

**Middle Arkansas Subbasin**  
Summary of Meetings  
February 1998-March 2005

**February 5, 1998** (Larned, KS)

**Meeting overview:** Initial information meeting were arranged to answer questions and promote discussion of the Middle Arkansas River Project. Presentations were given on the motivation of formulating a new way of doing business, the BMT, by summarizing the history of Walnut Creek IGUCA and the method used in its development. Description of the State Water Planning process as it relates to the BMT and current activities, projects and the five phase methodology it employs. Water PACK's presented on current activities, a perspective on their experience with the Rattlesnake Creek/Quivira Partnership and the importance of people getting involved in the Middle Arkansas River Project. Big Bend Groundwater Management District No. 5 presented current activities and the GMD 5 experience with the Rattlesnake Creek/Quivira Partnership. It was stressed the importance of being an active participant in the Middle Arkansas River Project.

**July 16, 1998** (Larned, KS)

**Meeting overview:** Discussion on how many should be included in the working group. Generally groups of 8 to 9 work best and are most efficient. Group members need to be committed and dedicated to the process for the next four years. Presentations were given of hydrographs and distributed to the working group.

**October 15, 1998** (City Hall, Larned, KS)

**Meeting overview:** Recap of the mission and five phase approach of the program were given. There are four watersheds presently selected for the BMT program; Rattlesnake Creek, Pawnee-Buckner, Upper Arkansas River, and Middle Arkansas River. The working group reviewed historic trends in streamflow and groundwater levels and offered comments on the trends. Information was provided on data collection activities. Additional monitoring wells were added to fill in gaps of the current network and the sites are measured tri-annually. Thirteen stream flow measurement locations were selected and a new USGS gaging station was installed. BMT staff encouraged community input in order to receive direction on developing a program for water resource management. The program has the full support of the chief engineer in this process. A recap of the July meeting was given. A rough water balance will be attempted as requested at the July meeting. Other information requested was reviewed. The working group requested a graph that shows the Arkansas River diversions to Cheyenne Bottoms, a map showing the concentration of pumping wells around Kinsley and Great Bend, add Dodge City gage and John Marion to graph, a graph of 1993 streamflow data, and water right development by county. It was stated that the program is to stabilize water levels not recover. The group reviewed survey responses to the questionnaire the group had requested. The core ten representatives for the working group was agreed on

as covering the major interests of the project area; Mid-KS Quality Water Association, KDWP, Municipalities, stock water, industries, Water PACK, GMD #5, Conservation Districts, NRCS and DWR. It was also agreed that no one would be excluded that wants to participate.

**January 19, 2000** (City Hall, Larned, KS)

**Meeting overview:** Information on the compact, timeline and history of the ditch diversion in the Upper Arkansas River project area was provided to the group. The group expressed interest in having a presentation on the Colorado-Kansas lawsuit. BMT staff provided refresher presentations on the hydrology and geology of the subbasin. Fourteen representatives were selected for the working group to represent the ten core members identified last meeting. Working group meetings will likely occur every 6 weeks. Community presentation will be given at the working group meetings. Next meeting Barton County Conservation District will give the community presentation. In addition presentations on TMDLs and the goals and objectives will be discussed.

**March 2, 2000** (Jordan Chamber of Commerce, Larned, KS)

**Meeting overview:** Barton County Conservation District gave the community presentation. They outlined the history of the Conservation District and noted the difference between the NRCS and the Conservation District. The district can provide cost-share funding. A review of the Total Maximum Daily Load (TMDL) Program and priority areas was outlined by the Kansas Department of Health and Environment (KDHE) priority levels and the time variance for each level. A presentation was given on how to read a topographic map. Members of the working group selected topographic maps for their areas of interest for future use as a documentation tool. A subgroup was formed for defining sustainable flow. The working group requested several speakers for future meetings:

- Don Whittemore: The relationship between water quality and water quantity
- Allen MacFarlane: The High Plains Aquifer

The working group also requested guest speakers at meetings dealing with specific issues. The working group requested more information on water levels and stratigraphic well logs.

The working group discussed goals and objects. They wish to develop a management plan that includes strategies that increase recharge, voluntary-incentive programs, and change “use it or lose it” viewpoint. The plan should be reached by agreement that is fair to all users, maintain a healthy sustainable surface and groundwater system, educate, have solutions for water use in the future, economic impacts, and address the upper and middle Arkansas continuity on water issues. The results should include long-term management strategies, maximize efficiency through conservation practices, protect water resources and plan for future development and growth. The interest and motivation is to gain a better understanding of water supplies and current uses, gain understanding of ground and surface water interactions and flow, promote water management with

minimal regulation, fair program to all water users, no repeat of Walnut Creek, assistance, protect water quality, educate and identify problems.

**April 5, 2000** (City Hall, Larned, KS)

**Meeting overview:** Water PACK gave the community presentation. The organization works through partnerships to address irrigation water management strategies and water quality concerns. A plan for structuring the working group meetings by forming subcommittees to represent the different interest groups was discussed. Each subcommittee will present a section for an initial management strategy plan. The idea is to start out with a simple plan that can be changed, amended or added on to as work progresses in the working group.

- Subcommittee “Sustainability” or “safe yield”- The subcommittee presented several definitions for the “sustainability” and “specific yield.” A revised definition will be presented to the working group at the next meeting.
- Subcommittee “Baseline for streamflow” and “minimum desirable streamflow (MDS)”-A subcommittee was formed to gather information on minimum desirable streamflow and how it impacts the basin and the potential use of a baseline to evaluate streamflow.

A technical support group will consist of DWR, GMD 5, Barton County Conservation District, NRCS and KDWP. The subcommittees can use all of these resources if deemed necessary. BMT will act as project manager for the technical support group. Activities will include preparation of agenda and meeting notes, monitoring mail-outs and correspondence, collecting reference materials and preparation of display materials

The group reviewed the goals and objectives for the Middle Ark working group. The members did not make any changes to the goals at this time.

