RECLAMATION

Managing Water in the West

Annual Operating Plans

Niobrara, Lower Platte, and Kansas River Basin

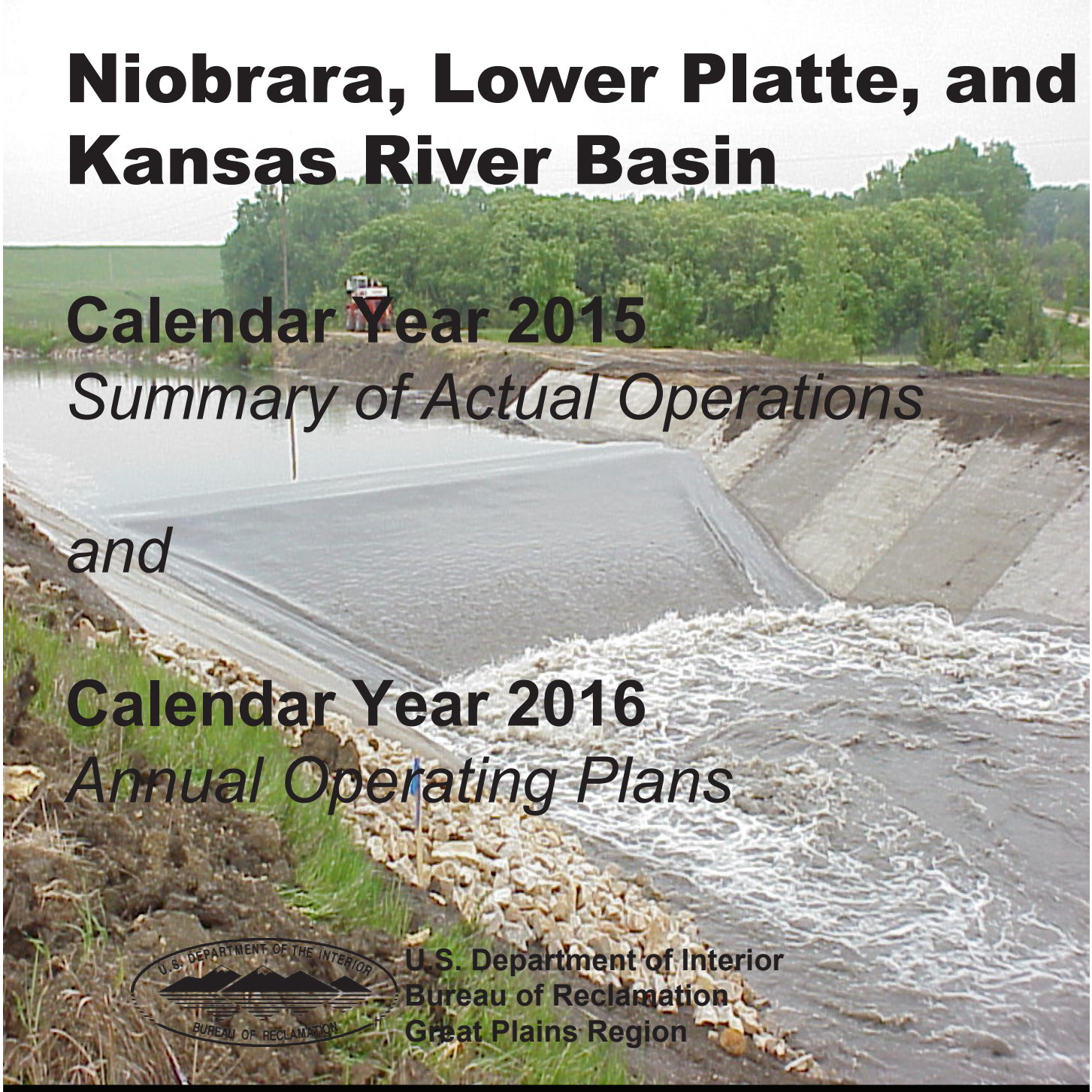
Calendar Year 2015

Summary of Actual Operations

and

Calendar Year 2016

Annual Operating Plans



U.S. Department of Interior
Bureau of Reclamation
Great Plains Region

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SYNOPSIS

General

This year is the sixty-third consecutive year that an Annual Operating Plan (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 269,745 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 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 located in McCook, Nebraska 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 60 Hydromet stations that can be accessed. The Nebraska-Kansas Area Office (NKAO) has installed and maintains 41 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.

On page 6 "The Headlines 2015", which follows this synopsis is indicative of the awareness that the local residents have of the natural resource development and conservation in the Niobrara, Lower Platte, and Kansas River Basins.

2015 Summary Climatic Conditions

Precipitation at the project dams during 2015 ranged from 92 percent of normal at Webster Dam to 148 percent of normal near Box Butte Dam. Annual precipitation was above normal for 13 of the 16 project dams.

Temperatures in January and March 2015 were generally above normal, while temperatures in February 2015 were typically below normal throughout the project area. Precipitation in January 2015 was well below the normal average for most of the projects. February 2015 precipitation ranged drastically from zero percent to 340 percent. March 2015 precipitation was well below normal with all of the project dams below 26 percent of the average. Temperatures in April 2015 were generally above normal while in May 2015 they were

generally below normal. Precipitation during April 2015 was generally above average with only four project dams below average. May 2015 precipitation was well above normal at most of the project dams. Eleven of the project dams received four or more inches of precipitation and five of the project dams received over seven inches of precipitation.

Temperatures in July and August 2015 were generally below normal, while temperatures in June 2015 were typically above normal throughout the project area. Total precipitation for June 2015 ranged from 24 percent to 188 percent. July and August 2015 precipitation was above normal for ten of the project dams.

Precipitation recorded in September 2014 ranged from six percent to 306 percent. October 2014 precipitation ranged from 37 percent to 264 percent. November 2014 precipitation was one of the best on record with ranges from 130 percent to 440 percent of normal. In December 2014, precipitation was widely ranged but was very favorable for project dams in the Kansas River and Niobrara Basins. Temperatures in the fall and winter were generally above the normal average.

Storage Reservoirs

Conservation Operations: The 2015 inflow was below the dry year forecast for Hugh Butler Lake. Inflows at Swanson Lake, Harry Strunk Lake and Lovewell Reservoir were between the normal year and wet year forecasts. The inflows for Box Butte Reservoir and Merritt Reservoir were above the wet year forecast. The remaining reservoirs had inflows between the dry year and normal year forecasts.

