Approved: March 7, 2002
Date

MINUTES OF THE SENATE NATURAL RESOURCES COMMITTEE.

The meeting was called to order by Chairman Robert Tyson at 8:34 a.m. on February 21, 2002 in Room 423-S of the Capitol.

All members were present except: All present

Committee staff present: Raney Gilliland, Legislative Research Department
Lisa Montgomery, Office of Revisor of Statutes
Deborah McIntire, Committee Secretary

Conferees appearing before the committee:
Earl Lewis, Manager, Hydrology and Evaluation Unit of the Kansas Water Office

Others attending: See attached list

The meeting was called to order by Chairman Robert Tyson. The committee is to review the three water supply contracts negotiated under the provision of the State Water Plan Storage Act (K.S.A. 82a-1301 *et al.*) and approved by the Kansas Water Authority during calendar year 2001 (on file in the Kansas Water Office).

The first conferee, Earl Lewis, presented a review of the new water marketing contracts (Attachment 1). Questions and discussion followed.

Earl Lewis then presented a report on the reservoir operations and drought exercise (Attachment 2). Questions and discussion followed.

The meeting adjourned at 9:31 a.m.

The next meeting is scheduled for February 22 at 8:30 a.m.

SENATE NATURAL RESOURCES COMMITTEE
GUEST LIST
DATE: February 21, 2002

NAME	REPRESENTING
Joe Lieurance	KBHE
Tom Brund	Farm Credit Council
Greg A. Foley	KDA
Earl Lewis	KWO
Leslie Kaufman	KFB
Kaila	Gov's Office
Mike Ohrt	Pinegar-Smith
Keith R Landis	Christian Science Committee on Publication for Kansas
Whitney Damron	KS Sport Hunting Assn / Flint Oaks Ranch LLC
Sam Perkins	KWO
Woody Moses	KAPA
Al LeDoux	KWA / KWO

Senate Natural Resources Committee
February 21, 2002, 8:30 a.m., Room 423-S
New Water Marketing Contract Review
Earl Lewis, Kansas Water Office

Thank you Mr. Chairman and members of the committee for the opportunity to come here today and talk about water marketing contracts approved during calendar year 2001. I am Earl Lewis and I am the Manager of the Hydrology and Evaluation Unit of the Kansas Water Office. One of my primary duties is to deal with the operation of the state owned storage in federal lakes, including negotiation of new contracts with water marketing program customers.

As a process note, contracts with water users from state owned storage are authorized and negotiated under the State Water Plan Storage Act. The Director of the Kansas Water Office negotiates with the proposed customer and develops both the contract and findings regarding whether the proposed contract is in the public interest. The Kansas Water Authority then reviews and approves the findings and contract if it meets statutory requirements and they find it is in the public interest.

Three contracts were negotiated and approved during calendar year 2001. One contract, with Ellsworth County Rural Water District No. 1, also known as Post Rock Rural Water District, was for a long term public water supply. The other two contracts were executed with Jost Farms for surplus irrigation water supply.

The Kansas Water Office entered into Water Purchase Contract No. 01-02 with Post Rock Rural Water District with Kansas Water Authority approval on July 12, 2001. The contract allows the District to remove and consume up to 400 million gallons per year from Kanopolis Lake. As a side note, the State of Kansas contract for storage space in Kanopolis is awaiting signature by the Assistant Secretary of the Army for Civil Works in Washington D.C. at this time. We expect word back on the approval of this contract within the next couple of weeks. The District currently has a surplus contract with the Corps of Engineers for supply from Kanopolis Lake, which they will use until the State's contract with the Corps is finalized.

The development and approval of this contract is a major achievement for the State of Kansas. The State has been working for a number of years in pursuit of the purchase of storage space in Kanopolis Lake. Likewise, Post Rock Rural Water District has been looking for a reliable and consistent source of supply for several years. It is hoped that with this contract approval, the District will be able to expand and better deal with their debt service.

