



**Joint Committee on Energy an Environmental Policy**

**Earl Lewis, Assistant Director  
Kansas Water Office  
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Good morning, Chairman Holmes and members of the committee, it is a pleasure to appear before you today to discuss reservoir issues. I am Earl Lewis, Assistant Director of the Kansas Water Office.

We have been asked to provide an update on two primary issues:

- Unfunded liability of reservoirs and the effect on the water marketing rate of calling that storage into service, and
- Sedimentation activities and, in particular, streamside erosion and the effectiveness of controls which have recently been put in place.

Before I touch on those issues, I would like to give you a quick update on how the drought is affecting our reservoir infrastructure.

It is no surprise to anyone here that the drought we are currently experiencing is one of the worst on record, and is in fact the worst single year drought for Southwest Kansas. This drought has been spreading north and east across our state and is now affecting areas that rely on surface water and reservoirs as their primary source of water supply. The high temperatures and low precipitation first started affecting our reservoirs water quality by combining with nutrients in the water and sediment to create algae blooms in more than 50 water bodies in Kansas. Everything from city park lakes to large reservoirs such as Milford and Perry have been affected. I point this out as we are first and foremost concerned with the quantity of water available during a drought, but these algae blooms are literally tied to our sediment issue and are the first serious warning sign of our growing problem.

Water quality is not our only problem however; the drought is now beginning to negatively affect the amount of water in our reservoirs. The following table shows the lake level relative to the normal or conservation pool for each federal reservoir.

Lake	Elev from MPP	% MPP	Basin	Lake	Elev from MPP	% MPP	Basin
Clinton	-2.23	88%	Kansas	Hillsdale	-1.89	89%	Marais des Cygnes
Milford	0.52	100%	Kansas	Melvern	-2.02	91%	Marais des Cygnes
Perry	2.01	100%	Kansas	Pomona	-1.24	93%	Marais des Cygnes
Tuttle Creek	5.37	100%	Kansas	Cheney	-4.34	75%	Lower Arkansas
Lovewell	-1.87	85%	L. Republican	El Dorado	-3.51	83%	Walnut
Cedar Bluff	-17.32	47%	Smoky Hill	Big Hill	-2.06	91%	Verdigris
Kanopolis	-0.59	96%	Smoky Hill	Elk City	-3.46	70%	Verdigris
Wilson	-0.47	98.3	Smoky Hill	Fall River	-1.74	75%	Verdigris
Kirwin	-0.31	99%	Solomon	Toronto	-1.49	68%	Verdigris
Waconda	-0.97	95%	Solomon	Council Grove	-2.78	81%	Neosho
Webster	-6.02	73%	Solomon	John Redmond	-3.1	54%	Neosho
Norton	-6.21	66%	Up. Republican	Marion	-3.09	77%	Neosho

Of these reservoirs, John Redmond is the one that causes us the most concern at the current time. John Redmond's conservation pool was full March 9, 2011. While it is at 54% of conservation pool today, an additional release to refill the Wolf Creek cooling lake is underway. Projections show that that without significant additional inflow, John Redmond will be near 34% capacity in mid November. We have not seen John Redmond this low since 1984.

History tells us that the reservoir will recover. In fact, there is only a 2% chance that John Redmond will still be at 34% of conservation pool on March 1, and a better chance of inflow between March 1 and July 1. But, if the drought continues in this area, we could see even lower water levels and more concern during the summer and fall of next year.

### Unfunded Liability

The state of Kansas, through the Kansas Water Office, owns storage in 13 Corps of Engineers reservoirs. This storage is used to support municipal and industrial customers under the Water Marketing and Water Assurance programs. The customers of these programs pay the costs associated with purchasing, operating and maintaining the storage contained in these lakes. The storage was purchased over a period starting in 1974 and culminating most recently with Kanopolis in 2002. As might be expected over a 28 year period, the contract terms have varied greatly over that time.

