas River



Water Assurance District No. 1

212 SW 7th Street – Topeka, Kansas 6603-3717

Environment Committee
House of Representatives
2006 Legislative Session

HB 2683

Kent Weatherby, Conferee

Chairman Freeborn and members of the committee, my name is Kent Weatherby. I am General Counsel for The Kansas River Water District No.1 (KRWAD). I have also served the KRWAD as one of its incorporators, representative to its board of directors, corporate secretary and president while employed by one of the district members.

Water assurance districts were established pursuant to statutory authority passed by the legislature in 1986. The concept was visionary. Water assurance districts were to be the mechanism by which municipalities and industries located downstream of those federal reservoirs having a water supply component would be able to satisfy the demand of their residents and business operations with water during periods of drought. To do that the operation of the reservoirs and river requires the coordination and cooperation of the Kansas Water Office, the Division of Water Resources and the U.S. Army Corps of Engineers with the management of the assurance district.

Since the authorizing legislation was passed three water assurance districts have been established, The Kansas River Water Assurance District No. 1, the Marais des Cygne River Water Assurance District No. 2, and the Cottonwood and Neosho River Basins Water Assurance District No. 3. All three of the districts have experienced droughts since they were established and I am delighted to tell you the wisdom the legislature showed by creating a program for drought contingency works. It works very well. But it can work only when the federal reservoirs and the river systems downstream of those reservoirs have policies in place that take into consideration the needs of the people and businesses.

House Environment Committee
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In order for you to have some idea of the extent water assurance district operations impact the people of the State of Kansas the three assurance districts adopted Joint Resolution 05-01. A copy of that resolution is included as an addendum to this statement. Briefly summarized it indicates roughly 2,000,000 Kansans located in 23 cities in addition to the metropolitan areas Johnson, Wyandotte and Sedgwick Counties receive benefit from assurance district operations. The municipalities and industries supplying that drought water through the assurance districts have invested more than \$11,100,000 to purchase storage in Milford, Tuttle Creek, Perry, Melvern, Pomona, Council Grove, Marion and John Redmond Reservoirs. The Kansas River, Cottonwood River, Neosho River and Marais des Cygne River, very nearly all of the counties in eastern Kansas, are benefited by the maintenance of flow below the reservoirs mentioned above. And yet the water assurance districts do not have a place at the table where policy decisions relating to those reservoirs and river systems are decided. They are not represented on the Kansas Water Authority. While that may have been understandable in the past it is unwise to continue in that manner.

When the Kansas Water Authority was established in 1981 the concept was to provide representation for all the major water interest groups on a body politic that would make policy decisions relating to the waters, reservoir, river and ground water of the state. The League of Municipalities, Kansas Association of Commerce and Industry, Rural Water Association, Conservation Districts, Watershed Districts, environmental and public representation was provided for and groundwater representation was provided for through two seats allocated to Groundwater Management Districts. But, since water assurance districts were not authorized until the 1986 legislative session no provision was made for a spokesperson for the surface water storage in federal reservoirs. I would submit to you that the relationship assurance districts have to reservoir storage is very similar to the relationship groundwater management districts have to groundwater storage. I find it hard to believe that assurance districts would not have had a seat at the table if they had been in existence in 1981. Indeed, it was the enabling legislation for groundwater management districts that served as the model for assurance districts when the law authorizing assurance districts was passed in 1986.

As I conclude these comments I want to point out a few important facts from the joint resolution:

- Assurance districts provide drought supply water to over 55% of the total population (2,000,000 persons) of the State of Kansas.
- Political and industrial entities representing that population have invested more than \$11,100,000 in 229,400 acre-feet of reservoir storage capacity to keep the rivers flowing during times of drought.
- Operation agreements have been negotiated with the Kansas Water Office and the Division of Water Resources by each of the assurance districts to operate the reservoirs and the rivers as a unified system to meet the goal of keeping the rivers flowing.
- There is currently NO representation on the Kansas Water Authority with expertise and focused interest on the federal reservoirs of the state and river systems regulated by those reservoirs.

The Kansas/Lower Republican Basin Advisory Committee favorably endorsed this resolution at its October 2005 meeting. The chairman of that committee, Mr. Carl Nuzman is out of the state

and unable to attend the hearing today. It is my understanding he will be sending you a letter in support of HB 2683. Mr. Nuzman has favored me with a copy of that letter and would like for me to read it to you at this time.

As a member of the Kansas Lower Republican Basin Advisory Committee I just received a copy of the 2006 Annual Report of the Kansas Water Authority to the governor and legislature dated November 18, 2005 from the Kansas Water Office. As a footnote I might add that assurance districts do not receive a copy of this report. The Capital Development Plan (2007 through 2011) on page 12 of that report indicates 24% of the total expenditure for FY 2006 is allocated to federal reservoir issues. That percentage remains constant throughout the forecast period. As time passes the Kansas Water Authority will continue to be faced with the question of unfunded liability for purchasing reservoir storage. It will continue to struggle with the issue of charges for water under the marketing program and understanding the differences between the water marketing program and the assurance program. Without the input from an assurance district representative the likelihood of error is magnified.

We respectfully request your favorable action on HB 2683. I would be happy to take any questions the committee members may have.

Joint Resolution

Kansas River Water Assurance District No. 1 Marais des Cygne River Water Assurance District No. 2 Cottonwood and Neosho River Basins Water Assurance District No.3

Resolution 05-01

Whereas, the State of Kansas authorized the incorporation of water assurance districts by the passage of K.S.A. 82a-1331 et seq to contract with the Kansas Water Office for the purchase of water supply storage from the federal reservoir system in the state to provide water during periods of drought to municipal and industrial eligible water right holders, as certified by the Chief Engineer, Division of Water Resources, Department of Agriculture, and

Whereas, the legislation codified at K.S.A. 82a-1331 et seq was patterned after the enabling legislation under which groundwater management districts were established, and

Whereas, pursuant to said enabling legislation three (3) water assurance districts have been incorporated, Kansas River Water Assurance District No. 1¹, Marais des Cygne River Water Assurance District No.2², and Cottonwood and Neosho River Basins Water Assurance District No. 3³, and

Whereas, the three water assurance districts have a total of 229,400 acre feet of storage contracted⁴ having paid the state and federal government more than \$11,100,000 to purchase that storage from the Corps of Engineers, and

Whereas, pursuant thereto each water assurance district has entered into an operations agreement with the Kansas Water Office for the operation of storage dedicated to their memberships, and

Whereas, the population of the State of Kansas benefiting from assurance district operations by the supply of municipal drinking water and or electric power is approximately 2,000,000, as shown by the attached table made a part hereof by reference, and

¹ **Municipal members:** City of Junction City, City of Manhattan, City of Topeka, City of Lawrence, City of DeSoto, City of Olathe, City of Bonner Springs, Water District No. 1 of Johnson County
Industrial members: Westar Energy, Hills Pet Products, Innovia, and Kansas City Board of Public Utilities

² **Municipal members:** City of La Cygne, City of Melvern, City of Osawatomie, City of Ottawa, Franklin County RWD #6
Industrial members: Kansas City Power and Light

³ **Municipal members:** City of Parsons, City of Erie, City of Council Grove, Public Wholesale Water Supply District No. 5, City of Chanute, City of Burlington, City of Iola, City of Humboldt, City of Oswego, Woodson County RWD #1, City of Cottonwood Falls, City of LeRoy, City of Chetopa, City of St. Paul
Industrial members: Westar Energy, Monarch Cement Company, Kansas Army Ammunition Plant, Ash Grove Cement Company and City of Iola Electric Power Plant

⁴ Milford, Tuttle Creek, Perry, Council Grove, Marion, John Redmond, Melvern, and Pomona Reservoirs all have assurance water storage capacity dedicated to the use of the assurance districts.