Jost Farms has entered into contracts for surplus water supply from Marion Lake in each of the last 5 years. Jost Farms uses the contracts to assure a steady supply during times when streamflow is insufficient to meet their existing surface water rights. Water Purchase Contract Nos. 01-03 and 01-04 allowed Jost Farms to divert a total of 120 acre feet of water from the upper end of the lake to irrigate two fields. The nature of

a surplus contract is that it cannot exceed one year in length, and these contracts expired on September 28, 2001. The State Water Plan Storage Act does not currently allow irrigation users to contract for a long term supply of water from state owned storage.

Jost Farms has again applied for two water supply contracts for the 2002 calendar year. The Kansas Water Authority authorized the Director of the Kansas Water Office to proceed with negotiations on January 30, 2002. Barring some unforeseen complication the negotiated contracts will be approved at the April meeting of the Water Authority.

I will be happy to answer any questions you may have at this time.

Senate Natural Resources Committee
February 21, 2002, 8:30 a.m., Room 423-S
Reservoir Operations and Drought Exercise
Earl Lewis, Kansas Water Office

Thank you Mr. Chairman and members of the committee for the opportunity to come here today and talk about reservoir operations and drought. I am Earl Lewis and I am the Manager of the Hydrology and Evaluation Unit of the Kansas Water Office. One of my primary duties is working with the state owned storage in federal lakes through the Water Marketing and Assurance Programs.

As you know, the State of Kansas through the Kansas Water Office has worked with local public water suppliers and the federal government for nearly 30 years to improve reservoir operations and minimize the effects of drought. The state has purchased water supply storage in 13 federal lakes and developed two operational programs related to these issues. We must continue to learn from our experiences and put new practices into place to meet the changing population and water demand base.

First I want to provide a little background to help focus this discussion.

The State of Kansas really became involved with water supply from federal lakes in the 1950's. The flood of 1951, followed by the drought of 1952-1957 pointed out the need for development of flood control and water supply reservoirs in Kansas. With passage of the Federal Water Supply Act of 1958, the state had a mechanism to participate in the process of reservoir development.

The 1958 Water Supply Act allowed the federal government to make proposed flood control lakes larger and include water supply storage if a local sponsor agreed to pay back the cost to build the storage. The state served as the local sponsor and gave a commitment to pay the cost on a number of lakes being proposed at the time. The State of Kansas in turn obtained agreements with local public water suppliers all over the eastern half of the state, that they would repay the state's debt to the federal government for building the larger federal lakes.

The Kansas Water Resources Board, the predecessor agency to the Kansas Water Office, first contracted with the Corps of Engineers for water supply storage in 1974. The Water Marketing Program was developed and passed into law with the State Water Plan Storage Act that same year giving the state a way to provide water service and to recoup the cost of the storage. Contracts were signed initially with the Wolf Creek Generating Station, the Jeffrey Energy Center and the City of Lawrence to name a few. Today 29 municipal and industrial users rely on the Water Marketing Program for either their primary or secondary source of supply.

It soon became clear that the Water Marketing Program did not fit all needs for water supply that could be supported by the federal lakes. In 1986, the Kansas Legislature passed the Water Assurance Program Act. This act allowed local municipal and

industrial water users to form districts and contract with the state for releases from state owned water supply storage. The main purpose was to provide water to the stream and make sure that municipal and industrial customers could obtain water under their existing water rights during times of drought.

There have been three water assurance districts formed under this statute, the Kansas River Water Assurance District No. 1, the Marais des Cygnes River Water Assurance District No. 2 and the Cottonwood and Neosho River Basins Water Assurance District No. 3. The Kansas River Water Assurance District formed and contracted for water supply with the Kansas Water Office in December of 1989.