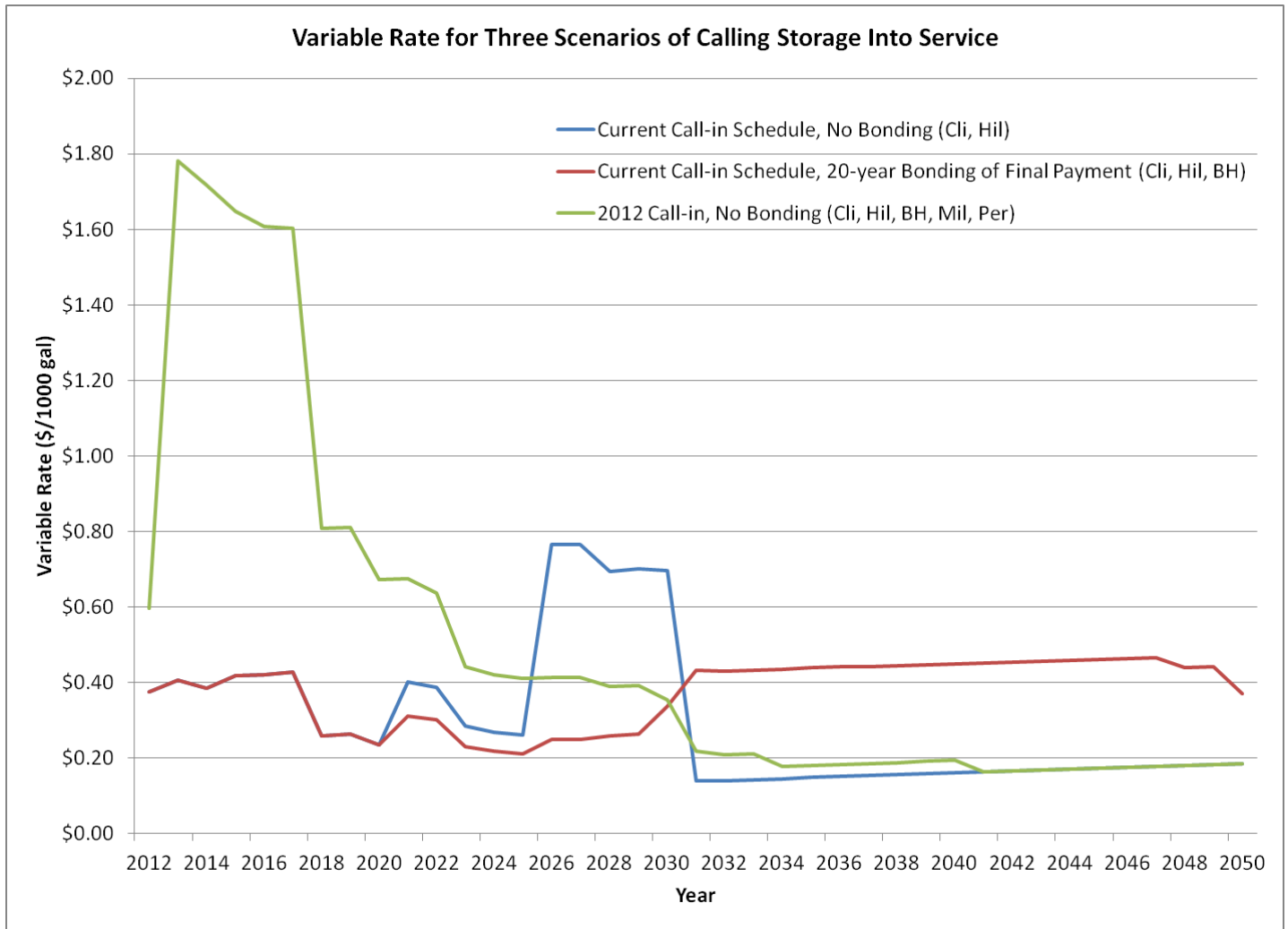
Our revenue to support the reservoirs varies by lake as well, depending on how it is used. Eleven of the reservoirs are used in the Water Marketing Program and eight are used within the Water Assurance Program. In each of these cases, the program customers pay for the full costs of the storage dedicated to the program. Between 1985 and 1995, the state had a unique opportunity to purchase additional storage at original construction prices if we agreed to pay the full price up front. This was done at seven reservoirs, six of which still have storage shown as reserve capacity and not yet allocated to either program. John Redmond was the other reservoir in that purchase.

Reservoir – all values in Af	Marketing	Assurance	Reserve Capacity	Future Use	Total
Big Hill	9,504			17,039	26,543
Clinton	57,295			38,158	95,453
Council Grove	18,678	6,365	8,214		33,257
Elk City	21,070		10,442		31,512
Hillsdale	15,032			45,111	60,143
John Redmond	32,136	3,313			35,449
Kanopolis	21,973				21,973
Marion	36,865	346	14,433		51,644
Melvorn	14,949	10,827	26,289		52,065
Milford	53,429	62,980		227,183	343,592
Perry		32,358		161,751	194,109
Pomona	831	12,921	26,635		40,387
Tuttle Creek		79,328	16,596		95,924
<b>Total</b>	<b>281,762</b>	<b>208,438</b>	<b>102,609</b>	<b>489,242</b>	<b>1,082,051</b>

Five contracts for storage, Big Hill, Clinton, Hillsdale, Milford and Perry, have a clause in which the state could defer calling storage into service until such time as it was needed. The cost for the purchase is deferred until it is called into service and operation and maintenance costs are foregone as well. There is a date certain for each reservoir in which we must call the storage into service and we continue to accrue interest while we wait. The following table shows the current and projected future balance of the unfunded liability for each reservoir.