Whereas, the water assurance districts believe they stand in much the same position to surface water storage that groundwater management districts do to groundwater/aquifer storage, and

Whereas, membership on the Kansas Water Authority does not adequately represent the interests of the municipal and industrial entities, serving that population base, as currently established:

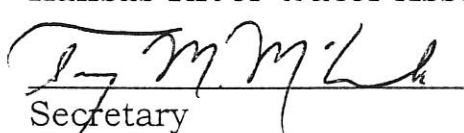
- | | | |
|---------------------------------|---|--|
| Groundwater Management District | - | 2 members |
| Public | - | 2 members |
| Commerce and Industry | - | 1 member |
| Environment | - | 1 member |
| Rural Water Association | - | 1 member |
| League of Municipalities | - | 1 member |
| Conservation Districts | - | 1 member |
| Political Appointments | - | 3 members (one each by Governor, Speaker of the House and President of the Senate) |

Now therefore be it resolved by the board of directors of the water assurance districts, individually and jointly, that the Legislature of the State of Kansas be requested to amend K.S.A. 74-2622 providing for one member of the Kansas Water Authority to be appointed by the governor from one representative proposed for such membership by each of the three water assurance districts.

Be it further resolved that upon adoption by the boards of directors of all three assurance districts that this resolution be forwarded to the Kansas Legislature for such action as they deem appropriate.

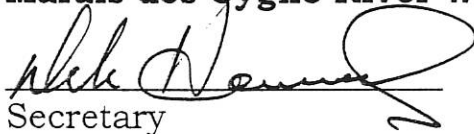
By order of the Board of Directors:

Kansas River Water Assurance District No.1


Secretary


Adopted: 9/6/2005

Marais des Cygne River Water Assurance District No. 2


Secretary

Adopted: 8/24/2005

Cottonwood and Neosho River Basins Water Assurance District No.3


Secretary

Adopted: 8-11-2005

POPULATION SERVED BY MEMBERS⁵

Kansas River Water Assurance District No. 1 Estimated Number of People

Municipal members:

City of Bonner Springs	6,768
City of DeSoto	4,561
City of Junction City	18,886
City of Lawrence	80,098
City of Manhattan	44,831
City of Olathe	92,962
City of Topeka	122,377
Johnson County Water District No. 1	486,515

TOTAL

856,998

Industrial members:

Westar Energy ⁶	740,600
Hills Pet Products	N/A
Innovia	N/A
Kansas City Board of Public Utilities	145,757

TOTAL

886,357

Marais des Cygne River Water Assurance District No. 2 Estimated Number of People

Municipal members:

City of La Cygne	1,115
City of Melvern	429
City of Osawatomet	4,645
City of Ottawa	11,921
Franklin County RWD #6	2,850

TOTAL

20,960

Industrial members:

Kansas City Power and Light ⁷	379,500
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⁵ Every member on this table has been certified by the Chief Engineer, Division of Water Resources, Department of Agriculture as receiving benefit by the operations of the water assurance district where it is located. **Municipal population taken from <http://quickfacts.census.gov/qfd/states/20000.html> on August 3, 2005**

⁶ The impact Westar Energy has is understated inasmuch as Wichita and the former KGE territory is also served by Jeffrey Energy Center, Wolf Creek Nuclear Power Plant, Tecumseh and Lawrence Energy Centers, and Neosho Power Plant. A customer base of 644,000 was assumed with 2.3 persons residing in each home. The total population served was divided equally between the former KPL and KGE territories.

Cottonwood and Neosho River Basins
Water Assurance District No. 3
Estimated Number of People

Municipal members:

City of Burlington	2,790
City of Chanute	9,411
City of Chetopa	1,281
City of Cottonwood Falls	966
City of Council Grove	2,321
City of Erie	1,211
City of Emporia	26,639
City of Humboldt	1,999
City of Iola	6,302
City of Leroy	593
City of Oswego	2,046
City of Parsons	11,514
City of St. Paul	646
Public Wholesale Water Supply District No. 5	N/A
Woodson County RWD #1 ⁸	7,590

TOTAL

75,309

Industrial members:

Westar Energy ⁹	740,600
Monarch Cement Company	N/A
Kansas Army Ammunition Plant	N/A
Ash Grove Cement Company	N/A
City of Iola Electric Power Plant	6,000

TOTAL

746,600

ESTIMATED TOTAL NUMBER OF PEOPLE SERVED WITH WATER OR
ELECTRICITY BY ASSURANCE DISTRICT MEMBERS

2,000,000+¹⁰

⁷ A customer base of 165,000 for the State of Kansas was assumed with 2.3 persons residing in each home.

⁸ A customer base of 3,300 for the State of Kansas was assumed with 2.3 persons residing in each home.

⁹ A customer base of 322,000 for the former KGE territory was assumed with 2.3 persons residing in each home.

¹⁰ The exact number would be virtually impossible to determine because of the overlap between municipal and electric utility customers.

KANSAS-LOWER REPUBLICAN RIVERS
BASIN ADVISORY COMMITTEE
To the
KANSAS WATER AUTHORITY

January 26, 2006

Joann Freeborn, Chairman
Environment Committee
House of Representatives
2006 Legislative Session

RE: HB 2683

Chairman Freeborn and Members of the Committee,

In the meeting of the Kansas-Lower Republican rivers Basin Advisory Committee (KLR/BAC), of October 20, 2005, Mr. Kent Weatherby presented the Joint Resolution 05-01 to the BAC. After discussion, the KLR/BAC voted to support the resolution for Water Assurance Districts to have representation on the Kansas Water Authority. This action of the BAC was forwarded as a message to the Kansas Water Authority.

Nearly 50% of the population of Kansas resides in the Kansas river corridor area. The natural flows of the Kansas river can not support the water supply needs of the area without the Federal reservoirs in the basin and maintain the minimum desirable stream flows in the lower reaches of the river.

At present, the City of Manhattan is in the process of expanding their water supply from wells adjacent to the Blue River below Tuttle Creek reservoir. Innovia is increasing the number of wells to increase the reliability of their water supply on Franks Island in the Kansas river near Tecumseh. Without membership in the Kansas River Water Assurance District No. 1, these entities would be prohibited from these essential water resource development activities under the current Rules and Regulations of the Kansas Department of Agriculture, Division of Water Resources.

To balance representation of surface water interests on the Kansas Water Authority, it is essential to have the Water Assurance Districts represented. Therefore, the Kansas-Lower Republican rivers Basin Advisory Committee supports the provisions of House Bill 2683.

Respectfully submitted for consideration,



Carl E. Nuzman, Chairman
Kansas-Lower Republican rivers
Basin Advisory Committee

House Environment Committee
January 31, 2006
Attachment 5

**The Marais des Cygne River
Water Assurance District No. 2
City Hall, Ottawa, Kansas**

**Environment Committee
House of Representatives
2006 Legislative Session**

HB 2683

Greg Wilson, Conferee

Chairman Freeborn and members of the committee, my name is Greg Wilson. I have been retained by the Board of Directors of the Marais des Cygne River Water Assurance District No.2 as their consultant on issues relating to water rights, the assurance program and to provide general administrative management. They have requested that I register, with this committee, their support for HB 2683.

I will not repeat Mr. Weatherby's discussions about the assurance program and the substantial financial investments each assurance district has made in the assurance program. However, I would like to comment on the legislation before you now.

It has become apparent that the State of Kansas, working through the Kansas Water Office, seeks to establish the regionalization of water supply and water treatment. This is a goal that will require regional organizations, such as the assurance districts, to participate in the formulation of water policies. Therefore, assurance district representation on the Kansas Water Authority will smooth the progress of the concept of water supply and treatment regionalization.

We respectfully request your favorable action on HB 2683. I would be happy to take any questions the committee members may have.

House Environment Committee
January 31, 2006
Attachment 6

**Cottonwood and Neosho
River Basins
Water Assurance District No. 3**

HB 2683

Chairman Freeborn and Members of the Committee,

My name is Fred Rogge. I am General Manager for the Cottonwood/Neosho River Basins Water Assurance District No. 3 (C/NRBWAD).