You may remember that the late 1980's and early 1990's were extremely dry. The contract itself didn't answer the question of how best to operate the reservoirs to serve the assurance district. An operations agreement was negotiated and signed in 1991 and is updated every 5 years. We are finalizing a second revision to this agreement at this time.

My talk today will focus on how the State of Kansas operates the storage owned in the federal lakes, and how we determine what decisions to make during a drought. By way of example, I will focus on the Kansas River and its' lakes operations

One of the key tools that we use in setting up operational rules and making decisions during a drought is an operational model. In the fall of 2000, the State Finance Council provided supplemental funding to help the state prepare for litigation regarding navigation releases if the Corps proposed to use the Kansas River reservoirs for that purpose in the future. A portion of that money went for the development of a computer model that uses the OASIS surface water system. This is the model we will show you here today and the one that is used for assurance district operations.

As the old saying goes, the best time to plan for a drought is when it is raining. To that end, and in conjunction with our operations agreement negotiations, on November 1, 2001, the Kansas Water Office conducted a drought exercise with interested parties of the Kansas River. That exercise provided invaluable information to each of the participants and to the Kansas Water Office on the type of issues we will face in the next drought as well as the physical, legal and operational limitations.

The drought exercise proceeds by operating the computer model through a fictitious drought stopping at regular intervals to evaluate the state of the system and allow participants to make "real life" decisions. The computer model uses inflow and evaporation that are not from any real historical period, but are similar to those experienced in the 1950's. The reservoir operation rules in the model are based on the 1996 operations agreement and the maximum demands on the system from the 1990's. The rules for how the model handles the water within the system are changed based on decisions of the participants before each time step is operated. The time frame that we used for our model was a two-week time step.

I think that the best way to proceed at this point is to walk through the decision-making steps that we experienced during the exercise, the issues that were dealt with and the ones that remain. The attached slide handouts will provide a roadmap as we work our way through the drought simulation.

As we walk through the information from the drought exercise, you will see three basic things: participant decisions, the storage in the federal reservoirs and the flow in the river at Topeka at each time step. I will try to show how the participant decisions and operational rules affected the storage in the reservoirs and the flow in the river. You will see information and graphs at each time step to correlate the decisions to the effect on water available both in storage and for diversion by water users.

Kansas River Operations Model and Drought Exercise

Presented by
Earl Lewis
Kansas Water Office

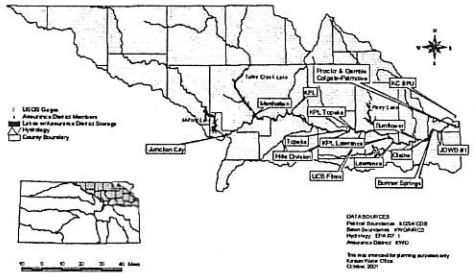
Early Water Supply Activities

- Federal Water Supply Act of 1958
- State commitment to repay construction costs
- Corps of Engineers' contracts-1974
- Water marketing program developed- 1974

Water Assurance Program

- Water Assurance Act passed in 1986
- Districts in Kansas, Marais des Cygnes, and Neosho basins
- Kansas River District first one formed
- Ensure adequate water supply for municipal and industrial users during drought

Kansas River Water Assurance District



Kansas River Operations Agreement

- Establishes rules for operating water supply storage during low flow
- Initial operations agreement signed 1991
- Revised (current) in 1996
- Ongoing negotiations for second revision

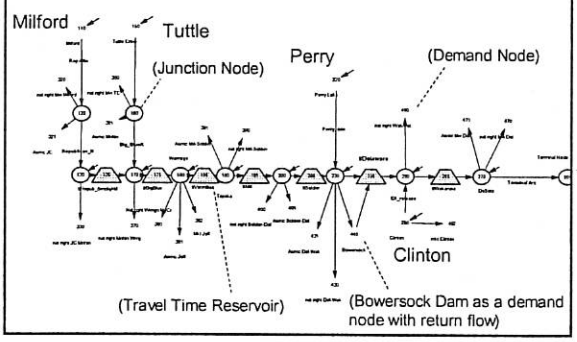
Operations Model

- Simulates operational rules defined in 1996 agreement
- OASIS water balance model
- Assist in decision making during assurance district operation
- Assumes maximum water use demand from 1990's

