SYNOPSIS

General

This year is the 60th consecutive year that an Annual Operating Plans (AOP) has been prepared for the Federally-owned dams and reservoirs in the Niobrara, Lower Platte, and Kansas River Basins. The plan has been developed by the Water Operations Group in McCook, Nebraska for the 16 dams and reservoirs that are located in Colorado, Nebraska, and Kansas. These reservoirs, together with 9 diversion dams, 9 pumping plants, and 20 canal systems, serve approximately 269,745 acres of project lands in Nebraska and Kansas. In addition to irrigation and municipal water, these features serve flood control, recreation, and fish and wildlife purposes. A map at the end of this report shows the location of these features.

The reservoirs in the Niobrara and Lower Platte River Basins are operated by either irrigation or reclamation districts. The reservoirs in the Kansas River Basin are operated by either the Bureau of Reclamation (Reclamation), or the Corps of Engineers. Kirwin Irrigation District provides operational and maintenance assistance for Kirwin Dam. The diversion dams, pumping plants, and canal systems are operated by either irrigation or reclamation districts.

A Supervisory Control and Data Acquisition System (SCADA) located at McCook is used to assist in operational management of all 11 dams under Reclamation's jurisdiction that are located in the Kansas River Basin. A Hydromet system collects and stores near real-time data at selected stations in the Nebraska-Kansas Projects. The data includes water levels in streams, canals, and reservoirs and also gate openings. This data is transmitted to a satellite and downloaded to a Reclamation receiver in Boise, Idaho. The data can then be accessed by anyone interested in monitoring water levels or water usage in an irrigation system. The Nebraska-Kansas Projects currently have 65 Hydromet stations that can be accessed. The Nebraska-Kansas Area Office (NKAO) has installed and maintains 40 of these Hydromet stations. These stations can be found on the Internet by accessing Reclamation's home page at http://www.usbr.gov/gp. From the home page, select "Hydromet – Hydrological Data Center" under the Water Operations heading.

The Headlines 2012 that follows this synopsis is indicative of the awareness that the local people have of the natural resource development and conservation in the Niobrara, Lower Platte, and Kansas River Basins.

2012 Summary

Climatic Conditions

Precipitation at the project dams during 2012 ranged from 44 percent of normal near Box Butte Dam to 82 percent of normal at Lovewell Dam. Annual precipitation ranked within the bottom five on record at 11 of the 16 project dams. Six project dams recorded the lowest annual precipitation on record at the respective sites. There were 4 months that all 16 project dams recorded below normal precipitation.

Temperatures during the first 3 months of the year were generally above normal throughout the projects area. Temperatures during March were at or near all time record highs. Precipitation totals varied from 50 percent to 126 percent of normal during January through March. January and March precipitation was well below normal in most of the project areas while February precipitation was above normal.

Temperatures continued above normal during the spring. Precipitation during April was well above normal, with four project dams recording totals that ranked in the top three ever recorded for the month. May precipitation was well below normal throughout the basin, with six project dams recording totals that ranked in the bottom two ever recorded for the month.

Temperatures were above normal during the summer. Total precipitation for June, July, and August was well below normal for most of the reservoirs. June precipitation totals ranked in the lowest three on record for the month at five project dams. Two project dams recorded the lowest precipitation ever for the month of July, and five project dams recorded the lowest precipitation ever for the month of August.

Precipitation recorded in September, October, and November continued well below normal throughout the project area. September precipitation ranked in the bottom three all time at four project dams. Ten of the 16 project dams recorded no precipitation in November. Precipitation during December was generally above normal. Temperatures in the fall and winter were above normal.

Storage Reservoirs

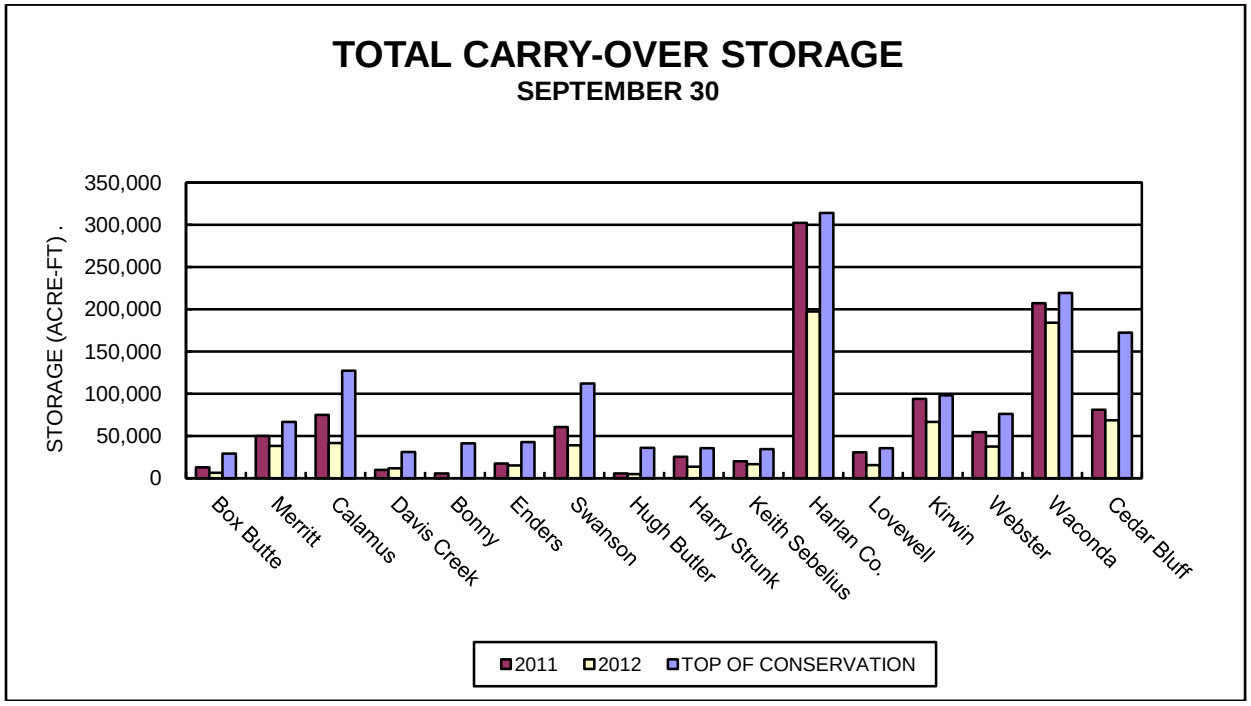
1. Conservation Operations: The 2012 inflow was below the dry-year forecast for Box Butte, Davis Creek, Bonny, Enders, Lovewell, and Cedar Bluff Reservoirs. The remaining reservoirs had inflows between the dry-year and normal-year forecasts.

Eight of the sixteen reservoirs had below average carryover storage from the 2011 water year. Reservoir releases were made from Merritt, Virginia Smith, Medicine Creek, Harlan County, Kirwin, and Glen Elder Dams to maintain or reduce reservoir levels prior to the 2012 irrigation season. Prior to the irrigation season, Enders and Box Butte Reservoirs, along with Keith Sebelius, Swanson, and Hugh Butler Lakes, did not have sufficient storage to provide water users with a full water supply. A small amount of flood storage was occupied in Harry Strunk and Harlan County Lakes along with Lovewell Reservoir prior to the irrigation season. Irrigation demands greatly reduced the storage in these project reservoirs throughout the summer. Reservoir storage was below normal at twelve reservoirs at the end of 2012.

On September 20, 2011, the state of Colorado ordered that Bonny Reservoir be drained for Republican River Compact compliance. All of the water in Bonny Reservoir was evacuated by the end of May 2012 and no storage has been recorded since. The State of Colorado Order remains in effect and inflows continue to be bypassed.

Hugh Butler Lake continues to be maintained near the dead pool level due to the embankment cracking discovered in 2009. Safety of dam work began at this facility in 2011 and is expected to continue through the summer of 2013. Some storage of inflows is expected in 2013 as construction nears completion.

The following graph shows a comparison of 2011 and 2012 carry-over storage conditions as compared to the top of conservation storage for all reservoirs in the Niobrara, Lower Platte, and Kansas River Basins as of September 30.



2. Flood Control Operations: Harry Strunk, Harlan County and Waconda Lakes, and Kirwin and Lovewell Reservoirs utilized flood pool storage in 2012. Approximately 26,200 acre-feet (AF) of water was released from the reservoir flood pools and an additional 60,300 AF was released to prevent reservoir levels from encroaching into the flood pools prior to the irrigation season. The water year 2012 flood damages prevented by the operation of Reclamation's Nebraska-Kansas Projects facilities was $28,500 as determined by the Corps of Engineers. An additional benefit of $11,400 was credited to Harlan County Lake. The accumulative total of flood control benefits for the years 1951 through 2012 by facilities in this report total $2,066,446,000 (see Table 5). Box Butte, Merritt, Calamus, and Davis Creek Reservoirs do not have a designated flood pool and have not accrued any flood benefits to date.

A summary of precipitation, reservoir storage and inflows at the facilities of the Nebraska-Kansas Projects during 2012 can be found in Table 7.

2013 Outlook

Three forecast conditions have been developed for each of the reservoirs in the Niobrara, Lower Platte, and Kansas River Basins conforming to establish operating criteria under various reservoir inflow conditions. These operation studies are included in Table 4, sheets 1 through 16. The municipal and rural water district water supply requirements will be met under all three inflow forecast conditions for all units.

Under reasonable minimum inflow forecast conditions, irrigation districts receiving storage water from the following lakes and reservoirs are expected to receive less than a full supply: Box Butte, Enders, Swanson, Hugh Butler, Harry Strunk, Keith Sebelius, Harlan County, Lovewell and Webster. The irrigation districts affected are Mirage Flats; Frenchman Valley and H&RW; Frenchman-Cambridge; Almena; Bostwick in Nebraska; Kansas Bostwick; and Webster; respectively. If 2013 is a dry year, 157,794 of the total 269,745 acres with service available to be irrigated (58 percent) will have an inadequate water supply.

Under most probable inflow conditions, it is expected that Mirage Flats, Frenchman Valley, H&RW, Frenchman-Cambridge, and Almena Irrigation Districts would experience some shortages to irrigation demands from Box Butte Reservoir, Enders Reservoir, Swanson Lake, Hugh Butler Lake, Harry Strunk Lake, and Keith Sebelius Lake. Most irrigators in these districts plan to use water from private wells to supplement the project water supply.

Even under reasonable maximum inflow conditions, Mirage Flats, Frenchman Valley, H&RW, and Frenchman-Cambridge Irrigation Districts are expected to experience irrigation demand shortages from Box Butte Reservoir, Enders Reservoir, Swanson Lake, Hugh Butler Lake, and Harry Strunk Lake.

Under reasonable minimum inflow conditions, the conservation pools at Merritt, Calamus, Davis Creek, and Lovewell Reservoirs are expected to fill during 2013.

Even with low reservoir levels and inadequate water supplies for some project lands, the recommendations of various state agencies will be considered. As in the past, irrigation and reclamation districts will advise state agencies regarding aquatic weed control and canal operations. Reclamation will continue to operate the reservoirs and other facilities under its jurisdiction in the best interests of all project functions and for the optimum public benefit.

On January 1, 2013 the State of Nebraska, Department of Natural Resources (NDNR) determined a “Compact Call Year” to be in effect on the Republican River Basin. The “Compact Call” resulted in the NDNR issuing closing notices on all natural flow and storage permits in the basin until such time that the NDNR determines that yearly administration is no longer needed to ensure Republican River Compact compliance. All surface water appropriations in the Republican River Basin above Guide Rock Diversion Dam were closed on January 1, 2013. Reservoir inflows are currently being bypassed through Enders Reservoir, Swanson Lake, Hugh Butler Lake and Harry Strunk Lake.