The C/NRBWAD encompasses the basins of the Cottonwood River and the Neosho River from the City of Council Grove at the north end to the City of Chetopa at the south end. The membership of the District is comprised of 19 municipal and industrial entities who have purchased storage capacity in Council Grove Reservoir, Marion Reservoir and John Redmond Reservoir for drought contingencies. The largest municipal member is the City of Emporia and the smallest municipal member is the City of LeRoy.

On August 11, 2005, the Board of Directors of the C/NRBWAD held their quarterly meeting and unanimously approved Joint Resolution 05-01. The board members realize the importance of having a representative on the Kansas Water Authority who will focus on surface water interests.

I am here to request your approval of HB 2683.

I would be glad to answer any questions the committee members may have.

January 31, 2006

Representative Freeborn

As Director of the Clay Center Public Utilities Commission I feel obliged to point out a number of issues with Kansas House Bill 2683.

Adding a new member from the State Water Assurance Districts would tip the balance of representation in the Kansas Water Authority. The Kansas Water Assurance Districts at the present time have vast representation on the K.W.A. by Governor appointments and from nominations made by the League of Kansas Municipalities or others.

I also question the benefit of adding another member to the K.W.A. If twenty four members can not adequately represent the citizens of Kansas can one more be of help or just confuse the issues?

I appreciate your time and respectfully ask for your consideration of my thoughts.

BILL CALLAWAY
Clay Center Public Utilities Commission
427 Court St. Clay Center Ks. 67432
785-632-2137
bcpuc@nckcn.com



K A N S A S

TRACY STREETER, DIRECTOR

KANSAS WATER OFFICE

KATHLEEN SEBELIUS, GOVERNOR

**The House Environment Committee
House Bill 2683**

**Joe Fund
Kansas Water Office
January 31, 2006**

Representative Freeborn and members of the Committee, before you today is a proposal which would add an appointed member to the Authority that would be a representative of water assurance districts.

The Kansas Water Authority was established by K.S.A. 74-2622 in 1981 and currently consists of 24 members representing water issues interest throughout Kansas. The most recent change to the membership of the Authority occurred during the 2004 Session which added the State Biologist from the Kansas Biological Survey as an ex-officio member.

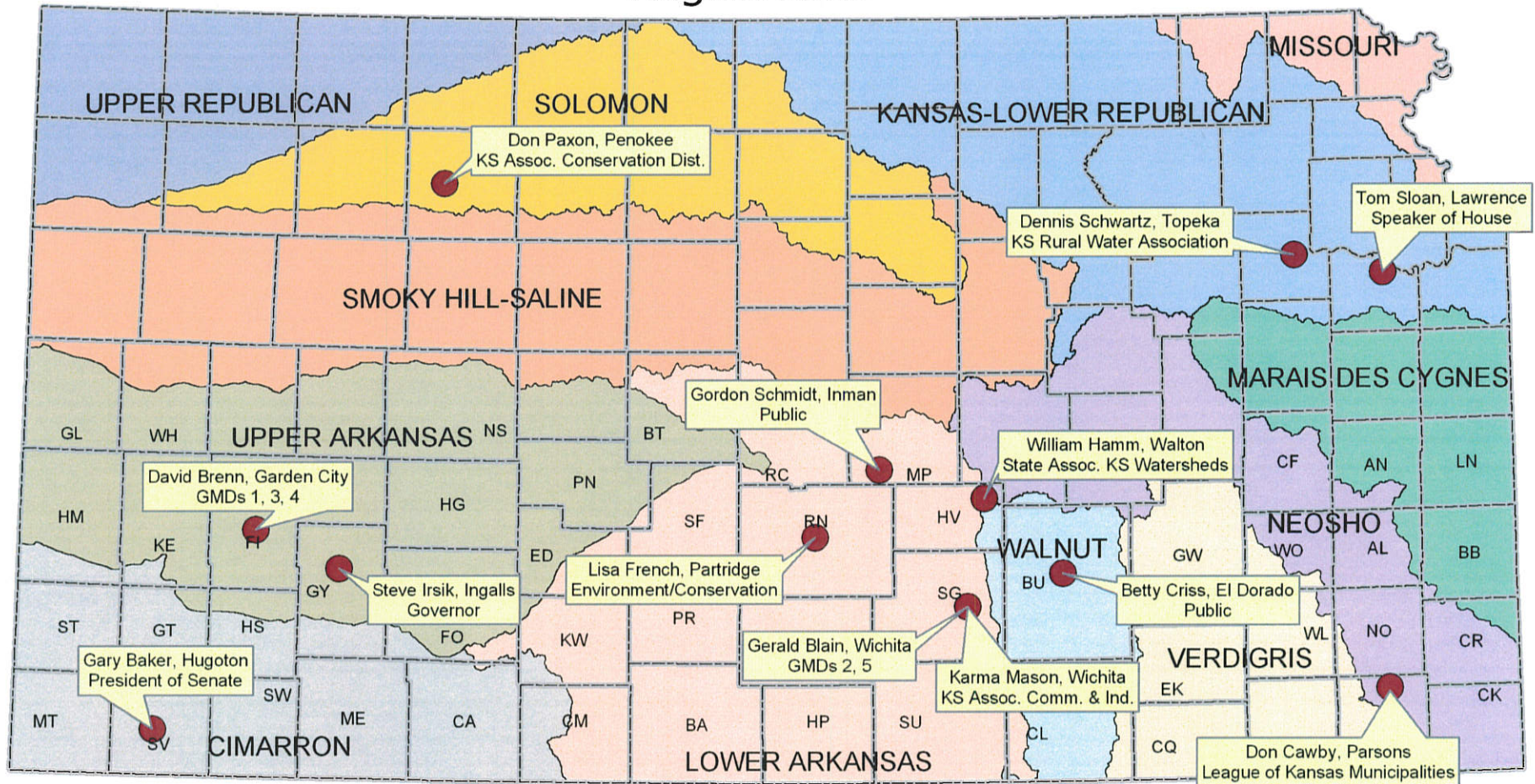
The primary function of the KWA is to consider and approve policy recommendations for inclusion in *the Kansas Water Plan*. Once approved, the KWA submits these recommendations to the Governor and Legislature for their consideration. In addition to other functions, the Authority also makes recommendations on spending priorities for the State Water Plan Fund.

As with many of the other appointed members of the Authority, this bill proposes that the representative of a Water Assurance District would be chosen by the Governor from three nominations submitted by the presidents of each of the three (3) water assurance districts. The anticipated fiscal impact of this legislation is approximately \$2,670, which would be needed for travel and per diem costs incurred by a new appointed member's participation at the five to six KWA meetings held each year.

The KWA discussed the merits of Assurance District representation at their November 2005 meeting, but felt it was not appropriate to take action on the makeup of their own membership. Their next meeting is schedule for April 6-7 in Emporia, Kansas. Thank you, Representative Freeborn and members of the Committee for the opportunity to share the position of the Kansas Water Authority. I would be happy to stand for questions at the appropriate time.

House Environment Committee
January 31, 2006
Attachment 9

Kansas Water Authority Members (Appointed) August 2005



Kansas Water Authority Ex Officio Members

Fred Cholick
Agricultural Experiment Station
Kansas State University

Ron Hammerschmidt
Kansas Dept. of Health & Environment

Mike Hayden
Kansas Dept. of Wildlife & Parks

Brian Moline
Kansas Corporation Commission

David Pope
Division of Water Resources
Kansas Dept. of Agriculture

Greg Foley
State Conservation Commission

William Harrison
Kansas Geological Survey

Edward Martinko
Kansas Biological Survey

Adrian Polansky
Kansas Dept. of Agriculture

Tracy Streeter
Kansas Water Office

Howard Fricke
Kansas Dept. of Commerce

DMC

Report on Senate Bill 364

to the

House Committee on Environment

by Lane Letourneau

**Kansas Department of Agriculture's
Division of Water Resources**

January 20, 2006

The 2004 Legislature passed Senate Bill 364 requiring the Kansas Department of Agriculture's Division of Water Resources to work with the Kansas Geological Survey to study and make recommendations on three items.