Drought Exercise Objectives

- Test existing rules of operation
- Identify issues to be resolved
- Provide experience in making decisions required during a drought and in reaching satisfactory resolution of conflicts among water users

Kansas River Basin Model Schematic



Drought Exercise Overview

- November 1, 2001
- Show participant decisions
- Show reservoir storage at each time-step
- Show flow at Topeka at each time step
- How decisions affect storage and flow
- Exercise time period (January 1-August 28 2014)

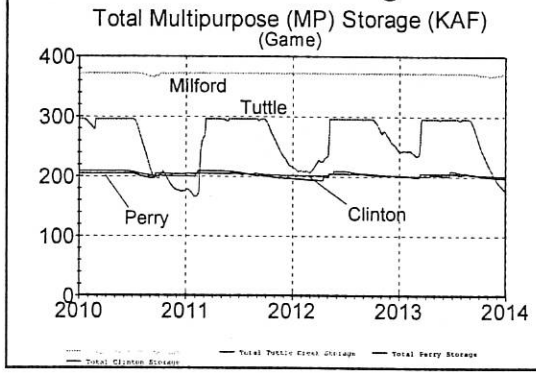
Drought Exercise Participants

- Kansas Water Office
- Kansas River Water Assurance District
- Department of Agriculture, Division of Water Resources
- Department of Health and Environment
- Department of Wildlife and Parks
- US Army Corps of Engineers
- Bowersock Mills and Power Company
- Lower Republican Irrigation Association

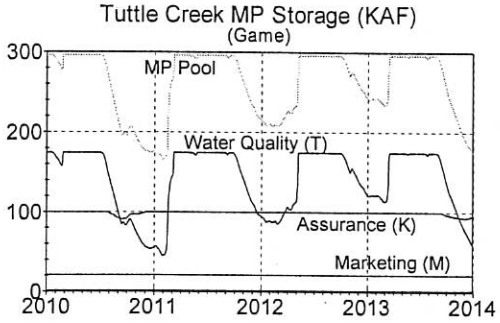
January 1, 2014: Initial Conditions

- Reservoir levels are low but Assurance Storage is full
- Target flows at Topeka and DeSoto being met
- Kansas River flow at Bowersock is 600 cfs

Reservoir Storage



Tuttle Storage



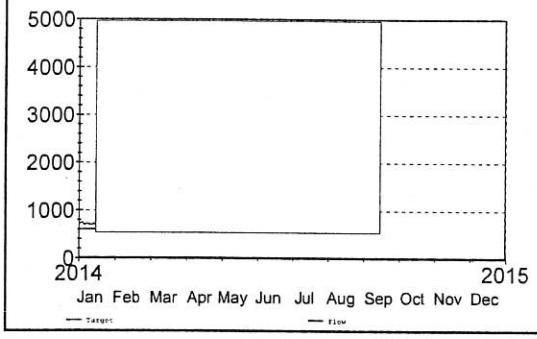
January 1, 2014: Initial Moves by Participants

- Bowersock calls for administration
- Division of Water Resources requires natural flow to bypass reservoirs
- Simulation begins and runs two weeks.