Richard Antonio also gave a short presentation on “Best Management Practices for Agriculture in the Uncompahgre Valley.” Richard was involved in this project and he talked about how the project was set up and what it accomplished. Each member was given a copy of Richard’s project to give them a general idea of how to proceed with writing their section of the plan.

**May 17, 2000** (City Hall, Larned, KS)

**Meeting overview:** Committee reports

- Irrigation Management they will be contacting farmers and irrigators to identify their concerns for water resource management in the Middle Ark.
- Natural Habitats presented a talk on “Pheasants Forever” and brought videos for the members to view at home. “Peasants Forever” is a program designed to increase the pheasant population through farming practices such as specific crop rotation. The program also includes incentives for walk-in hunting usage. They talked about what cost-share programs that are available to the public on the county, state and federal levels. Programs include EQIP (farm management

practices), WQIP (water quality), NRCS technical services, CRP program incentives, and the Great Plains Conservation Program.

#### Subcommittee Reports

- Sustainability-concluded that many of the parameters required to define sustainability cannot adequately be defined at this time. It was the consensus of the working group that the definition of sustainability would change as research on the hydro-geological complexities of the subbasin progresses.
- Establishment of baseline for streamflow evaluation-Kansas statutes and regulations list minimum desirable streamflow (MDS) measurements as criteria for maintaining the watercourse. The subcommittee will consider alternate means of evaluating streamflow as studies in the basin progress.

Community Presentation: Groundwater Management District No 5, presented an informative talk on the important role that GMD No 5 has played in water resource management and data collection in the Middle Ark River subbasin. GMD No 5 was established in March 1976 by the Groundwater Management District Act. Sharon talked about the evolution of different management strategies including the decision to close the district to further appropriations after December 1998.

The working group decided on decision by consensus to encourage participation by all working group members.

#### **July 26, 2000** (City Hall, Larned, KS)

**Meeting overview:** KDWP is reviewing the draft water right certificate for Cheyenne Bottoms. DWR staff member will be present at next working group meeting to answer questions on the certificate. A proposal to open several townships in Ford County has been sent to the chief engineer by GMD #3. The working group decided to contact the chief engineer to express concerns of the negative impact on the Mid Ark subbasin if these townships are opened. A letter will be prepared.

Community presentation: KDWP on Cheyenne Bottoms- An informative talk was given on the importance of Cheyenne Bottoms as a High Plains complex for migratory birds and natural habitat for animals and plant. There is an economic benefit to the subbasin. The refuge contributes more than \$2.8 million to the local economy each year.

#### Committee Reports

- Confined Animal Feeding-summary on two seminars the Kansas Livestock Association Seminar and a seminar on lagoons. The Kansas Department of Health and Environment (KDHE) is implementing regulations for permitted confined animal feeding operations (CAFOs) to submit a manure management plan for permit renewals.
- Rangeland & Pasture Management-discussed several problems associated with rangeland and pasture management in Pawnee County. Topics included over-grazed pastures, managed buffer strips, noxious weeds and water quality problems

in the watershed attributed to the access of cattle to rangeland and shady areas along the river.

- Natural Habitats-discussed the role of government as a function of conserving natural resources for current usage as well as future usage.
- Municipalities-discussed environmental regulations affecting municipalities. The City of Great Bend is working on the renewal for the national pollutant discharge elimination system (NPDES) permit for effluent to the Ark, the permit for storm water runoff (2003) and how it will impact both water quality and quantity, and a new regulation for NPDES permits for construction sites more than one acre in area. Coon Creek Watershed is in the process of forming a district on a volunteer basis. The City of Kinsley is proposing the construction of a ditch southwest of Kinsley for drainage diversion of flood flows from the Coon Creek to the Ark River. The proposal has been submitted to the Structures Section of the Division of Water Resources.

Eric Hargett, BMT, presented an informative talk on the geology and hydrogeology of the Upper Ark subbasin. Eric's talk included information on the history of the Colorado River Compact and the role of associated ditches in the management of Arkansas River water as it comes across the state line.

#### **November 8, 2000** (City Hall, Larned, KS)

**Meeting overview:** Community presentation- informative talk on the importance of obtaining ET from a local weather station on a daily basis to determine the proper amount of water to apply. A handout discussed soil textures and associated water capacities, weather station data, agronomic ratings for corn, irrigation costs in the Walnut Creek area, and a management guide for corn. Soil cores were brought in from the irrigators fields.

#### Committee Reports

- Confined Animal Feeding Committee-The committee expressed their concern of developing strategies that could lead to further regulations.
- No other committees reported

Cheyenne Bottoms- Tom Huntzinger, KDA-DWR, presented information that substantiated DWR process of determining the certified rate of diversion from the Arkansas River to the Diversion Canal for Cheyenne Bottoms. Q &A followed. The working group requested annual precipitation data west of Great Bend and baseflow separation analysis for all gages in the subbasin.

#### **January 17, 2001** (City Hall, Larned, KS)

#### **Meeting overview:** Committee Reports

- Irrigation Committee-In an attempt to fully understand and to develop a thorough understanding of the conservation methods in the Middle Arkansas subbasin, the irrigation committee is developing an irrigation survey. The committee plans to present the draft survey at the next meeting.

- Confined Animal Feeding Committee-The committee is writing a report on the “Economic Impact and Water Use of Confined Feeding Operations in a Community.” The committee will also be developing scenarios to act as educational tools for the working group on the KDHE permits and regulations required to develop a large/small confined feeding operation.
- Municipalities Committee -The committee is writing reports on the “Economic Impact and Water Works Operations of Municipalities” (Great Bend, Kinsley, Larned, and Ellinwood).
- Natural Habitats-provided the working group with the first document to be included in the management plan, “Brief Description of the Cheyenne Bottoms Wildlife Area Renovation Work-1990 to 1999 and a write-up of the Conservation Districts cost-share programs.
- Coon Creek Watershed District- Leroy Wetzel will be updating the working group each meeting on the progress of this project.