First, we were to study water banking as it relates to sand and gravel pits.

Second, we were asked to calculate the amount of water lost to evaporation and assess its effect on consumptive use from sand and gravel pits, with special emphasis given to salt cedar (tamarisk), a plant that consumes a lot of water.

And third, the Legislature asked to know more about pollution and flood control impacts of diverting water runoff into sand and gravel pits.

This direction from the Legislature came without funding. The agencies involved reallocated funds in our current budgets to start the project, but \$66,000 is needed to complete it. The USGS will add \$24,000, for total of \$89,900, to complete the second phase of the study.

Summary

This document will report our progress addressing the three areas of interest.

On the question of water banking, we have found that it could be a viable option for the sand and gravel industry.

On the second two questions, how much water is lost to evapotranspiration from sand and gravel operations, and the pollution and flood control impact of these businesses, the answers are less clear. We continue to work with the Kansas Geological Survey to gather the data we need to answer those questions.

*attachment 1,
1/24 Comm mtg.*

Summary of Progress on SB 364 Requirements

Question One: Water banking.

Water banking could be a viable option for the sand and gravel industry. Current statutes allow for two banks to be chartered: one for groundwater and one for surface water or a combination of surface water and groundwater. The Central Kansas Water Bank was chartered as a groundwater bank.

Currently, there is no clear, front-running candidate for a second water bank. Some have proposed a combined surface water-groundwater bank below Sebelius Reservoir along Prairie Dog Creek. In the past there has been talk about, but no proposal for, a surface water bank in the Kansas River basin or the lower Republican River basin. Therefore, a bank could be chartered in another area and be used by the sand and gravel industry in areas where new appropriations are not available.

The Central Kansas Water Bank allows leases within some stream corridors. Since sand and gravel pits often are located within stream corridors, leases would be available only on a limited in that charter. However, current Water Appropriation Act rules allow existing water rights to be acquired and used to offset evaporation especially for sand and gravel operators within the same stream channel aquifer.

If another bank is chartered, it would be possible for it to allow leases to account for net evaporation from pits. The leased water would have to come from deposited water rights within the same hydrologic unit. There is a statutory 10 percent conservation element required as a result of basic operations. One possible problem with this concept is that pits permanently expose groundwater to evaporation while leases are accomplished through term permits not to exceed five years. If a bank's charter would lapse, the pits would continue to consume water through evaporation without any way to compensate for that through the bank. So, unless a bank continues to operate indefinitely, using a water bank for sand and gravel operations may not be compatible with the Water Banking Act. However, the evaporation could be covered by acquiring an existing water right if a bank ceases to be an option.

Statutes prohibit water banks from having overlapping boundaries. Therefore, a new bank could not include the area covered by the existing bank. The Central Kansas Water Bank essentially covers all of Big Bend Groundwater Management District No. 5, which includes the middle Arkansas River. That is an active area for the sand and gravel industry and an area where new water appropriations are limited. Perhaps the sand and gravel industry could use the Central Kansas Water Bank and charter another bank along a river or another area of consideration.

Statutes require a charter to show how the bank is feasible. Can the bank generate enough revenue to cover its own costs plus any expenses that would be reimbursed to the Division of Water Resources? Whether this is an issue for the aggregate industry might depend on how large an area would be included in a new bank and how many potential or existing locations would be used for sand and gravel operations.

If current water banking legislation does not meet the industry's needs, considerations may need to be given to other alternatives.

Question Two: Calculating evapotranspiration and its effect on consumptive use from sand and gravel pits, with special emphasis on salt cedar (tamarisk).

Water use by tamarisk and other phreatophytes is an area of continuing interest. The Kansas Geological Survey is continuing research to help answer this question. They are working on a groundwater assessment in relation to salt cedar control. The assessment will use water table fluctuations to estimate the impact various salt cedar control measures have on groundwater resources in the Cimarron River alluvial aquifer at a site in Clark County. The project is in an area of salt cedar infestation along the Cimarron River south of Ashland.

Four experimental plots were established in pasture on the north side of the Cimarron River. One plot is used for monitoring unaltered conditions, while the other three plots are for different salt cedar control measures. Control measures began in mid-March 2005 and are continuing. Water table fluctuation data are available from when the salt cedars growing. More data are being collected now that control measures have been introduced. It is too early to draw conclusions, but the results should allow this question to be assessed. We recommend that the Kansas Geological Survey continue the study.

Question Three: Impact of diverting surface water into groundwater pits.

Background is provided because of the complexity and interest in this study. This is a work in progress.

Groundwater pits typically are the result of sand and gravel operations near streams where shallow water tables are exposed by excavation of gravel. Urban developers build homes around pits no longer in production and use them as real estate amenities and for contact recreation.

Groundwater pits must be permitted as a beneficial use of water under the Kansas Water Appropriation Act to account for evaporation. Fundamental to the Kansas Water Appropriation Act are protecting existing water rights from impairment and protecting public interest. A condition of groundwater pit permits is preventing impairment to existing groundwater users through the deterioration of groundwater quality when untreated surface water enters the pit. This condition typically requires a low berm around the pit to prevent surface runoff from entering the pit, or through some other means of treatment.

In some areas of Kansas, because of topography and hydrology, gravel pits have been used as storm water detention structures to offset the increase in flood peak from impervious urban areas. Sand and gravel operators and developers believe that runoff contains few, if any, contaminants and that the risk of impairment to shallow groundwater is minimal or does not exist. It is important to note that this group has stated they do not want to pollute groundwater, nor do they want to pay for constructing berms or providing water treatment if either is not necessary. However, water managers have raised questions about potential contamination that

may result from untreated storm water diverted directly into groundwater pits which are a direct conduit to the aquifer system.

Task Forces

Two task forces that include persons from state and local interests have formed to look at ways to address pollution and floodwater issues. One task force is dealing with water quality. The second task force is dealing with storm water retention. Task force members have met to develop a coordinated study approach.

Because of its topography, the Wichita metro area has used gravel pits as storm water detention structures to offset the increase in flood peak from impervious urban areas. Therefore, the work effort will focus on this area in Sedgwick County.

Representatives of the following state and local entities are part of the work group:

- Kansas Department of Agriculture's Division of Water Resources (water appropriation)
- Kansas Geological Survey (hydrologic and geologic information)
- Kansas Department of Health and Environment (water quality)
- Kansas Water Office (basin planning and coordination)
- Sedgwick County (storm water, drainage planning and management, and site selection)
- Groundwater Management District Manager (local groundwater management)
- Management and Protection Groundwater Management District (board member)
- Senator and Former Sedgwick County Commissioner (chair of task force)
- Wichita Area Builders Association and Developers (groundwater pits as real estate amenities)

The task force will study the effect of raw storm water being diverted into pits using these methods:

Data collection and analysis

- Select representative groundwater pits that cover the scope of landscape found surrounding them.
- Sample the water column and bed sediments in a number of places and composite for analysis at each pit. Constituent analysis will include common ions, metals, organic compounds and nutrients. Water column samples will be collected with depth integrated samplers. Bed sediments will be sampled by standard grab sampling equipment. USGS standard protocols for field collection will be used.
- Install a groundwater well up-gradient and another down-gradient of the pit and sample for the same suite of constituents as was sampled in the pit. USGS standard protocols for field collection will be used.
- Compare the water quality characteristics of the pit and the adjacent groundwater to determine to what extent constituents are transported from the pit to the groundwater.

Work that has taken place:

- Six representative sites were selected by the task force. Sedgwick County staff have worked with local entities to acquire access to the pits and well sites.
- The Bureau of Reclamation has drilled observation wells near the selected sites. Wells were installed by auger methods and screened near the water table. The annular space will be sealed and a removable cap will be installed to prevent migration of surface water and other contaminants from entering the well and still have access for sampling. Caps a small distance above the ground surface are typical but surface flush caps can be installed where necessary. The funding for the drilling came from a Bureau of Reclamation grant for assistance to the states.
- USGS is scheduled to collect the samples from March to June 2006 from the wells and pits. Samples of the pit will be taken from a small work boat.
- Laboratory analysis will be completed by mid to late summer, and results will be reported by the USGS in a basic data report to the Division of Water Resources on February 1, 2007.
- The final assessment report and recommendations to the Legislature will be completed after that date.