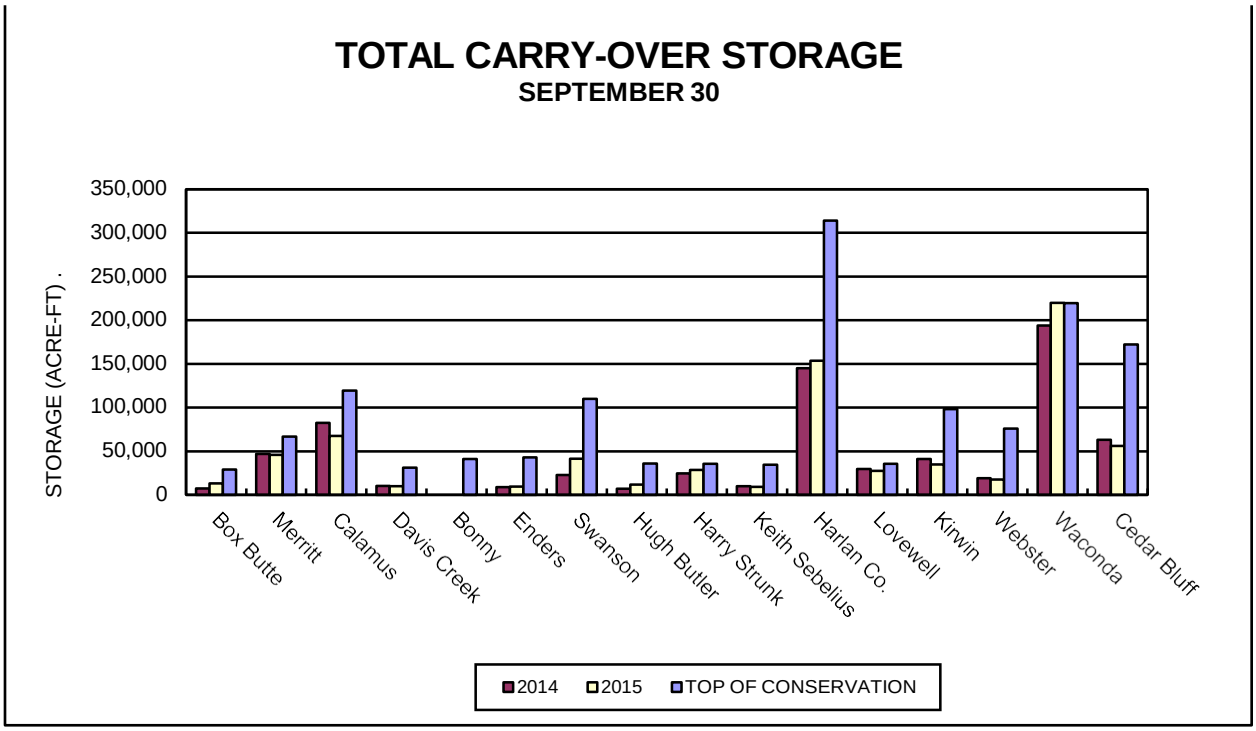
Fourteen of the sixteen reservoirs had below average carryover storage from the 2014 water year. Reservoir releases were made from Merritt, Virginia Smith, Medicine Creek, and Lovewell Dams to maintain or reduce reservoir levels prior to the 2015 irrigation season. Box Butte, Enders, and Webster Reservoirs, along with Swanson, Hugh Butler, Keith Sebelius, and Harlan County Lakes did not have sufficient storage to provide water users with a full water supply. Lovewell Reservoir, Harry Strunk Lake, and Waconda Lake utilized some flood pool storage during 2015. Irrigation demands greatly reduced the storage in several project reservoirs throughout the summer. Reservoir storage was below average at twelve of the sixteen reservoirs at the end of 2015.

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.

On January 1, 2015 the State of Nebraska, Department of Natural Resources (NDNR) determined a “Compact Call Year” (Compact Call) to be in effect on the Republican River Basin for the third consecutive year. 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 early 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, 2015. On February 26, 2015 the NDNR notified Reclamation that storage in the reservoirs could resume and that all water being stored under the Compact

Call would be transferred to project water and legally stored under the respective water rights. No natural flow was bypassed through Enders Reservoir, Swanson Lake, Hugh Butler Lake, Harry Strunk Lake and Harlan County Lake as a result of the Compact Call. On December 31, 2015 the NDNR determined that 2016 would also be a "Compact Call Year."

The following graph shows a comparison of 2014 and 2015 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, 2015.



Flood Control Operations: Harry Strunk Lake, Waconda Lake, and Lovewell Reservoir utilized flood pool storage in 2015. A flood release of approximately 23,000 AF was made from Lovewell Reservoir during May 2015. A flood release of around 8,300 AF was made from Waconda Lake in August 2015. Nearly 21,500 AF was bypassed from the flood pool at Harry Stunk Lake. The 2015 flood damage prevented by the operation of Reclamation's Nebraska-Kansas Projects facilities was $26,275,600 as determined by the Corps of Engineers. An additional benefit of $5,900,600 was credited to Harlan County Lake. The accumulative total of flood control benefits for the years 1951 through 2015 by facilities in this report total $2,099,729,800 (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 2015 can be found in Table 7.

Water Service

There was 331,302 AF of water diverted to irrigate approximately 195,337 acres of project lands in the 12 irrigation districts (see tables 3 and 6). The project water supply was either inadequate or limited for 157,794 acres of the total project lands. This includes lands in Mirage Flats,

Frenchman Valley, H&RW, Frenchman-Cambridge, Almena, Bostwick in Nebraska, Kansas Bostwick, and Webster Irrigation Districts. The project water supplies for the other units mentioned in this report were adequate in 2015.

The water requirements of three municipalities, one rural water district, and two fish hatchery facilities were met in 2015. Both storage releases and natural flows are utilized in meeting these demands.

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 NKAO is available for meetings if requested with Nebraska, Colorado, and Kansas state management agencies to discuss the AOP. Information is solicited from the agencies to enhance fisheries resources within the flexibility allowed while still meeting contractual obligations with the various irrigation districts.

Reservoir operations were favorable for recreation and fish and wildlife uses in 2015 at those project reservoirs with full or nearly full conservation pools prior to the irrigation season. The higher water levels experienced early in the year submerged existing shoreline vegetation. Normal irrigation demands and the lack of precipitation during the summer greatly reduced the pool levels at several reservoirs allowing for late summer shoreline revegetation. The draining of Bonny Reservoir and the State administration of storage rights in southwest Nebraska reservoirs in previous years diminished recreation benefits at these facilities.

2016 Outlook

Three forecast conditions have been developed for each of the reservoirs in the Niobrara, Lower Platte, and Kansas River Basins conforming to established 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, Kirwin, and Webster. The irrigation districts affected are Mirage Flats; Frenchman Valley and H&RW; Frenchman-Cambridge; Almena; Bostwick in Nebraska; Kansas Bostwick; Kirwin; and Webster; respectively. If 2016 is a dry year, 169,259 of the total 269,745 acres with service available to be irrigated (63 percent) will have an inadequate water supply.

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

supply. Even under reasonable maximum inflow conditions, Frenchman Valley and H&RW Irrigation Districts are expected to experience irrigation demand shortages from Enders Reservoir.

Under reasonable minimum inflow conditions, the conservation pools at Merritt, Calamus, Davis Creek, and Lovewell Reservoirs, and Harry Strunk Lake are expected to fill during 2016.

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.

Water is not expected to be stored in Bonny Reservoir during 2016 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.

2015 HEADLINES

URNRD required to make up 14,600 AF in 2015

Irrigation water use drops by 30 percent in Nebraska

Pumping shut down on Rock Creek Project

U.S. Supreme Court ruling favors Nebraska on imported water

Nebraska considered big winner in river dispute with Kansas — despite Supreme Court's backing of $5.5M penalty

NewRepublicanRiver agreementmeansmore waterforareafarmers

Nebraska pleased with river decision

Nebraska, Kansas and Colorado continue cooperation with water

PLATTE FLOOD WATERS NEED TO BE CAPTURED

Rep. River agreement increases supplies for irrigation

URNRD approves $2.5 million to study flood water diver sion from South Platte

Wyoming engineer will be Nebraska's top natural resources leader

Nebraska joins 12 other states in suing over new U.S. federal water rules

Kansas,Nebraskareach1-yearpact

Irrigators file new lawsuit

New water management plan adopted by URNRD

CHAPTER I – INTRODUCTION

Purpose of This Report

This AOP advises water users, cooperating agencies, and other interested groups or persons of the actual operations during 2015 and serves as a guideline for the 2016 operations. This report also describes the responsibilities of Reclamation, Corps of Engineers, and the irrigation and reclamation districts in the Niobrara, Lower Platte, and Kansas River Basins.