BMT presented an overview of the soils in the Middle Arkansas subbasin included was a soils map, presented water level measurement graphs for Jan 1992, Jan 2000 and Jan 2001 and reviewed committee assignments with the prospective committees.

In addition they presented on the importance of well clusters and DCP technology in determining flow regimes and stream-aquifer interaction respectfully. The handouts from Aberdeen, Maryland and Fort Riley, Kansas, support this presentation. The Cheyenne Bottoms stream gage graphs as requested from last meeting were presented and a DEM, Bedrock elevation, and a water level map of the Middle Ark subbasin.

The working group requested a list of websites that would be of interest to this project. The group is planning a tour of Cheyenne Bottoms.

**March 21, 2001** (City Hall, Larned, KS)

**Meeting overview: Committee Reports**

- Irrigation Committee -The committee presented a draft irrigation survey that the working group will continue to revise and have final draft by January 2002.
- Natural Habitats- copies of “Cheyenne Bottoms Wildlife Area Management Plan”, “Southern Great Plains Riparian Initiative” and “Kansas Private Land Program Summary” were handed out.
- Rangeland and Pasture Management- Information on Livestock Water Supplies including riparian buffer strips was handed out. The working group was asked to better define what issues they would like for her to address in regards to management strategies. The group responded with Best Management Practices that would include information on cattle grazing along streams and alternatives for perennial weed control. Al Guernsey, KDHE, provided good information on KDHE's activities in relationship to the reclassification of streams and TMDL's. He stated since 1984 to present, over 125,000 samples have been taken to determine water quality.

- Coon Creek Watershed District-Leroy Wetzel gave a status report on the Coon Creek Watershed District. Kinsley, Spearville, and Offerle will be putting the Watershed District to vote, a date has not been set for this vote.

BMT presented information on the locations within the basin where streamflow data is collected and indicated the losing/gaining stretches of the stream. The BMT website and the information available was presented and a hand out of graphs of the monthly well measurements was provided to the group. The Cheyenne Bottoms tour was scheduled.

**May 16, 2001** (City Hall, Larned, KS)

**Meeting overview:** The working group was provided a summary of the legislative session, Arkansas River Shiner update, summary of the Mobile Irrigation Lab-tech center and water use in the subbasin.

Committee Reports

- Irrigation Committee- further revision to the draft irrigation survey that will be sent out with water use reports in January 2002. The working group also discussed developing a tag with the end meter reading for flow meters to be sent out annually to the irrigators within the subbasin.
- Confined Animal Feeding Committee-Robert Lewis has graciously accepted to chair this committee and will be reporting on dairy operations at the next meeting. The committee is writing a report on the “Economic Impact and Water Use of Confined Feeding Operations in a Community”. They will also develop scenarios to act as educational tools for the working group on KDHE permits and regulations.
- Municipalities Committee-Richard Lewis and Don Gaeddert, with the City of Larned have graciously accepted the chair this committee and will be reporting at the next meeting. The committee is writing reports on the “Economic Impact and Water Works Operations of Municipalities (Great Bend, Kinsley, Larned and Ellinwood).
- Natural Habitats-Cheyenne Bottoms submitted Conservation Plan at the last meeting; no further questions or revisions were made.
- Coon Creek Watershed District-Leroy Wetzel gave a status report on the Coon Creek Watershed District. Kinsley, Spearville, and Offerle will be putting the Watershed District to vote this fall.

BMT presented information on water use reported versus authorized use for the years 1990 to 1999 and the township/ranges with the highest percentages reported. They showed a map representing new monitoring well installation that will be taking place at the end of June in coordination with the Kansas Geological Survey.

The working group requested United States Fish and Wildlife Service be present at the next meeting to give a presentation on the Arkansas River Shiner. We have planned 1 hour for their presentation.

**July 25, 2001** (City Hall, Larned, KS)

**Meeting overview:** Committee Reports

- Coon Creek Watershed District-Leroy Wetzel gave a status report on the Coon Creek Watershed District. The Coon Creek group is exploring alternatives other than forming the watershed district and building a diversion canal. Dan Curtis, Project Coordinator for Resource, Conservation and Development (RC&D), is coordinating with KSU to survey the area and explore the possibilities of developing a reservoir that could be used as a wet structure for recreation, irrigation and storm runoff or as a dry structure to be used only when there are high flows.
- Irrigation-Larry Skelton led the working group in discussion of revisions to the draft irrigation survey that will be sent out with the water use reports in January 2002. The group discussed funding options/cost-share programs that will assist local irrigators in upgrading their flood irrigation systems to more efficient center-pivot systems.
- Municipalities -Richard Lewis gave a report on the City of Larned Water Department. The report included information on the city's water wells, the metering processes, age of water mains, and certification of city employees on safety regulations, and costs accrued by the city to bring that glass of water to your home or business.

Dan Mulhern, USFWS, gave a status report on the designation of the Arkansas River Shiner. Dan led the discussion with questions submitted to him by the working group. BMT presented data currently available on the 6 new monitoring wells that are being installed by KGS. A copy of SB 237 for water banking, flex accounts and civil penalties was provided to the working group. GMD #5 will be sending out a questionnaire to measure the level of interest in water banking. If a large support, GMD #5 will pursue establishing a water bank charter.

The working group was interested in the status of the Pawnee-Buckner and Upper Arkansas River subbasin projects. An update was given to the group.

