# SYNOPSIS

## General

This year is the 57th 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 nine diversion dams, nine pumping plants, and 20 canal systems, serve approximately 269,744 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 63 Hydromet stations that can be accessed. The McCook Field Office has installed and maintains 42 Hydromet stations. When fully implemented, the projects will have a Hydromet station installed to provide real-time data on all reservoirs, most diversion dams, and most of the measuring structures in the irrigation systems. 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 Data Center" under the Water Operations heading.

The Headlines 2009 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.

## 2009 Summary

### Climatic Conditions

Precipitation at the project dams during 2009 ranged from 78 percent of normal at Lovewell Dam to 156 percent of normal at Enders Dam. Temperatures and precipitation during the first 3 months of the year were generally below normal throughout the projects area. Precipitation totals varied from 11 percent to 224 percent during January through March.

Temperatures were near normal during the spring. Precipitation during April and May was generally above normal throughout the basin.

Average temperatures were near normal through June, July, and August. Total precipitation for June, July, and August, was above normal project wide. Five project dams recorded below normal precipitation in June, while only three project dams recorded below normal precipitation in July and August.

September precipitation varied considerably throughout the projects while precipitation in October was well above normal. October precipitation varied from 121 percent of normal at Lovewell Dam to 414 percent of normal at Medicine Creek Dam. Medicine Creek Dam recorded the greatest October precipitation on record at that site. Temperatures in September were above normal and October temperatures were below normal throughout the projects area.

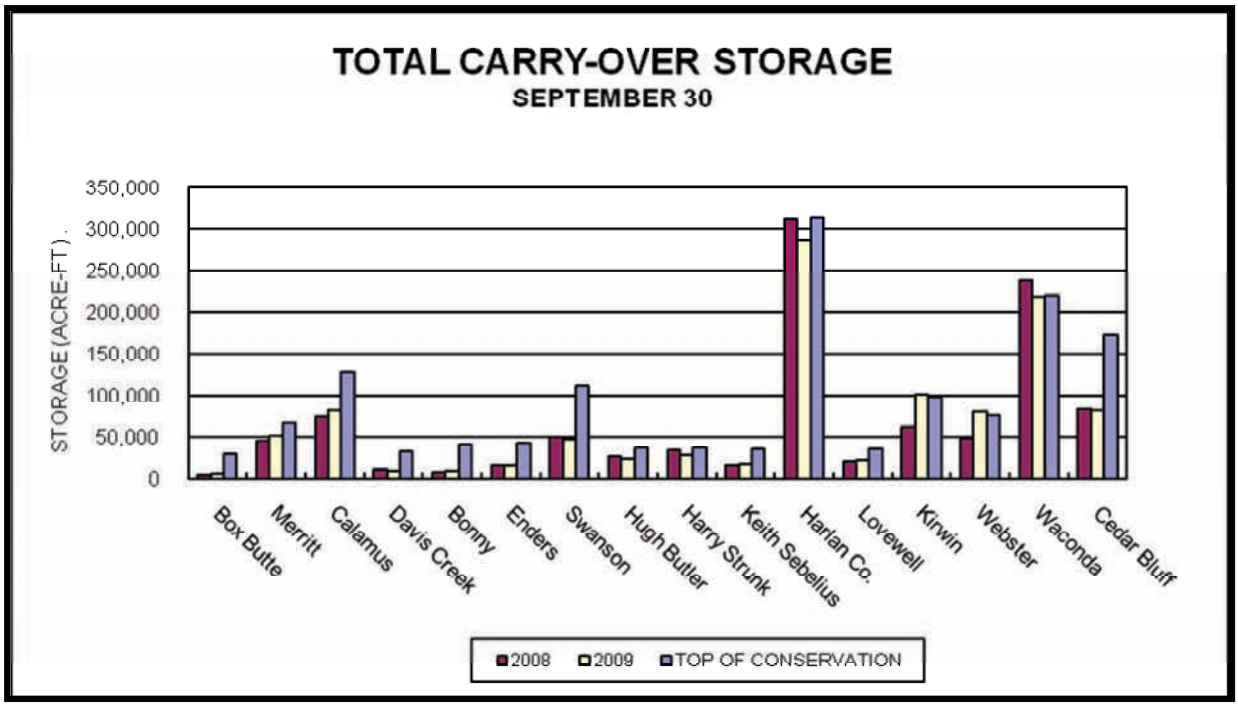
Precipitation during November averaged only 45 percent of normal over the projects with Davis Creek Dam recording zero precipitation in November. December precipitation was above normal. Temperatures were above normal in November and below normal in December.

Storage Reservoirs

1. Conservation Operations. The 2009 inflow was above the dry-year forecast at all project reservoirs. Box Butte, Bonny, Enders, Merritt, Davis Creek, Lovewell, and Cedar Bluff Reservoirs, and Hugh Butler and Keith Sebelius Lakes had inflows between the dry- and normal-year forecasts. Calamus, Kirwin, and Webster Reservoirs along with Swanson, Harry Strunk, Waconda, and Harlan County Lakes had inflows between the normal- and wet-year forecasts. No reservoirs had inflows above the wet-year forecast.

Ten of the 16 project reservoirs had below average carry-over storage from the 2008 water year. Reservoir releases were made from Merritt, Virginia Smith, Medicine Creek, Harlan County, Lovewell, Kirwin, Webster, and Glen Elder Dams to maintain or reduce reservoir levels prior to the 2009 irrigation season. Just 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. Harry Strunk, Harlan County, Waconda Lakes, and Lovewell, Kirwin, and Webster Reservoirs had some flood storage occupied prior to the irrigation season. The irrigation demand months of July and August did little to reduce storage in those project reservoirs that had storage available for full irrigation as inflows maintained reservoir pools. Precipitation during July and August helped in reducing the demands on project reservoirs. Reservoir storage was below normal at eight project reservoirs at the end of 2009.

The following summarized graph shows a comparison of 2008 and 2009 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, Waconda Lakes, and Lovewell, Kirwin, and Webster Reservoirs utilized flood pool storage and made flood releases in 2009. The water year 2009 flood damages prevented by the operation of Reclamation's Nebraska-Kansas Projects facilities was $10,253,700 as determined by the Corps of Engineers. An additional benefit of $4,131,500 was credited to Harlan County Lake. The accumulative total of flood control benefits for the years 1951 through 2009 by facilities in this report total $1,946,542,200 (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 Nebraska-Kansas Projects facilities can be found in Table 7.

Water Service

There was 342,836 acre-feet (AF) of water diverted to irrigate approximately 210,545 acres of project lands in the 12 irrigation districts (see Tables 3 and 6). The project water supply was either inadequate or limited for 84,302 acres of the total project lands. This includes lands in Mirage Flats, Frenchman Valley, H&RW, Frenchman-Cambridge, and Almena Irrigation Districts. The project water supplies for the other units mentioned in this report were more than adequate in 2009.

The water requirements of three municipalities, one rural water district, and two fish hatchery facilities were furnished from storage releases or natural flows.

Irrigation Production

The 2009 crop yields on lands receiving project water in the Nebraska-Kansas Projects were higher than 2008. The average corn yield, the principal crop of all reporting districts, was 201 bushels per acre. This was approximately 22 bushels per acre more than in 2008. The start of irrigation releases from project reservoirs varied considerably depending on May rainfall amounts and storage water available. Above normal rainfall was experienced during much of the growing season with near normal temperatures. August was generally cooler than normal. Crop maturity progressed slower than normal during the growing season. Most irrigation districts had finished making irrigation releases by mid September. Only one canal did not divert water in 2009 as a result of short water supplies. All irrigation districts had finished delivering water by the end of September with corn harvest delayed until early winter due to an extremely wet October.

Fish and Wildlife and Recreation Benefits

The National Recreational Fisheries Policy declares that the Government's vested stewardship responsibilities must work in concert with the state managing agency's recreational fisheries constituency and the general public to conserve, restore, and enhance recreational fisheries and their habitats. The Nebraska-Kansas Area Office is available for meetings if requested with Nebraska, Colorado, and Kansas state management agencies to discuss the Annual Operating Plans (AOP). Information is solicited that will allow Reclamation the flexibility to enhance fisheries resources while still meeting contractual obligations with the various irrigation districts.

During the 2009 season, normal reservoir operations were favorable for recreation and fish and wildlife uses at project reservoirs with full or nearly full conservation pool levels. Higher water levels during 2009 were experienced at most reservoirs in the Kansas River Basin providing increased recreation benefits. Higher than normal inflows prevented summer drawdown from irrigation releases and thus did not allow for some late summer shoreline re-vegetation. Increased water levels did however submerge existing shoreline vegetation.