Water is not expected to be stored in Bonny Reservoir during 2013 as the State of Colorado's Order to bypass all inflows remains in effect. Bonny Reservoir was drained in 2012 by order of the state of Colorado to assist in meeting Republican River Compact compliance.

In 2012, the Frenchman Valley Irrigation District (along with Reclamation) again provided support for a Limited Irrigation Demonstration project with the University of Nebraska Extension Service.

2013 Outlook

The fall and early winter inflows into Enders Reservoir were below the normal-year forecast. If dry-year conditions prevail, the project water supply is expected to experience a shortage of about 72,500 AF. Normal-year conditions are expected to be inadequate by 56,100 AF and wet-year conditions by 28,000 AF, to irrigate the 9,292 acres in the Frenchman Valley Irrigation District and 11,915 acres in the H&RW Irrigation District.

All surface water appropriations in the Republican River Basin above Guide Rock Diversion Dam were closed by the NDNR on January 1, 2013. Reservoir inflows have been bypassed through Enders Reservoir since this time and natural flow diversions are prohibited.

A 4-inch sinkhole was discovered near the left wall of the spillway stilling basin in October 2010. While the location of the sinkhole suggested that the issue was not urgent, further investigations were warranted to ensure that the situation was understood. A dye test was performed in August 2012. No dye showed up in the spillway basin or the outlet works basin. Even after being saturated with dye, probing to a depth of 8 feet was difficult. It is expected that the initial recommendation to further investigate the sinkhole will be listed as complete in 2013.

The Frenchman Valley Irrigation District has expressed an interest in replacement of additional open ditch laterals with buried pipe. Future piping projects are somewhat limited due to the water supply shortage. The district is also investigating remote monitoring opportunities to improve the delivery system operations. The district has identified two additional operational wasteway sites that would improve delivery systems with remote monitoring.

The Frenchman Valley Irrigation District and the H&RW Irrigation District are investigating possible alternatives for the most efficient use of the declining water supply in the basin. The districts have also participated in discussions with NDNR on the water supply issues as they relate to the Republican River Compact and the settlement.

Meeker-Driftwood, Red Willow, and Cambridge Units, Frenchman-Cambridge Division in Nebraska

General

Service is provided for Frenchman-Cambridge Irrigation District by Meeker-Driftwood Canal to 16,855 acres; Red Willow Canal to 4,797 acres; Bartley Canal to 6,353 acres; and Cambridge Canal to 17,664 acres.

The water supply for these lands is provided by storage in Swanson, Hugh Butler, and Harry Strunk Lakes, and inflows of the Republican River, Red Willow, and Medicine Creeks. The Frenchman-Cambridge Irrigation District has replaced all of the open ditch laterals which were economically feasible with buried pipe which has significantly increased both system and on-farm efficiencies.

2012 Summary

The annual precipitation total of 12.94 inches at Trenton Dam was 65 percent of normal. The inflow of 23,105 AF to Swanson Lake was between the dry-year and normal-year forecasts. The lake level began the year at elevation 2740.20 feet and gradually increased to a peak elevation of 2744.03 feet (7.97 feet below the top of conservation) on May 5. August precipitation was the second lowest ever recorded at Trenton Dam. The reservoir level decreased throughout the irrigation season and reached an elevation of 2733.24 feet on September 1. The district diverted 32,955 AF from June 11 through August 31 and delivered 10,784 AF to the farms. At the end of the year the reservoir level was 19.59 feet below the top of conservation at 2732.41 feet. The Corps of Engineers determined that Swanson Lake prevented $2,500 in flood damages.

During a routine inspection, a crack was found along a horizontal weld towards the downstream end of the canal outlet works penstock. The penstock was repaired in September 2012.

A sediment survey was completed for Swanson Lake. Field collection data obtained in 2011 was processed and analyzed, and a final report was published early in May 2012.

The SOP for Trenton Dam is scheduled for revision in 2013.

The annual precipitation total of 9.65 inches at Red Willow Dam was 49 percent of normal and the lowest ever recorded at the site. The annual inflow of 10,905 AF into Hugh Butler Lake was between the dry-year and the normal-year forecasts. The reservoir level at the first of the year was 2553.45 feet, 28.35 feet below the top of conservation. Due to dam safety concerns, releases were made throughout the year to maintain the reservoir elevation between 2552.00 and 2554.00 feet. Releases averaged 24 cfs during the spring months in maintaining the desired reservoir level. No irrigation releases were made from Hugh Butler Lake in 2012. September precipitation was the lowest ever recorded at Red Willow Dam. The end of year elevation at Hugh Butler Lake was 2553.63 feet, 28.17 feet below the top of conservation.

During an inspection at Red Willow Dam in July 2005, a small quantity of fine sand was discovered near the river outlet works stilling basin drain outlet. Five piezometers were installed in April 2006 adjacent to the outlet works and spillway stilling basins, and temporary plugs were placed in the underdrain outlets in May. An Internal Alert was issued and grouting of the underdrain system was completed in the fall of 2010.

On October 21, 2009, a small hole was observed on the face of the downstream embankment approximately 130 feet upstream of the outlet works gatehouse on the alignment of the outlet works conduit. Dye was introduced into the hole and subsequent excavation revealed cracks in the embankment material. Reclamation geotechnical engineers and geologists were onsite to conduct the investigations in coordination with the NKAO staff. A Response Level I was declared and remains in effect. A Dam Safety decision document was signed calling for a reduction of the reservoir water surface elevation to a range within 2552 to 2554 feet mean sea level (msl).

A Corrective Action Study (CAS) began in March 2010 to identify structural alternatives for repairing the dam, estimate risk for potential failure modes, and to document the technical, cost, and constructability of the various alternatives. The December 2010 CAS Decision Document identified the preferred alternative consisting of a full-height full-length filter/drain and construction of a berm/buttress to protect the filter and drains. The Modification Report, Finding of No Significant Impact, and Environmental Assessment were transmitted to Congress in July 2011. Final designs and contract documents were prepared during the summer of 2011. In September 2011, a contract was awarded for the dam modification, and construction began in late 2011.

A Comprehensive Facility Review was held at Red Willow Dam in July 2012.

The annual precipitation total of 12.00 inches at Medicine Creek Dam was 58 percent of normal. The inflow of 31,018 AF was between the dry-year and normal-year forecasts. The reservoir level at the beginning of 2012 was only .81 foot below the top of conservation. Releases were made during the first 4 months of 2012 to maintain the reservoir elevation approximately .5 foot below the flood pool. The reservoir was allowed to fill on April 21 (elevation 2366.10 feet), and the reservoir level gradually increased to elevation 2366.65 feet on May 5. Irrigation releases began in early June and ran through August 28 reducing the reservoir level to 2349.37 feet. Medicine Creek Dam recorded the lowest precipitation total ever for the month of August. The district diverted 27,618 AF into Cambridge Canal and delivered 14,568 AF to 16,798 acres of district lands. Late fall and early winter inflows increased the level of Harry Strunk Lake to 10.1 foot below the top of conservation at the end of the year (2355.97 feet). The Corps of Engineers determined that Harry Strunk Lake prevented $2,100 in flood damages.

A Comprehensive Facility Review was held at Medicine Creek Dam in July 2012.

The spillway bridge approach guardrail was replaced at Medicine Creek Dam in 2012.

The district was selected for a 2011 WaterSMART Water and Energy Efficiency Grant (WEEG) for a project which consists of installing a pumping plant on Cambridge Diversion Dam and 2 miles of 30-inch diameter pipe to the Bartley Canal. The pumping plant will include installation of four 2,500 gallon per minute pumps. This project will allow alternative water management options for the water supply in Bartley Canal.

The project is expected to result in water savings of 4,660 acre-feet per year. Water conserved as a result of the project will be left in Swanson Lake. Reclamation is providing $630,000 of financial and technical assistance for the estimated $1.26 million project.

The district was selected for a 2012 WaterSMART WEEG for a project which will allow the district to automate the Cambridge Canal headgate and the first section check structures in Cambridge Canal. This will improve district delivery system operations by minimizing river bypass and allow the district to store water in the larger canal bays. The estimated water savings from this project are 3,074 AF/year. The project includes a federal funding contribution of $299,715 and a non-federal contribution of $332,301.

The district was also selected for a 2012 NKAO WCFSP grant for a project which will allow the District to automate the new Bartley Canal pumping plant on Cambridge Diversion Dam and to automate six check structures located downstream of the pumping plant outlet pipe. This project will provide delivery system improvement options and result in an estimated water savings of 1,622 AF/year. This project includes $95,902 of federal funding assistance with the District contributing $96,388 through funding and in-kind services.

2013 Outlook

Forecasts show that carry-over storage from the three lakes supplying the Frenchman-Cambridge Irrigation District will be inadequate to meet the full dry-year irrigation requirement by 76,100 AF. The water supply will be inadequate by 52,400 AF under normal-year conditions and by 28,000 AF under wet-year conditions. Most of the water shortage in 2013 can be attributed to the closing notice issued by the NDNR on all natural flow and storage permits in the Republican River Basin. All surface water appropriations in the basin above Guide Rock Diversion Dam were closed on January 1, 2013. Reservoir inflows continue to be bypassed through Swanson, Hugh Butler and Harry Strunk Lakes.

Repairs will continue at Red Willow Dam. A majority of the work items have been completed. The contract completion date is the fall of 2013.

Almena Unit, Kanaska Division in Kansas

General

Service is available to 5,764 acres in the Almena Irrigation District. The project water supply is provided by Prairie Dog Creek flows and Keith Sebelius Lake storage.

The water service contract for the city of Norton, Kansas, provides for a maximum annual use of 1,600 AF from Keith Sebelius Lake.

Franklin, Superior-Courtland, and Courtland Units, Bostwick Division in Nebraska and Kansas

General

Harlan County Lake storage and Republican River flows provide a project water supply for 22,454 acres in the Bostwick Irrigation District in Nebraska, and 13,378 acres in the Kansas-Bostwick Irrigation District No. 2 above Lovewell Reservoir. This storage and natural flows, together with White Rock Creek flows and Lovewell Reservoir storage, furnish a water supply for 29,122 acres below Lovewell Reservoir in the Kansas-Bostwick Irrigation District.

The lands in the Franklin and Superior-Courtland Units are in the Bostwick Irrigation District in Nebraska. The lands in the Courtland Unit downstream of the Kansas state line are in the Kansas-Bostwick Irrigation District.

In accordance with the off-season flow alternative outlined in Reclamation's final environmental assessment dated December 16, 1983, and amended on November 21, 2002, Harlan County Lake releases will be 10 cfs during the months of December, January, and February, except when the reservoir is at low levels. During water-short years releases for these 3 months will be either zero or 5 cfs depending on reservoir levels.

Natural gain in streamflow, plus irrigation return flows, and operational bypass at Superior-Courtland Diversion Dam will provide some flow downstream.

The Kansas Department of Wildlife and Parks have requested that the Kansas Bostwick Irrigation District and Reclamation maintain, when possible, a flow of 20 cfs into Lovewell Reservoir when the Courtland Canal is in operation and the conservation pool is below capacity. This recommended inflow provides excellent fishing around the canal inlet to the reservoir. The seepage below Lovewell Dam into White Rock Creek maintains a small live stream throughout the year.

Harlan County Dam is currently operating under an Interim Operating Plan (IOP) initiated in 2003. The IOP resulted from a “Dam Safety Assurance Study” that evaluated the adequacy of the dam as required by Corps of Engineers dam safety regulations. There were three primary findings from this study: 1) Tainter gate bearings may experience significant bearing friction when operated under increasing water load: 2) concerns of spillway stability due to water pressure in the foundation of the dam: 3) spillway was found to be hydrologically deficient when modern hydrologic criteria were applied to the dam. The IOP has resulted in a decrease of flood protection capability.

The “Lovewell Reservoir Regulation Manual” was revised in 2010 to allow for a 2 foot raise in the conservation pool for water storage during drought years. Storing additional water during drought periods increases the project’s irrigation beneficial purpose, without adversely affecting the ability to protect for the project design storm. A calculation of available water supply will be made at the end of March to determine if additional water can be stored in Lovewell Reservoir.