**September 11, 2001** (City Hall, Larned, KS)

**Meeting overview:** A copy of the goals and objectives and a draft water budget was provided to the working group. Committee Reports

- Irrigation- Reviewed final changes recommended for the irrigation survey. The final draft will be included with the meeting material being sent to the irrigation committee for final review.
- Rangeland and Pasture Management- Jan Zook discussed information from a Kansas State Extension publication named A Pasture Management in Kansas - Water Quality.

BMT presented a draft documentation of the water budget for the Middle Arkansas River subbasin for the periods of 1981 to 1990 and 1991 to 1999. The water budget report includes documentation of data processing and discussion of the results. Data analysis

and discussion of the water budget will continue at future meetings. GMD #5 discussed developments of water banking and has requested that the working group review the questionnaire.

**October 30, 2001** (City Hall, Larned, KS)

**Meeting overview:** Committee Reports

- Irrigation- Final changes were accepted and the Irrigation Survey will be sent out with water use reports in January 2002.

The water budget report includes documentation of data processing and discussion of the results. Emphasis was made on recharge values and irrigation return flows. The working group addressed items on the Draft Goals and Objectives. Items of discussion included increased recharge, voluntary plans, incentive programs and changing the “use it or lose it” viewpoint. The group added the eradication of salt cedars and “no repeat of Walnut Creek” to the goals. Discussions were also focused on water usage by trees and grasses along the stream and flood plain, information will be provided at a future meeting. Robert Lewis plans to ask the Upper Arkansas BAC for a one year extension to complete this project.

**November 28, 2001** (City Hall, Larned, KS)

**Meeting overview:** A one year extension for the Mid Ark project was requested and the KS Water Authority approved the extension. The Irrigation Survey will be sent out with water use reports in January 2002. Water Budget discussions continued on the draft documentation of the water budget for the Middle Arkansas River subbasin. Credits to local water users for lack of stream flow and water quality from the west were discussed.

There were numerous handouts provided to the working group on recharge, streamflow and groundwater, phreatophytes, and irrigation and conservation.

- “Groundwater recharge estimation and regionalization: the Great Bend Prairie of central Kansas and its recharge statistics” Marios Sophocleous (1992)
- “Equus Beds Ground-Water Recharge Demonstration Project” USGS website (2001)
- “Minimum Desirable Streamflows on the Middle Reaches of Arkansas River Including Rattlesnake Creek – Background Paper #11: State Water Plan” Kansas Water Office (Jan. 1985)
- “Streamflow Statistics - Historical Data” USGS
- “Stream-Aquifer System Management on the Basis of Groundwater Levels” R. W. Buddemeier, M. A. Sophocleous, and P. A. Macfarlane (KGS) (Apr. 1996)
- “Middle Arkansas Subbasin Water Resource Management Program: Monitoring Well Information” (current)
- “The Origin and Evolution of Safe-Yield Policies in the Kansas Groundwater Management Districts” Marios Sophocleous (2000)
- “Human and Natural Demands on Water-flow in the Arkansas River in Kansas” Tom Eddy
- “The Importance of Riparian Areas” RWRP (1999)

- “Phreatophyte Survey and Water-Use Estimates for Nine River Systems in Kansas” Tom Eddy
- “Environmental Influences on Distribution of Native and Exotic Riparian Trees” USGS
- “Kansas Irrigation Trends and Impacts” Danny Rogers (2000)
- “Consumptive Water Use Data by Irrigation Systems” Danny Rogers
- “The Beauty of Buffers” Randy Rodgers (Nov./Dec. 2001)

**January 16, 2002** (City Hall, Larned, KS)

**Meeting overview:** Irrigation surveys were sent out with a return date of March 1, 2002. To date, 50 surveys had been returned. A report will be submitted to the working group with the results. Coon Creek Watershed will need to have the Arkansas River floodplain re-mapped if the Coon Creek diversion project is to proceed. A time-line was presented to the working group showing priority dates for management plan development.

- June 2002: Draft Management Strategies in writing
- January 2003: Submit Final Draft Management Strategies to chief engineer.

Draft goals were reviewed and discussed with emphasis on recharge, voluntary plans, incentive programs, and abandonment. Monthly groundwater level data was presented to the working group. Discussions continued on the draft documentation of the water budget for the Middle Arkansas River subbasin. Discussions continued on recharge values, groundwater inflow from the west and groundwater outflow on the eastern boundary. Comments by the group included that the budget hinges on weather patterns and recommends the use of 2.25" as a good representative value for recharge.

Jim Butler, Kansas Geological Survey, presented information on determining water quantity. Jim provided information on stream-aquifer interaction, effects of well pumping, and current research being conducted in the Middle Arkansas River basin.

**February 27, 2002** (City Hall, Larned, KS)

**Meeting overview:** Approximately 150 irrigation surveys have been returned out of the 465 sent out. The City of Kinsley is facing additional obstacles for the Coon Creek Watershed mainly related to lack of leadership for the project. Working group requested that BMT prepare written background information for the management strategies that will be reviewed at the next meeting. The working group decided to manage the subbasin on +/-2.25 inches of recharge. BMT recommended 1.50 inches of recharge with an understanding of variability. The rate of 2.25 inches of recharge is the average recharge value used for the entire GMD 5 district. Don Whittemore, Kansas Geological Survey, presented information on water quality analysis conducted in the Middle Arkansas River subbasin. Don provided information on geo-chemical analysis and how it could potentially be used to determine stream-aquifer interaction. He provided additional information on the stream-aquifer interaction study being conducted by KGS in the subbasin and discussed future research projects needed to complete the research.

**March 27, 2002** (Jordan Community Room, Larned, KS)

**Meeting overview:** Irrigation survey results were presented to the working group. A discussion followed on how to incorporate these results into the management strategies. A final report will be available at the next meeting. Draft management strategies was introduced emphasizing background information on precipitation, stream flow, groundwater and surface water use, groundwater recharge, and water budget. Management objectives and descriptions were discussed for conservation efforts, enforcement efforts, educational activities, funding options, and other strategies for water savings within the subbasin. Discussions continued on the draft documentation of the water budget for the Middle Arkansas River subbasin with a focus on determining a recharge value.