Operational Responsibilities

Reclamation is responsible for irrigation operations at all federal reservoirs in the Nebraska-Kansas Projects. Reclamation is also responsible for the operation and maintenance (O&M), safety of the structure, and reservoir operations not specifically associated with regulation of the flood control storage at the reservoirs constructed by Reclamation. Regulation of the flood control storage is the responsibility of the Corps of Engineers. In addition to irrigation and flood control, these reservoirs provide recreation, fish and wildlife, and municipal water supply benefits.

By contractual arrangements with Reclamation, the irrigation or reclamation districts in the Niobrara, Lower Platte, and Kansas River Basins are responsible for the O&M of the canals and irrigation distribution facilities constructed or rehabilitated by Reclamation. In addition, the appropriate irrigation or reclamation districts are responsible for operating and maintaining Box Butte, Merritt, Virginia Smith and Davis Creek Dams. The Corps of Engineers operates and maintains Harlan County Dam and Lake. The State of Colorado provides operational guidelines for Bonny Reservoir. Operational guidelines for Cedar Bluff Reservoir are provided by the State of Kansas. Reclamation operates and maintains eleven dams and reservoirs in the Republican, Solomon, and Smoky Hill River Basins. Under a contract with Reclamation, Kirwin Irrigation District performs certain operational and maintenance functions at Kirwin Dam.

An updated Field Working Agreement was executed on July 17, 2001 between the Corps of Engineers and Reclamation regarding operation of Harlan County Dam and Lake. The agreement provides for a sharing of the decreasing water supply into Harlan County Lake. Storage capacity allocations were redefined based on the 2000 sediment survey and a procedure was established for sharing the reduced inflow and summer evaporation among the various lake uses.

The States of Nebraska, Colorado, and Kansas are responsible for the administration and enforcement of their state laws pertaining to the water rights and priorities of all parties concerned with the use of water. As provided by the lease agreement between Reclamation and the states, the states are responsible for administering the water surface activities and the federal lands around the reservoirs. The U.S. Fish and Wildlife Service administer the water surface activities and most of the federal lands at Kirwin Reservoir.

Reclamation cooperates with all state agencies and compact commissions to ensure that all operations are in compliance with state laws and compact requirements.

Tables and Exhibits

Records for the facilities reported in the AOP are included as tables and exhibits and are located following page 32.

Water Supply

For forecasting purposes, values of annual inflows that will be statistically equaled or exceeded 10, 50 and 90 percent of the time were selected from the probability data to be reasonable maximum (wet year), most probable (normal year), and reasonable minimum (dry year) inflow conditions, respectively.

Inflow records from 1996 through 2015 were used for the analysis of reservoirs in the Niobrara, Lower Platte and Kansas River Basins.

Reservoir Operations

All operations are scheduled for optimum benefits of the authorized project functions. Monthly or as often as runoff and weather conditions dictate. Reclamation evaluates the carry-over storage and estimated inflow at each reservoir to determine whether excess water is anticipated. If excess inflow is apparent, controlled releases will be made to maximize the downstream benefits.

Major Features

The Mirage Flats Project was constructed under the Water Conservation and Utilization Act and includes an irrigation storage reservoir, diversion dam and canal system. The other features discussed in this report are all a part of the Pick-Sloan Missouri Basin Program and include single and multipurpose reservoirs, diversion dams, pump stations and canal systems. The sixteen storage facilities now in operation are listed below.

Constructed by Reclamation

1. Operated by irrigation or reclamation districts-Box Butte and Merritt Dams in the Niobrara River Basin and Virginia Smith and Davis Creek Dams in the Lower Platte River Basin.

2. Operated by Reclamation--Bonny, Trenton, Enders, Red Willow, Medicine Creek, Norton, Lovewell, Kirwin, Webster, Glen Elder, and Cedar Bluff Dams in the Kansas River Basin. A contract provides for Kirwin Irrigation District to perform certain operational and maintenance functions at Kirwin Dam.

Constructed and Operated by the Corps of Engineers

1. Harlan County Dam in the Kansas River Basin.

Irrigation and Reclamation Districts

Twelve irrigation districts and one reclamation district in the Niobrara, Lower Platte, and Kansas River Basins have contracted with Reclamation for water supply and irrigation facilities. The Twin Loups Irrigation District has contracted their O&M responsibilities to the Twin Loups Reclamation District. Bostwick Irrigation District in Nebraska has contracted their O&M responsibilities for Superior-Courtland Diversion Dam and the Courtland Canal between the head gates and the Nebraska-Kansas state line to Kansas Bostwick Irrigation District.

The contracted irrigation season for Mirage Flats Irrigation District is April through September. The contracted irrigation season for Frenchman-Cambridge Irrigation District is April 15 through October 15 or such additional period from April 1 to April 15 of each year as may be agreed upon between the District and Reclamation. The contracted irrigation season for Frenchman Valley and H&RW Irrigation Districts is from May 1 through October 15 or such additional period from April 1.through May 1 of each year as determined between the District and Reclamation. The contracted irrigation season for Twin Loups Reclamation District and Almena, Bostwick in Nebraska and Kansas Bostwick Irrigation Districts is May 1 through September 30 or such additional period from April 1 through November 15 of each year as determined between the District and Reclamation. For Ainsworth, Kirwin and Webster Irrigation Districts, the contracted irrigation season is from May 1 through September 30.

Municipal Water

Three municipalities in Kansas (Norton, Russell, and Beloit) and one rural water district in Kansas (Mitchell County Rural Water District No. 2) have executed water service contracts or repayment contracts for full or supplemental water supplies.

Fish and Wildlife

The Calamus Fish Hatchery is located below Virginia Smith Dam and Calamus Reservoir. 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.

The State of Kansas is presently using the fish hatchery facility below Cedar Bluff Reservoir for waterfowl habitat.

State of Colorado Division of Wildlife

The State of Colorado provides operational guidelines for Bonny Reservoir. The entire conservation pool storage was purchased by the State of Colorado on June 24, 1982.

State of Kansas Department of Wildlife, Parks and Tourism (KDWPT)

The State of Kansas acquired the use and control of portions of the conservation capacity at Cedar Bluff Reservoir following the reformulation of the Cedar Bluff Unit in October of 1992. The City of Russell's existing water storage right and contract with the United States remained unchanged.

Power Interference Considerations

A Power Interference Agreement exists between Reclamation, the Twin Loups Reclamation District, and the Loup River Public Power District. Subordination Agreements also exist between Reclamation, the Ainsworth Irrigation District, and the Nebraska Public Power District and between Reclamation, the Mirage Flats Irrigation District and the Nebraska Public Power District. Provisions of these agreements will be incorporated into the 2016 operations.

Environmental Considerations

A "Statement of Operational Objectives" for Harlan County Lake sets forth the general operational objectives and the specific reservoir uses that are desirable. The operational objectives indicate that fish and wildlife interests are best served by high reservoir levels with minimum fluctuations, and regulation of the outflow in excess of the minimum desired flows. Although the statement recognizes flood control and irrigation as primary purposes, it indicates that comprehensive operational plans should be developed for maximum integration of the secondary uses.

These operational objectives are also considered in the operation of all Reclamation reservoirs in the Kansas River Basin, Niobrara River Basin, and the Lower Platte River Basin. The regulated outflow can also benefit farmers, ranchers, cities, and other interests below the reservoirs.