The Calamus Fish Hatchery is located below Virginia Smith Dam and Calamus Reservoir. The hatchery consists of an office/visitor center, laboratory, two residences, a shop and feed storage building, 51 rearing ponds lined with VLDPE and covering 45.5 acres, 24 concrete raceways, two lined effluent ponds, eight groundwater wells, a 36-inch diameter buried pipeline from Virginia Smith Dam, a groundwater degassing tank, and a computerized monitoring and alarm system. The hatchery is operated and maintained by the Nebraska Game and Parks Commission (Commission) and produces approximately 53 million fish per year. The water supply is provided by natural flows passed through Virginia Smith Dam and from Calamus Reservoir storage through an agreement dated July 28, 1988, between the Commission and the Twin Loups Reclamation District.

In 2009, the Frenchman Valley Irrigation District (along with Reclamation) again provided support for a Limited Irrigation Demonstration Project with the University of Nebraska Extension Service.

## 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 16,855acres; Red Willow Canal to 4,797acres; 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.

### 2009 Summary

The annual precipitation total of 27.75 inches at Trenton Dam was 136 percent of normal. The inflow of 37,749 AF to Swanson Lake was slightly above the normal-year forecast. The lake level began the year at elevation 2737.16feet and peaked at 2742.04 feet (10 feet below the top of conservation) on June 17. The reservoir level decreased during the irrigation season and reached a minimum elevation of 2735.58 feet on October 13.

Irrigation diversions were made into Meeker-Driftwood Canal for the first time since 2002. The district diverted 23,274 AF from June 8 through August 28 and delivered 5,603 AF to the farms. At the end of the year the reservoir level was 13.8 feet below the top of conservation at 2738.17 feet. The Corps of Engineers determined that Swanson Lake prevented $4,055,000 in flood damages.

The annual precipitation total of 23.96 inches at Red Willow Dam was 122 percent of normal. The annual inflow of 13,279 AF into Hugh Butler Lake was between the dry-year and normal-year forecasts. The reservoir level at the first of the year was 2575.27 feet, 6.5 feet below the top of conservation. The reservoir level peaked at 2577.18 feet (4.6 feet below full) on June 26. Irrigation releases began on June 28 and ended on August 27 dropping the pool level 4.1 feet. The district diverted 5,166 AF into Red Willow Canal and 10,711 AF into Bartley Canal. Flood releases were not required in 2009. October precipitation totaled 4.86 inches, the greatest October total recorded at the site. Discovery of embankment cracking at Red Willow Dam in late October resulted in the evacuation of 21,000 AF from Hugh Butler Lake. The end of year storage at Hugh Butler Lake was the lowest end of December storage ever recorded at the site (elevation 2554.07 feet), 27.7 feet below the top of conservation. The Corps of Engineers determined that Hugh Butler Lake prevented $1,300 of flood damages during 2009.

The annual precipitation total of 28.90 inches at Medicine Creek Dam was 140 percent of normal and the second highest ever recorded at the dam. The inflow of 42,805 AF was between the normal-year and wet-year forecasts. The reservoir level at the beginning of 2009 was only .8 foot below the top of conservation. Releases were made during the first 4 months of 2009 to maintain the reservoir elevation approximately .5 foot below the flood pool. The reservoir was allowed to fill on April 26 and the reservoir level gradually increased to elevation 2367.27 feet (1.2 feet into flood pool) on June 16. Irrigation releases began on June 23 and ran through September 4 reducing the reservoir level to 2360.22 feet. The district diverted 23,961 AF into Cambridge Canal. Medicine Creek Dam recorded 5.34 inches of precipitation during October, the most ever recorded for the month. Late fall and early winter inflows increased the level of Harry Strunk Lake to only 0.5 foot below the top of conservation at the end of the year (2365.54 feet). The Corps of Engineers determined that Harry Strunk Lake prevented $4,900 in flood damages.

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 remains in effect. Grouting of the underdrain system was scheduled for the fall of 2009. On October 21, 2009, a small hole was observed on the face of the downstream embankment in a location 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 Dam Safety decision document was signed calling for a reduction of the reservoir water surface elevation to a range within 2552 to 2554 feet msl. A release of 100 cfs was initiated through the outlet works on October 30, 2009. The release was increased each morning by 50 cfs through November 4, 2009. The release from Red Willow Dam peaked at 350 cfs and was maintained through November 23, 2009, when the release was reduced to 200 cfs.

The release was further reduced to 150cfs on November 25, 2009,to 100cfs on December 2, 2009, and to 65 cfs on December 4, 2009. Hugh Butler Lake reached a new historical low reservoir level on November 23, 2009, since the initial filling of the reservoir and continued to decrease reaching elevation 2554.07 feet by the end of December. Releases will continue as necessary to maintain the reservoir level within the operating level of 2552.00 to 2554.00 feet until permanent corrective actions are made to the dam.

In 2008,the district began making water measurement improvement upgrades on Meeker, Red Willow, and Cambridge Canals, including improving farm turnouts, lateral turnouts, and canal measurement structures. Reclamation provided financial assistance for this project through a cooperative agreement with the district.

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.

2009 Summary

The annual precipitation at Norton Dam totaled 32.01inches, which is 131 percent of normal. The total inflow of 7,452 AF was slightly below the normal-year forecast. The reservoir was 10.4 feet below the top of conservation pool at the first of the year. The reservoir level gradually increased peaking at 2294.85 feet on June 16. Irrigation releases were made during July reducing the lake level by .75 feet. The lake level ended the year at elevation 2294.64 feet (9.7 feet below the top of conservation). The Corps of Engineers determined that Keith Sebelius Lake prevented $1,000in flood damages.

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.

At the request of the state of Nebraska, releases of 30 cfs for a maximum 5-day period may be made to relieve icing conditions in the river.

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" is to be 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.

2009 Summary - Bostwick Division - Harlan County Lake Operations

The annual precipitation at Harlan County Dam totaled 24.50 inches of rainfall, which is 108 percent of normal. The 2009 inflow of 136,747 AF was between the normal- and wet-year forecasts. Harlan County Lake began 2009 approximately .4 foot above the top of conservation pool, at 1946.12 feet. Flood releases were made during the first 3 months of the year. The reservoir level increased gradually during the spring peaking at 1947.46 feet on June 21. Irrigation releases started in mid June and continued through early September. The lake level decreased to elevation 1943.57 feet on September 30. Lake levels increased through the fall and flood releases began on December 29 to maintain the pool level near the top of conservation. A 10 cfs river release was made throughout December as required. The reservoir elevation was 1946.19 feet (0.5 foot in the flood pool) on December 31, 2009. Harlan County Lake prevented $4,131,500 of downstream flood damages during 2009 according to the Corps of Engineers.

A total of 17,608 AF (approximately 42 percent of total inflow) was delivered to Lovewell Reservoir through the Courtland Canal.

2009 Summary - Bostwick Division - Nebraska

Irrigation diversions were made into Franklin, Naponee, Franklin Pump, Superior, and Courtland Canals in Nebraska in 2009. The district diverted 27,813 AF of water and delivered 10,855 AF to the farm headgates (39 percent delivery efficiency).

The district continued to replace open ditch laterals with buried pipe to reduce losses and improve system operations. In 2009, the district was selected for a Water for America Challenge Grant that is slated to replace approximately 4 miles of open ditch laterals with buried pipe. Indentified laterals on the Franklin Canal include: 16.3, 21.1, 21.6, 23.2, 24.0, and a portion of 30.9. These pipe projects provide delivery system improvements by eliminating seepage losses, eliminating operational wasteways, improve water measurement, accounting by utilizing water meters, and provide on-farm benefits by allowing land owners the opportunity to convert to sprinkler irrigation.

2009 Summary - Bostwick Division - Kansas

The 2009 precipitation at Lovewell Dam totaled 21.33 inches, which was 78 percent of normal. The reservoir elevation at the beginning of 2009 was 1581.13 feet (1.5 feet below the top of conservation pool). The pool level gradually increased, filling the conservation capacity on March 4 (1582.6 feet). Flood releases were initiated and continued into April to maintain the reservoir level near the top of conservation. The pool level gradually increased during May peaking at 1583.48 feet on June 5. Irrigation releases to the canal began on May 18 and continued through September 12, dropping the reservoir level 7.5 feet.

Water was then diverted into Lovewell Reservoir via Courtland Canal through early November. The reservoir level at the end of the year was 1579.26 feet (3.34 feet below top of conservation). Lovewell Reservoir prevented $163,200of downstream flood damages during 2009 according to the Corps of Engineers.

The Kansas-Bostwick Irrigation District diverted a total of 54,464 AF to serve 10,346 acres above Lovewell Dam and 26,017 acres below Lovewell Dam. Farm delivery efficiency averaged 42percent in the district.

In 2007, the Kansas Bostwick Irrigation District No. 2 was awarded a Water 2025 Challenge Grant that allowed the district to replace approximately 9 miles of open ditch lateral with buried pipe. The district completed this project during 2009.