**May 22, 2002** (City Hall, Larned, KS)

**Meeting overview:** The irrigation survey report was presented which included discussion on how to incorporate into the management strategies. Discussions continued on the draft documentation of the water budget for the Middle Arkansas River subbasin with a focus on determining surface water (inflow/outflow), volume from the change in storage, sub-surface water (inflow/outflow), phreatophytes, and water levels. Management objectives and descriptions were discussed for conservation efforts, enforcement efforts, educational activities, funding options, and other strategies for water savings within the subbasin. Main objectives discussed were enforcement efforts - penalty for over-use and investigating all the options for the Cheyenne Bottoms diversion canal.

**July 17, 2002** (City Hall, Larned, KS)

**Meeting overview:** A public hearing will be held for comment on rules and regulations for the proposed closure of the Pawnee-Buckner subbasin to new appropriations as well as the regulations on flex accounts and five-year allocations. A list of the 13 core working group members was reviewed. The working group was unable to work in great detail on management strategies due time constraints, but a recommendation was made to find a way to transfer water rights between pivot systems. In order to enact such a policy would require an IGUCA. More details will be provided at the August meeting. A second recommendation included water right transfer with a conservation component, addressing over-pumping. Alternatives to the water budget are being reviewed by DWR and will be presented at the next meeting.

Hank Hansen, GMD #3 District Manager and his board were invited by the working group to attend this meeting. The group wanted to inquire on the status of closing the open townships in Ford County. Hank offered the group additional background information on GMD #3. The information included the board's proactive approach on enhanced enforcement, adoption of Ogallala-High Plains' protocol, and work being conducted by KGS to develop new bedrock map in the district.

There were a large number of people in attendance; therefore a number of questions were posed at the meeting.

- The main concern of those in attendance was a possible water use restriction imposed by the Division of Water Resources. Information provided to the public via notices published in local newspapers was misleading.
- The Division of Water Resources is taking a proactive approach by working with the public through the established working group to address water issues in the basin.
- The working group meetings are always open to the public and participation in this process is encouraged.

**August 21, 2002** (Jordaan Community Center, Larned, KS)

**Meeting overview:** Alan Crane proposed to halt the process of the Middle Arkansas Subbasin Water Resource Management Program (SWRMP) until current hydrologic studies were completed and for data to be submitted to GMD #5 to review and make final recommendations to the chief engineer on management options in the subbasin. It was stated that the working group, currently has control of the final outcome by drafting the management strategies and submitting recommendations to the chief engineer for approval. If the working group were to discontinue their efforts, it would eliminate them from the process. The working group inquired on requesting a one-year extension to the program. The consensus of the working group was to continue with the Subbasin Water Resource Management process as outlined in the State Water Plan.

The working group is considering adjusting the boundaries to the subbasin which would exclude areas east of Great Bend in the water budget analysis. For comparison purposes the water budget years has been changed to 1988-2000 to be consistent with the regression analysis. The working group discussed the introduction to the management strategies and the management objectives. The working group requested time to review the document and to submit changes at the next meeting. A comment was made that the water banking program could have a high participation therefore a higher overall water savings could be anticipated. The working group commented that all water users need to share equally in possible water use cuts.

BMT presented the methodology of regression analysis. Regression Analysis is being used as an alternative method in determining the estimated water shortage in the subbasin. A representative area was used to demonstrate how priority areas could be targeted to identify and quantify water use that would sustain a healthy groundwater and surface water system. 1988 - 2000 are the representative years being used in the analysis. The BMT will be presenting preliminary results of the regression analysis at the October meeting. The results will be compared to the water budget analysis already completed in the subbasin.

**October 23, 2002** (City Hall, Larned, KS)

**Meeting overview:** Working group reviewed the Management Strategy Document. Leroy Wetzel presented suggested wording for the objective section, the committee discussed some areas that should be emphasized, such as voluntary and incentive based management, lack of stream flow and farm economy dependent on irrigation. Additional comments were made related to economy dependent on adequate water supply including surface water, need a lower aquifer so it can recharge, include drought indices, and add MDS language to allow for fluctuations. Members of the audience were afraid to make goals; if goals were made and not met, it could strengthen the position to call for an IGUCA. The management strategies can be worded to include methods of implementation, however, a set number of an acre-feet goal is strongly recommended as a means to measure objectives and success. The strategies would have a review process with goals subject to change as additional data becomes available. The review frequency would be no greater than four years; the working group wanted the flexibility to bring DWR back to negotiate any agreement if new information is produced or dynamics change. The stakeholder list was expanded to include domestic and industrial interests in the working group. Kansas Livestock Association (KLA) wanted to join the working group to represent confined feeding operations. A member of the audience requested the working group vote on a motion to have the committee make a recommendation to the Division of Water Resources to take no action relating to the Middle Arkansas River streamflow until all testing by the Kansas Geological Survey (KGS) is completed and scientific data can be used to make a reasonable decision. 5 voted to wait, 3 abstained. Other issues were discussed-develop a dynamic document, concerns on reducing water rights, how to make the stream flow, credits in order to use more water and healthy riparian zone options through SCC.

Don Whittemore, KGS, presented on recharge studies and a question and answers session regarding his recent Open File Report 2002-30, "Ground-Water Recharge in the Upper Arkansas River Corridor in Southwest Kansas". He also provided information on the pumping test conducted and the Phreatophyte project at the Larned site

**November 20, 2002** (Barton Count Community College, Great Bend, KS)

**Meeting overview:** Review of Management Strategy Document and suggested edits were made. Sharon Falk recommended condensing or appendix the conservation recommendations sections into a spreadsheet for easy reference. Leroy Wetzel emphasized not to put a number for long-term sustainable yield until all studies are completed with the most accurate assessment possible. The key points should be voluntary, incentive based savings program. David L. Pope, chief engineer for the Division of Water Resources, held an open discussion session. The next meeting will focus on management strategy development.