Republican River Compact – Kansas v. Nebraska

On May 26, 1998, Kansas filed a petition with the U. S. Supreme Court stating that Nebraska had violated the Republican River Compact by using more than its share of the Republican River water supply. The three original parties to the Republican River Compact; Kansas, Nebraska and Colorado, became parties to the case. Because the major water development structures in the Republican River Basin were constructed by the Bureau of Reclamation and the Corps of Engineers, the United States was allowed to participate as *amicus curiae.* After seventeen months of negotiations, the Final Settlement Stipulation (Stipulation) was signed by each respective governor and attorney general and was filed with the Special Master on December 16, 2002. The United States Supreme Court approved the settlement and dismissed the case on May 19, 2003.

The settlement provides for a moratorium on new groundwater wells, special rules for administration of water during water short years, protection of storage releases, minimized flood flow effects on the accounting, recognition by Nebraska of a 1948 priority date for the Kansas Bostwick Irrigation District, inclusion of the impacts of groundwater pumping from table and wells in the accounting, and accounting for all reservoirs 15 AF and larger within the river basin.

The Stipulation also required that Colorado, Kansas and Nebraska, in cooperation with the United States, form a Conservation Committee to develop a proposed study plan to determine the quantitative effects of non-federal reservoirs and land terracing practices on water supplies in the Republican River Basin above Hardy, Nebraska. The study plan supported by Colorado, Kansas and Nebraska, the Natural Resources Conservation Service, and Reclamation was completed and signed on April 28, 2004. Cooperative agreements for completing the five year study were developed between Reclamation, the University of Nebraska-Lincoln (UNL), and Kansas State University. Installation of data loggers on 35 reservoirs throughout the basin was completed in 2004. Advanced monitoring equipment for terraces and additional reservoirs was installed by UNL in 2006. Data collection and model development continued through 2009. The Conservation Committee presented a Summary Report of Preliminary Findings for the study at the 2011 Republican River Compact annual meeting held in Burlington, Colorado on August 31, 2011. The Republican River Compact Administration (RRCA) reviewed the report and determined a formal study report was needed. The final report was released in June of 2014.

Water Short Year Administration will be in effect in those years in which the projected or actual irrigation supply is less than 119,000 AF of storage available for use from Harlan County Lake as determined by Reclamation. It was determined that Water Short Year Administration would be in effect in 2015.

Republican River Basin Study

In early 2016, the Republican River Basin Study (Basin Study) was completed. The Basin Study represented an extensive collaborative effort among the states of Colorado, Kansas, and Nebraska to identify adaptation strategies that address current and future water management challenges in the basin.

The Basin Study found that climate change may have a pronounced impact on future supplies and demands across the basin. The modeling tools developed under the study were used to evaluate alternatives to improve the supply reliability at the Frenchman-Cambridge Irrigation District in Nebraska, as well as the Bostwick Irrigation Districts in Nebraska and Kansas.

Nebraska focused on augmenting the supply of Swanson Lake and creating new surface water storage on Thompson Creek, a tributary of the Republican River. Kansas evaluated alternatives that increase the storage volume at Lovewell Reservoir.

The newly developed ground and surface water modeling tools will help inform future water management decisions that help build resiliency against future climate change, while also maintaining compliance with the Republican River Compact.

The Basin Study is a part of Reclamation's WaterSMART Program. The report is available online at www.usbr.gov/watersmart/bsp.

Niobrara River Basin Study

The Niobrara River Basin Study was completed and submitted in November 2015 to the Office of Policy to begin the internal review process. The Niobrara River Basin Study is a collaborative effort by NDNR and Reclamation to evaluate current and future water supply and demand and to collaborate with stakeholders in the region to identify potential adaptation strategies to reduce any identified gaps.

The overarching study objectives were to identify the effects of climate change on future water supplies and identify potential management actions in the basin. The Niobrara River Basin Study relies on an integrated surface-groundwater model to assess hydrological effects of proposed alternatives aimed at improving basin resiliency.

Potential management actions were evaluated in an effort to address the gap between water supply and demand. Alternative 1 proposes a structural change with construction of the Mirage Flats Pumping Station which would reduce canal seepage during surface water delivery leaving more surface water in the system. Alternative 2 proposes an operational change by using the Mirage Flats main canal and lateral system to recharge local groundwater. Both Alternatives result in Box Butte Reservoir levels that are higher than the Future No Action alternative due to increased canal delivery efficiencies in one scenario and lower irrigation diversions in the other scenario. Furthermore, both strategies generally exceed those of a No Action scenario; showing potential for future consideration as additional analysis in the basin is conducted.

The study confirms that the Niobrara River faces a range of potential future imbalances between water supply and demand. Addressing such imbalances may require additional analysis and may not be resolved through any single approach or alternative. Integrated water models and related analysis developed in this study are a useful resource that can assist stakeholders in the basin as they continue coordinated efforts to improve system reliability and develop strategies that address the basin's needs.

Emergency Management

The NKAO continues to coordinate with local jurisdictions that could potentially be impacted by flooding from large operational releases and/or dam failure. Tabletop Exercises of the Emergency Action Plans (EAP) for Box Butte, Kirwin, Lovewell, and Merritt Dams were held in 2015. Tabletop exercises will be held for Glen Elder and Webster Dams, and a Functional Exercise will be held for the Norton Dam EAP in 2016. Communications Directories for all of the EAPs are reviewed annually.

Emergency radios have been installed at all dams. These radios will be used as a backup means of communication when notifying the local emergency management officials in the event of an emergency at the dam. The NKAO has two satellite phones that can be used in an emergency. Management and dam operators have been trained on the use of these phones.

Public Safety Reviews

The Annual Safety Training for field personnel was held in McCook, Nebraska in the spring of 2015. This training provided personnel the opportunity to update their training in Fall Protection, Hazardous Energy Control Program, Confined Space, Defensive Driving, First Aid, CPR, AED, Chainsaw Use, Welding and Cutting, Herbicide/Pesticide Safety, Security, and Respirator Training and Fit Testing.

The ongoing safety reviews of project facilities continue to identify potential safety hazards to the public and operating personnel. NKAO combines elements of the Annual Safety Inspections of the major facilities with the Dam Safety Facility Reviews when possible, and conducts follow up inspections when deficiencies are not on-the-spot correctible. This format provides for enhanced communication and coordination between both the Area Safety Specialist and Staff, and teams of Dam Safety Specialists.

NKAO continues to involve Great Plains Region Safety and Occupational Health in Billings, Montana when maintenance and operational items, such as replacing AED batteries and pads, and reprogramming CPR protocol, is required.

Attention continues with regard to issues concerning contractor safety, defensive driving, National Fire Protection Association 70E Electrical Safety/Arc Flash, construction equipment safety, lock out/tag out, personal protective equipment, welding, cutting, coating safety procedures, confined space, pesticide and herbicide use, fall protection/slips, trips, and falls, working alone, near-miss accident reporting, and completing job hazard analyses, with emphasis from managers, supervisors, employees, and the NKAO Safety Committee. Guidance contained in the Reclamation Safety and Occupational Health Plan is incorporated. Employees were provided safety and health training and given information related to these and several other issues throughout the year.

CHAPTER II - NIOBRARA AND LOWER PLATTE RIVER BASINS

Mirage Flats Project in Nebraska

General

Flows in the Niobrara River along with Box Butte Reservoir storage provide a water supply for the 11,662 acre Mirage Flats Project. From 2006 to 2015, the project water supply averaged 9,338 AF, which is about 0.80 AF per irrigable acre. Many irrigators supplement their water supply with private wells.