Bostwick Division - Harlan County Lake Operations

2012 Summary

The annual precipitation at Harlan County Dam totaled 18.14 inches of rainfall, which is 80 percent of normal. The 2012 inflow of 78,581 AF was between the dry-year and normal-year forecasts. Harlan County Lake began 2012 approximately 0.69 foot above the top of conservation pool, at 1946.42 feet. River releases varied from 10 cfs to 300 cfs during the first 2 months of the year, and the lake level gradually filled to elevation 1947.20 feet by March 1. Additional water was temporarily stored into the flood pool so releases could be made to flush the downstream channel. The Corps of Engineers has cooperated with the State of Nebraska and the Twin Valleys Weed Management Group in making an elevated March release since 2009. These releases keep the Republican River channel from developing areas of vegetation and help re-establish channel capacity. River releases were staged up from 700 to 1,000 cfs on March 5 and staged back down to 750 cfs on March 9. The release was decreased to 250 cfs on March 13 and to 100 cfs on April 23. The lake level was maintained near elevation 1946.5 feet through mid May. Irrigation releases began on May 21 and continued through August 30.

The lake level on September 1 was 1936.38 feet. Computed inflow at Harlan County Lake was the third lowest on record in June, fourth lowest in July, third lowest in August and October, and lowest ever in September and December.

The pool gradually decreased to elevation 1935.20 feet on December 12. The reservoir elevation was 1935.28 feet (10.5 feet below the top of conservation) on December 31, 2012. Harlan County Lake prevented $11,400 of downstream flood damages during 2012 according to the Corps of Engineers.

A total of 37,353 AF (approximately 75 percent of total inflow) was delivered to Lovewell Reservoir via Courtland Canal during 2012.

Bostwick Division - Nebraska

2012 Summary

Irrigation diversions were made into Franklin, Naponee, Franklin Pump, Superior, and Courtland Canals in Nebraska in 2012. The district diverted 45,131 AF of water and delivered 21,770 AF to the farm headgates (48 percent delivery efficiency).

In 2011, the Bostwick Irrigation District in Nebraska was awarded a WaterSMART WEEG for a project which will replace approximately 8.3 miles of open ditch laterals with buried pipe. Franklin Laterals 30.9 and 41.9 will be replaced with buried pipe, resulting in an estimated water savings of 1,660 AF/year. Reclamation is providing $250,000 of financial assistance and the district is providing nearly $400,000 of funds and in-kind services. These pipe projects provide delivery system improvements by eliminating seepage losses, eliminating operational wasteways, improving water measurement and accounting by utilizing water meters, and providing on-farm benefits by allowing land owners the opportunity to convert to sprinkler irrigation.

In 2012, the Bostwick Irrigation District in Nebraska was awarded a WaterSMART WEEG for a project which will replace approximately 7.1 miles of open ditch laterals with buried pipe, install a variable speed drive on an existing pumping station, and install a new overshot gate on an existing check structure. Laterals to be placed in pipe include Franklin Laterals 29.8, 34.2, 34.7, 36.1, 36.6, 39.7, 40.2, and 43.0, along with Courtland Sub-Lateral 13.9-0.9. The project is expected to provide an estimated water savings of 1,428 AF/year. This project is to be completed with a federal contribution of $300,000 and a non-federal contribution of $366,700.

The district was also selected for a 2012 NKAO WCFSP grant for a project which will allow the District to convert 2.3 miles of open ditch lateral and canal to buried pipe. This project will replace Franklin Lateral 37.3 and the tail end of Naponee Canal with buried pipe. The project will provide an estimated water savings of 496 AF/year. This project includes $100,000 of federal funding assistance with the District contributing $124,221 through funding and in-kind services.

Bostwick Division - Kansas

2012 Summary

The 2012 precipitation at Lovewell Dam totaled 22.54 inches, which was 82 percent of normal. Precipitation in April was the second highest recorded for the month, while May precipitation was the second lowest recorded at the dam. The total inflow recorded at Lovewell Reservoir of 50,040 AF was below the dry-year forecast. The reservoir elevation at the beginning of 2012 was 1581.36 feet. The pool level gradually increased to elevation 1583.96 feet on May 6 (1.3 feet above top of conservation). Spring diversions via Courtland Canal into Lovewell Reservoir were not required in 2012.

Releases to the canal began on April 27 and continued through August 30. The reservoir elevation at the end of the irrigation season was 1572.83 feet. Republican River flow was diverted via Courtland Canal into Lovewell Reservoir through the end of December. The pool level at the end of the year was 1577.60 feet (5.0 feet below top of conservation).

The Kansas-Bostwick Irrigation District diverted a total of 76,855 AF to serve 11,394 acres above Lovewell Dam and 26,573 acres below Lovewell Dam. Farm delivery efficiency averaged 55 percent in the district.

A seepage measuring device was installed at the active embankment toe drain outfall at Lovewell Dam in 2012.

In 2011, the district was awarded a WaterSMART WEEG for a project which will replace approximately 5.5 miles of open ditch laterals with buried pipe. Courtland West Laterals 4.0 and 5.7 will be placed in pipe which will result in an estimated water savings of 2,064 AF/year. Reclamation is providing $290,000 of funding assistance and the district is providing $465,000 of financial and in-kind services. The Courtland West Lateral 5.7 was complete and operational prior to the 2012 irrigation season. The Courtland West Lateral 4.0 pipe project is scheduled to be completed in the spring of 2013.

The district was also selected for a 2012 NKAO WCFSP grant for a project which will allow the District to convert 2.0 miles of open ditch lateral and canal to buried pipe. This project will replace Miller Lateral 1.3 and Miller Sub-Lateral 2.8-1.4 with buried pipe. The project will provide an estimated water savings of 580 AF/year. This project includes $100,000 of federal funding assistance with the District contributing $128,457 through funding and in-kind services.

Bostwick Division

2013 Outlook

The storage in Harlan County Lake and Lovewell Reservoir and flows of the Republican River and White Rock Creek are expected to be inadequate in meeting the full dry-year irrigation requirement for the Bostwick lands.

The NDNR issued a closing notice on all natural flow and storage permits in the Republican River Basin on January 1, 2013. All surface water appropriations in the basin above Guide Rock Diversion Dam are currently closed. On April 1, 2013, NDNR issued a storage release notice for the federal reservoirs in the basin with the exception of Harlan County Lake. Discussions are currently under way on the treatment of water in Harlan County Lake.

A sediment survey is underway for Lovewell Reservoir. Field collection data obtained in 2011 is being processed and analyzed. A final report is expected to be published early in 2013.

The SOP for Lovewell Dam is scheduled for revision in 2013.

Sediment removal is scheduled for the fall of 2013 at both the Courtland Canal inlet and the spillway outlet channel at Lovewell Reservoir.

Both districts will continue to investigate remote monitoring site installation that will provide system operations improvements. Bostwick Irrigation District in Nebraska has installed canal automation equipment on a number of check structures along Franklin Canal through a Water Conservation Field Services grant. The district continues to explore opportunities to increase this radio automated network. Kansas Bostwick Irrigation District will continue to replace open ditch laterals with pipe.

TABLE 1

RESERVOIR DATA - NIOBRARA, LOWER PLATTE AND KANSAS RIVER BASINS

		CAPACITY ALLOCATIONS 1/			
			LIVE CONSERVATION		
RESERVOIR		DEAD	Inactive	Active	FLOOD CONTROL
Box Butte	- Elevation Ft.	3969.0	3979.0	4007.0	---
	Total Acre-feet	188	2,392	29,161	---
	Net Acre-feet	188	2,204	26,769	---
Merritt	- Elevation Ft.	2875.0	2896.0	2946.0	---
	Total Acre-feet	774	4,662	66,726	---
	Net Acre-feet	774	3,888	62,064	---
Calamus 4/	- Elevation Ft.	2185.0	2213.3	2244.0	---
	Total Acre-feet	35	20,150	119,469	---
	Net Acre-feet	35	20,115	99,319	---
Davis Creek	- Elevation Ft.	1998.5	2003.0	2076.0	---
	Total Acre-feet	76	172	31,158	---
	Net Acre-feet	76	96	30,986	---
Bonny	- Elevation Ft.	3635.5	3638.0	3672.0	3710.0
	Total Acre-feet	0	0	36,508	165,328
	Net Acre-feet	0	0	36,508	128,820
Enders	- Elevation Ft.	3080.0	3082.4	3112.3	3127.0
	Total Acre-feet	7,516	8,948	42,910	72,958
	Net Acre-feet	7,516	1,432	33,962	30,048
Swanson	- Elevation Ft.	2710.0	2720.0	2752.0	2773.0
Lake 5/	Total Acre-feet	1,027	10,329	110,175	244,362
	Net Acre-feet	1,027	9,302	99,846	134,187
Hugh Butler	- Elevation Ft.	2552.0	2558.0	2581.8	2604.9
Lake	Total Acre-feet	5,185	8,921	36,224	85,070
	Net Acre-feet	5,185	3,736	27,303	48,846
Harry Strunk	- Elevation Ft.	2335.0	2343.0	2366.1	2386.2
Lake	Total Acre-feet	3,408	7,897	34,647	87,361
	Net Acre-feet	3,408	4,489	26,750	52,714
Keith Sebelius	- Elevation Ft.	2275.0	2280.4	2304.3	2331.4
Lake	Total Acre-feet	1,636	3,993	34,510	133,740
	Net Acre-feet	1,636	2,357	30,517	99,230
Harlan County	- Elevation Ft.	1885.0	1927.0	1945.73	1973.5
Lake 3/	Total Acre-feet	0	118,099	314,111	814,111
	Net Acre-feet	0	118,099	196,012	500,000
Lovewell	- Elevation Ft.	1562.07	1571.7	1582.6	1595.3
	Total Acre-feet	1,659	11,644	35,666	86,131
	Net Acre-feet	1,659	9,985	24,022	50,465
Kirwin	- Elevation Ft.	1693.0	1697.0	1729.25	1757.3
	Total Acre-feet	4,969	8,515	98,154	313,290
	Net Acre-feet	4,969	3,546	89,639	215,136
Webster	- Elevation Ft.	1855.5	1860.0	1892.45	1923.7
	Total Acre-feet	1,256	4,231	76,157	259,510
	Net Acre-feet	1,256	2,975	71,926	183,353
Waconda	- Elevation Ft.	1407.8	1428.0	1455.6	1488.3
Lake	Total Acre-feet	248	26,237	219,420	942,408
	Net Acre-feet	248	25,989	193,183	722,988
Cedar Bluff	- Elevation Ft.	2090.0	2107.8	2144.0	2166.0
	Total Acre-feet	4,402	28,574	172,452	364,342
	Net Acre-feet	4,402	24,172	143,878	191,890
Total Storage (A.F.)		32,379	264,764	1,457,448	3,815,125 2/
Total Net Acre-feet		32,379	232,385	1,192,684	2,357,677

1/ Includes space for sediment storage.

2/ Includes total active storage for Box Butte, Merritt, Calamus, and Davis Creek Reservoirs.

3/ Bottom of irrigation pool for Harlan County Lake is 1932.5 feet, 164,111 AF.

4/ New Area-Capacity Tables in effect 1-1-13. Sedimentation Survey conducted in June 2012.

5/ New Area-Capacity Tables in effect 1-1-13. Sedimentation Survey conducted in May 2011.