TABLE 1

RESERVOIR DATA - NIOBRARA, LOWER PLATTE AND KANSAS RIVER BASINS

| RESERVOIR | | DEAD | CAPACITY ALLOCATIONS 1/ LIVE CONSERVATION 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 | - Elevation Ft. | 2185.0 | 2213.3 | 2244.0 | --- |
| | Total Acre-feet | 817 | 24,646 | 127,400 | --- |
| | Net Acre-feet | 817 | 23,829 | 102,754 | --- |
| 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 | 1,418 | 2,134 | 41,340 | 170,160 |
| | Net Acre-feet | 1,418 | 716 | 39,206 | 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 | Total Acre-feet | 2,118 | 12,430 | 112,214 | 246,291 |
| | Net Acre-feet | 2,118 | 10,312 | 99,784 | 134,077 |
| 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 | 1,674 | 11,644 | 35,666 | 86,131 |
| | Net Acre-feet | 1,674 | 9,970 | 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.) | | 35,685 | 273,495 | 1,472,250 | 3,829,817 2/ |
| Total Net Acre-feet | | 35,685 | 237,810 | 1,198,755 | 2,357,567 |

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.

TABLE 2
SUMMARY OF 2009 OPERATIONS

FRENCHMAN-CAMBRIDGE DIVISION
FRENCHMAN UNIT

| | ENDERS RESERVOIR | | | | | CULBERTSON CANAL | | CULBERTSON EXT.CANAL | |
|---|---|---|---|---|---|---|---|---|---|
| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | Diversions To Canal (AF) | Delivered To Farms (AF) | Diversions To Canal (AF) | Delivered To Farms (AF) |
| Jan. | 436 | 307 | 67 | 0.27 | 15,430 | 0 | 0 | 0 | 0 |
| Feb. | 510 | 278 | 80 | 0.95 | 15,582 | 0 | 0 | 0 | 0 |
| Mar. | 420 | 307 | 131 | 0.31 | 15,564 | 0 | 0 | 0 | 0 |
| Apr. | 886 | 298 | 282 | 4.03 | 15,870 | 718 | 0 | 0 | 0 |
| May | 795 | 307 | 369 | 3.74 | 15,989 | 2,403 | 0 | 0 | 0 |
| June | 705 | 298 | 320 | 5.74 | 16,076 | 2,253 | 88 | 0 | 0 |
| July | 530 | 307 | 420 | 5.84 | 15,879 | 2,126 | 208 | 0 | 0 |
| Aug. | 224 | 307 | 384 | 2.28 | 15,412 | 1,759 | 197 | 0 | 0 |
| Sep. | 256 | 298 | 257 | 2.06 | 15,113 | 365 | 44 | 0 | 0 |
| Oct. | 688 | 307 | 126 | 3.70 | 15,368 | 0 | 0 | 0 | 0 |
| Nov. | 584 | 298 | 153 | 0.18 | 15,501 | 0 | 0 | 0 | 0 |
| Dec. | 542 | 307 | 74 | 0.59 | 15,662 | 0 | 0 | 0 | 0 |
| TOTAL | 6,577 | 3,620 | 2,663 | 29.69 | -- | 9,624 | 537 | 0 | 0 |

NOTE: Acres irrigated 2009: Culbertson Canal - 874 acres; Culbertson Extension Canal - 0 acres.

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
MEEKER-DRIFTWOOD UNIT

| | SWANSON LAKE | | | | | MEEKER-DRIFTWOOD | |
|---|---|---|---|---|---|---|---|
| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | Release To Canal (AF) | Delivered To Farms (AF) |
| Jan. | 1,811 | 61 | 248 | 0.16 | 53,491 | 0 | 0 |
| Feb. | 3,306 | 56 | 299 | 0.52 | 56,442 | 0 | 0 |
| Mar. | 2,822 | 61 | 499 | 0.05 | 58,704 | 0 | 0 |
| Apr. | 4,907 | 60 | 1,005 | 2.83 | 62,546 | 0 | 0 |
| May | 6,070 | 61 | 1,508 | 4.33 | 67,047 | 0 | 0 |
| June | 6,393 | 4,417 | 1,517 | 4.70 | 67,506 | 4,555 | 9 |
| July | 2,523 | 10,449 | 1,767 | 4.47 | 57,813 | 10,307 | 2,654 |
| Aug. | 631 | 8,600 | 1,457 | 2.31 | 48,387 | 8,412 | 2,940 |
| Sep. | 157 | 60 | 908 | 2.30 | 47,576 | 0 | 0 |
| Oct. | 2,346 | 61 | 403 | 4.64 | 49,458 | 0 | 0 |
| Nov. | 3,780 | 60 | 538 | 0.42 | 52,640 | 0 | 0 |
| Dec. | 3,001 | 61 | 266 | 0.52 | 55,314 | 0 | 0 |
| TOTAL | 37,749 | 24,009 | 10,415 | 27.25 | -- | 23,274 | 5,603 |

NOTE: Acres irrigated 2009: Meeker-Driftwood Canal - 12,714 acres.

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
RED WILLOW UNIT

| | HUGH BUTLER LAKE | | | | | RED WILLOW CANAL | | BARTLEY CANAL | |
|---|---|---|---|---|---|---|---|---|---|
| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | Diversions To Canal (AF) | Delivered To Farms (AF) | Diversions To Canal (AF) | Delivered To Farms (AF) |
| Jan. | 683 | 246 | 94 | 0.16 | 26,794 | 0 | 0 | 0 | 0 |
| Feb. | 823 | 222 | 117 | 0.35 | 27,278 | 0 | 0 | 0 | 0 |
| Mar. | 662 | 246 | 193 | 0.07 | 27,501 | 0 | 0 | 0 | 0 |
| Apr. | 1,496 | 238 | 440 | 2.99 | 28,319 | 0 | 0 | 1,254 | 0 |
| May | 1,298 | 246 | 594 | 3.39 | 28,777 | 0 | 0 | 2,723 | 16 |
| June | 1,074 | 347 | 563 | 3.87 | 28,941 | 55 | 0 | 2,193 | 197 |
| July | 862 | 3,043 | 716 | 4.26 | 26,044 | 2,951 | 520 | 2,246 | 725 |
| Aug. | 843 | 2,868 | 643 | 2.05 | 23,376 | 2,160 | 736 | 2,295 | 1,150 |
| Sep. | 518 | 238 | 368 | 1.42 | 23,288 | 0 | 0 | 0 | 0 |
| Oct. | 1,352 | 357 | 236 | 4.86 | 24,047 | 0 | 0 | 0 | 0 |
| Nov. | 2,121 | 17,257 | 160 | 0.27 | 8,751 | 0 | 0 | 0 | 0 |
| Dec. | 1,548 | 3,894 | 48 | 0.27 | 6,357 | 0 | 0 | 0 | 0 |
| TOTAL | 13,279 | 29,201 | 4,172 | 23.96 | -- | 5,166 | 1,256 | 10,711 | 2,088 |

NOTE -- Acres irrigated 2009: Red Willow Canal - 2,962 acres; Bartley Canal 5,865 acres.

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
CAMBRIDGE UNIT

| | HARRY STRUNK LAKE | | | | | CAMBRIDGE CANAL | |
|---|---|---|---|---|---|---|---|
| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | Diversions To Canal (AF) | Delivered To Farms (AF) |
| Jan. | 3,260 | 2,767 | 121 | 0.19 | 33,523 | 0 | 0 |
| Feb. | 3,294 | 2,717 | 146 | 0.57 | 33,954 | 0 | 0 |
| Mar. | 3,517 | 3,382 | 243 | 0.07 | 33,846 | 0 | 0 |
| Apr. | 4,293 | 2,340 | 616 | 3.35 | 35,183 | 0 | 0 |
| May | 4,252 | 2,179 | 769 | 4.49 | 36,487 | 1,489 | 0 |
| June | 4,056 | 3,959 | 725 | 3.34 | 35,859 | 5,702 | 880 |
| July | 4,054 | 6,563 | 879 | 5.12 | 32,471 | 7,171 | 3,223 |
| Aug. | 3,473 | 9,001 | 806 | 3.79 | 26,137 | 8,572 | 4,108 |
| Sep. | 2,576 | 1,139 | 374 | 1.73 | 27,200 | 1,027 | 635 |
| Oct. | 3,747 | 62 | 223 | 5.34 | 30,662 | 0 | 0 |
| Nov. | 3,351 | 60 | 269 | 0.20 | 33,684 | 0 | 0 |
| Dec. | 2,933 | 2,864 | 123 | 0.71 | 33,630 | 0 | 0 |
| TOTAL | 42,805 | 37,032 | 5,294 | 28.90 | -- | 23,961 | 8,846 |

NOTE -- Acres irrigated 2009: Cambridge Canal 15,964 acres.