The Mirage Flats Irrigation District cooperates with the Commission by operating the Box Butte Dam outlet works gate and the Dunlap Diversion Dam gates in a manner to avoid sudden large changes in the flows of the Niobrara River. A 30-year agreement was made in 1990 between the district and the Commission whereby the district would not draw the reservoir water level below elevation 3978.00 feet (2,026 AF). In return the district received an up-front payment which was used to improve the efficiency of the project's delivery system. On March 17, 2000, the district agreed to increase the minimum reservoir level by one additional foot to an elevation of 3979.00 feet (2,392 AF). In return the district received an

additional payment from the Commission for the 20 years left on the original agreement.
A data collection platform was installed in May of 1992 to monitor the reservoir elevation and outflow at Box Butte Dam. A telephone (primary communication system), and a radio (backup communication system) have been installed at the outlet works for contacting the Region 23 Emergency Management Agency.

2015 Summary

The flows of the Niobrara River plus the carry-over storage in Box Butte Reservoir were not adequate to provide a full water supply for the project lands. Precipitation in the Mirage Flats Irrigation District totaled 25.10 inches, which is 148 percent of normal. The 2015 total inflow of 20,980 AF was above the wet-year forecast. May 2015 inflow was the second greatest recorded and June 2015 inflow was the greatest recorded for the respective months in nearly 50 years.

The reservoir level began 2015 at an elevation of 3992.51 feet (14.5 feet below the top of conservation). The pool level gradually increased during the late winter and early spring peaking at an elevation of 4003.22 feet on July 10, 2015. May 2015 precipitation was the second greatest ever recorded at the site (7.19 inches), and June 2015 precipitation was the third greatest ever recorded at the site (6.35 inches) for the respective months. Irrigation releases began on July 11, 2015 and ended on September 15, 2015. Diversions of 11,154 AF to the Mirage Flats Canal provided irrigation water for approximately 6,765 acres, 58 percent of the service available acreage. The farm deliveries from the project water supply totaled 5,186 AF (0.77 acre-foot per irrigated acre), which is a delivery efficiency of 46 percent. Total reservoir storage was 12,950 AF at the end of the irrigation season. Privately owned irrigation wells supplemented the project water supply. The reservoir level at the end of 2015 was 3998.58 feet (8.4 feet below the top of conservation).

Higher reservoir levels experienced in 2011 resulted in increased toe drain seepage and observed wet areas below the dam. Engineers with Reclamation's Technical Service Center (TSC) out of Denver, Colorado followed up with a special inspection that summer. Irrigation releases decreased the reservoir level throughout the summer, seepage returned to near normal levels, and observed wet areas dried up. Three SOD recommendations were completed in 2012 as a result of this event including performing an Issue Evaluation on changed seepage conditions at higher reservoir levels, stockpiling of filter sand and drain gravel at the dam, and daily monitoring of instrumentation when the reservoir level exceeds 4004.00 feet. A Corrective Action/Value Planning Study was initiated and Appraisal Level Design Alternatives and Costs were completed in 2013. An Internal Alert remains in effect at the dam.

The district continued to implement water conservation measures as outlined in their Water Management Plan and their Long Range Plan. Assistance to project irrigators provided by the district include delivery system improvements that provide on-farm efficiency improvements, such as relocation of turnouts, burying pipe for better access, and on-farm efficiency incentives. In 2013, the district received funding assistance through the Water Conservation Field Services Program (WCFSP) to install new gates and automation equipment on seven of the check structures on Sturgeon Lateral. The district began installation of this automation equipment in the spring of 2014.

2016 Outlook

The project water supply is expected to be inadequate in 2016 as it has been since the early 1960's. In the spring, the district will inform their water users of the amount of water that will be available from storage in Box Butte Reservoir. It is anticipated that district irrigators will continue to use their privately-owned irrigation wells as a supplemental supply.

The district's future water conservation plans include the automation of Dunlap Diversion Dam and the outlet works gate at Box Butte Dam. The district is also researching opportunities to provide groundwater recharge benefits in the project area. District delivery system improvements were reviewed as a potential alternative in the Niobrara River Basin Study.

A Constructability Review was completed in 2015, and a Final Design is scheduled for completion in 2017 to address reservoir seepage conditions.

The Standing Operating Procedures (SOP) for Box Butte Dam is scheduled for revision in 2016.

Ainsworth Unit, Sandhills Division in Nebraska

General

Within the Ainsworth Irrigation District, there are approximately 35,000 acres with available service. The project water supply is provided by Snake River flows and Merritt Reservoir storage. The reservoir is filled to an elevation of 2944.0 feet each fall after the irrigation season. This level is approximately two feet below the top of conservation capacity and within the repaired area of soil cement on the upstream face of the dam. The reservoir is regulated to maintain this level until the ice clears each spring. Maintaining the reservoir at this elevation during the winter will help avoid ice damage to the older existing soil cement at lower elevations. Upon ice-out the outlet pipe is drained, inspected, and repaired as necessary. The reservoir is then rapidly filled to an elevation of 2946.0 feet to reduce shoreline erosion around the reservoir and minimize sand accumulations on the face of the dam. This filling process generally takes place in April. The reservoir level is maintained until irrigation releases begin to draw on the pool around mid-May. Seepage, pickup and toe drain flow normally result in flows of up to 15 cubic feet per second (cfs) below Merritt Dam.

Reclamation has executed a Memorandum of Agreement (MOA) between Reclamation, the Commission and the Ainsworth Irrigation District for Snake River releases below Merritt Dam. The purpose of this MOA is to establish the protocol that will be used to make future releases of water from Merritt Dam to the lower Snake River. The development of the MOA was an environmental commitment outlined in the Ainsworth Irrigation District Final Environmental Assessment for the conversion of a Long-Term Water Service Contract to a Repayment Contract (December 2006).

Release criteria will be based on the best available scientific data to determine when local conditions warrant releases to the Snake River. When it becomes necessary to release water from Merritt Reservoir, Reclamation will direct the Ainsworth Irrigation District to make the necessary releases to the river. Changes to the river will be staged to allow fish and other aquatic organisms time to acclimate to the changing environment.

2015 Summary

Precipitation, as recorded near Merritt Dam, totaled 28.99 inches, which was 142 percent of normal. May 2015 recorded precipitation of 7.35 inches which was the second greatest ever recorded for the month. The total yearly inflow of 202,465 AF was above the wet year forecast and the second greatest annual total since dam construction. The reservoir level at the beginning of the year was at an elevation of 2944.00 feet. The water supply was more than adequate to meet the project's irrigation requirement. There was 71,552 AF diverted from Merritt Reservoir into Ainsworth Canal, with 40,553 AF delivered to the farm head gates (delivery efficiency of 57 percent). There were 34,626 acres of land irrigated in 2015. Merritt Dam recorded 5.05 inches of precipitation during September 2015, the second greatest ever for the month. The reservoir elevation at the end of 2015 was 2944.00 feet.

The district provided a total of 386 AF of irrigation water from holding ponds located within the district's service area.

During the 2011 annual site inspection at Merritt Dam, a large seep located near the outlet works stilling basin wing wall was observed to be transporting sand material. After discussions with personnel in the Regional Office and TSC, it was determined that the seep was an ongoing issue. An Issue Evaluation to address the transportation of sand observed was initiated in 2012 and was completed in 2015. A Risk Analysis was also recently conducted.