FRENCHMAN-CAMBRIDGE DIVISION (Continued)

RED WILLOW UNIT

HUGH BUTLER LAKE

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	RED WILLOW CANAL Diversions To Canal (AF)	RED WILLOW CANAL Delivered To Farms (AF)	BARTLEY CANAL Diversions To Canal (AF)	BARTLEY CANAL Delivered To Farms (AF)
Jan.	1,308	1,476	44	0.00	5,781	0	0	0	0
Feb.	1,531	1,381	48	0.64	5,883	0	0	0	0
Mar.	1,476	1,476	79	0.46	5,804	0	0	0	0
Apr.	1,623	1,379	227	2.35	5,821	0	0	564	0
May	1,014	730	341	0.83	5,764	0	0	1,893	225
June	811	865	417	1.73	5,293	0	0	1,358	713
July	564	274	441	1.94	5,142	0	0	1,985	1,219
Aug.	531	188	364	0.70	5,121	0	0	2,337	1,534
Sep.	178	119	265	0.13	4,915	0	0		0
Oct.	512	123	183	0.53	5,121	0	0	0	0
Nov.	648	119	88	0.03	5,562	0	0	0	0
Dec.	709	123	50	0.31	6,098	0	0	0	0
TOTAL	10,905	8,253	2,547	9.65	--	0	0	8,137	3,691

NOTE -- Acres irrigated 2012: Red Willow Canal - 0 acres; Bartley Canal 4,765 acres.

FRENCHMAN-CAMBRIDGE DIVISION (Continued)

CAMBRIDGE UNIT

HARRY STRUNK LAKE

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	CAMBRIDGE CANAL Diversions To Canal (AF)	CAMBRIDGE CANAL Delivered To Farms (AF)
Jan.	2,793	2,233	135	0.08	33,523	0	0
Feb.	3,103	2,589	137	0.89	33,900	0	0
Mar.	3,228	2,767	244	0.83	34,117	0	0
Apr.	3,522	1,619	687	2.25	35,333	1,394	0
May	2,662	2,372	1,105	1.01	34,518	3,720	771
June	2,116	7,091	1,166	1.47	28,377	6,467	3,770
July	3,311	10,963	988	3.86	19,737	9,171	5,909
Aug.	2,100	8,156	639	0.34	13,042	6,866	4,118
Sep.	1,351	60	426	0.23	13,907	0	0
Oct.	2,035	97	322	0.40	15,523	0	0
Nov.	2,333	60	167	0.07	17,629	0	0
Dec.	2,464	62	92	0.57	19,939	0	0
TOTAL	31,018	38,069	6,108	12.00	--	27,618	14,568

NOTE -- Acres irrigated 2012: Cambridge Canal 16,798 acres.

TABLE 2
SUMMARY OF 2012 OPERATIONS

KANASKA DIVISION
ALMENA UNIT
KEITH SEBELIUS LAKE

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Release To City Of Norton (AF)	ALMENA CANAL Diversions To Canal (AF)	ALMENA CANAL Delivered To Farms (AF)
Jan.	489	50	122	0.10	23,535	19	0	0
Feb.	685	47	142	0.90	24,031	19	0	0
Mar.	584	50	243	0.74	24,322	19	0	0
Apr.	1,061	56	607	3.21	24,720	26	0	0
May	379	71	1,100	0.46	23,928	41	107	0
June	324	1,794	1,419	1.16	21,039	57	1,293	799
July	652	2,038	1,383	4.34	18,270	61	1,618	905
Aug.	299	191	936	1.69	17,442	52	154	102
Sep.	111	78	727	0.50	16,748	48	0	0
Oct.	143	57	386	1.42	16,448	26	0	0
Nov.	121	48	221	0.00	16,300	19	0	0
Dec.	329	49	118	0.77	16,462	18	0	0
TOTAL	5,177	4,529	7,404	15.29	--	405	3,172	1,806

NOTE: Acres irrigated 2012: Almena Canal - 2,450 acres.

BOSTWICK DIVISION
FRANKLIN UNIT

HARLAN COUNTY LAKE
Data from Corps of Engineers

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	FRANKLIN CANAL Release To Canal (AF)	FRANKLIN CANAL Delivered To Farms (AF)	NAPONEE CANAL Release To Canal (AF)	NAPONEE CANAL Delivered To Farms (AF)
Jan.	10,413	5,986	909	0.02	326,482	0	0	0	0
Feb.	17,441	7,458	962	0.69	335,503	0	0	0	0
Mar.	16,383	28,535	928	1.03	322,423	0	0	0	0
Apr.	17,613	12,877	3,519	4.53	323,640	0	0	0	0
May	7,349	5,338	7,017	2.98	318,634	421	0	0	0
June	4,066	24,697	7,814	2.55	290,189	9,074	2,845	454	176
July	1,884	42,350	8,124	2.26	241,599	13,049	7,614	874	531
Aug.	1,644	32,730	7,568	1.72	202,945	8,245	4,445	657	425
Sep.	226	250	5,436	0.56	197,485	81	0	0	0
Oct.	518	0	4,621	0.70	193,382	0	0	0	0
Nov.	60	0	2,317	0.00	191,125	0	0	0	0
Dec.	984	0	984	1.10	191,125	0	0	0	0
TOTAL	78,581	160,221	50,199	18.14	--	30,870	14,904	1,985	1,132

NOTE: Acres irrigated 2012: Franklin Canal - 11,065 acres; Naponee Canal - 1,607 acres.

TABLE 3

ACRES IRRIGATED IN 2012 AND ESTIMATES FOR 2013

Irrigation District and Canal	Acres With Service Available	Acres Irrigated in 2012	Estimated Acres to be Irrigated in 2013
Mirage Flats Irrigation District			
Mirage Flats Canal	11,662	11,662	11,000
Ainsworth Irrigation District			
Ainsworth Canal	35,000	34,607	34,500
Twin Loups Irrigation District			
Above Davis Creek	34,053	34,110	34,000
Below Davis Creek	21,063	21,016	21,000
Total Twin Loups Irrigation District	55,116	55,126	55,000
Frenchman Valley Irrigation District			
Culbertson Canal	9,292	1,020	1,000
H & RW Irrigation District			
Culbertson Extension Canal	11,915	0	0
Frenchman-Cambridge Irrigation District			
Meeker-Driftwood Canal	16,855	12,596	12,000
Red Willow Canal	4,797	0	0
Bartley Canal	6,353	4,765	0
Cambridge Canal	17,664	16,798	16,500
Total Frenchman-Cambridge Irrigation District	45,669	34,159	28,500
Almena Irrigation District			
Almena Canal	5,764	2,450	2,000
Bostwick Irrigation District in Nebraska			
Franklin Canal	11,031	11,065	11,000
Naponee Canal	1,607	1,607	1,500
Franklin Pump Canal	2,026	1,993	2,000
Superior Canal	6,056	6,056	6,000
Courtland Canal (Nebraska)	1,735	1,734	1,500
Total Bostwick Irrigation Dist. in Nebraska	22,455	22,455	22,000
Kansas-Bostwick Irrigation District			
Courtland Canal above Lovewell	13,378	11,394	11,500
Courtland Canal below Lovewell	29,122	26,573	26,500
Total Kansas-Bostwick Irrigation District	42,500	37,967	38,000
Kirwin Irrigation District			
Kirwin Canal	11,465	8,476	8,500
Webster Irrigation District			
Osborne Canal	8,537	5,663	5,500
Glen Elder Irrigation District	10,370	5,936	6,000
TOTAL PROJECT USES	269,745	219,521	212,000
Non-Project Uses			
Hale Ditch	700	0	0
TOTAL PROJECT AND NON-PROJECT	270,445	219,521	212,000

Table 4

HARRY STRUNK LAKE OPERATION ESTIMATES - 2013

	INFLOW		EVAPORATION		RELEASE REQUIRMENT		RESERVOIR SPILL	REQUIREMENT SHORTAGE	END OF MONTH ELEV	CONT	RESERVOIR CHANGE
	MEAN	1000		1000	MEAN	1000	1000	1000		1000	1000
MONTH	CFS	AF	INCHES	AF	CFS	AF	AF	AF	FT	AF	AF
REASONABLE MINIMUM INFLOW CONDITIONS											
JAN	34	2.1	0.9	0.1	2	0.1	1.9	0.0	2355.9	19.9	0.0
FEB	43	2.4	1.0	0.1	2	0.1	2.2	0.0	2355.9	19.9	0.0
MAR	45	2.8	1.8	0.2	2	0.1	2.5	0.0	2355.9	19.9	0.0
APR	45	2.7	4.9	0.5	2	0.1	2.1	0.0	2355.9	19.9	0.0
MAY	49	3.0	5.8	0.6	2	0.1	2.3	0.0	2355.9	19.9	0.0
JUN	52	3.1	7.2	0.7	89	5.3	2.3	0.0	2351.1	14.7	-5.2
JUL	47	2.9	7.9	0.7	318	19.6	2.1	12.7	2343.0	7.9	-6.8
AUG	37	2.3	7.0	0.4	268	16.5	1.8	16.4	2343.0	7.9	0.0
SEP	25	1.5	5.4	0.3	27	1.6	1.1	1.5	2343.0	7.9	0.0
OCT	31	1.9	3.6	0.2	2	0.1	1.6	0.0	2343.0	7.9	0.0
NOV	34	2.0	2.1	0.1	2	0.1	1.8	0.0	2343.0	7.9	0.0
DEC	32	2.0	1.1	0.1	2	0.1	1.8	0.0	2343.0	7.9	0.0
TOTAL		28.7	48.7	4.0		43.8	23.5	30.6			-12.0
MOST PROBABLE INFLOW CONDITIONS											
JAN	47	2.9	0.8	0.1	2	0.1	2.7	0.0	2355.9	19.9	0.0
FEB	59	3.3	0.9	0.1	2	0.1	3.1	0.0	2355.9	19.9	0.0
MAR	62	3.8	1.6	0.2	2	0.1	3.5	0.0	2355.9	19.9	0.0
APR	62	3.7	4.5	0.4	2	0.1	3.2	0.0	2355.9	19.9	0.0
MAY	67	4.1	5.2	0.5	2	0.1	3.5	0.0	2355.9	19.9	0.0
JUN	69	4.1	6.5	0.6	71	4.4	3.4	0.0	2352.0	15.6	-4.3
JUL	63	3.9	7.2	0.6	265	16.3	3.2	8.5	2343.0	7.9	-7.7
AUG	49	3.0	6.4	0.4	222	13.7	2.5	13.6	2343.0	7.9	0.0
SEP	34	2.0	4.9	0.3	19	1.2	1.6	0.0	2343.0	7.9	0.0
OCT	41	2.5	3.2	0.2	2	0.1	2.2	0.0	2343.0	7.9	0.0
NOV	45	2.7	1.9	0.1	2	0.1	2.5	0.0	2343.0	7.9	0.0
DEC	44	2.7	1.0	0.1	2	0.1	2.5	0.0	2343.0	7.9	0.0
TOTAL		38.7	44.1	3.6		36.4	33.9	22.1			-12.0
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	71	4.4	0.8	0.1	2	0.1	4.2	0.0	2355.9	19.9	0.0
FEB	92	5.1	0.8	0.1	2	0.1	4.9	0.0	2355.9	19.9	0.0
MAR	96	5.9	1.5	0.1	2	0.1	5.7	0.0	2355.9	19.9	0.0
APR	96	5.7	4.0	0.4	2	0.1	5.2	0.0	2355.9	19.9	0.0
MAY	102	6.3	4.7	0.5	2	0.1	5.7	0.0	2355.9	19.9	0.0
JUN	107	6.4	5.8	0.6	47	2.8	5.7	0.0	2353.5	17.2	-2.7
JUL	97	6.0	6.4	0.6	182	11.2	5.3	1.8	2343.0	7.9	-9.3
AUG	78	4.8	5.7	0.3	154	9.5	4.4	9.4	2343.0	7.9	0.0
SEP	50	3.0	4.4	0.3	2	0.1	2.6	0.0	2343.0	7.9	0.0
OCT	63	3.9	2.9	0.2	2	0.1	3.6	0.0	2343.0	7.9	0.0
NOV	70	4.2	1.7	0.1	2	0.1	4.0	0.0	2343.0	7.9	0.0
DEC	67	4.1	0.9	0.1	2	0.1	3.9	0.0	2343.0	7.9	0.0
TOTAL		59.8	39.6	3.4		24.4	55.2	11.2			-12.0