**December 10, 2002** (City Hall, Larned, KS)

**Meeting overview:** DWR presented information on water right development in the Upper and Middle Arkansas River basin and streamflow data. The data was charted and compared total cumulative authorized quantities to mean annual baseflow from 1945 to present. This was done to show a point when baseflow disappeared in the basin. This date was around the mid-1970. A draft revision of the management strategies and objectives was submitted to the working group committee. Discussion took place concerning the impact each subbasin had on baseflow and the quantity each should share as a responsibility for recovering lost baseflow. Paragraph four of the draft established a figure of 10,000 acre-feet per year that would be needed to meet the needs of Cheyenne Bottoms water right. Karl Grover, Kansas Wildlife and Parks (KDWP), stated that KDWP would not accept wording that states they will 'never' claim impairment. This figure would also be shared by the Upper Arkansas River area by suggesting they make up the additional 8,000 acre-feet per year needed for the 18,185 acre-feet per year authorized quantity needed to fulfill the Cheyenne Bottoms water right. The committee feels the 10,000 acre-feet per year are attainable.

**January 28, 2003** (City Hall, Larned, KS)

**Meeting overview:** GMD 5 voted to rescind the 10,000 AF offer until the pending water right on Sunflower Electric was decided and there was closure to new development in GMD 3. This was discussed with the working group.

- Tina Alder explained the Sunflower Electric does not pertain to this subbasin as it is south of the Arkansas River and west of Garden City.
- DWR has the GMD 3 closure under review since the hearings are now closed and will make a decision on that issue in the near future.
- Leroy Wetzel spoke on behalf of Water PACK and stated he agreed with GMD 5, to withdrawal the 10,000 AF. The figure shouldn't be set until all data has been established and a correct figure is used.

Staff explained the position of DWR on issues in the subbasin.

- Programs strategies should include streamflow, baseflow and water levels
- Whole subbasin needs addressed
- Reduce water use to stabilize ground and surface water declines
- Establish trigger levels to preserve the aquifer.

The working group requested that a list of objects be produced outlining the chief engineers desires for the program. Staff indicated that the goals were outlined by the working group three years ago. Various management options were discussed. Staff stressed that the management program needed to include more than just incentive based program to achieve stability in the aquifer system. Staff provided an annual report on data collection activities conducted by BMT. Questions and comments were made on last meetings report on water right development. Staff explained the analysis the Basin Team is working on to determine a quantity of water and related water right number as a dividing line where water appropriations could be reduced and vested and more senior water rights would not be affected. The working group provided recommendations for the data analysis.

**February 25, 2003** (City Hall, Larned, KS)

**Meeting overview:** Staff brought the outline of goals from the discussion with the chief engineer as requested by the working group. The working group identified a list of 12 goals and objectives they would like to see addressed. Staff announced that an internal review on the Upper Arkansas River basin area will include the water issues identified by the working group. The working group was advised to focus on the present water issues. The working group discussed options for managing the Upper and Middle Arkansas subbasins. They would like to develop programs that could include an IGUCA if voluntary programs don't meet the recommended goals. The infiltration of poor quality water into the alluvial aquifer system as water levels continues to decline is of concern. Need to include an reference to the recharge study in the Upper Arkansas subbasin strategies document and time the water use reductions simultaneously for both basins. The strategies for both areas could be combined into one final document. The working group discussed DWR goals and added some they would like addressed.

The working group requested DWR to identify high priority areas for them to target programs and money to address water resource issues within the basin. The Basin Team will use the cluster analysis tool to identify these high priorities to be presented at the next meeting. The chair of the KWA was present and urged the group to move the process and get a plan by June 20, 2003. He cautioned the group on using regulatory options.

**March 18, 2003** (Jordaan Community Center, Larned, KS)

**Meeting overview:** The working group reviewed the draft management proposal and offered recommended edits. There were no objections to the edited goals. Staff did stress that there were no intentions by DWR to reduce water rights by 70% in the subbasin. Staff gave a presentation on project overview and management strategy development. Outlined were program concepts, working group history, structure of the working group, data analysis conducted, water budget analysis., possible management strategies, goals and objectives, focus of the working group, focus of DWR and the expected outcomes. Edits were made to the report and it was recommended that the group work in subcommittees to develop management strategies to meet the June 30, 2003 deadline.

**April 2003** (Pratt, KS) Special Meeting

**Meeting overview:** Incentive programs were reviewed. It was announced that DWR is developing new rules and regulations, Middle Arkansas part of target area. The difference between DWR and the Basin Team was discussed as DWR is the regulatory agency and Basin Team will do strategy development, Basin Team can target money flow, but not provide it. MDS is not being met on the Arkansas River which needs addressed as there are multiple problems with senior water rights, overpumping and the and not meeting MDS. GMD #5 agreed to check on end gun removal regulations and see

if this could be applied to the Middle Arkansas. The working group needs to look at the Drought Contingency Plan (DCP) trigger level.

**April 15, 2003** (Jordaan Community Center, Larned, KS)

**Meeting overview:** Brownie Wilson, Research Assistant, Data Manager/GIS Manager for the Geo-hydrology section at Kansas Geological Survey, gave a presentation based on data developed in the KGS Open File Report 2002-25 series with emphasis on the Middle Arkansas River Basin. The study used water level data from state well measurements and GMD 5 programs. The data was used to create saturated thickness maps to assist the working group in targeting programs. Staff provided an overview of the three Irrigation Conservation surveys conducted in the Middle Arkansas, Upper Arkansas, and Solomon River Basins. The overview included comparisons of irrigation efficiency compared to system type, nozzle type and placement, and percent number of end guns in each basin. The basins are comparatively equal for the number of center pivots versus flood irrigation systems, there is more drop nozzle placement above the canopy in the Middle Arkansas and end guns are more widely utilized in the Middle Arkansas basin.