Please see the attached USGS proposal. The original proposal for all six sites was approximately \$275,000, with \$198,000 being state and local funded. The remaining \$77,000 would be funded by the USGS. Funding for this project was not provided by the Legislature. Task force members found money in existing budgets to fund at least \$123,000. This rate will allow us to study four of the six sites, and the USGS will add \$45,000 to this phase of the study.

Completing the full study will require that \$65,900 be appropriated. The USGS will add \$24,000, for a total of \$89,900 for the second phase of the study.

The task force indicated it would like a long-term study. The infrastructure is in place, and it could be done if additional funding was available. A proposed cost is not available. The Legislature would have to approve additional money for a long-term study. The USGS has been receptive to this study because of its potential to have national impact. The USGS is very flexible and will do what it can to assist with this study.

It's important to note that we have a diverse group of state, local agencies, and private interests working on a common project. All parties have agreed to abide by the study's outcome. We need to credit the chairperson (Senator McGinn) of this group for keeping the parties focused on our common goal.

Task Force Dealing With Routing Floodwater Into Groundwater Pits

This also is a work in progress. The task force focus became how to minimize the flood risk in Sedgwick County and urban areas. This task force met biweekly for 10 months.

The members of this task force are:

- nine members from Wichita and Sedgwick County
- two members from other governmental bodies
- six at-large appointees
- six ex-officio members who contribute expertise

The task force presented a report to the City of Wichita and Sedgwick County recommending initiatives and some solutions regarding flooding problems. One initiative recommends appointing a technical task force to develop a set of uniform floodplain development standards.

Currently, it is not possible to provide an analysis of impact of pits being used for storm water retention. It is recommended that the initiative mentioned above be implemented, with the water quality study being used as part of the floodplain development standards.

Water-Quality Impacts of Residential Land Use and Runoff to Sand and Gravel Pits in the Big Slough Creek area, near Wichita, Kansas

A proposal written for the Kansas Department of Agriculture, Division of Water Resources by
Andy Ziegler and Mike Pope, U.S. Geological Survey, Lawrence, Kansas

Revised January 13, 2006

Summary and Problem:

Nationally and in Kansas, sand and gravel are excavated for use as construction materials. Typically, these sand and gravel operations are near metropolitan areas and in larger river alluvial systems. After excavation operations are concluded, a pit remains that typically intersects the water table in ground water and fills with water forming a small lake. These sand and gravel pit lakes can provide an aesthetically pleasing focal point for residential developments and recreational activities. The excavation pits also are attractive for detention of urban runoff.

Kansas Senate Bill 364 directed the Kansas Department of Agriculture, Division of Water Resources on a number of environmental and permitting issues associated with sand and gravel operations and the pits that remain after conclusion of mining activities. One of the issues associated with development of sand and gravel pits is to determine the impacts of diverting water runoff into sand and gravel pits.

Urban runoff is cited as a leading source of pollutants causing water-quality impairments to surface waters (USEPA, 2004). Impacts upon surface water include:

- Storm events cause temporary increases in concentrations of sediment and sediment-associated contaminants, such as bacteria,
- Long-term cumulative impacts of the pollutants,
- And physical impacts of sediment filling impoundments and channel scour and changes.

Pollutants typically exceeding surface water-quality standards in urban runoff include sediment and solids, increased oxygen demand (cause dissolved oxygen sags), nitrogen and phosphorus (fertilizers), pathogens (septic systems, livestock, pets), petroleum hydrocarbons (fuels), metals (copper, lead, and zinc), and synthetic organics (pesticides). Excessive nutrients can lead to algal blooms that may create aesthetic problems (taste and odor) in the pits and deter the recreational benefits of these water bodies. Concentrations of indicator bacteria may exceed contact recreation standards and cause an impairment that affects human health.

Ground water in the vicinity of sand and gravel pits may be affected by the recharge from residential runoff into the pits. Excessive concentrations of constituents associated with runoff may cause degradation of ground-water quality that can exceed drinking water standards. Additionally, residential developments that drain into sand pits usually are on septic systems and compounds associated with wastewater are likely to occur in either runoff or in ground water. All of the constituents associated with septic systems and runoff potentially can degrade water quality to the point where self-supplied drinking water near the pits may not meet drinking water standards. However, recent studies by the USGS in the area (Pope and others (2000) and Pope

and others (2002) have shown that the ground water in the area is probably affected by agricultural practices resulting in concentrations of nitrate exceeding drinking water standards in some wells and atrazine frequently detected in samples of ground water.

Water-quality impacts of runoff from the residential development near sand pits on the surface-water in the pits are unknown. The impacts of the runoff on ground-water quality are unknown and the combined impacts may have human health impacts. Comparisons of water quality in the sand and gravel pits to surface water-quality standards including recreational water-quality standards and comparisons of nearby ground-water quality to drinking-water standards are needed to determine if degradation or impairments of existing resources are occurring.

Objective:

Characterize the existing surface-water quality and ground-water quality at selected sand and gravel pits with different amounts of urbanization in the vicinity of the Arkansas River and the Big Slough Creek basin near Wichita, Kansas.

Approach:

The Division of Water Resources in cooperation with the Kansas Geological Survey, Kansas Department of Health and Environment, and Kansas Water Office, Sedgwick County, Wichita, Groundwater Management District 2, and U.S. Department of Interior, Bureau of Reclamation and the U.S. Geological Survey has led an effort to address the requirements of SB 364 characterizing the effects of diversion of stormwater into the excavation pits. A number of meetings have taken place amongst representatives of the agencies above and an approach was developed. The Kansas Department of Health and Environment in cooperation with the other agencies developed the sites selection criteria and water-quality constituent lists in appendices 1 and 2 at the back of this proposal.

Based upon a reconnaissance of a number of excavation pits in the area by Sedgwick County, 6 pits have been selected for study. The sites represent a baseline site with primarily agricultural land use and 5 sites of varying ages and densities of residential, commercial, or light industrial land use. This proposal describes the role of the U.S. Geological Survey in this study. The sampling and estimated costs for the study are divided into 2 Phases. Phase 1 includes the sampling and analysis of 4 pits and wells near the pits during March – June 2006 with results delivered to the Division of Water Resources by February 1, 2007. Phase 2 includes the sampling and analysis of 2 pits and wells near the pits during March – June 2007 with results delivered to the Division of Water Resources by February 1, 2008. The USGS will continue to participate in meetings and provide technical advice when requested, and will sample the sediment and water from pits and wells near the pits as described in this proposal. Details on the approach follow:

1. Determine sand pit sediment quality and ground-water flow path.
 - a. Collect and analyze a single sediment sample for the constituents listed in tables 1-2. Comparison of chemical results to US EPA sediment guidelines and sediment from other reservoirs in Kansas can be made by DWR.

- b. Install a lake-elevation measuring point and survey in levels from a nearby benchmark to determine the potentiometric surface altitude in the pit relative to adjacent wells. This information will be used to determine the ground-water flow path and evaluate the potential for contamination of nearby domestic supply wells from the sand pits.
2. Surface water quality will be quantified in the pits.

Quantify existing surface-water quality in the sand pit. Three samples will be contemporaneous with runoff events. Samples will be collected during March – June 2006 for constituents listed in table 3. One of these three samples will be analyzed for all of the constituents in Tables 4-10. Water-quality information will be used to characterize the storm runoff.
3. Ground-water flow paths and water quality will be determined in the vicinity of the pits.