Table 4

HARLAN COUNTY LAKE OPERATION ESTIMATES - 2013

	INFLOW		EVAPORATION		RELEASE REQUIRMENT		RESERVOIR SPILL	REQUIREMENT SHORTAGE	END OF MONTH		RESERVOIR CHANGE
	MEAN	1000		1000	MEAN	1000	1000	1000	ELEV	CONT 1000	1000
MONTH	CFS	AF	INCHES	AF	CFS	AF	AF	AF	FT	AF	AF
REASONABLE MINIMUM INFLOW CONDITIONS											
JAN	44	2.7	1.0	0.8	0	0.0	0.0	0.0	1935.4	193.0	1.9
FEB	68	3.8	1.1	1.0	0	0.0	0.0	0.0	1935.7	195.8	2.8
MAR	91	5.6	2.0	1.7	0	0.0	0.0	0.0	1936.1	199.7	3.9
APR	79	4.7	4.5	4.0	0	0.0	0.0	0.0	1936.1	200.4	0.7
MAY	101	6.2	5.6	4.9	0	0.0	0.0	0.0	1936.3	201.7	1.3
JUN	82	4.9	6.7	5.8	357	26.9	0.0	0.0	1933.5	173.9	-27.8
JUL	84	5.2	7.5	6.0	799	49.5	0.0	0.0	1927.7	123.6	-50.3
AUG	68	4.2	6.6	4.2	554	34.1	0.0	28.6	1927.0	118.1	-5.5
SEP	34	2.0	5.2	3.2	54	3.2	0.0	3.2	1926.8	116.9	-1.2
OCT	31	1.9	3.6	2.2	0	0.0	0.0	0.0	1926.7	116.6	-0.3
NOV	42	2.5	2.2	1.3	0	0.0	0.0	0.0	1926.9	117.8	1.2
DEC	41	2.5	1.4	0.9	0	0.0	0.0	0.0	1927.1	119.4	1.6
TOTAL		46.2	47.4	36.0		113.7	0.0	31.8			-71.7
MOST PROBABLE INFLOW CONDITIONS											
JAN	131	8.1	0.9	0.7	0	0.0	0.0	0.0	1936.0	198.5	7.4
FEB	207	11.5	1.0	0.9	0	0.0	0.0	0.0	1937.0	209.1	10.6
MAR	276	17.0	1.7	1.5	0	0.0	0.0	0.0	1938.4	224.6	15.5
APR	238	14.2	4.0	3.7	0	0.0	0.0	0.0	1939.3	235.1	10.5
MAY	302	18.6	4.9	4.6	0	0.0	0.0	0.0	1940.5	249.1	14.0
JUN	250	14.9	5.9	5.8	62	3.8	0.0	0.0	1941.0	254.4	5.3
JUL	253	15.6	6.6	6.6	591	36.4	0.0	0.0	1938.6	227.0	-27.4
AUG	205	12.6	5.8	5.4	455	28.0	0.0	0.0	1936.7	206.2	-20.8
SEP	101	6.0	4.6	4.1	32	2.0	0.0	0.0	1936.7	206.1	-0.1
OCT	96	5.9	3.1	2.7	0	0.0	0.0	0.0	1937.0	209.3	3.2
NOV	126	7.5	1.9	1.7	0	0.0	0.0	0.0	1937.5	215.1	5.8
DEC	125	7.7	1.3	1.1	0	0.0	0.0	0.0	1938.1	221.7	6.6
TOTAL		139.6	41.7	38.8		70.2	0.0	0.0			30.6
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	297	18.3	0.8	0.7	0	0.0	0.0	0.0	1936.9	208.7	17.6
FEB	464	25.8	0.9	0.8	0	0.0	0.0	0.0	1939.2	233.7	25.0
MAR	623	38.4	1.5	1.4	0	0.0	0.0	0.0	1942.3	270.7	37.0
APR	538	32.1	3.5	3.6	0	0.0	0.0	0.0	1944.5	299.2	28.5
MAY	680	41.9	4.3	4.6	0	0.0	22.4	0.0	1945.7	314.1	14.9
JUN	565	33.7	5.2	5.7	37	2.2	25.8	0.0	1945.7	314.1	0.0
JUL	573	35.3	5.8	6.4	157	9.7	19.2	0.0	1945.7	314.1	0.0
AUG	461	28.4	5.1	5.6	157	9.7	13.1	0.0	1945.7	314.1	0.0
SEP	228	13.6	4.0	4.5	20	1.2	7.9	0.0	1945.7	314.1	0.0
OCT	214	13.2	2.7	3.0	0	0.0	10.2	0.0	1945.7	314.1	0.0
NOV	285	17.0	1.7	1.9	0	0.0	15.1	0.0	1945.7	314.1	0.0
DEC	281	17.3	1.1	1.2	0	0.0	16.1	0.0	1945.7	314.1	0.0
TOTAL		315.0	36.6	39.4		22.8	129.8	0.0			123.0

TABLE 5

FLOOD DAMAGES PREVENTED BY NEBRASKA-KANSAS PROJECTS RESERVOIRS

RESERVOIR	DURING FY 2012	PRIOR TO 2012	ACCUMULATED TOTAL
BONNY	$400	$2,868,500	$2,868,900
ENDERS	$0	$3,574,000	$3,574,000
SWANSON	$2,500	$29,639,600	$29,642,100
HUGH BUTLER	$700	$6,388,700	$6,389,400
HARRY STRUNK	$2,100	$16,126,900	$16,129,000
KEITH SEBELIUS	$400	$4,066,900	$4,067,300
HARLAN COUNTY	$11,400	$228,574,700	$228,586,100
LOVEWELL	$400	$152,770,900	$152,771,300
KIRWIN	$3,200	$95,007,400	$95,010,600
WEBSTER	$1,100	$113,071,300	$113,072,400
WACONDA	$17,700	$1,279,376,500	$1,279,394,200
CEDAR BLUFF	$0	$134,940,700	$134,940,700
TOTAL	$39,900	$2,066,406,100	$2,066,446,000

Estimates of damages prevented are received from the Army Corps of Engineer's Kansas City District Office. The Accumulated Totals date from 1951 through 2012. Cumulative totals are revised by the Corps of Engineers in some cases to reflect data not previously included in the reporting and may not match previous cumulative totals.

Construction Cost of storage dams was $208,954,130.
The reservoirs upstream of Harlan County Lake did not receive benefits for damages prevented from 1972 to 1993.

TABLE 6
WATER DIVERTED IN 2012 AND THE
ESTIMATED DIVERSION FOR 2013
(Units - Acre-Feet)

Irrigation District and Canal	2012 Irrigation Operations From	To	10-Year Average Diversion (2002-2011)	2012 Diversion	Estimated Diversion in 2013
Mirage Flats Irrigation District					
Mirage Flats Canal	6/6	8/30	9,525	12,248	9,500
Ainsworth Irrigation District					
Ainsworth Canal	5/13	9/14	74,053	85,118	75,000
Twin Loups Irrigation District					
Above Davis Creek	4/10	9/17	45,230	68,013	45,000
Below Davis Creek	5/3	9/17	42,156	46,711	42,000
Total Twin Loups Irrigation District			87,386	114,724	87,000
Frenchman Valley Irrigation District					
Culbertson Canal	4/13	10/24	6,132	5,470	6,000
H & RW Irrigation District					
Culbertson Extension Canal	Did not run.		0	0	0
Frenchman-Cambridge Irrigation District					
Meeker-Driftwood Canal	6/11	8/31	7,418	32,955	15,000
Red Willow Canal	Did not run.		1,268	0	0
Bartley Canal	4/23	8/31	3,843	8,137	0
Cambridge Canal	4/19	8/28	19,719	27,618	12,000
Total Frenchman-Cambridge Irrigation District			32,248	68,710	27,000
Almena Irrigation District					
Almena Canal	5/18	8/1	1,792	3,172	3,000
Bostwick Irrigation District in Nebraska					
Franklin Canal	5/30	9/1	11,196	30,870	20,000
Naponee Canal	6/4	8/31	789	1,985	1,000
Franklin Pump Canal	6/6	8/30	793	1,648	1,000
Superior Canal	6/1	8/31	5,550	9,744	7,000
Courtland Canal (Nebraska)	5/14	9/1	541	884	500
Total Bostwick Irrigation District in Nebraska			18,869	45,131	29,500
Kansas-Bostwick Irrigation District					
Courtland Canal above Lovewell	5/18	8/30	14,599	26,777	20,000
Courtland Canal below Lovewell	4/27	8/30	34,104	50,078	38,000
Total Kansas-Bostwick Irrigation District			48,703	76,855	58,000
Kirwin Irrigation District					
Kirwin Canal	6/4	9/1	10,621	22,371	18,000
Webster Irrigation District					
Osborne Canal	6/11	8/31	6,253	13,189	11,000
Glen Elder Irrigation District	6/6	9/10	5,887	9,024	5,000
TOTAL			301,469	456,012	329,000

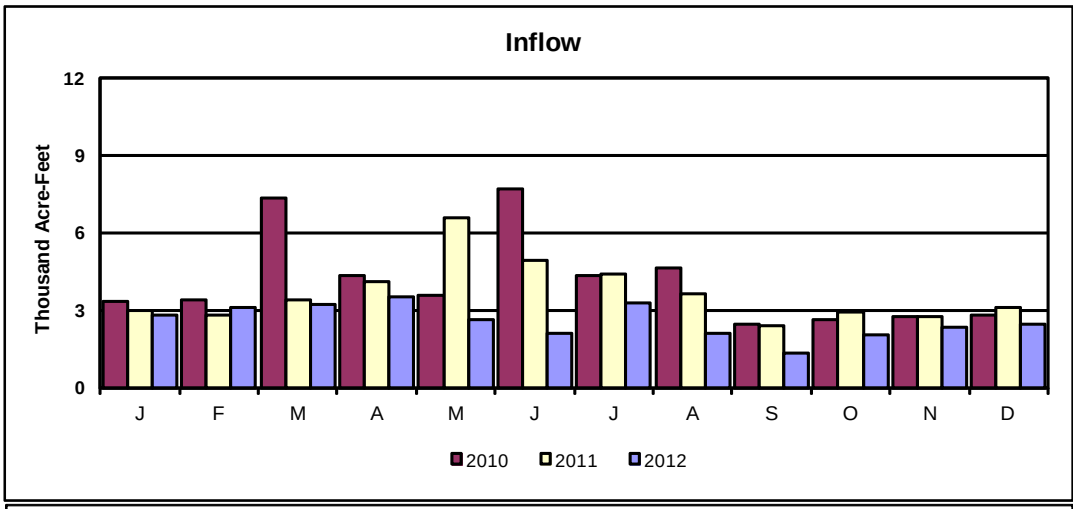
TABLE 7
NEBRASKA-KANSAS PROJECTS
Summary of Precipitation, Reservoir Storage and Inflows
'CALENDAR YEAR 2012