TABLE 2
SUMMARY OF 2009 OPERATIONS

KANASKA DIVISION
ALMENA UNIT

| | KEITH SEBELIUS LAKE | | | | | | ALMENA CANAL | |
|---|---|---|---|---|---|---|---|---|
| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | Release To City Of Norton (AF) | Diversions To Canal (AF) | Delivered To Farms (AF) |
| Jan. | 376 | 54 | 92 | 0.12 | 16,543 | 23 | 0 | 0 |
| Feb. | 354 | 48 | 115 | 0.37 | 16,734 | 20 | 0 | 0 |
| Mar. | 344 | 53 | 195 | 0.02 | 16,830 | 22 | 0 | 0 |
| Apr. | 959 | 53 | 476 | 3.33 | 17,260 | 23 | 0 | 0 |
| May | 1,032 | 69 | 682 | 3.81 | 17,541 | 38 | 0 | 0 |
| June | 705 | 73 | 652 | 2.46 | 17,521 | 43 | 218 | 0 |
| July | 694 | 1,037 | 757 | 5.36 | 16,421 | 41 | 1,099 | 300 |
| Aug. | 938 | 79 | 696 | 7.07 | 16,584 | 48 | 234 | 0 |
| Sep. | 204 | 87 | 428 | 2.19 | 16,273 | 57 | 0 | 0 |
| Oct. | 800 | 53 | 245 | 5.92 | 16,775 | 22 | 0 | 0 |
| Nov. | 495 | 49 | 225 | 0.15 | 16,996 | 19 | 0 | 0 |
| Dec. | 552 | 51 | 111 | 1.21 | 17,386 | 20 | 0 | 0 |
| TOTAL | 7,452 | 1,705 | 4,674 | 32.01 | -- | 376 | 1,551 | 300 |

NOTE: Acres irrigated 2009: Almena Canal - 1,100 acres.

BOSTWICK DIVISION
FRANKLIN UNIT

| | HARLAN COUNTY LAKE Data from Corps of Engineers | | | | | FRANKLIN CANAL | | NAPONEE CANAL | |
|---|---|---|---|---|---|---|---|---|---|
| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | Release To Canal (AF) | Delivered To Farms (AF) | Release To Canal (AF) | Delivered To Farms (AF) |
| Jan. | 7,617 | 7,553 | 876 | 0.14 | 318,499 | 0 | 0 | 0 | 0 |
| Feb. | 9,352 | 7,323 | 947 | 0.28 | 319,581 | 0 | 0 | 0 | 0 |
| Mar. | 12,020 | 9,094 | 1,437 | 0.00 | 321,070 | 0 | 0 | 0 | 0 |
| Apr. | 12,714 | 0 | 3,785 | 1.71 | 329,999 | 0 | 0 | 0 | 0 |
| May | 12,803 | 4,263 | 5,249 | 4.16 | 333,290 | 0 | 0 | 0 | 0 |
| June | 10,859 | 11,437 | 3,795 | 2.59 | 328,917 | 2,805 | 517 | 74 | 10 |
| July | 13,190 | 23,685 | 6,163 | 6.89 | 312,259 | 9,618 | 2,818 | 421 | 94 |
| Aug. | 7,656 | 22,364 | 6,608 | 3.79 | 290,943 | 9,979 | 3,571 | 538 | 115 |
| Sep. | 1,904 | 2,442 | 4,238 | 0.43 | 286,167 | 844 | 321 | 62 | 27 |
| Oct. | 10,721 | 0 | 4,415 | 3.58 | 292,473 | 0 | 0 | 0 | 0 |
| Nov. | 21,846 | 4,927 | 2,958 | 0.02 | 306,434 | 0 | 0 | 0 | 0 |
| Dec. | 16,066 | 992 | 1,250 | 0.91 | 320,258 | 0 | 0 | 0 | 0 |
| TOTAL | 136,747 | 94,079 | 41,721 | 24.50 | -- | 23,246 | 7,227 | 1,095 | 246 |

NOTE: Acres irrigated 2009: Franklin Canal - 10,920 acres; Naponee Canal - 1,650 acres.

BOSTWICK DIVISION (Continued)
SUPERIOR-COURTLAND UNIT

| | FRANKLIN PUMP CANAL | | SUPERIOR CANAL | | | COURTLAND CANAL - ABOVE LOVEWELL NEBRASKA USE | | COURTLAND CANAL - ABOVE LOVEWELL KANSAS USE | |
|---|---|---|---|---|---|---|---|---|---|
| Month | Diverted To Canal (AF) | Delivered To Farms (AF) | Diverted To Canal (AF) | Delivered To Farms (AF) | Total Diversion (AF) | Total (AF) | Delivered To Farms (AF) | Diversion To Canal (AF) | Delivered To Farms (AF) |
| Jan. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Feb. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mar. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apr. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| May | 0 | 0 | 0 | 0 | 3,168 | 0 | 0 | 0 | 0 |
| June | 214 | 66 | 536 | 17 | 10,794 | 98 | 85 | 4,905 | 315 |
| July | 371 | 99 | 2,550 | 989 | 13,676 | 343 | 297 | 6,563 | 2,611 |
| Aug. | 324 | 85 | 3,021 | 1,446 | 13,376 | 277 | 227 | 6,700 | 3,002 |
| Sep. | 0 | 0 | 229 | 71 | 5,161 | 0 | 0 | 665 | 190 |
| Oct. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nov. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dec. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 909 | 250 | 6,336 | 2,523 | 46,175 | 718 | 609 | 18,833 | 6,118 |

NOTE: Acres irrigated 2009: Franklin Pump Canal - 2,090 acres; Superior Canal - 5,848 acres.
Courtland Canal-Nebraska use - 1,946 acres.
Courtland Canal-Kansas use - 10,346 acres.

BOSTWICK DIVISION (Continued)
COURTLAND UNIT
LOVEWELL RESERVOIR

| | Est. Flow from White Rock Creek (AF) | Inflow from Courtland 34.8 (AF) | Total Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | COURTLAND (Below) Release To Canal (AF) | COURTLAND (Below) Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 2,391 | 0 | 2,391 | 0 | 160 | 0.08 | 33,669 | 0 | 0 |
| Feb. | 2,165 | 0 | 2,165 | 11 | 217 | 0.36 | 35,606 | 0 | 0 |
| Mar. | 1,048 | 0 | 1,048 | 2,374 | 379 | 0.06 | 33,901 | 0 | 0 |
| Apr. | 1,983 | 0 | 1,983 | 1,052 | 757 | 2.91 | 34,075 | 0 | 0 |
| May | 5,217 | 288 | 5,505 | 601 | 1,185 | 0.64 | 37,794 | 728 | 0 |
| June | 2,904 | 2,571 | 5,475 | 5,338 | 1,332 | 3.20 | 36,599 | 5,850 | 888 |
| July | 2,588 | 4,169 | 6,757 | 13,806 | 1,295 | 4.99 | 28,255 | 13,772 | 7,343 |
| Aug. | 2,189 | 3,846 | 6,035 | 13,877 | 992 | 3.24 | 19,421 | 13,710 | 8,020 |
| Sep. | 1,061 | 2,781 | 3,842 | 1,704 | 498 | 1.78 | 21,061 | 1,571 | 562 |
| Oct. | 975 | 3,353 | 4,328 | 12 | 367 | 2.32 | 25,010 | 0 | 0 |
| Nov. | 779 | 600 | 1,379 | 12 | 369 | 0.48 | 26,008 | 0 | 0 |
| Dec. | 698 | 0 | 698 | 12 | 166 | 1.27 | 26,528 | 0 | 0 |
| TOTAL | 23,998 | 17,608 | 41,606 | 38,798 | 7,717 | 21.33 | -- | 35,631 | 16,813 |

NOTE: Acres irrigated 2009: Courtland Canal below Lovewell 26,017 acres.

**TABLE 3**

**ACRES IRRIGATED IN 2009**

| Irrigation District and Canal | Acres With Service Available | Acres Irrigated in 2009 |
|---|---|---|
| Mirage Flats Irrigation District | | |
| Mirage Flats Canal | 11,662 | 5,755 |
| Ainsworth Irrigation District | | |
| Ainsworth Canal | 35,000 | 34,582 |
| Twin Loups Irrigation District | | |
| Above Davis Creek | 34,053 | 33,999 |
| Below Davis Creek | 21,063 | 20,922 |
| Total Twin Loups Irrigation District | 55,116 | 54,921 |
| Frenchman Valley Irrigation District | | |
| Culbertson Canal | 9,292 | 874 |
| H & RW Irrigation District | | |
| Culbertson Extension Canal | 11,915 | 0 |
| Frenchman-Cambridge Irrigation District | | |
| Meeker-Driftwood Canal | 16,855 | 12,714 |
| Red Willow Canal | 4,797 | 2,962 |
| Bartley Canal | 6,353 | 5,865 |
| Cambridge Canal | 17,664 | 15,964 |
| Total Frenchman-Cambridge Irrigation District | 45,669 | 37,505 |
| Almena Irrigation District | | |
| Almena Canal | 5,764 | 1,100 |
| Bostwick Irrigation District in Nebraska | | |
| Franklin Canal | 10,920 | 10,920 |
| Naponee Canal | 1,650 | 1,650 |
| Franklin Pump Canal | 2,090 | 2,090 |
| Superior Canal | 5,848 | 5,848 |
| Courtland Canal (Nebraska) | 1,946 | 1,946 |
| Total Bostwick Irrigation Dist. in Nebraska | 22,454 | 22,454 |
| Kansas-Bostwick Irrigation District | | |
| Courtland Canal above Lovewell | 13,378 | 10,346 |
| Courtland Canal below Lovewell | 29,122 | 26,017 |
| Total Kansas-Bostwick Irrigation District | 42,500 | 36,363 |
| Kirwin Irrigation District | | |
| Kirwin Canal | 11,465 | 7,103 |
| Webster Irrigation District | | |
| Osborne Canal | 8,537 | 3,570 |
| Glen Elder Irrigation District | 10,370 | 6,318 |
| TOTAL PROJECT USES | 269,744 | 210,545 |
| Non-Project Uses | | |
| Hale Ditch | 700 | 0 |
| TOTAL PROJECT AND NON-PROJECT | 270,444 | 210,545 |