Wells were drilled following guidelines developed by the U.S. Bureau of Reclamation in cooperation with the other agencies involved generally following the guidelines of Lapham and other (1996). Wells were situated with one well situated upgradient of the sand and gravel pit to define baseline concentrations in the aquifer and 2 wells down gradient from the pit at distances of about 500 feet from the pit to assess the effects of the pit on ground water. Screened intervals were set in the zone approximately equal to the bottom of the pit. DWR will maintain ownership and responsibility for all monitoring wells. These wells will be used to define the water table in the vicinity of the sand pit and residential developments. Samples will be collected once from each well soon after the pit has received large volumes from storm events to estimate the effects of runoff on the ground-water quality. All samples will be analyzed for the constituents listed in tables 4-10.
4. Deliver data to DWR by February 1, 2007 for Phase 1 and February 1, 2008 for Phase 2.

Data from these sites will be used to quantify the effects of runoff and residential land use on water and sediment quality in the pit and water-quality in ground water.

Quality Assurance:

Approximately ten percent of total samples collected will be quality-control samples including replicates, blanks, and standard reference samples. Data will be reviewed as it is received from the laboratories and will be summarized annually. Sampling procedures and processing will be conducted according to USGS protocols published in the National Field Manual for the Collection of Water-Quality Data and in the Kansas District Quality Assurance Plan for Water-Quality Activities.

Products:

The information will be provided in a table and letter transmitting the data to DWR February 1, 2007 for Phase 1 and February 1, 2008 for Phase 2.

Timeline: See attached excel file

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Method ID: O-1433-01

WATER AND SEDIMENT-QUALITY CONSTITUENTS

Table 1.-- Selected nutrient, metals, and dating analyses in sand-pit bottom sediments on the less than 62 micron sample (Elrick and Horowitz, 1986, Horowitz, 1986, Elrick and Horowitz, 1985, and Horowitz and Elrick, 1985). USGS will provide sampling bottles, preservatives, and analysis. Lab Code 515 . Metals analyses at USGS Georgia Trace Metal Laboratory. Organics analyzed by the NWQL. FY06 Cost \$850 each

Organic Nitrogen	% Moisture	Total Phosphorous
Total Carbon	% Finer than 0.62 micron	Sediment bulk density
Trace elements and organics		
Aluminum	Calcium	Cadmium
Cyanide	Iron	
Potassium	Magnesium	Sodium
Phosphorus	Titanium	Gold
Barium	Beryllium	Bismuth
Cerium	Cobalt	Chromium
Copper	Europium	Gallium
Holmium	Lanthanum	Lithium
Manganese	Molybdenum	Niobium
Neodymium	Nickel	Lead
Scandium	Tin	Strontium
Tantalum	Vanadium	Yttrium
Ytterbium	Zinc	Silver
Cadmium	Mercury	Arsenic
Antimony	Selenium	Uranium
Thorium	Sulfur	Carbon, total
Carbon, inorganic	Carbon, organic	Oil and Grease
Radiochemical		
Cesium-137		

Table 2. Selected organic constituent analyses in sand-pit bottom sediments on the less than 62 micron sample. USGS will provide sampling bottles, preservatives, and analysis. Schedule 2501 (Foreman and others, 1995). FY06 cost \$1,250 each. Detection limits 1.0 ug/kg.

Aldrin	alphi-Endosulfan	Alpha-HCH
Beta HCH	beta HCH	Chlorob
Cis-Chlordane	cis-nonachlor	cis-permethrin
Dacthal	Dieldrin	Endrin
Heptachlor	Heptachlor epoxide	Hexachlorobenzene
Isodrin	Lindane	Mirex
O,p'DDD	o,p'DDE	o,p' DDT
Oxychlordane	p,p'DDD	p,p' DDT
P,p' methoxychlor	pentachloranisole	gross PCBs
Toxaphene	transchlordane	transNonachlor
Trans permethrin	Chlordane	Endosulfan

Table 3.-- Key parameters (Fishman, 1993; Struzeski and others, 1996; Fishman and Friedman, 1989; APHA, 1998; Patton and Truitt, 2000; Patton and Truitt, 1992, Jones and Garbarino, 1999, Thurman and others, 1990) to be analyzed on all surface water samples plus one QA sample per year. USGS collects the samples and provides analysis for all constituents. FY06 cost is \$520 each

Water Temperature ¹	pH ¹
Specific Conductance	Nitrite plus Nitrate, dissolved ³
Hardness	Total Phosphorous
Calcium, dissolved ²	Magnesium, dissolved ²
Sulfate, dissolved ³	Chloride, dissolved
Suspended Sediment Concentration	Triazine Herbicide Screen, dissolved
Bicarbonate, dissolved	Alkalinity, dissolved
Total Dissolved Solids	Carbonate, dissolved
Potassium, dissolved	Iron, dissolved
Sodium, dissolved	Manganese, dissolved
Turbidity	Arsenic, dissolved
Fecal Coliform	E. Coli
Redox potential	Total Suspended Solids

Table 4.—Water-quality constituents to be analyzed on all ground-water samples and one surface water sample from each pit(Fishman, 1993; Struzeski and others, 1996; Fishman and Friedman, 1989; APHA, 1998; Patton and Truitt, 2000; Patton and Truitt, 1992, Jones and Garbarino, 1999, Thurman and others, 1990; Faire, 1993; McLain, 1993) . USGS collects the samples and provides analysis for all constituents. FY06 cost is \$890 each.

Water temperature ¹	pH ¹
Specific conductance	Nitrite plus Nitrate, dissolved ³
Hardness	Total Phosphorous
Calcium, dissolved ²	Magnesium, dissolved ²
Sulfate, dissolved ³	Chloride, dissolved
Suspended Sediment Concentration	triazine herbicide screen, dissolved
Bicarbonate, dissolved	Alkalinity, dissolved
Total Dissolved Solids	Carbonate, dissolved
Potassium, dissolved	Iron, dissolved
Sodium, dissolved	Manganese, dissolved
Turbidity	Fecal Coliform
Total Coliform ³	Ammonia, dissolved
Fluoride, dissolved ³	Nitrite, dissolved ³
Silica, dissolved	Orthophosphate, dissolved
Total Suspended Solids	Aluminum, dissolved
Antimony, dissolved ³	Arsenic, dissolved ³
Barium, dissolved ³	Beryllium, dissolved ³
Boron, dissolved	Cadmium, dissolved ³
Copper, dissolved ³	Cobalt, dissolved
Lead, dissolved ³	Molybdenum, dissolved

Mercury, dissolved³
 Selenium, dissolved³
 Zinc, dissolved
 Coliphage
 Redox potential

Nickel, dissolved³
 Silver, dissolved
 Total Organic Carbon
 Oil and grease
 E. Coli

Table 5.-Analyses for dissolved pesticides and herbicides expected to be detected in surface and ground-water samples (Zaugg and others, 1995; Lindley and others, 1996; Madsen and others, 2003; Sandstrom and others, 2001) . USGS will collect samples. USGS will provide sampling bottles, preservatives, and analysis. Schedule 2003. FY06 cost is \$500 each

1-Naphthol	Fipronil sulfide
2,6-Diethylaniline	Fipronil sulfone
2-[(2-Ethyl-6-methylphenyl)amino]-1-propanol	Fonofos
2-Chloro-2,6-diethylacetanilide	Iprodione
2-Ethyl-6-methylaniline	Isofenphos
3,4-Dichloroaniline	Malaoxon
Acetochlor	Malathion
Alachlor ³	Metalaxyl
alpha-HCH-d6	Methidathion
Atrazine ³	Metolachlor
Azinphos-methyl	Metribuzin
Azinphos-methyl-oxon	Myclobutanil
Benfluralin	Paraoxon-methyl
Carbaryl	Parathion-methyl
Chlorpyrifos	Pendimethalin
Chlorpyrifos	Phorate
cis-Permethrin	Phorate oxon
Cyfluthrin	Phosmet
Cypermethrin	Phosmet oxon
Dacthal	Prometon
Deethylatrazine	Prometryn
Desulfinylfipronil	Propyzamide
Desulfinylfipronil amide	Simazine
Diazinon	Tebuthiuron
Diazinon-d10	Terbufos
Dichlorvo	Terbufos-O-analogue sulfone
Dicrotophos	Terbuthylazine
Dieldrin	Trifluralin
Dimethoate	Ethion
Ethion monoxon	Fenamiphos
Fenamiphos sulfone	Fenamiphos sulfoxide
Fipronil	

Table 6.-- EPA MCL analysis for dissolved concentrations of pesticides. USGS will collect samples. USGS will provide sampling bottles, preservatives, and analysis (Furlong and others, 2001). Schedule 2060. FY06 cost is \$525 each.