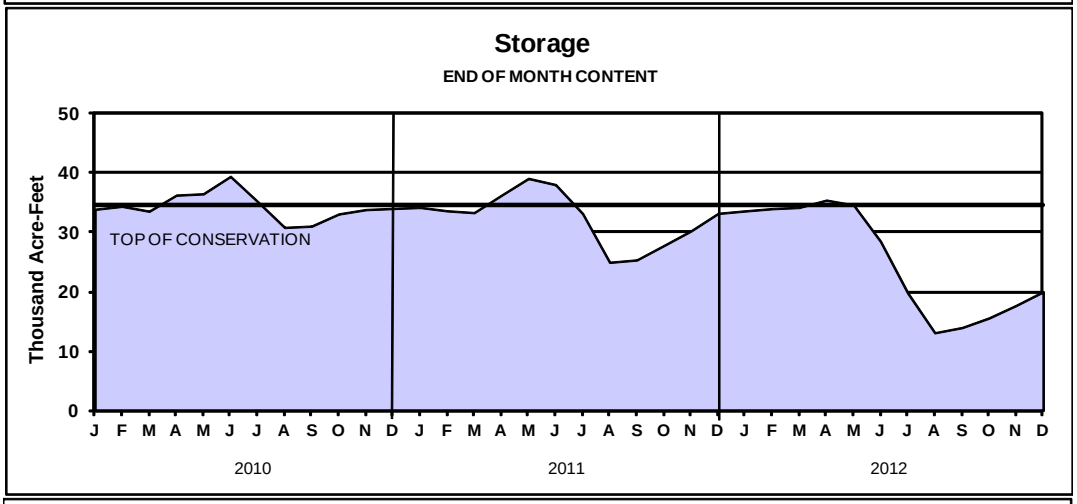
Reservoir	Total Precip. Inches	Percent Of Average %	Storage 12-31-11 AF	Storage 12-31-12 AF	Gain or Loss AF	Maximum Content AF	Maximum Storage Date	Minimum Content AF	Minimum Storage Date	Total Inflow AF	Percent Of Most Probable %	AVERAGE PREC.	MOST PROBABLE INFLOW
Box Butte	7.53	44	15,464	8,308	-7,156	20,318	MAY 5	5,895	AUG 10	9,464	60	**16.95**	15,900
Merritt	10.26	50	61,370	61,370	0	67,602	MAY 27	28,186	AUG 26	180,654	98	**20.47**	184,700
Calamus	11.78	49	105,099	87,136	-17,963	128,067	APR 28	41,366	OCT 1	268,633	98	**24.14**	275,500
Davis Creek	13.78	56	9,280	18,954	9,674	24,455	JUN 15	6,003	SEP 16	63,860	130	**24.79**	49,300
Bonny	9.09	53	135	0	-135	135	JAN 1	0	MAY 31	2,824	25	**17.13**	11,100
Enders	12.29	65	17,484	15,122	-2,362	18,649	MAY 1	14,956	NOV 26	4,509	43	**19.02**	10,600
Swanson	12.94	65	62,156	37,797	-24,359	75,222	MAY 5	36,440	DEC 13	23,105	70	**19.97**	32,900
Hugh Butler	9.65	49	5,993	6,098	105	6,097	DEC 31	4,915	SEP 29	10,905	74	**19.63**	14,700
Harry Strunk	12.00	58	33,098	19,939	-13,159	35,670	MAY 5	12,977	AUG 28	31,018	80	**20.7**	38,900
Keith Sebelius	15.29	62	23,218	16,462	-6,756	24,737	MAY 2	16,259	DEC 12	5,177	56	**24.49**	9,200
Harlan County	18.14	80	322,964	191,125	-131,839	335,503	FEB 29	190,305	DEC 12	78,581	55	**22.76**	142,800
Lovewell	22.54	82	31,938	22,585	-9,353	39,868	MAY 6	12,249	AUG 24	50,040	77	**27.47**	65,100
Kirwin	11.96	51	99,989	66,348	-33,641	99,989	JAN 1	65,713	NOV 13	21,535	65	**23.57**	32,900
Webster	16.92	72	58,196	36,167	-22,029	65,230	MAY 5	36,095	DEC 13	11,090	42	**23.66**	26,100
Waconda	19.99	78	211,190	184,545	-26,645	224,622	MAY 1	181,996	OCT 12	109,096	60	**25.53**	180,800
Cedar Bluff	14.97	71	79,365	66,233	-13,132	79,365	JAN 6	66,233	DEC 29	5,247	27	**20.98**	19,500

EXHIBIT 9A

HARRY STRUNK LAKE

ACTUAL OPERATION





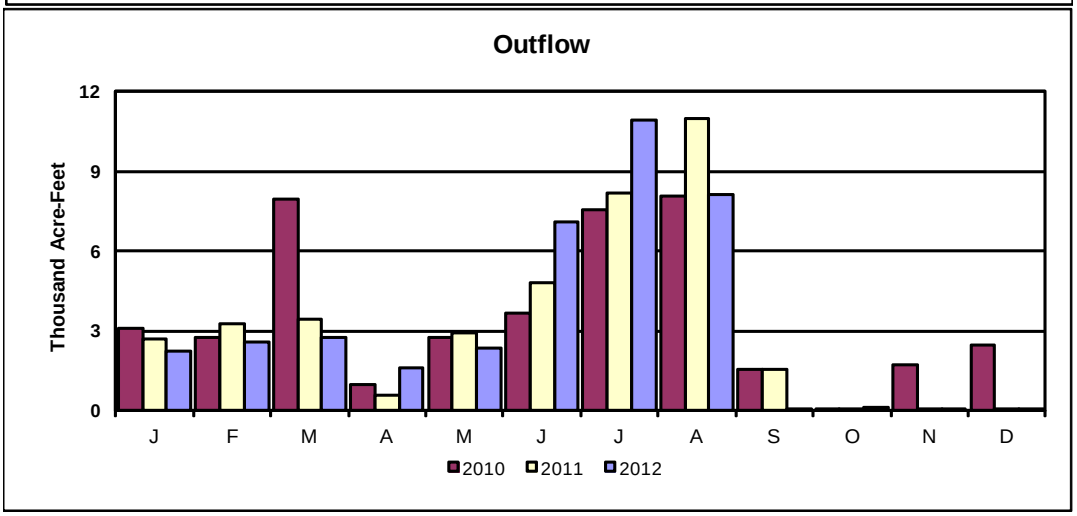
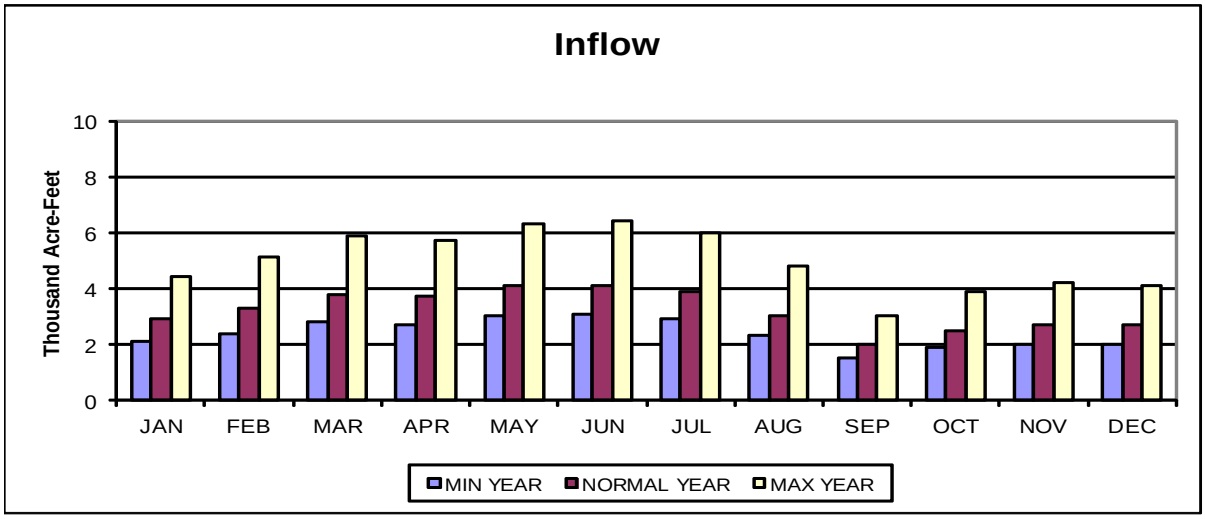
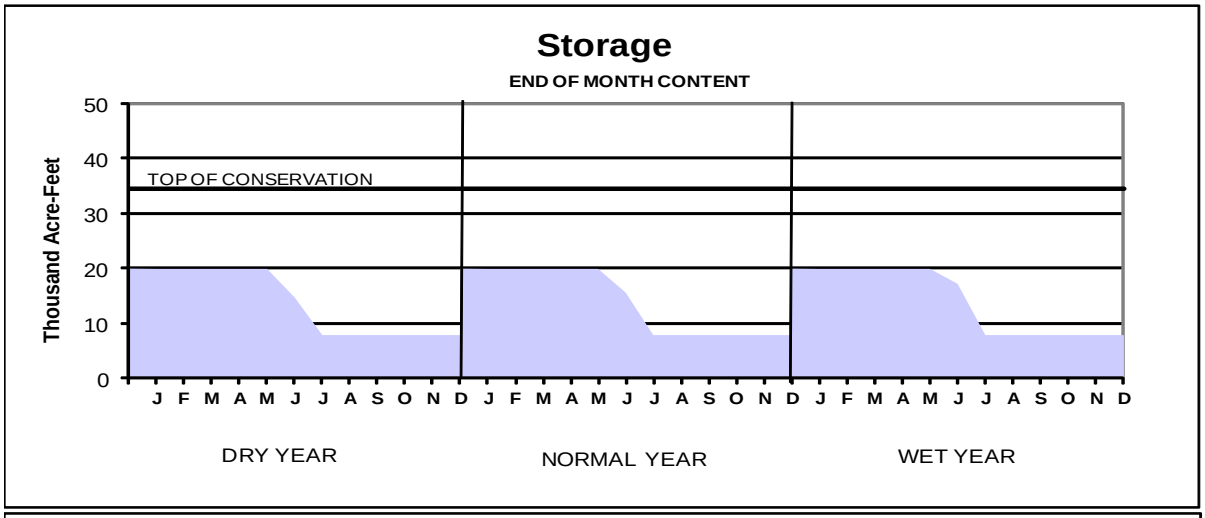