**TABLE 5**

**FLOOD DAMAGES PREVENTED BY NEBRASKA-KANSAS PROJECTS RESERVOIRS**

| RESERVOIR | DURING FY 2009 | PRIOR TO 2009 | ACCUMULATED TOTAL |
|---|---|---|---|
| BONNY | $3,400 | $2,802,300 | $2,805,700 |
| ENDERS | $1,300 | $3,564,300 | $3,565,600 |
| SWANSON | $4,055,000 | $23,046,900 | $27,101,900 |
| HUGH BUTLER | $1,300 | $3,016,600 | $3,017,900 |
| HARRY STRUNK | $4,900 | $10,190,700 | $10,195,600 |
| KEITH SEBELIUS | $1,000 | $3,989,700 | $3,990,700 |
| HARLAN COUNTY | $4,131,500 | $186,960,600 | $191,092,100 |
| LOVEWELL | $163,200 | $149,665,300 | $149,828,500 |
| KIRWIN | $27,400 | $87,018,000 | $87,045,400 |
| WEBSTER | $15,500 | $110,367,800 | $110,383,300 |
| WACONDA | $4,208,700 | $1,220,804,400 | $1,225,013,100 |
| CEDAR BLUFF | $1,772,000 | $130,730,400 | $132,502,400 |
| TOTAL | $14,385,200 | $1,932,157,000 | $1,946,542,200 |

Estimates of damages prevented are received from the Army Corps of Engineer's Kansas City District Office.
The Accumulated Totals date from 1951 through 2009. 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 2009

(Units - Acre-Feet)

| Irrigation District and Canal | 2009 Irrigation Operations From | To | 10-Year Average Diversion (1999-2008) | 2009 Diversion |
|---|---|---|---|---|
| Mirage Flats Irrigation District | | | | |
| Mirage Flats Canal | 7/15 | 8/29 | 10,416 | 8,262 |
| Ainsworth Irrigation District | | | | |
| Ainsworth Canal | 5/10 | 9/25 | 77,378 | 61,333 |
| Twin Loups Irrigation District | | | | |
| Above Davis Creek | 4/20 | 9/21 | 44,557 | 35,419 |
| Below Davis Creek | 5/5 | 9/25 | 41,095 | 41,996 |
| Total Twin Loups Irrigation District | | | 85,652 | 77,415 |
| Frenchman Valley Irrigation District | | | | |
| Culbertson Canal | 4/21 | 9/9 | 5,660 | 9,624 |
| H & RW Irrigation District | | | | |
| Culbertson Extension Canal | Did not run. | | 3,016 | 0 |
| Frenchman-Cambridge Irrigation District | | | | |
| Meeker-Driftwood Canal | 6/8 | 8/28 | 7,844 | 23,274 |
| Red Willow Canal | 6/30 | 8/28 | 2,678 | 5,166 |
| Bartley Canal | 4/13 | 8/29 | 3,115 | 10,711 |
| Cambridge Canal | 5/20 | 9/4 | 18,756 | 23,961 |
| Total Frenchman-Cambridge Irrigation District | | | 32,393 | 63,112 |
| Almena Irrigation District | | | | |
| Almena Canal | 6/3 | 8/3 | 2,605 | 1,551 |
| Bostwick Irrigation District in Nebraska | | | | |
| Franklin Canal | 6/23 | 9/4 | 15,537 | 23,246 |
| Naponee Canal | 6/29 | 9/4 | 1,438 | 1,095 |
| Franklin Pump Canal | 6/24 | 8/21 | 1,585 | 909 |
| Superior Canal | 6/23 | 9/4 | 8,066 | 6,336 |
| Courtland Canal (Nebraska) | 6/23 | 9/4 | 1,187 | 718 |
| Total Bostwick Irrigation District in Nebraska | | | 27,813 | 32,304 |
| Kansas-Bostwick Irrigation District | | | | |
| Courtland Canal above Lovewell | 6/10 | 9/11 | 17,755 | 18,833 |
| Courtland Canal below Lovewell | 5/18 | 9/12 | 39,074 | 35,631 |
| Total Kansas-Bostwick Irrigation District | | | 56,829 | 54,464 |
| Kirwin Irrigation District | | | | |
| Kirwin Canal | 6/10 | 8/26 | 12,902 | 18,329 |
| Webster Irrigation District | | | | |
| Osborne Canal | 4/14 | 8/26 | 7,328 | 14,289 |
| Glen Elder Irrigation District | 5/18 | 8/25 | 7,289 | 2,153 |
| TOTAL | | | 329,281 | 342,836 |

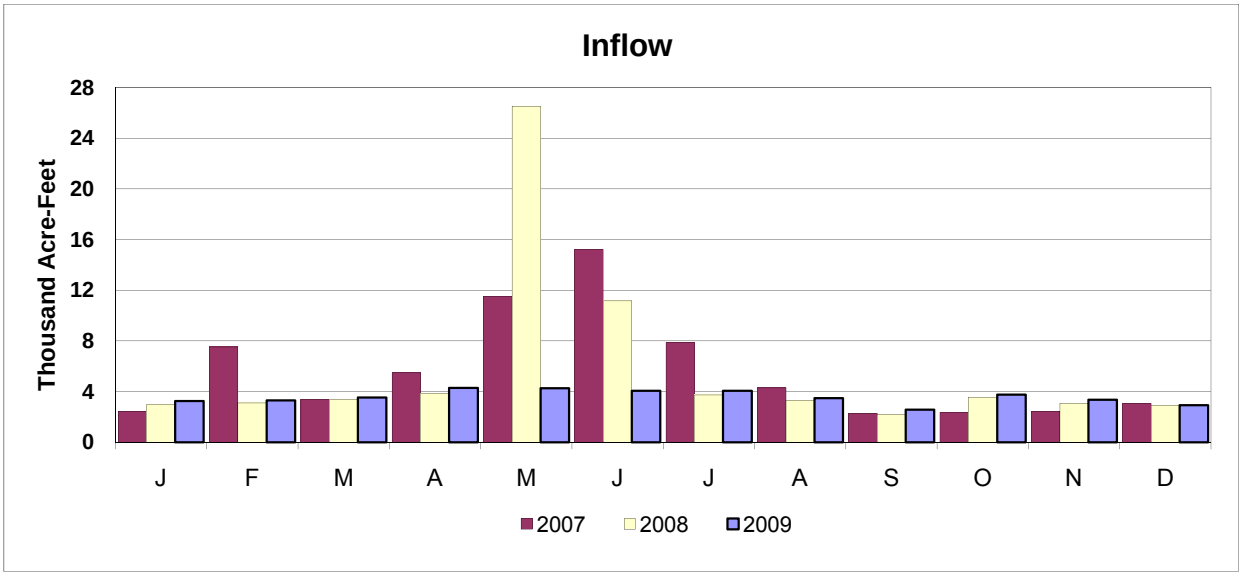
**TABLE 7**
**NEBRASKA-KANSAS PROJECTS**
**Summary of Precipitation, Reservoir Storage and Inflows**
**CALENDAR YEAR 2009**