2,4 -DB	2,4- D ³	2,4,5-T
Acifluorfen	Aldicarb	AldicarbSulfoxide
Aldicarb Sulfone	Bentazon	Bromacil
Bromoxynil	Carbaryl	Carbofuran ³

Chloramben
 Dicamba
 Dichlorprop (2,4-DP)
 Esfenvalerate
 Linuron
 Methiocarb
 1-Naphthol
 Oxamyl³
 Silvex (2,4,5-TP)³
 Carbofuran-3-hydroxy

Chlorothalonil
 Diuron
 Dichlobenil
 Fenuron
 MCPA
 Methomyl
 Norflurazon
 Picloram³
 Triclopyr
 Propoxur

Clopyralid
 Dinoseb³
 DNOC
 Fluometuron
 MCPB
 Neburon
 Oryzalin
 Propham
 Dacthl-mono-acid

Table 7.--EPA MCL analysis for total recoverable volatile organic compounds expected to be detected in surface and ground-water samples (Connor and others, 1998). USGS will collect samples. USGS will provide sampling bottles, preservatives, and analysis. Schedule 1380. FY06 cost is \$400 each.

Acrolein
 Bromoform³
 Dibromochloromethane³
 Chloroform³
 1,2-dichloroethane³
 1,2-trans-dichloroethene³
 1,3-dichloropropylene
 1,1,2,2-tetrachloroethane
 1,1,1-trichloroethane³
 Trichlorofluoromethane
 1,2-Dibromoethane(EDB)³
 1,4-Dichlorobenzene³
 Styrene³
 Bromobenzene
 Cis-1,2-dichloroethene³
 Tert-butylbenzene
 p-Isopropyltoluene
 Hexachlorobutadiene
 Trichlorotrifluoroethane
 Dibromomethane
 1,1,1,2-Tetrachloroethane
 1,4-Chlorotoluene

Acrylonitrile
 Carbon Tetrachloride³
 Chloroethane
 Bromodichloromethane³
 1,1-dichloroethene³
 1,2-dichloropropane³
 Bromomethane
 Tetrachloroethene³
 1,1,2-trichloroethane³
 Vinyl Chloride³
 1,2-Dichlorobenzene
 Cis-1,3-dichloropropene
 Xylenes (o,p,m)³
 Methyltertbutylether
 Isopropylbenzene
 1,2,4-Trimethylbenzene
 n-Butylbenzene
 Naphthalene
 1,3,5-Trimethylbenzene
 2,2-Dichloropropane
 1,2-Chlorotoluene

Benzene³
 Chlorobenzene³
 2-chloroethylvinyl Ether
 1,1-dichloroethane
 Dichlorodifluoromethane
 Ethylbenzene³
 Methylene Chloride³
 Toluene³
 Trichloroethene³
 Chloromethane
 1,3-Dichlorobenzene³
 Trans-1,3-dichloropropene
 1,2-dibromo-3-chloropropane³
 Bromochloromethane
 n-Propylbenzene
 Sec-butylbenzene
 1,2,4-Trichlorobenzene³
 1,2,3-Trichlorobenzene
 1,1-Dichloropropene
 1,3-Dichloropropane
 1,2,3-Trichloropropane

Table 8.--EPA MCL analysis for dissolved radionuclides. USGS will collect samples. USGS will provide sampling bottles, preservatives, and analysis. Schedule 1644. FY06 cost is \$150.

Gross beta radiation³

Gross alpha radiation³

Table 9.--EPA MCL analysis for total recoverable concentrations of acid and base/neutral organic compounds. USGS will collect samples. USGS will provide sampling bottles, preservatives, and analysis. Schedule 1383 (Wershaw and others, 1987). FY06 cost is \$500 each.

Acid Compounds

2-chlorophenol	2,4-dichlorophenol	2,4-dimethylphenol
4,6-dinitro-o-cresol	2-nitrophenol	4-nitrophenol
P-chloro-m-cresol	Pentachlorophenol ³	Phenol
2,4,6-trichlorophenol	1,2,4-trichlorobenzene	

Base/Neutral Compounds

Acenaphthylene	Acenaphthene	Anthracene
Benzidine	Benzo-A-Anthracene ³	Benzo-A-Pyrene ³
3,4-benzofluoroanthene	2,,4-benzo(ghi)perylene	Benzo(K)fluoranthene ³
Bis(2-chloroethoxy)Methane	Bis (2-chloroethyl) Ether	Bis(2-chloroisopropyl) Ether
Bis (2-ethylhexyl) Phthalate	4-bromophenyl Phenyl Ether	Butylbenzyl Phthalate
2-chloronaphthalene	4-chlorophenyl Phenyl Ether	Chrysene
Dibenzo (a,h) anthracene ³	1,2-dichlorobenzene	1,3-dichlorobenzene
1,4-dichlorobenzene	3,3'-dichlorobenzidine	Diethyl phthlate
Dimethyl phthlate	Di-n-butyl Phthalate ³	2,4-dinitrotoluene
2,6-dinitrotoluene	Di-n-octyl Phthalate	1,2-diphenylhydrazine
Fluoranthene	Fluorene	Hexachlorobenzene ³
Hexachlorobutadiene	Hexachlorocyclopentadiene ³	Hexachloroethane
Indeno (1,2,3-cd)Pyrene	Isophorone	Napthalene
Nitrobenzene	N-nitrosodimethylamine	N-nitrosodi-n-propylamine
N-nitrosodiphenylamine	Phenanthrene	Pyrene

Table 10. Analyses for BTEX compounds in water (Conner and others, 1998). Samples to be analyzed on all ground-water samples and one surface-water sample. USGS collects the samples and USGS National Water Quality Laboratory provides analysis for all constituents. Schedule 1378. FY 06 cost per sample \$160 each.

- Benzene, total
- 1, 4-Bromofluorobenzene, total
- Ethylbenzene, total
- 1,2 Dichloroethane-d4, total
- m- and p- Xylene, total
- tert-Butyl methyl ether, total
- o-Xylene, total
- Toluene, total
- Toluene-d8, total
- Xylene, total

¹--must be analyzed immediately after sample collection.

²- required for calculation of hardness.