EXHIBIT 9B

HARRY STRUNK LAKE

2013 OPERATION PLAN





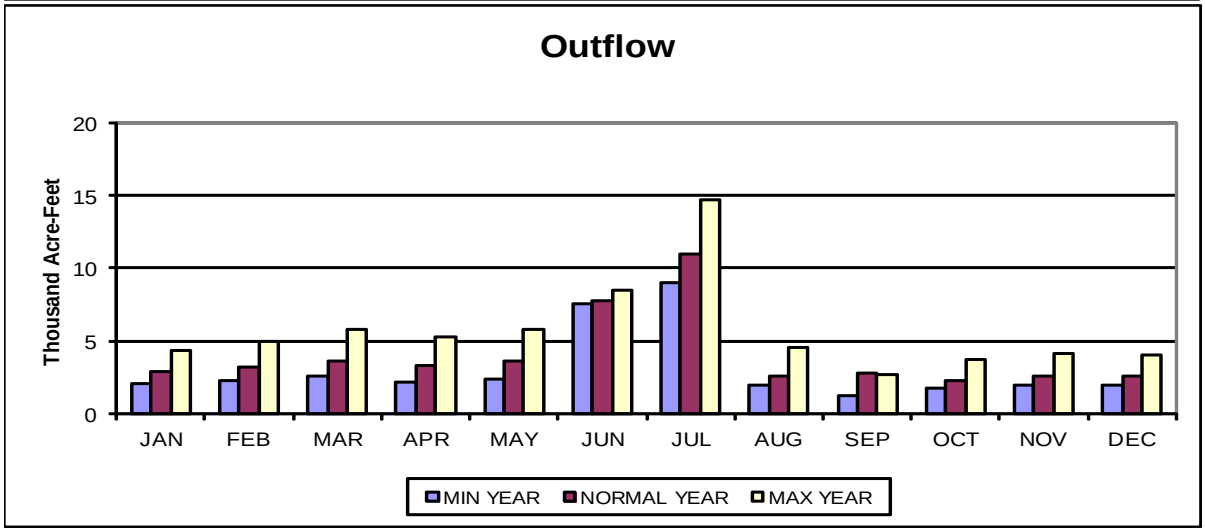
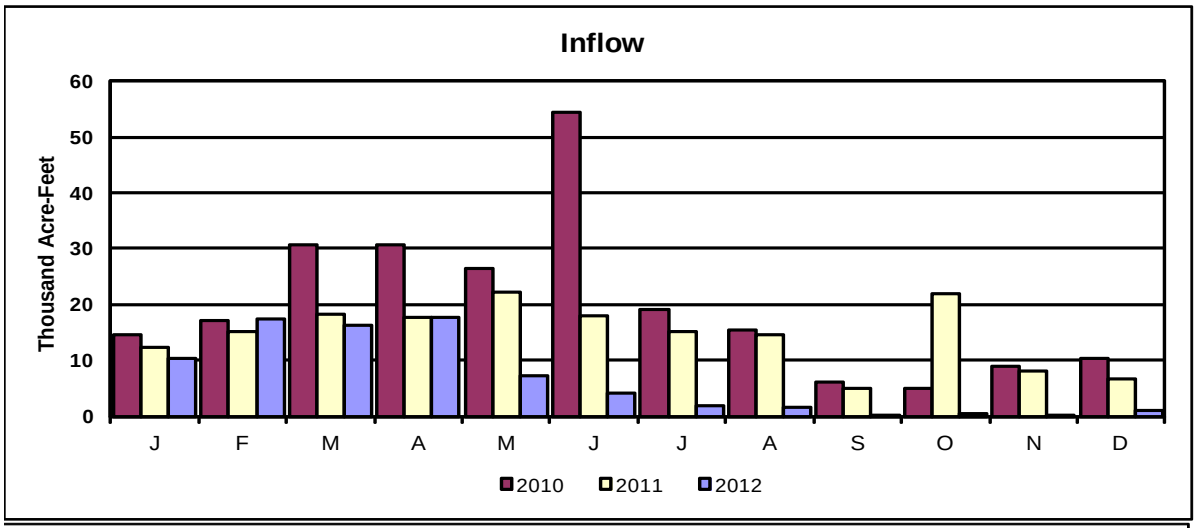
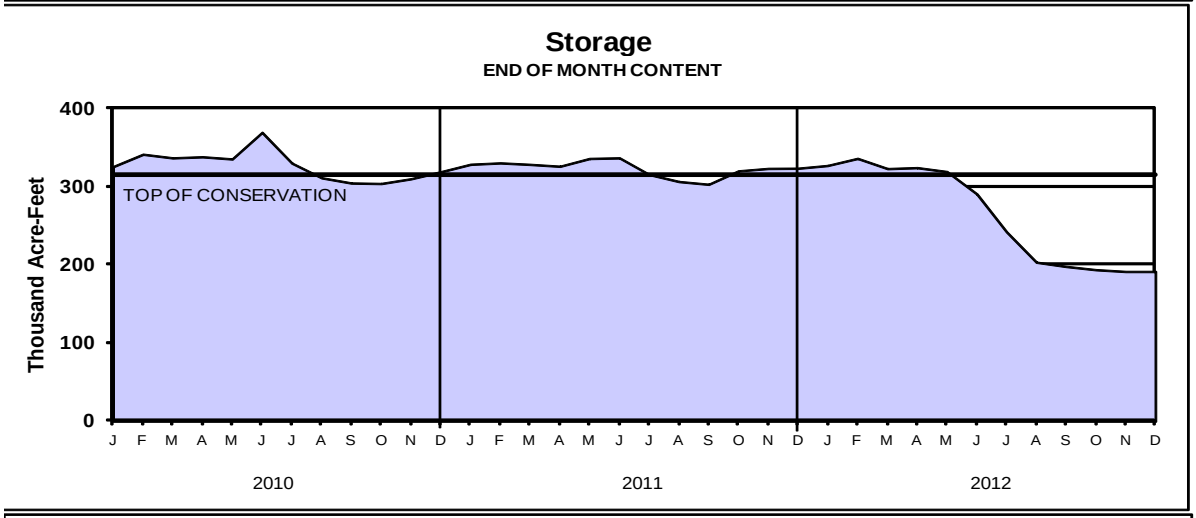


EXHIBIT 11A

HARLAN COUNTY LAKE

ACTUAL OPERATION





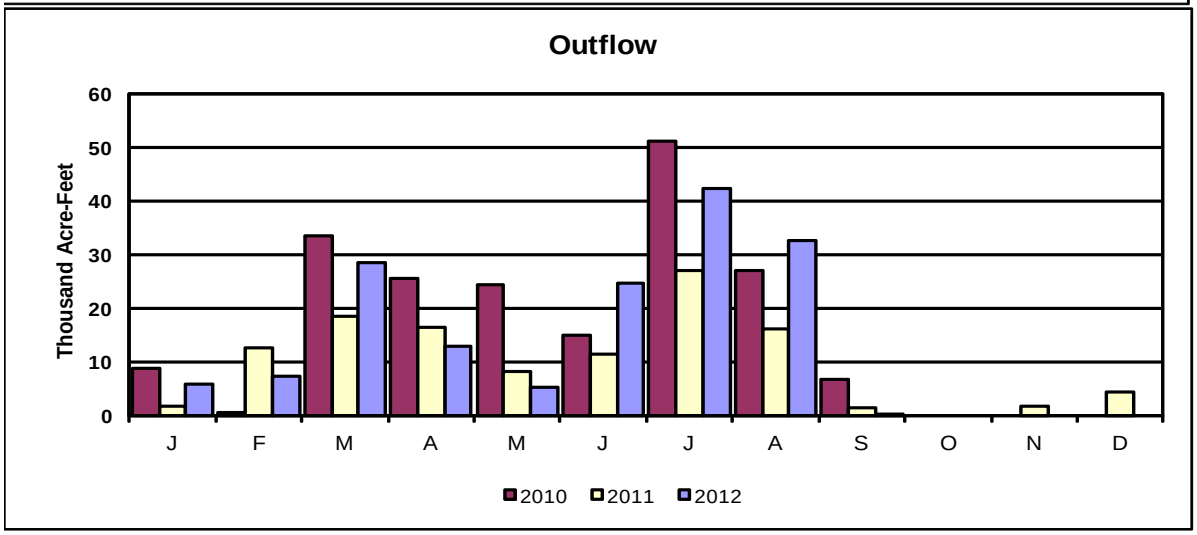
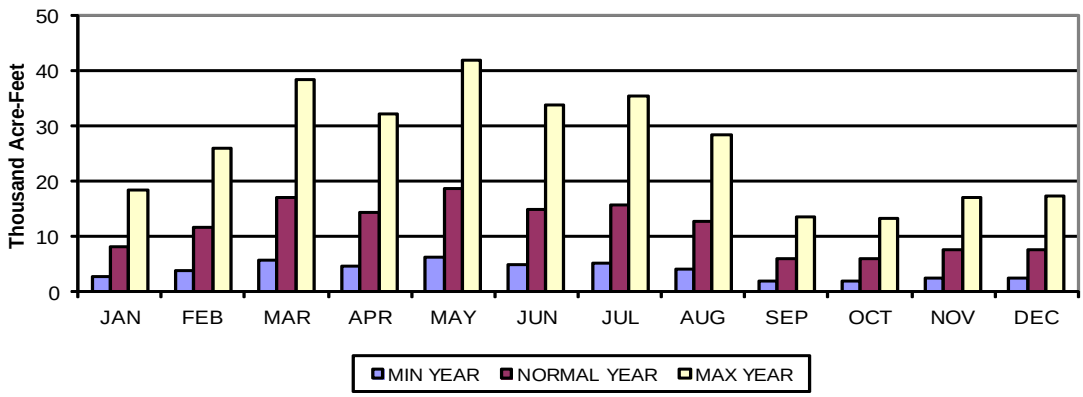


EXHIBIT 11B

HARLAN COUNTY LAKE

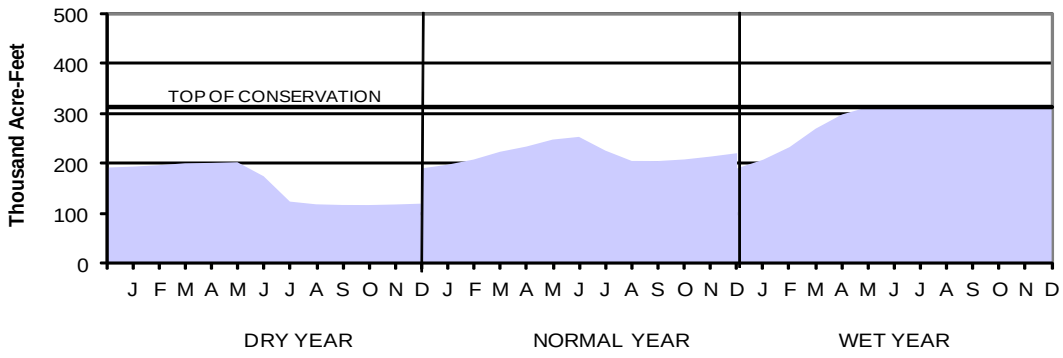
2013 OPERATION PLAN

Inflow



Storage

END OF MONTH CONTENT



Outflow

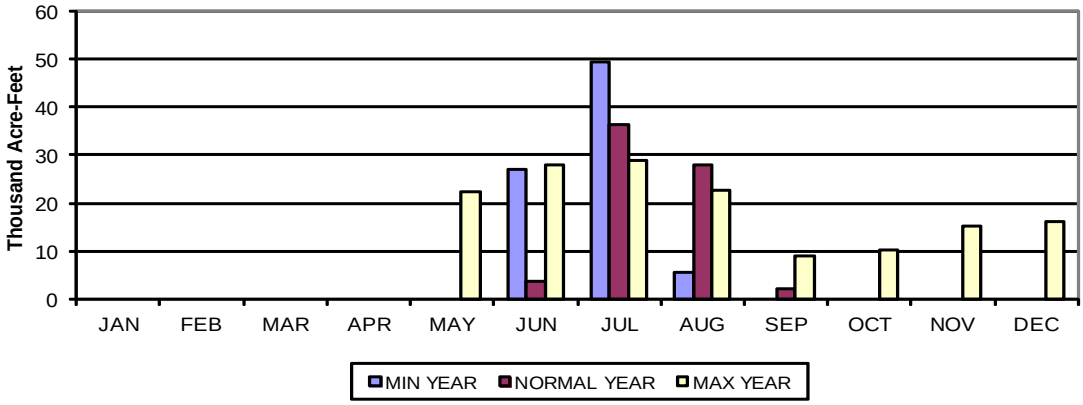
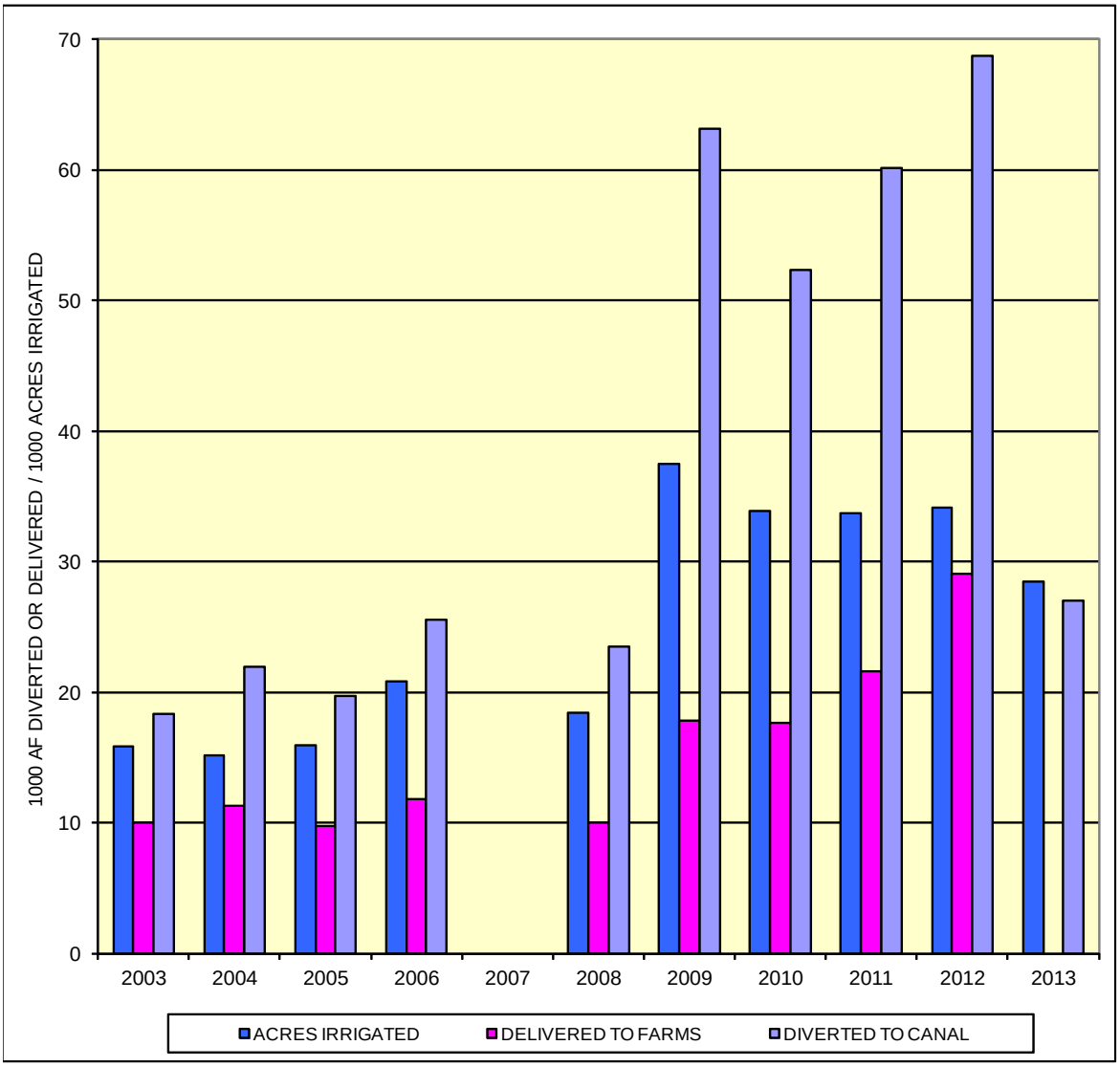