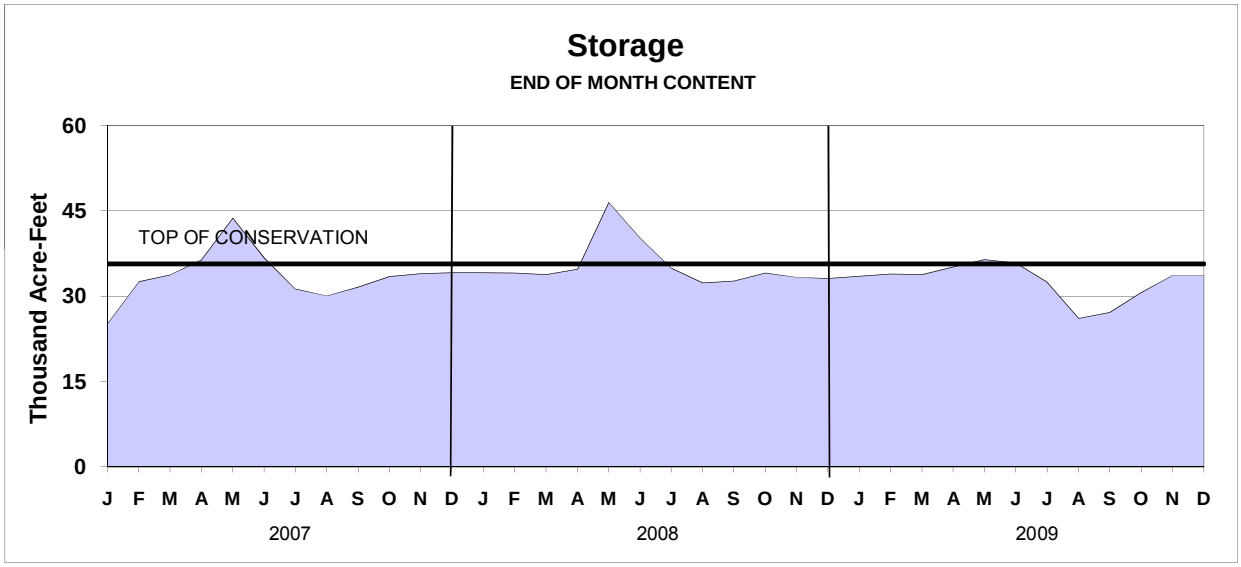
| Reservoir | Total Precip. Inches | Percent Of Average % | Storage 12-31-08 AF | Storage 12-31-09 AF | Gain or Loss AF | Maximum Content AF | Storage Date | Minimum Content AF | Storage Date | Total Inflow AF |
|---|---|---|---|---|---|---|---|---|---|---|
| Box Butte | 19.98 | 118 | 6,375 | 10,213 | 3,838 | 13,522 | JUL 14 | 6,076 | AUG 28 | 15,432 |
| Merritt | 28.14 | 137 | 61,100 | 61,100 | 0 | 67,602 | JUN 14 | 48,661 | SEP 19 | 182,155 |
| Calamus | 26.14 | 108 | 109,027 | 107,417 | -1,610 | 127,965 | APR 19 | 82,324 | SEP 20 | 278,685 |
| Davis Creek | 25.20 | 102 | 10,126 | 8,922 | -1,204 | 28,956 | JUL 7 | 8,734 | SEP 24 | 47,962 |
| Bonny | 26.56 | 155 | 9,276 | 10,220 | 944 | 11,860 | MAY 4 | 9,293 | JAN 1 | 11,698 |
| Enders | 29.69 | 156 | 15,368 | 15,662 | 294 | 16,200 | JUN 18 | 15,017 | OCT 8 | 6,577 |
| Swanson | 27.25 | 136 | 51,989 | 55,314 | 3,325 | 69,029 | JUN 17 | 46,987 | OCT 13 | 37,749 |
| Hugh Butler | 23.96 | 122 | 26,451 | 6,357 | -20,094 | 29,136 | JUN 26 | 6,327 | DEC 23 | 13,279 |
| Harry Strunk | 28.90 | 140 | 33,151 | 33,630 | 479 | 36,852 | JUN 17 | 25,375 | SEP 4 | 42,805 |
| Keith Sebelius | 32.01 | 131 | 16,313 | 17,386 | 1,073 | 17,682 | JUN 16 | 16,152 | OCT 5 | 7,452 |
| Harlan County | 24.50 | 108 | 319,311 | 320,258 | 947 | 337,577 | JUN 21 | 285,161 | OCT 5 | 136,747 |
| Lovewell | 21.33 | 78 | 31,438 | 26,528 | -4,910 | 38,354 | JUN 5 | 18,853 | SEP 4 | 41,606 |
| Kirwin | 27.86 | 118 | 88,425 | 98,662 | 10,237 | 117,565 | JUN 17 | 88,615 | JAN 1 | 78,204 |
| Webster | 23.50 | 99 | 68,885 | 78,514 | 9,629 | 93,666 | JUN 17 | 69,063 | JAN 1 | 61,300 |
| Waconda | 22.05 | 86 | 206,420 | 213,790 | 7,370 | 229,378 | JUN 18 | 200,541 | FEB 23 | 222,698 |
| Cedar Bluff | 23.22 | 111 | 83,542 | 83,699 | 157 | 83,895 | MAY 8 | 79,327 | SEP 7 | 14,391 |

EXHIBIT 9A

# HARRY STRUNK LAKE

## ACTUAL OPERATION



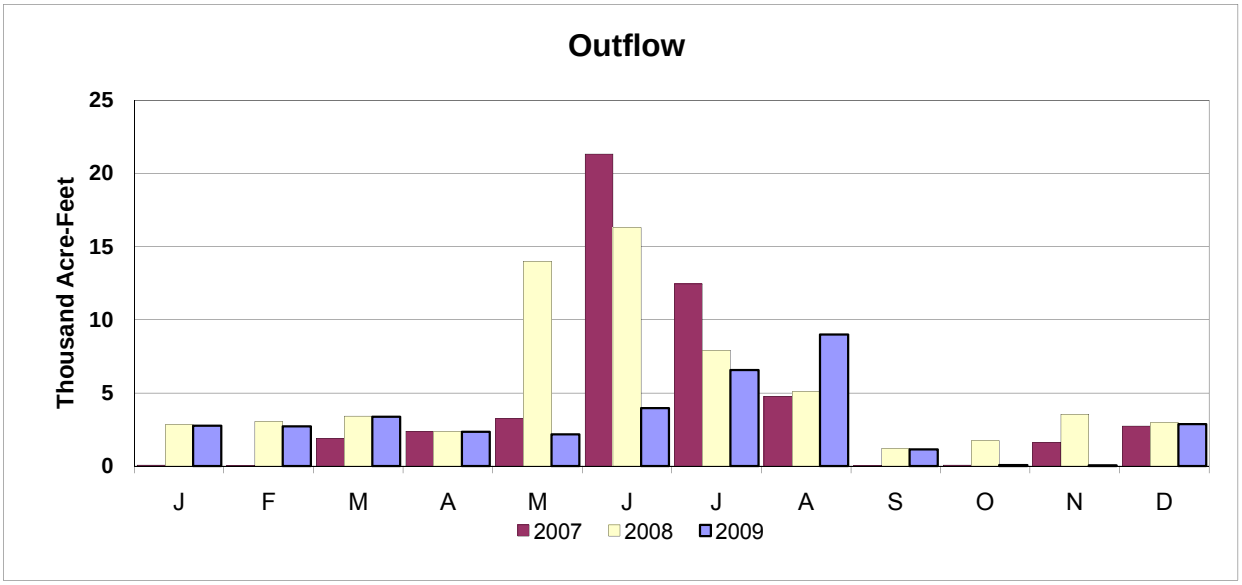
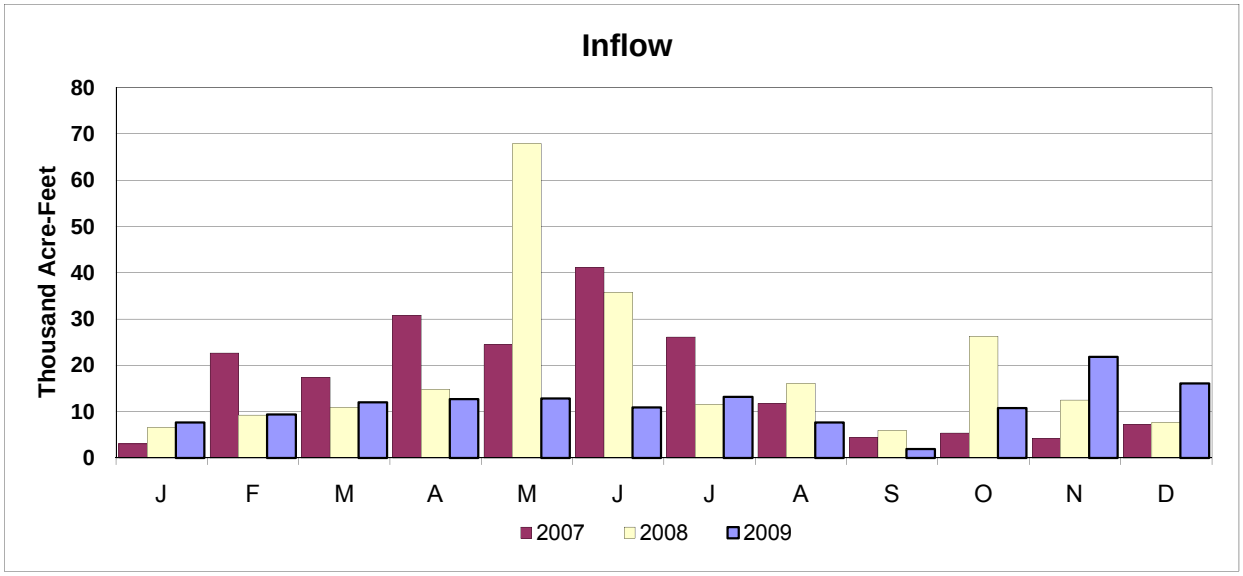
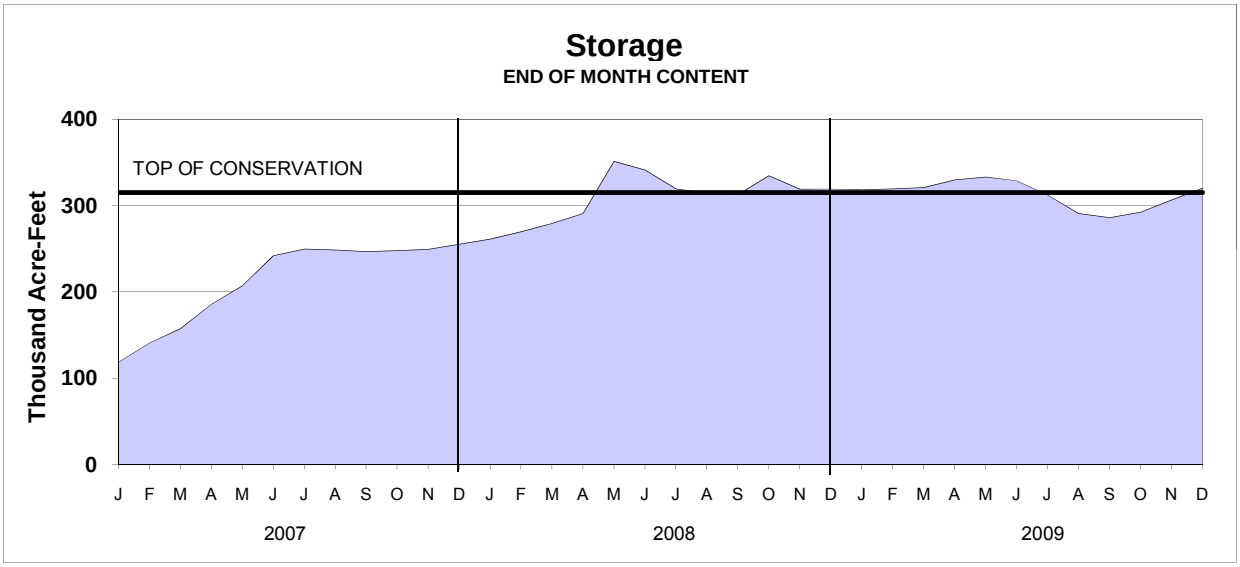