³- on EPA MCL list

Condition	Site		Hypothesis
	#	Description	
Rural Land – Pasture & Range	1		1. In the absence of regional industrial impacts, should be present near un-impacted water quality conditions.
	2	Pit, recently constructed Down gradient	2. Elevated mineralization due to evaporation from pit 3. Possible impacts surface runoff from pasture and range.
	3	Pit, recently constructed Up gradient	4. Expect similar conditions as Site 1.
	4	Pit, old construction Down gradient	5. Elevated mineralization due to evaporation from pit most likely greater than site 2. 6. Possible impacts surface runoff from pasture - range most likely greater than site 2.
	5	Pit, old construction Up gradient	7. Expect similar conditions as Site 1.
Rural Land – Cropland	6	No Pit	8. Assuming no regional industrial impacts, nitrate concentrations greater than that found at Site 1. 9. Detectable concentrations of agricultural pesticides, especially atrazine if corn and grain sorghum production is a predominate activity.
	7	Pit, newly constructed down gradient	10. Elevated mineralization due to evaporation at level similar to site 2. 11. Higher concentrations of nitrate than site 6. 12. Same pesticides found at site 6 at higher concentration. 13. Greater diversity of pesticides than site 6.
	8	Pit, newly constructed , up gradient	14. Similar results as Site 6.
	9	Pit, old construction Down gradient	15. Elevated mineralization due to evaporation at level greater than site 7. 16. Higher concentrations of nitrate than site 7. 17. Same pesticides found at site 7 at higher concentration. 18. Greater diversity of pesticides than site 7.
	10	Pit, old construction Up gradient	19. Similar results as Site 6.
Residential On-site Wastewater Treatment (septic tank lateral field or lagoon)			
Residential, new development	11	No pit	20. Elevated nitrate concentrations relative to site 1. 21. Detectable concentrations of refined petroleum products from vehicle fluid leaks. 22. Detectable concentrations of pesticides used in residential landscaping and building maintenance.
	12	Pit, Down gradient	23. Elevated mineral concentrations due to both evaporation and surface runoff of deicing minerals; concentrations likely greater than Sites 7 and 9. 24. Higher concentration of the pesticides found at site 11. 25. Greater diversity of pesticides relative to site 11. 26. Greater diversity of refined petroleum products relative to site 11.
	13	Pit, Up gradient	27. Similar to site 11.
Residential, old established development	14	No pit	28. Elevated concentrations of nitrates relative to site 11. 29. Refined petroleum products similar to site 11 at higher concentrations than site 11. 30. Greater diversity of refined petroleum products than found at site 11. 31. Detectable concentrations of pesticides used in residential landscaping and building maintenance.
	15	Pit, Down gradient	32. Elevated mineral concentrations due to both evaporation and surface runoff of deicing minerals; concentrations likely greater than site 12. 33. Higher concentration of the pesticides found at site 11. 34. Nitrate concentrations elevated relative to site 14 due to possibility of surface runoff of fertilizers.
	16	Pit, Up gradient	35. Similar to site 14.
Residential, public sewer			
Residential, new development	17	No pit	36. Similar to site 11.
	18	Pit, Down gradient	37. Elevated nitrate concentrations relative to site 1, but lower than site 11. 38. Detectable concentrations of refined petroleum products from vehicle fluid leaks. 39. Detectable concentrations of pesticides used in residential landscaping and building maintenance.
	19	Pit, Up-gradient	40. Similar to site 11.
Residential, old development	20	No pit.	41. Similar to site 14.
	21	Pit, Down-gradient	42. Nitrate concentrations elevated relative to site 11 but lower than site 28. 43. Refined petroleum products similar to site 14. 44. Greater diversity of refined petroleum products than found at site 11. 45. Detectable concentrations of pesticides used in residential landscaping and building maintenance.
	22	Pit, Up-gradient	46. Similar to site 14.

Appendix 2. Table 2--Sample Constituent List

<u>Inorganic Chem</u>	<u>Information Source*</u>	
Ammonia	WSW	
Chloride	WGW	
Iron	WGW	
Magnesium	WGW	
Manganese	WGW	
Nitrate	WGW	WSW
Oil & Grease	WSW	
Phosphorous	WGW	
Sodium	WGW	
Sulfate	WGW	
Total Dissolved Solids	WGW	WSW
Total Suspended Solids	WSW	
<hr/>		
<u>Bacteriological</u>		
Fecal Coliform	WGW	WSW
Fecal Strep	WSW	
Escherichia coli (E-coli)	WQC	
<hr/>		
<u>Metals & Cyanide</u>		
Aluminum	WGW	
Antimony	NURP (13%)	
Arsenic	WGW	NURP (> 50%)
Beryllium	NURP (12%)	
Cadmium	NURP (48%)	
Chromium	NURP (58%)	
Cobalt	WGW	
Copper	WGW	WSW
Cyanides	WSW	NURP (23%)
Lead	NURP (94%)	
Molybdenum	WGW	
Nickel	WGW	NURP (20-49%)
Selenium	WGW	NURP (11%)
Silver	WSW	
Zinc	WGW	WSW
<hr/>		
<u>Volatile Organic Compounds</u>		
cis-1,2-Dichloroethylene	WGW	
Dichloromethane (methylene chloride)	NURP (11%)	
1,1,1-Trichloroethane	WGW	
Trichloroethylene	WGW	
tert-Butyl methyl ether (MTBE)	WGW	
Tetrachloroethylene	WGW	
<hr/>		
<u>Acid Extractable Compounds</u>		
4-Nitrophenol	NURP (10%)	
Pentachlorophenol	NURP (19%)	
Phenol	NURP (14%)	
<hr/>		
<u>Base Neutral Compounds</u>		
Chrysene	NURP (10%)	
Fluoranthene	NURP (16%)	
Phenanthrene	NURP (12%)	
Bis (2-ethylhexyl) phthalate	NURP (22%)	
Pyrene	NURP (15%)	
<hr/>		
<u>Pesticides</u>		
Atrazine	WGW	
Chlordane	NURP (17%)	
Deethylatrazine	WGW	
α - Endosulfan	NURP (19%)	
α - Hexachlorocyclohexane (α - BHC)	NURP (20%)	
γ - Hexachlorocyclohexane (γ - BHC)	NURP (15%)	
Malathion	WSW	
Metolachlor	WGW	
Simazine	WGW	

*Information Source: WGW = USGS Quality of Shallow Ground Water in Areas of Recent Residential and Commercial Development, Wichita, Kansas, 2000 Report; WSW = 2002 and 2003 Wichita Annual NPDES Stormwater Reports; NURP = Nationwide Urban Runoff Program Report (EPA, 1983) Note: The referenced % relates to the number of cities which

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Budget by Agreement Period

Prepared: 1/13/2006

Management Class Budget Estimate

	Mar. 1, 2006 thru Feb. 28, 2007	Mar. 1, 2007 thru Feb. 28, 2008	
Total Costs	(4 pits+1 QA)	(2 pits)	
Sampling salaries for sediment, pit, and ground water samples	\$64,100	\$42,000	\$22,100
6 pits (4 in 2006; 2 in 2007) will be sampled and 3 shallow wells per pit One sediment sample collected from each pit and analyzed for tables 1-3: Grab core? Sample and composite the upper 12 inches for analysis. 3 water samples collected after storms in water column-analyze for bact and sed, 1 sample each pit analyzed for tables 3-10 1 sample from each well collected after collection of storm sample from pit. Collect ground water samples within 1 week of collection of SW samples. QA samples equal about 10 percent of the total			
Analytical			
Surface water and Pit sample analysis			
Sediment samples Tables 1-2: 1 sample per pit + 1 QA in 2006	\$14,900	\$10,500	\$4,400
Bacteria and sediment samples (3 samples per pit at \$150/sample)	\$2,800	\$1,800	\$1,000
Table 3 analysis (2 per pit + 1 QA in 2006)	\$6,900	\$4,700	\$2,200
Tables 4-6 analysis (1 per pit + 1 QA in 2006)	\$13,600	\$9,600	\$4,000
Tables 7-10 analysis (1 per pit + 1 QA in 2006)	\$8,600	\$6,100	\$2,500
Ground-water sample analysis			
Tables 4-6 analysis (1 sample per well, 3 wells per pit + 1 QA in 2006)	\$37,000	\$24,900	\$12,100
Tables 7-10 analysis (1 sample per well, 3 wells per pit + 1 QA in 2006)	\$23,300	\$15,700	\$7,600
Analytical subtotal	\$107,100	\$73,300	\$33,800
Sampling supplies, vehicle costs, travel & per diem, misc.	\$26,700	\$17,700	\$9,000
Project management, meeting attendance, data review and delivery of data tables	\$60,000	\$35,000	\$25,000
Estimated study total	\$257,900	\$168,000	\$89,900
Average cost per pit	\$43,000		
Funding sources and Joint Funding agreements:			
Sedgwick County			
USGS cooperative matching funds			
Agreement total			
Kansas Water Office			
USGS cooperative matching funds			
Agreement total			
State and Local agencies			
USGS cooperative matching funds			
Agreement total			
Totals			
State and local agencies	\$257,900	\$168,000	\$89,900
USGS cooperative matching funds	\$188,900	\$123,000	\$65,900
	\$69,000	\$45,000	\$24,000

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3