The working group reviewed the draft voluntary management strategies and offered comments. Water PACK proposed a 10% voluntary reduction in water use through water conservation efforts and incentive based programs. Water PACK feels this reduction would not 'wreck the economy'; however, there is no scientific evidence of this. A review of the economic impact of a 10% voluntary reduction was recommended. DWR feels the 10% reduction would be fine for an initial good-faith (short-term) effort, but in monitoring the changes in the aquifer, there was no guarantee no further action would be taken within the Middle Arkansas River basin.

DWR recommended that the working group establish a step system for goals and voluntary management strategies: short-term (0-3 years), medium-term (3-5 years), and long-term goals (5-10 years). In the recommendation, they included that strategies that require funding should be considered long-term goals.

Keller-Bliesner Engineering L.L.C. sent Water PACK a document with an opinion on the draft water budget. The opinion will be reviewed and discussed at the next working group meeting.

**May 20, 2003** (Jordaan Community Center, Larned, KS)

**Meeting overview:** An overview of the new state water plan process was given. The goal is to revitalize the water plan by prioritizing water issues in an effort to target funding. The working group discussed implementation timeline of the voluntary management strategies. It was recommended to take a progressive approach and implement a stepwise timeline 3, 5 and 10 year goals. There was a general agreement from the working group members that voluntary strategies would eventually become law and therefore are apprehensive in reaching a consensus.

It was recommended to make the voluntary 10% reduction; incentives based and not make it a permanent action. Staff explained changes made to the components in the water budget. The change in storage component was changed to represent the analysis completed by KGS. Other changes were made as well. The working group plans to review and submit comment at the next meeting. DWR plans to schedule a meeting with KGS to discuss their water budget analysis being conducted in GMD #1 and #4 and bring updated information if needed to the next meeting.

It was suggested that a disclaimer be placed into the Management Objectives and Strategies document to state decisions have been made based on information provided to the group by DWR. Derenda Mitchell agreed to write this up and submit to DWR for insert into the document by the next meeting.

Staff presented estimates on government payments and production costs for irrigated corn under a typical center pivot system. Results of this scenario indicate the end gun acres show a loss and the center pivot acres return a profit. The working group felt the analysis was reflective of the cost-production for a 130-acre field. It was suggested to run a scenario with different bushels per acre for comparison.

Staff explained the equations used to calculate the estimated water savings for each of the strategies. The end gun strategy was dropped. All revisions to the documents will be sent out to the working group members.

**June 16, 2003** (Jordaan Community Center, Larned, KS)

**Meeting overview:** Staff presented maps and information from a presentation given by Brownie Wilson, KGS in the April 2003 meeting. The data represented how DWR concluded priority areas and why areas of the Middle Arkansas Subbasin should be prioritized. Working group discussed the presentation and offered comments. They felt that EQIP is not fair in how dollars are distributed, priority areas should only be used for incentive based management programs, and to include map the into management strategies document to justify additional funds in this area.

The working group went on to discuss the management objects and water budget analysis. DWR held a meeting with Gary Hecox, KGS, regarding variables and methods used to calculate the water budget model in GMD #1. It was concluded following the meeting with KGS that the change in storage component would be left as is. GMD 5 and Water PACK representatives proposed their recommended changes to the management strategies document to the working group. GMD 5 agreed to submit a map that would show areas of the subbasin where water rights could be transferred. No comments were made regarding KLA's insertion of a qualifying statement. Alternative language was presented by DWR, GMD 5 and Water PACK. Comments will be submitted later. All additional comments and recommendations regarding the Draft Management Strategies document should be submitted to DWR by June 30, 2003. The meeting in July will focus on comments submitted to finalize the strategies document.

**July 29, 2003** (Jordaan Community Center, Larned, KS)

**Meeting overview:** Discussion focused on whether water right amounts retired by the acquisition of the Circle K Ranch would be ‘credited’ to conservation measure currently being proposed by the Middle Arkansas working group. The conclusion was, if water rights were retired, they would be considered an additional amount to the 10% savings needed by water users in the basin. Some of the water rights could be held as storage for future water supply. The working group reviewed the changes made to the document and insertions and deletions were pointed out in each section. DWR is in the process of creating a supplemental document containing technical information related to information given in the Management Strategies and Objectives document and present that document at a future date. Tina Alder and Susan Stover, Kansas Water Office (KWO), are to meet with the tenant of BET Farms, in an effort to learn more about the management of the ranch.

**August 26, 2003** (Jordaan Community Center, Larned, KS)

**Meeting overview:** Discussion was brought up again on the water rights and if the amount appropriated to Circle K would be retired and credited to the amount of conservation needed. The answer was that it would be credited to any administrative actions necessary if goals within the subbasin are not met. Staff explained the proposed aquifer pump test being planned by KGS on the Larned site. City Administrators of Kinsley, Larned and Great Bend met and agreed to provisions in the management document. They agreed to educate people on water conservation. DWR brought to the attention of the working group a complaint of “impairment” by a local resident of Edwards County. The trees are dying along the Arkansas River.

A revised edition of the document was sent out for review with insertion and deletions from the last meeting. There were some more suggestions made, including moving the disclaimer to the front.