2016 Outlook

During the winter months, the reservoir will be regulated to maintain an elevation of 2944.0 feet (2.0 feet below the top of conservation capacity). In order to alleviate erosive action to the lands around the reservoir and to maximize all benefits associated with the reservoir, releases from Merritt Reservoir will be regulated to fill the conservation capacity during the early spring. This filling generally takes place during April. If weather conditions or irrigation demands dictate, it may be necessary to begin filling the reservoir prior to this time. The reservoir level will be maintained from the end of April until irrigation releases begin. Following the irrigation season the reservoir will begin to refill. A release of 50 cfs will be made to the Snake River beginning around the second week of October and will continue until the reservoir reaches the desired winter elevation. The water supply is expected to be adequate in 2016 for the irrigation of 35,000 acres.

The SOP for Merritt Dam is scheduled for revision in 2016. Issue Evaluation will be completed in 2017 to address spillway foundation issues.

In accordance with the Ainsworth Irrigation District's water conservation plan, improved water measurement opportunities were identified as one of the main objectives of the district. The district is working with Reclamation to investigate the possibility of installing some new ramp flumes to improve delivery system operations. The district continues to evaluate measurement and automation opportunities on a number of laterals and turnouts.

North Loup Division in Nebraska

General

The North Loup Division is located in the Loup River drainage basin. Water is diverted from both the Calamus and North Loup Rivers for the irrigation of approximately 55,100 acres of project lands. Operation of the division also provides a sustained groundwater supply for an additional 17,000 acres. Principal features of the division include Virginia Smith Dam and Calamus Reservoir, Calamus Fish Hatchery, Kent Diversion Dam, Davis Creek Dam and Reservoir, five principal canals, one major and one small pumping plant and numerous open ditch and buried pipe laterals.

Calamus Reservoir is normally regulated at three to four feet below the top of conservation capacity during the winter months. Maintaining the reservoir at this elevation during the winter helps avoid ice damage to the soil cement on the upstream face of the dam. After the ice clears in the spring, the reservoir is filled to conservation capacity. The North Loup Division project operation is restricted to no water diversions from the Calamus and North Loup Rivers during the months of July and August, and also during the month of September whenever sufficient water is available in the storage reservoirs to deliver full water demands. During this time, inflows to Calamus Reservoir are required to be bypassed under the Power Interference Agreement between Reclamation, the Twin Loups Reclamation District, and the Loup River Public Power District and as required in the authorizing legislation.

Davis Creek Reservoir level is maintained at an average elevation of 2048.0 feet from the end of the irrigation season through the winter months. Off season seepage and evaporation has historically resulted in a reservoir drawdown of 2.5 to 3.0 feet requiring an end of September reservoir level of 2050.0 feet or less. This carry-over elevation provides a minimal recreational pool while reducing increases in groundwater storage due to reservoir seepage. The reservoir is filled via Mirdan Canal starting in April and will generally reach full content by the end of June. A 160-acre recreation area adjoining the reservoir continues to be managed by the Lower Loup Natural Resources District. The area includes a boat ramp, a handicapped accessible fishing pier, a day-use area, a primitive camping area, shelter and a hiking path. Public lands adjoining Kent Diversion Dam are managed by the Commission and are also open to day-use fishing with handicapped accessibility provided.

2015 Summary

Precipitation at Virginia Smith Dam was 22.61 inches which is 94 percent of normal for the year. The inflow totaled 250,588 AF which was between the dry year and normal year forecasts. The reservoir level at the beginning of 2015 was at an elevation of 2239.41 feet (4.6 feet below the top of conservation). The conservation pool filled on April 9, 2015. The water supply was more than adequate for the district's needs. There were 114,875 AF of water released into Mirdan Canal and 4,118 AF diverted through Kent Canal from the North Loup River. A total of 51,091 AF was diverted for district use above Davis Creek Reservoir. The farm head gate delivery was 30,366 AF which is a delivery efficiency of 59 percent. Land irrigated in 2015 totaled 34,110 acres above Davis Creek Reservoir. The Calamus Fish Hatchery used bypassed natural flows and storage from the reservoir totaling 4,110 AF.

Calamus Reservoir inflows were bypassed during July, August, and September 2015 as required. The elevation at the end of 2015 was 2240.44 feet.

The precipitation total of 26.48 inches near Davis Creek Dam was 107 percent of normal. Inflow to Davis Creek Reservoir totaled 52,348 AF during 2015. The reservoir elevation at the beginning of 2015 was 2049.43 feet. Beginning in mid-April 2015, Davis Creek Reservoir was filled from an elevation of 2047.83 feet to a peak elevation of 2076.16 feet on July 1, 2015 using diversions from Calamus Reservoir and the North Loup River. A release of 43,552 AF was made from Davis Creek Dam into Fullerton Canal, with 19,104 AF delivered to the farm head gates which is a 44 percent delivery efficiency. There were 21,016 acres irrigated below Davis Creek Reservoir. The monthly precipitation total for November 2015 was (4.13 inches) which was the highest ever recorded at the site for that month. The reservoir elevation at the end of 2015 was 2049.62 feet, 26.4 feet below the top of conservation.

The SOP for Virginia Smith Dam was reviewed in 2015.

2016 Outlook

Filling of Calamus Reservoir will continue through late winter and early spring. The reservoir will be allowed to fill to an elevation of 2244.0 feet (top of conservation capacity) in late March or April 2016. This reservoir level will be maintained in order to minimize shoreline erosion until demands begin to draw on the reservoir. Bypassing of inflows will be made during July, August and September 2016 under all inflow forecast conditions. In the fall the reservoir will be filled to an elevation of approximately 2240.0 feet, if possible.

Water will be available for all irrigable acres with service from the Mirdan, Geranium and Scotia Canals and Lateral Systems. It is estimated that approximately 34,000 acres will be irrigated from these canals. Water supplies will be sufficient to meet the full dry year requirements.

The SOP for Davis Creek is scheduled for review in 2016.

Filling of Davis Creek Reservoir will take place this spring with flows diverted from the North Loup River at Kent Division Dam and transported through Kent and Mirdan Canals. Storage water can also be transferred from Calamus Reservoir into Davis Creek Reservoir during the summer months via Mirdan Canal. Water will be sufficient to irrigate an estimated 21,000 acres from Elba and Fullerton Canals under all inflow forecast conditions. The reservoir level will be regulated to normal winter levels at the end of the season.

The fish hatchery demand for 2016 is expected to be similar to that of the last few years with approximately 5,000 AF required for the hatchery.

The district plans to expand their remote monitoring capabilities by installing equipment at additional wasteways and key canal measurement sites throughout their delivery system. In addition to further remote monitoring capabilities, the district will continue to expand the radio control network. Additionally, the district intends to further integrate an alarm and monitoring system into their existing infrastructure to reduce the risk of operational failure.

CHAPTER III - REPUBLICAN RIVER BASIN

Armel Unit, Upper Republican Division in Colorado

General

Normal reservoir operations for Bonny Reservoir have historically been for recreation and fish and wildlife support, although water has been available for water right administration and irrigation purposes.

Bonny Reservoir inflows from the South Fork of the Republican River and Landsman Creek are released into Hale Ditch as requested by the Colorado State Engineer. The state can utilize Bonny Reservoir storage water for Hale Ditch and other natural flow appropriators under short-term water service contracts. Most of the 700 acres served by Hale Ditch are now owned and operated by the Division of Wildlife, Colorado Department of Natural Resources.

The historic operation pattern of Bonny Reservoir enhanced the spring fish spawn and provided excellent fishing opportunities during the summer and hunting conditions each fall. In September of 2011, the State of Colorado ordered all storage water evacuated from Bonny Reservoir for Republican River Compact compliance. As a result, the reservoir fishery was decimated and future operations are unlikely to provide fishing opportunities.