	Balance 2011	Annual P&I 2011	Add. O&M 2011	Contract Exp. Year	Balance at Term
Perry	\$ 16,741,424	\$ 833,823	\$ 361,329	2040	\$ 36,951,533
Milford	\$ 16,949,180	\$ 802,977	\$ 189,077	2040	\$ 29,966,434
Big Hill	\$ 9,617,916	\$ 704,766	\$ 155,085	2029	\$ 21,122,724
<b>SUBTOTAL</b>	<b>\$ 43,308,520</b>	<b>\$2,341,567</b>	<b>\$ 705,492</b>		<b>\$ 88,040,691</b>
Clinton	\$ 5,898,913	\$ 450,564	\$ 105,531	2027	\$ 10,960,979
Hillsdale	\$ 37,089,963	\$2,626,663	\$ 219,455	2030	\$ 81,456,424
<b>TOTAL</b>	<b>\$ 86,297,396</b>	<b>\$5,418,794</b>	<b>\$1,030,477</b>		<b>\$ 180,458,094</b>

At the last meeting of this committee the question of what would be the effect of calling this storage into service have on the water marketing rate. The effect would be significant as shown by the green line on the following graph.



The Kansas Water Authority’s Public Water Supply Committee has been looking at this issue as well. First, under the current structure, it may not be appropriate to include the future use storage within Milford and Perry in the Water Marketing Program. While there is some Marketing storage in Milford, it was placed in that category in the 1970’s. No additional customers have begun using Milford or Perry since the assurance district has been in place. The Kansas River Water Assurance District provides a lower cost alternative with equal reliability. Unless there is a new industry locating directly by the lake, it is unlikely they would use the Water Marketing Program. As such we should continue discussions with the Kansas River Water Assurance District about options to secure storage in Milford and Perry rather than place those financial obligations within the Marketing Program.

Two options have been evaluated for future use storage in Clinton, Hillsdale and Big Hill, collecting additional revenues and saving for purchase at term or issuing bonds at term. Collecting additional revenues is shown on the graph as the blue line. This would result in a significant balance in savings right before the contract term which could be vulnerable.

Issuing 20 year bonds at term is shown as the red line on the graph, and shows the least amount of variation. This would have the added benefit of collecting revenue from a projected growing user base, which is the basis for the need for calling the additional storage into service in the first place. Overall, this approach appears to provide the best long term rate stability and avoids incurring additional operation and maintenance expense before the contract term.

## Reservoir Sedimentation

During the September meeting of this committee, Tracy Streeeter provided an update on activities that have been underway regarding sedimentation. While I won't go over the details of that again, those efforts have focused on:

- Increasing our coordination with other states and the federal government,
- Continuing data collection and analysis,
- Seeking reallocation of storage where possible,
- Evaluating dredging projects that have been completed, and programs run by other states, and
- Using multiple sources of funding to begin implementation of sediment reduction practices.

A couple of questions have been raised since that presentation. Let me first address the practices that have been put in place. Systematic streambank stabilization practices have been put in place above both John Redmond and Perry reservoirs last year. Additional projects are underway above both reservoirs this year as well.

While it is too early to give definitive answers on how successful these projects are, we will be able to in the near future. As part of the overall project, we have contracted with the U.S. Geological Survey to monitor streamflow and suspended sediment both above and below the projects. With this in place, we should be able to measure the difference the projects are making over time. In general, a rate of 85% effectiveness in sediment reduction from streambank stabilization has now been referenced in multiple technical studies. We use 85% because of a 2009 U. S. Geological Survey research publication on this topic.

Each of the activities we have undertaken, including reallocation and streambank stabilization, extend the life of the reservoirs and the time we have before we are not able to meet the needs of our customers and citizens. But they do not solve the problem. Eventually, more significant action will be needed.

The Kansas Water Office has been systematically working through each basin in which the primary water supply is dependent on reservoirs. To date, work has been done on the reservoir roadmap in the Neosho, Verdigris and Marais des Cygnes basins. Work will be done this year on the Walnut and Lower Arkansas. In each basin, the overall supply and demand is evaluated as are options to decrease demand or increase supply.

The Neosho Basin is seen as having the most significant problems in the near term. This evaluation is being proven correct with the current year drought. While demand is not significantly increasing, sedimentation is reducing available drought supplies with each passing year. Eventually additional storage, or water from another source, will be needed. To meet the expected demands in the Neosho we will need to dredge the existing reservoirs, build a new reservoir, or import water from the Kansas or Missouri basins. Each of these options has high financial and political costs.

As Tracy reported at the last meeting, we are gathering information regarding dredging that is done by other states. Ohio has been successful at limited dredging on Corps of Engineers lakes, mostly for recreational purposes. Their experience has shown that a state owned dredge program is considerably cheaper than either private or federal examples.

Recognizing the difficulty and concern with new reservoirs, the Kansas Water Authority has assembled a reservoir siting advisory committee. This group is looking at what all should be considered, both positively and negatively, when selecting a reservoir site. At this point, they are not looking at individual sites, but rather site attributes.

Finally, additional funding will need to be dedicated to these efforts. The Kansas Water Authority has recommended that the \$6 million State General Fund demand transfer that traditionally goes to the State Water Plan Fund be dedicated to nutrient and sediment issues. In addition, the Authority continues to recommend that 10% of the ELARF revenue be dedicated to water issues with \$3.8 million dedicated to reservoir issues in FY 2013.

Thank you, again, for the opportunity to appear before the committee. I will respond to questions at the appropriate time.