**September 29, 2003** (Jordaan Community Center, Larned, KS)

**Meeting overview:** Discussion with David Pope, chief engineer. There were concerns with the disclaimer and why the State of Kansas should not ‘be bound to the voluntary management strategies’. Concerns over the issue of partial abandonment of a water right if a water user reduces the amount water pumped in an effort to meet the water conservation goal of 10%. Concerns with irrigators were that if water users whom participate in conserving water use by 10% would be penalized again if further reductions were needed. DWR could not promise future mandatory action if current conservation efforts did not curb the rate of groundwater decline. More concerns were with aquifer depletion occurring to the west in the Upper Arkansas River Basin. It was suggested that water users in the Middle Arkansas area apply pressure to the upstream area to coincide with the efforts for conservation. DWR will correspond with Derenda Mitchell to rewrite the disclaimer. The final draft of the management strategies will be mailed to the working

group for final comment. Public Information Meetings will be held on the Management Strategies Document October 29 in Kinsley at 7pm and October 30 in Larned at 9am.

**Public Information Meetings**

**October 29, 2003** (Kinsley, KS)

**October 30, 2003** (Larned, KS)

**Meeting overview:** Concerns with trees along the river and in shelter belts dying due to insufficient ground and surface water resources. Discussion on Federal funds through Environmental Quality Incentive Program (EQIP) and State funds through the State Conservation Commission (SCC). There were inquiries on small use wells and their impact on the aquifer system. It is felt the small use wells don't have as great of impact on the aquifer system as large capacity wells used for irrigation. Questions and answers on how 'first in time, first in right' are operated. Some water users were concerned with participating now voluntarily and then later when a mandatory reduction is implemented, there will be a 'double whammy' placed on them. It was recommended by the audience that more education be provided to water users on the DWR rules and regulations through meetings, pamphlets mailed out with water use reports or brochures at the local extension office and GMD #5.

**November 19, 2003** (Jordaan Community Center, Larned, KS)

**Meeting overview:** The main topic of discussion was on the statement given for water users to submit a conservation plan to receive credit for conservation practices implemented. DWR feels it is important to develop a new regulation on the submission of conservation plans that would document conservation practices taking place in the Middle Arkansas River subbasin. DWR is developing the conservation plan that is needed for documentation of conservation efforts and will move quickly to implement the plan for irrigation season 2004. The Management Strategies Document was finalized and will be submitted to the chief engineer for approval. GMD #5 proposed a regulation similar to what was initiated in the Rattlesnake Creek subbasin for well transfers to the working group. DWR took the proposal for consideration. It was proposed to include Keller-Bliesner in evaluating the water budget analysis conducted by DWR and work with the consultant in approaching the best fit for the subbasin.

**August 19, 2004** (Jordaan Community Center, Larned, KS)

**Meeting overview:** BMT is not publishing a quarterly newsletter with topics pertaining to issues with the subbasin. Guest articles are welcomed. Staff provided the working group on background into the new state water plan process utilizing Water Issue Strategic Plans (WISP). Also provided were the names of the technical advisory committee for the hydrologic model under construction in the subbasin. DWR staff is in the process of developing recommendations on regulatory strategies in the subbasin. The working group will be able to review and comment on the regulatory strategies staff recommendations document. The time line proposes a blended approach to meeting water conservation goals: It would allow more time to meet voluntary goals of 14,000 AF and

provide assistance at both the state and federal level on meeting this goal and implement regulatory strategies for additional water conservation goals needed in the subbasin. Comments on regulatory strategies were constructing in regulation a transfer rule and five-year allocation similar to the Wet Walnut IGUCA and no IGUCA unless there is just compensation for the loss incurred in water right reductions.

Kansas Department of Agriculture, Kansas Water Office and Kansas Geological Survey have contracted to construct a groundwater model in the Middle Arkansas Subbasin. Leroy Wetzel explained Water PACK's position on the development of a groundwater model and that they have hired Andy Keller of Keller-Bliesner to conduct peer review and review the water budget that was developed for the subbasin. Irrigation Transition Assistance Program (ITAP) was discussed and how it could be applied in this subbasin. The key points to the program are:

- providing grant assist to allow for irrigated land to be transitioned to dryland agriculture;
- if transitioned to cover then limited irrigation would be allowed for a maximum of three years under a conditional dismissal;
- The water right would be dismissed.

#### **November 10, 2004** (Stafford, KS)

**Meeting overview:** Scott Carlson, SCC presented a summary of the proposed rules and regulations and background information on the ITAP program. Staff summarized updates made to the WISP that include changes in the timeline for objectives and minor grammatical changes. A request to change the first paragraph to an "if" statement was made. This request will be reviewed. Tina Alder lead the discussion on the Regulatory Management Options Proposal. The proposal will be updated as additional analysis is completed as well as the groundwater model is constructed. The Division of Water Resources is accepting feedback on all management options.

#### **March 15, 2005** (Stafford, KS)

**Meeting overview:** The group discussed the model domain and the outside peer review process. Leroy Wetzel mentioned that the data from low head dams along Coon Creek should be accounted for in the model. Legislative updates were provided to the group. HB 2400 supplemental note was provided to the group. Water PACK provided an update on the work they have been doing with legislators, state agencies and water congress on the getting the program initiated. Tina provided the group with a tentative agenda and reviewed the stops within the subbasin for the KGS Legislative Tour. Keller-Bliesner Second Opinion Water Budget Analysis was discussed. Water PACK requested feedback from the working group on what should be done with the water budget and how shall they proceed with there now being two numbers. It was noted in Andy's report that in order to have recovery in the subbasin the reduction would need to be greater than the range he provided in this analysis and that the 2.25 inches for recharge was a good level to start. It was noted that there is a numerical groundwater model being constructed in which all parties are involved, including Andy Keller, and that this is where the focus

should be placed. Stinson, Morrison, Hecker, a law firm hired by GMD No. 5 to gather data on DWR's water budget analysis. At this time, the District is not proceeding with a water budget analysis. The group discussed GMD No 5's proposal on buying water rights in the Middle Arkansas and Rattlesnake Creek subbasins. Members of the group requested that if administration is placed in the subbasin that the numbers be dynamic and not be set in stone.

No future meetings were scheduled.