2015 Summary

The annual precipitation total of 20.78 inches at Bonny Dam was 121 percent of average. Bonny Dam recorded 9.10 inches of precipitation during the month of May 2015, the greatest ever recorded for the month. The annual computed inflow of 5,571 AF to Bonny Reservoir was between the dry year and normal year forecasts. Bonny Reservoir remains drained, and inflows continue to be bypassed for the purpose of compact compliance. Currently, the State of Colorado plans to operate Bonny Reservoir as a dry reservoir.

As directed by the Colorado State Water Commissioner, water was bypassed through Bonny Dam into Hale Ditch beginning April 1, 2015 and continuing through October 20, 2015. A total of 1,028 AF of water was diverted into Hale Ditch. During the remainder of 2015 water was bypassed through the reservoir into the South Fork Republican River as ordered by the Colorado State Engineer for compact compliance.

A Comprehensive Review was held at Bonny Dam in 2015.

2016 Outlook

The State of Colorado's order to release all of the storage in Bonny Reservoir for Republican River Compact compliance remains in effect. If the order continues throughout 2016, water will not be available in the reservoir for irrigation or fishery purposes. Any water allowed to be stored in Bonny Reservoir during 2016 would be available to Hale Ditch and other private irrigators under short-term water service contracts executed with the state. The Colorado State Water Commissioner is expected to direct that water be bypassed into Hale Ditch again in 2016.

Frenchman Unit, Frenchman-Cambridge Division in Nebraska

General

The Culbertson Canal and the Culbertson Extension Canal systems serve 9,292 acres in the Frenchman Valley Irrigation District and 11,915 acres in the H&RW Irrigation District. The water supply for these lands is furnished by flows from Frenchman and Stinking Water Creeks and off-season storage in Enders Reservoir located on Frenchman Creek, a tributary of the Republican River in southwest Nebraska. Irrigation releases are conveyed via Frenchman Creek from Enders Reservoir to Culbertson Diversion Dam. Reclamation maintains and clears this section of Frenchman Creek prior to irrigation releases each spring.

The normal operation of Enders Reservoir, with the gradual rise in water surface during the spring months, provides desirable fish spawning conditions. Irrigation releases normally deplete the conservation storage by late summer, thereby limiting the fishing and recreational usage. Due to extremely low storage levels, irrigation releases have not been made from Enders Reservoir since 2003.

Annual reservoir inflows have steadily declined from around 61,000 AF when Enders Dam was constructed to only 6,000 AF in recent years. Extensive groundwater pumping from upstream well development along with various conservation practices have resulted in the depletion of inflows. The conservation pool has not filled since 1968.

2015 Summary

The annual precipitation total of 20.23 inches at Enders Dam was slightly above normal (106 percent). The 2015 inflow into Enders Reservoir of 5,554 AF was between the dry year and normal year forecasts. The reservoir level began 2015 at an elevation of 3082.72 feet (29.6 feet below top of conservation). This was the lowest level ever recorded on the first of January since initial filling. Enders Dam recorded 8.25 inches of precipitation during the month of May 2015, the greatest ever recorded for the month. The reservoir level increased gradually during the spring to a peak elevation of 3085.50 feet on June 7, 2015. Evaporation decreased the reservoir level from June through mid-October 2015 reaching an elevation of 3083.67 feet on October 22, 2015. Due to the extremely low water supply available, no water was released from Enders Reservoir for irrigation. At the end of 2015 the reservoir level was 28.0 feet (3084.28 feet) below the top of conservation. This was the second lowest end of year level recorded since initial filling. The Corps of Engineers determined that Enders Reservoir prevented $31,200 in flood damages.

The Frenchman Valley Irrigation District diverted 9,121 AF of natural flow from Frenchman Creek in 2015. The district reports that approximately 871 acres received 438 AF of water. Farm delivery averaged about .50 foot per irrigated acre in the irrigation district. Several farmers supplemented their water supply with private irrigation wells. The H&RW Irrigation District did not divert water into Culbertson Extension Canal in 2015. This was the thirteenth consecutive year that the district did not deliver water.

2016 Outlook

The fall and early winter inflows into Enders Reservoir were near the dry year forecast. If dry year conditions prevail, the project water supply is expected to experience a shortage of about 77,200 AF. Normal year conditions are expected to be inadequate by 59,000 AF and wet year conditions by 25,400 AF, to irrigate the 9,292 acres in the Frenchman Valley Irrigation District and 11,915 acres in the H&RW Irrigation District.

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 and Red Willow and Medicine Creeks. The Frenchman-Cambridge Irrigation District has replaced all of the open ditch laterals that were economically feasible with buried pipe which has significantly increased both system and on-farm efficiencies.

2015 Summary

The annual precipitation total of 20.21 inches at Trenton Dam was 101 percent of normal. The inflow of 42,316 AF to Swanson Lake was between the normal year and wet year forecasts. The lake level began 2015 at an elevation of 2728.96 feet and gradually increased throughout the early winter and spring. The peak elevation on June 24, 2015 was 2739.74 feet (12.3 feet below the top of conservation). The reservoir level decreased throughout the irrigation season and reached an elevation of 2733.77 feet on November 10, 2015. The district diverted 15,350 AF from June 24, 2015 through September 3, 2015 and delivered 5,248 AF to the farms, which is a delivery efficiency of 34 percent. At the end 2015, the reservoir level was 17.2 feet below the top of conservation at 2734.84 feet. The Corps of Engineers determined that Swanson Lake prevented $8,741,900 in flood damages in 2015.

In late February 2013, the Upper Republican Natural Resources District (URNRD) began operating the Rock Creek Augmentation Project. The augmentation water is pumped from the ground and diverted into Rock Creek. The water flows from Rock Creek into the North

Fork of the Republican River at Parks, Nebraska. From there the water travels approximately 35 miles to Swanson Lake. The URNRD pumped water into Rock Creek during January of 2015 for compact compliance. The project was turned off after January 2015 and was not utilized during the remainder of 2015.

The Republican River Water Conservation District (RRWCD) built and completed the Colorado Compliance Pipeline in April 2014. The augmentation water is pumped from the ground and flows approximately 8 to 15 miles south to the North Fork of the Republican River just above the Colorado-Nebraska state line. The water then travels approximately 55 miles to Swanson Lake. The RRWCD pumped water from January through mid-April 2015 and again from November through December 2015 for compact compliance.

The annual precipitation total at Red Willow Dam was 21.80 inches (111 percent of normal). The annual inflow of 9,064 AF into Hugh Butler Lake was near the dry year forecast. The reservoir level at the beginning of 2015 was 2556.88 feet, 24.9 feet below the top of conservation. Late winter and spring inflows gradually increased the lake level to an elevation of 2562.60 feet by the end of June 2015. Summer evaporation slowed reservoir gains and the lake level peaked at 2562.74 feet on August 10, 2015. No irrigation releases were made from Hugh Butler Lake in 2015. Fall and early winter inflows increased the lake level to an end of year elevation of 2562.97 feet, 18.8 feet below the top of conservation. The Corps of Engineers determined that Hugh Butler Lake prevented $21,200 in flood damages in 2015.

The annual precipitation total of 23.74 inches at Medicine Creek Dam was 115 percent of normal. The inflow of 58,086 AF was just above the normal year forecast. The reservoir level at the beginning of 2015 was 1.8 feet above the top of conservation at 2367.85 feet. The reservoir level was maintained near this level through the end of June 2015 as all inflows were passed through the uncontrolled spillway notch. Additional releases were started from the river outlet works on June 29, 2015 to meet increasing irrigation demands. Irrigation releases continued through September 8, 2015 reducing the reservoir level to 2361.76 feet. The district diverted 29,156 AF into Cambridge Canal and delivered 8,719 AF to 15,363 acres of district lands. Late fall and early winter inflows increased the level of Harry Strunk Lake to an elevation of 2365.60 feet on November 16, 2015 (0.5 foot below the top of conservation). Releases were started at this time to maintain this reservoir level throughout the winter months. Medicine Creek Dam recorded 3.61 inches of precipitation during the month of November 2015, the greatest ever recorded for the month. The reservoir level at the end of 2015 was 2365.61 feet.