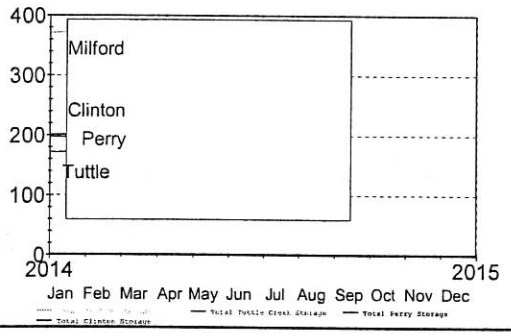
January 14: Conditions

- Kansas River Flow at Bowersock has increased to 1,100 cubic feet per second
- Reservoir release rate would deplete Assurance District storage in three years

January 14: Kansas River at Topeka (cubic feet per second)



Jan 14: Reservoir Storage (1,000 acre-feet)



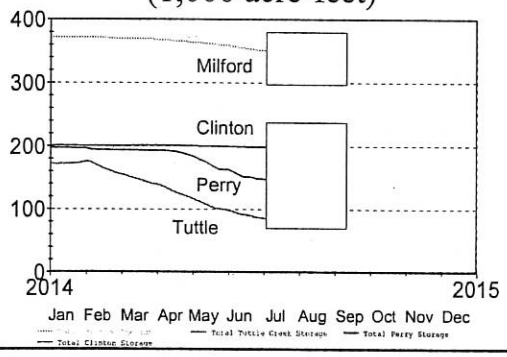
January 14: Participant Moves

- Assurance District sues state and Bowersock over administration of water rights
- Exercise Arbitrator directs simulation to run forward under these conditions to July 5

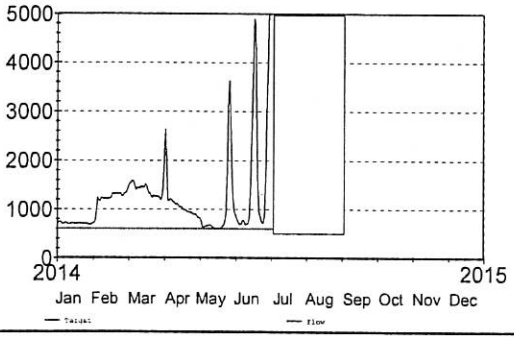
July 5: Conditions

- Reservoirs have been drawn down
- Tuttle Water Quality pool has been empty for a month
- Target flows at Topeka and DeSoto have been met from January 1 – July 5

July 5: Reservoir Storage (1,000 acre-feet)



July 5: Flow at Topeka (cubic feet per second)



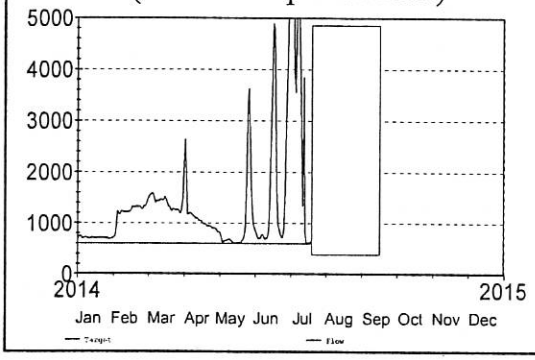
July 5: Players' Moves

- Assurance District asks that administration lawsuit be addressed
- Division of Water Resources stops administration because natural flow is sufficient
- Simulation continues for two weeks

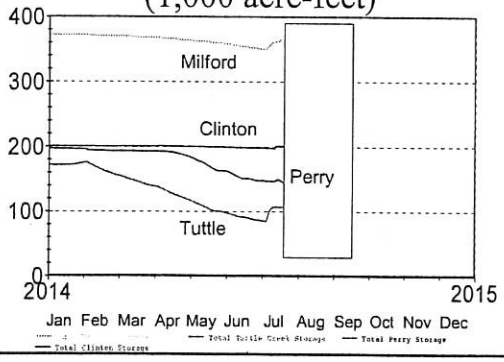
July 19: Conditions

- Topeka and DeSoto target flows are met
- Flow at Bowersock is 1,200 cubic feet per second
- Milford conservation storage is 78 % full
- Reservoir inflows: Milford (2,400 cfs), Tuttle (500 cfs), Perry (20 cfs)