EXHIBIT 11A

# HARLAN COUNTY LAKE

## ACTUAL OPERATION



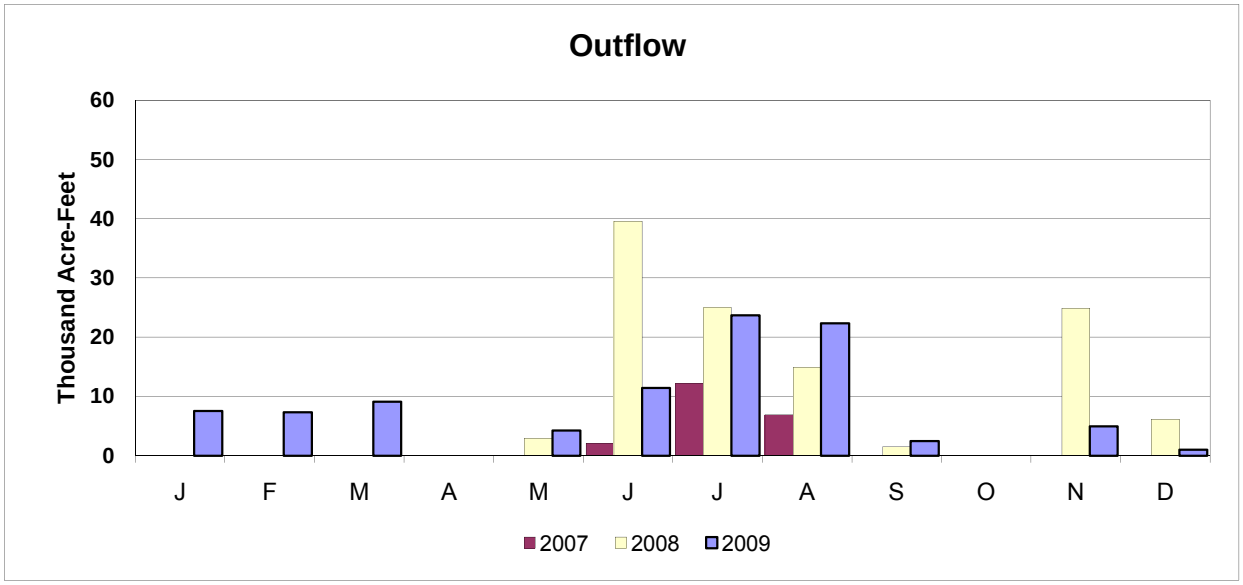
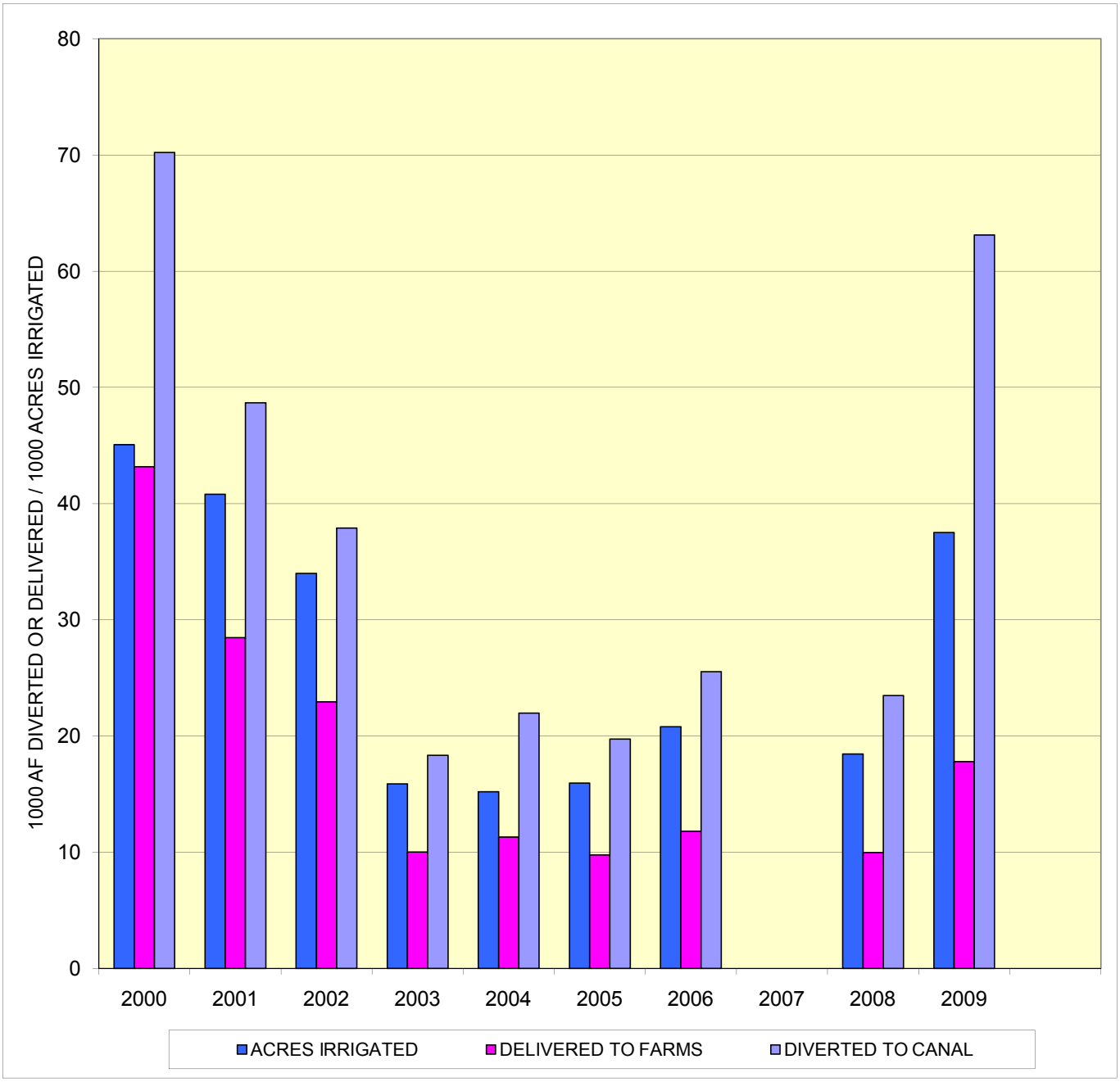