EXHIBIT 22

FRENCHMAN-CAMBRIDGE IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
DIVERTED af/acre	1.15	1.45	1.24	1.23	0.00	1.27	1.68	1.55	1.78	2.01
DELIVERED af/acre	0.63	0.74	0.61	0.57	0.00	0.54	0.47	0.52	0.64	0.85
EFFICIENCY	55%	52%	50%	46%	0%	42%	28%	34%	36%	42%

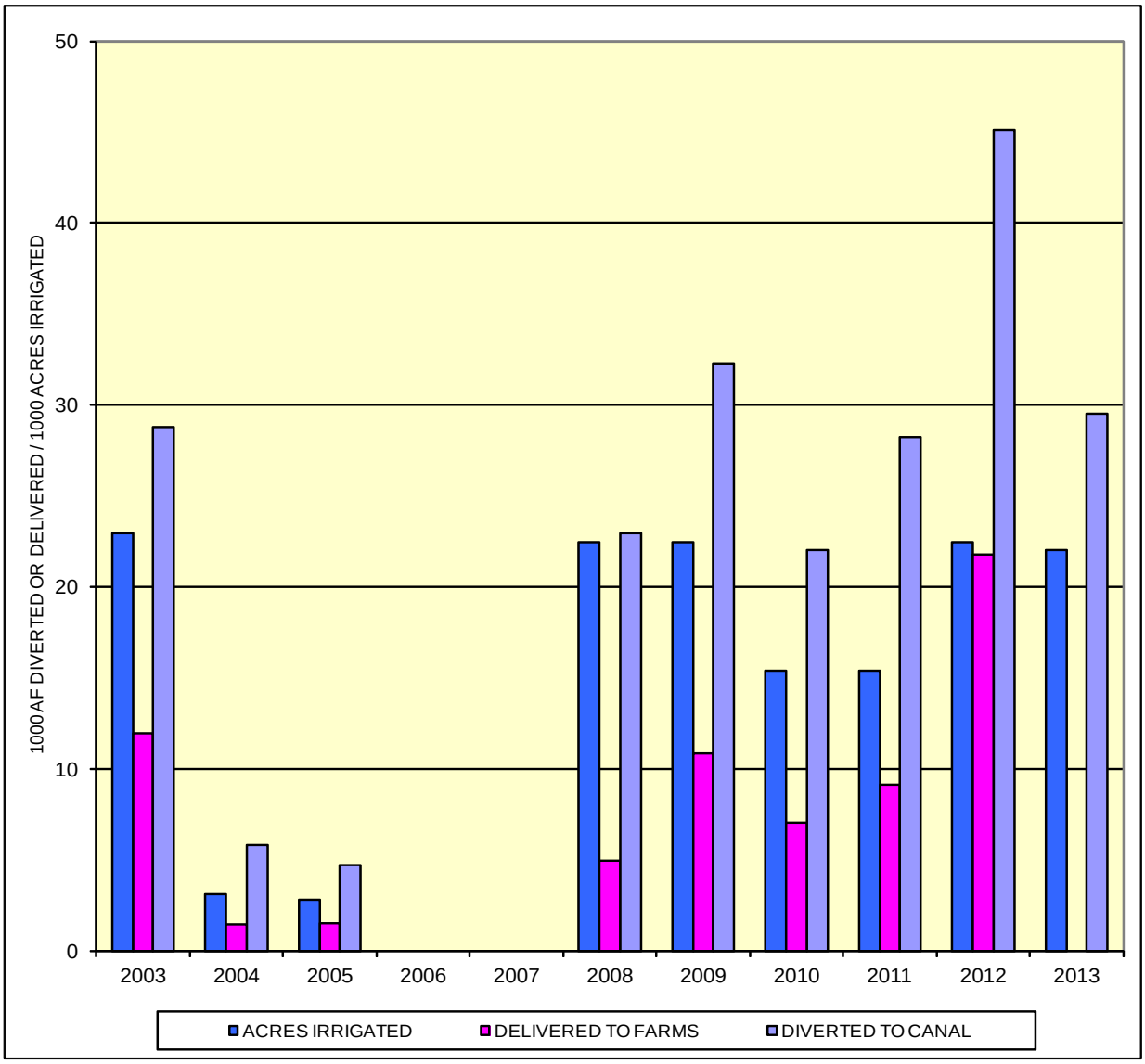
FORECASTED SHORTAGES (2013)

DRY YEAR	76,100 AF
NORMAL YEAR	52,400 AF
WET YEAR	28,000 AF

EXHIBIT 24

BOSTWICK IRRIGATION DISTRICT - NEBRASKA

CANAL DIV., FARM DEL., AND ACRES IRRIG.



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
DIVERTED af/acre	1.25	1.85	1.68	0.00	0.00	1.02	1.44	1.43	1.84	2.01
DELIVERED af/acre	0.52	0.47	0.53	0.00	0.00	0.22	0.48	0.46	0.59	0.97
EFFICIENCY	42%	25%	32%	0%	0%	22%	34%	32%	32%	48%

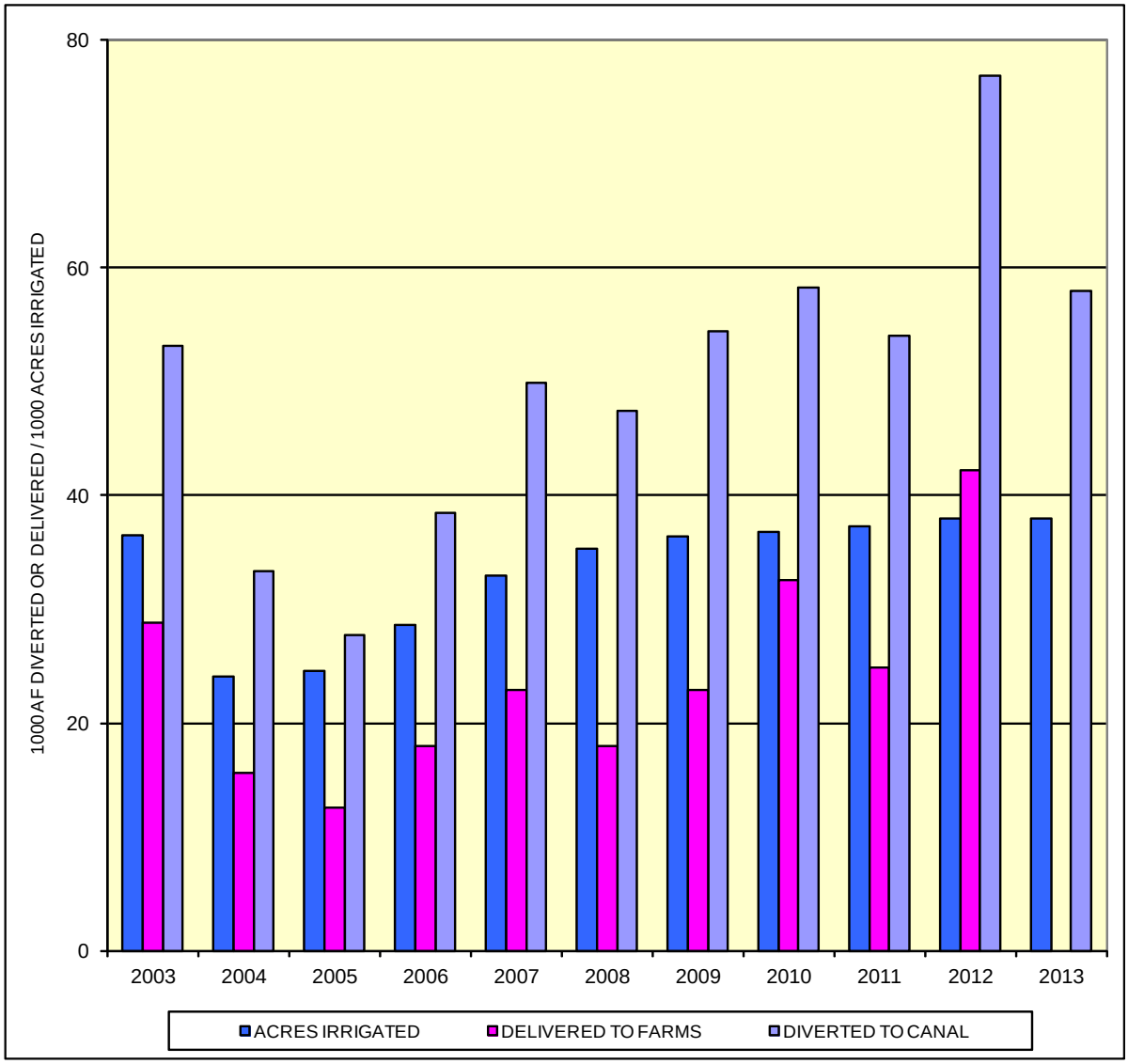
FORECASTED SHORTAGES (2013)

DRY YEAR	20,700 AF
NORMAL YEAR	0 AF
WET YEAR	0 AF

EXHIBIT 25

KANSAS-BOSTWICK IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
DIVERTED af/acre	1.46	1.38	1.13	1.35	1.51	1.34	1.50	1.58	1.45	2.02
DELIVERED af/acre	0.79	0.65	0.51	0.63	0.70	0.51	0.63	0.89	0.67	1.11
EFFICIENCY	54%	47%	45%	47%	46%	38%	42%	56%	46%	55%

FORECASTED SHORTAGES (2013)

DRY YEAR	30,600 AF
NORMAL YEAR	0 AF
WET YEAR	0 AF