July 19: Flow at Topeka (cubic feet per second)



July 19: Reservoir Storage (1,000 acre-feet)



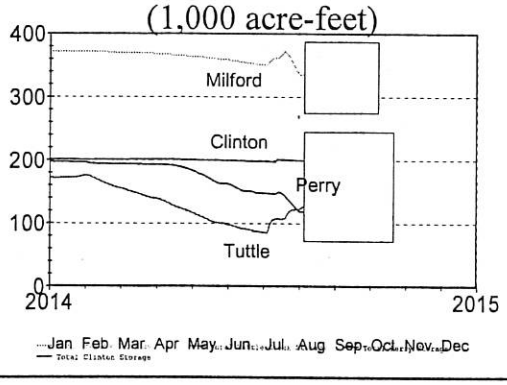
July 19: Participant Moves

- Because of low flow Bowersock and Topeka request water right administration
- Corps begins navigation releases: Milford (2,000 cfs), Perry (1,000 cfs)
- Kansas Water Office attempts to sue the Corps but cannot be heard by the court
- Simulation continues two weeks

August 1: Conditions

- Perry conservation storage is 42 % full
- Kansas River flow at DeSoto is 2,500 cubic feet per second
- Missouri River flow at Kansas City has increased but is still below 40,000 cfs, the navigation target

August 1: Reservoir Storage (1,000 acre-feet)



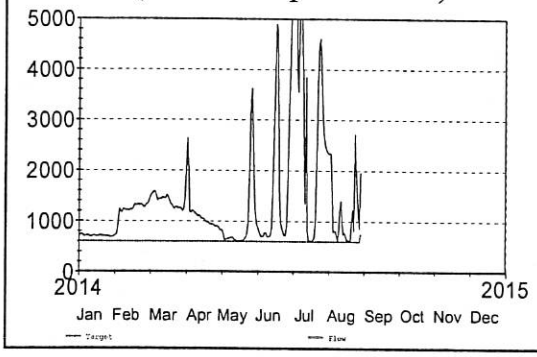
August 1: Participant Moves

- Arbitrator dismisses Kansas Water Office navigation lawsuit
- Kansas Wildlife and Parks sues Corps for washing out Least tern nesting areas – successfully
- Corps sets releases to minimum at Milford (25 cfs), Tuttle (100 cfs) and Perry (25 cfs)
- Assurance District requests Milford release to 50 cfs for Junction City; KWO requests that Corps make release

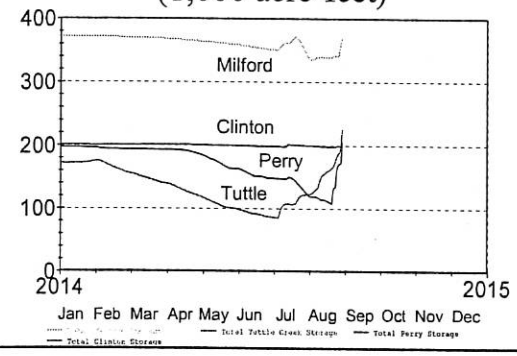
August 14: Conditions

- Perry and Milford storage have declined; Tuttle storage has increased
- Kansas River flow is 800 cfs at Topeka and 1,100 cfs at DeSoto
- Total dissolved solids are high at Wamego and Topeka
- No moves made by players; simulation continues to end

Aug 28: Kansas River at Topeka (cubic feet per second)



August 28: Reservoir Storage (1,000 acre-feet)



Exercise Observations

- System storage can be depleted during a drought by natural flow bypassed to meet demands for large downstream senior water rights and by navigation releases.
- Assurance District storage was sufficient for the simulated drought.

Issues Identified During Simulation

- How best to serve Bowersock vested water right
- Navigation support
- Endangered species limitations
- Indian burial sites
- Importance of Tuttle Creek water quality storage

Thank You

Earl Lewis
Kansas Water Office