EXHIBIT 22

# FRENCHMAN-CAMBRIDGE IRRIGATION DISTRICT

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

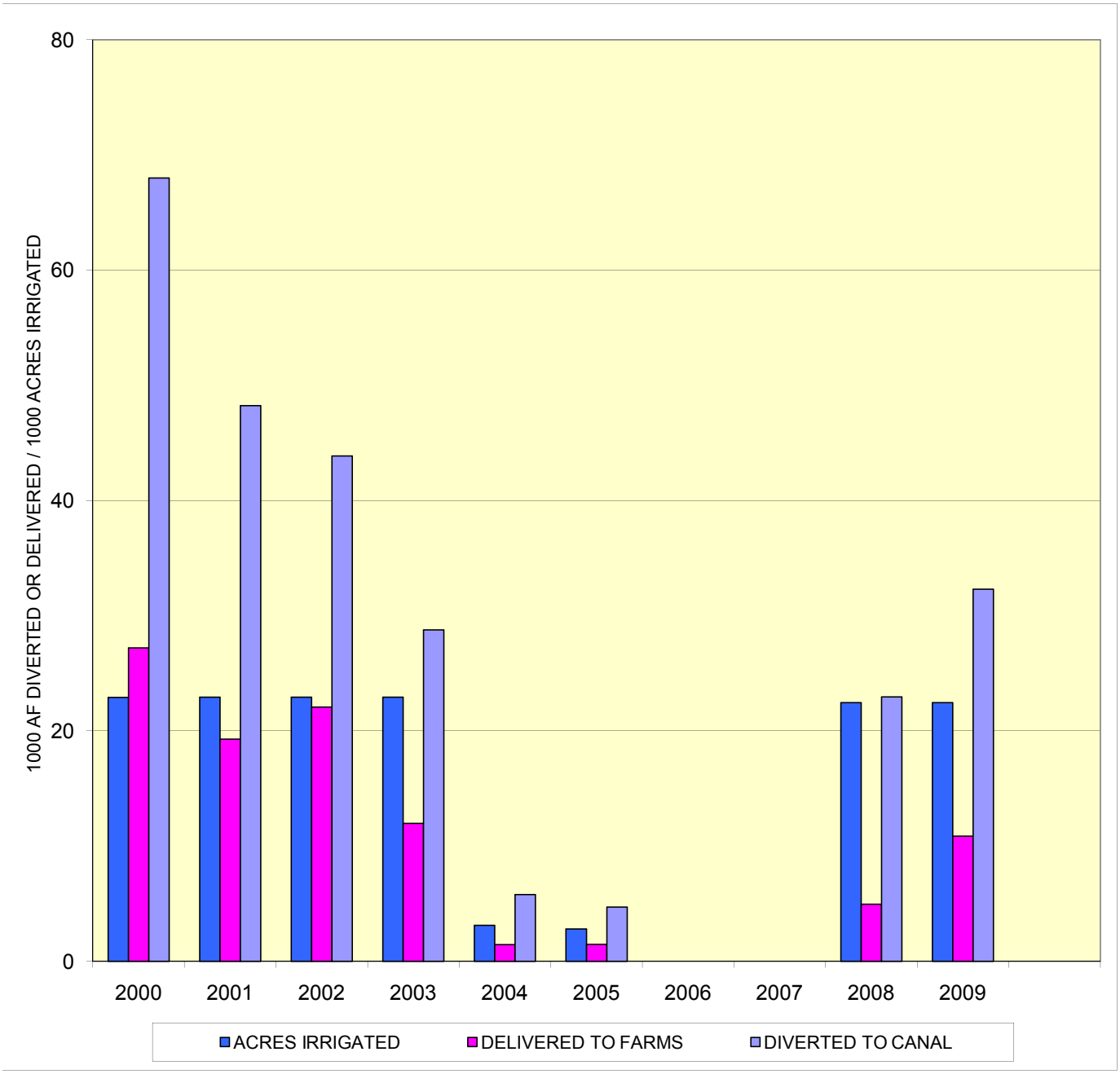



| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 1.56 | 1.19 | 1.12 | 1.15 | 1.45 | 1.24 | 1.23 | 0.00 | 1.27 | 1.68 |
| DELIVERED af/acre | 0.96 | 0.70 | 0.67 | 0.63 | 0.74 | 0.61 | 0.57 | 0.00 | 0.54 | 0.47 |
| EFFICIENCY | 61% | 58% | 61% | 55% | 52% | 50% | 46% | 0% | 42% | 28% |

EXHIBIT 24

# BOSTWICK IRRIGATION DISTRICT - NEBRASKA

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

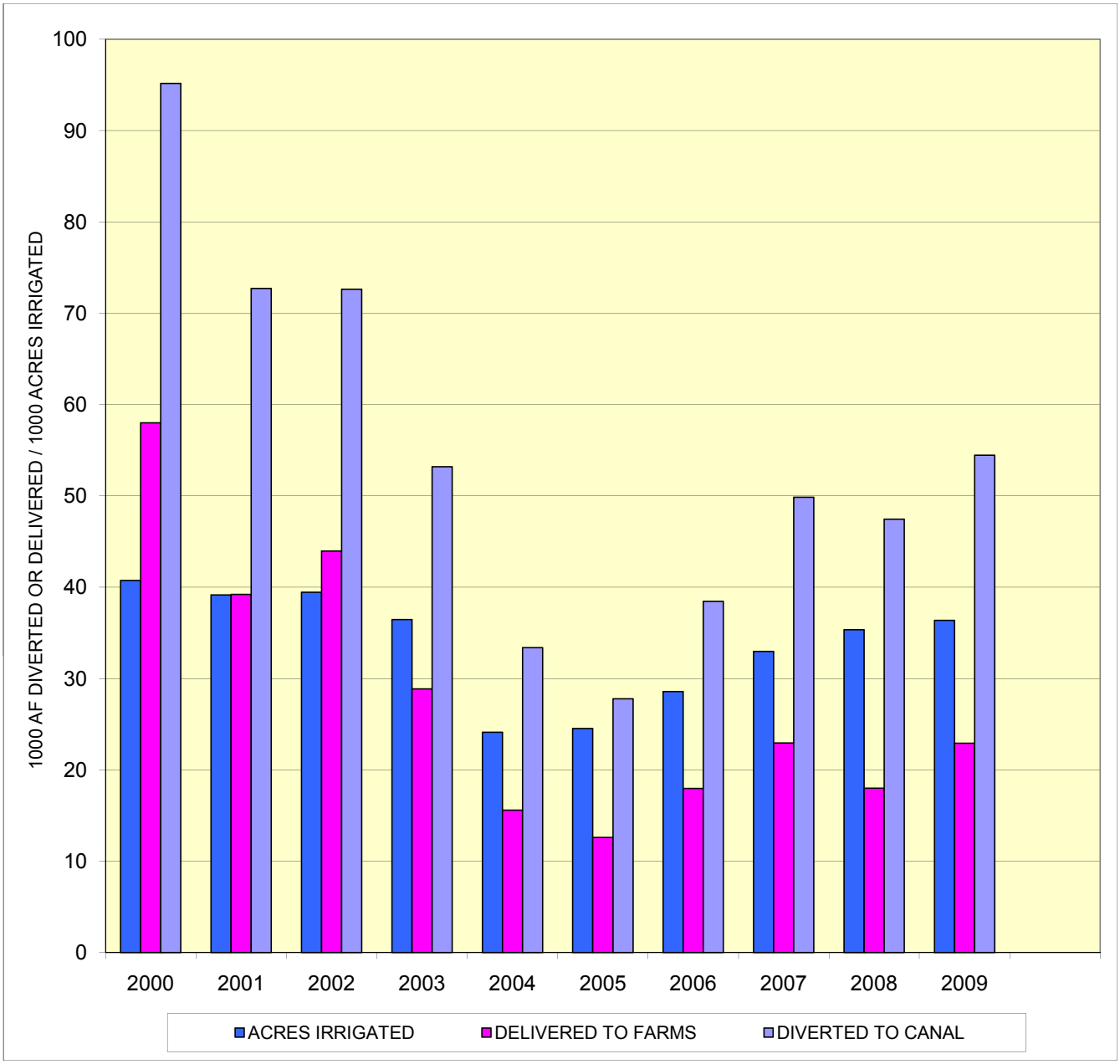



| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 2.97 | 2.10 | 1.91 | 1.25 | 1.85 | 1.68 | 0.00 | 0.00 | 1.02 | 1.44 |
| DELIVERED af/acre | 1.19 | 0.84 | 0.96 | 0.52 | 0.47 | 0.53 | 0.00 | 0.00 | 0.22 | 0.48 |
| EFFICIENCY | 40% | 40% | 50% | 42% | 25% | 32% | 0% | 0% | 22% | 34% |

EXHIBIT 25

# KANSAS-BOSTWICK IRRIGATION DISTRICT

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




| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 2.33 | 1.86 | 1.84 | 1.46 | 1.38 | 1.13 | 1.35 | 1.51 | 1.34 | 1.50 |
| DELIVERED af/acre | 1.42 | 1.00 | 1.11 | 0.79 | 0.65 | 0.51 | 0.63 | 0.70 | 0.51 | 0.63 |
| EFFICIENCY | 61% | 54% | 61% | 54% | 47% | 45% | 47% | 46% | 38% | 42% |