The Nebraska Cooperative Republican Platte Enhancement Project (N-CORPE) is an interlocal agency formed by the Upper Republican Natural Resource District (NRD), the Middle Republican NRD, the Lower Republican NRD, and the Twin Platte NRD. N-CORPE has constructed an augmentation project that pumps groundwater from Lincoln County into Medicine Creek. The delivery system consists of a 42-inch diameter pipe approximately six miles long. The pumped water enters at the source of Medicine Creek and travels approximately 57 stream miles to Harry Strunk Lake. The capacity of the project is approximately 87 cfs (63,000 AF annually). The augmentation project was in operation from January through late March of 2015, and again from late October until the end of 2015.

Since initial filling of Harry Strunk Lake, seepage has been observed along the right slope of the outlet works excavation of Medicine Creek Dam. This seepage is collected in two toe drains installed during initial construction and an additional drain added in 2000. Sediment was observed within the drain pipes during a video inspection in 2003. A recommendation was created in 2006 to replace the outlet works toe drain with a new, engineered drain including a manhole and method to measure flow and sediment and to place an engineered weighted filter with a drain over the right slope of the outlet works excavation.

An Issue Evaluation was performed in 2013, and a portion of the drain was exposed for further investigation of the soils and drain condition. The inspection discovered cementation of the gravel placed around the drain pipe during construction which could impede water from entering the toe drains and is the likely cause of the seepage in this vicinity. Final design of the repair and construction began in the fall of 2014. Construction and final documentation was completed in 2015.

The district was selected for a 2012 NKAO WCFSP grant for a project which would 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 included $95,902 of federal funding assistance with the District contributing $96,388 through funding and in-kind services. The project was completed in 2015.

2016 Outlook

Forecasts show that carry-over storage, streamflow gains, plus reasonable minimum inflows for the three lakes supplying the Frenchman-Cambridge Irrigation District will be inadequate to meet the full dry year irrigation requirement by 39,800 AF. The water supply will be inadequate by 3,100 AF under normal year conditions. The water supply will be adequate under wet year conditions.

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. In July of 2007, the Kansas Department of Wildlife and Parks and the Almena Irrigation District entered into a MOA to maintain a minimum pool elevation in the reservoir for ten years. The MOA was approved by the irrigators within the district and provided that no water would be released for irrigation below elevation 2288.5 feet.

2015 Summary

The annual precipitation at Norton Dam totaled 27.25 inches, which is 111 percent of normal. The total inflow of 4,252 AF was at the dry year forecast. The reservoir was 16.3 feet (2288.02 feet) below the top of conservation pool at the beginning of 2015. The reservoir level slowly increased to a peak elevation of 2288.81 feet on June 19, 2015. No irrigation releases

were made during 2015. The reservoir level gradually decreased during the summer and fall reaching a n elevation of 2287.24 feet on November 10, 2015. Norton Dam recorded 4.09 inches of precipitation during the month of November 2015, the greatest ever recorded for the month. Keith Sebelius Lake ended 2015 at an elevation of 2287.74 feet (16.6 feet below the top of conservation).

The city of Norton used 356 AF of municipal water during 2015.

2016 Outlook

If 2016 is a dry year without significant runoff producing storms above Keith Sebelius Lake, it is anticipated that the water supply may be inadequate by as much as 17,200 AF. If normal inflow into the lake and normal rainfall over the irrigated area occur in 2016, a shortage of 11,000 AF may be experienced. The water supply will be adequate under wet year conditions. Requirements for the city of Norton will be met in full in 2016.

The district continues to plan projects to replace open ditch laterals with buried pipe that will reduce seepage losses, lessen maintenance requirements, and provide improvements in on-farm efficiencies. However, due to uncertainty of the district's water supply in the past and the temporary agreements with the State to forgo irrigation releases, the district may delay some identified delivery system improvement projects.

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 (KBID) 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 KBID.

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 KBID. 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 three 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 KDWPT has requested that the KBID 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 two foot rise 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

2015 Summary

The annual precipitation at Harlan County Dam totaled 28.85 inches of rainfall, which is 127 percent of normal. The 2015 inflow of 106,728 AF was between the dry year and normal year forecasts. Harlan County Lake began 2015 approximately 14.9 feet below the top of conservation pool, at 1930.81 feet. The lake level gradually filled to a peak elevation of 1936.45 feet on June 22, 2015. Irrigation releases began on June 21, 2015 and continued through September 11, 2015. The lake level on September 11, 2015 was 1931.56 feet. KBID entered into an Excess Capacity Contract (Warren Act Authority) with Reclamation for the use of compact compliance water stored in Harlan County Lake during 2014. An amendment to this contract between the KBID and Reclamation in December of 2014 provided for 14,100 AF of water to be carried over into 2015. No water was released under this contract during the 2015 irrigation season. Losses due to evaporation resulted in 10,900 AF remaining in this pool at the end of 2015. Irrigation releases from Harlan County Lake totaled 54,502 AF in 2015. Harlan County Dam recorded 1.80 inches of precipitation during December 2015, the greatest ever recorded for the month. The level of Harlan County Lake on December 31, 2015 was at an elevation of 1932.86 feet (12.9 feet below the top of conservation). Harlan County Lake prevented $5,900,600 of downstream flood damages during 2015 according to the Corps of Engineers.

There was 30,533AF delivered to Lovewell Reservoir via Courtland Canal during 2015. This was approximately 42 percent of the total Lovewell Reservoir inflow.

Bostwick Division - Nebraska

2015 Summary

Irrigation diversions were made into Franklin, Naponee, Franklin Pump, Superior, and Courtland Canals in Nebraska in 2015. The district diverted 24,133 AF of water and delivered 8,963 AF to the farm head gates (37 percent delivery efficiency).

In 2015, the Bostwick Irrigation District in Nebraska was awarded a WaterSMART WEEG for a project which will replace approximately 2.7 miles of open ditch on Franklin Lateral 38.9 with buried pipe. The project is expected to provide an estimated water savings of 620 AF per year. This project is to be completed with a federal contribution of $169,692 and a non-federal contribution of $211,319. These pipe projects provide delivery system improvements by eliminating seepage losses and 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.

Bostwick Division – Kansas

2015 Summary

The 2015 precipitation at Lovewell Dam totaled 34.91 inches, which was 127 percent of normal. The total annual inflow recorded at Lovewell Reservoir was 71,888 AF. Approximately 41,833 AF of the inflow was from White Rock Creek which was between the normal year and wet year forecasts. The reservoir elevation at the beginning of 2015 was 1580.46 feet (2.1 feet below the top of conservation). Republican River diversions were made via the Courtland Canal into Lovewell Reservoir from January through late April 2015. The pool level gradually increased to an elevation of 1583.88 feet (1.3 feet above top of conservation) on May 6, 2015.

Lovewell Dam recorded 7.78 inches of rainfall overnight on May 6, 2015. Runoff from the storm event increased the level of Lovewell Reservoir to 7.2 feet into the flood pool with 50 percent of the flood pool storage occupied. Flood releases were staged up to 1,250 cfs by May 9, 2015 and maintained through May 18, 2015 when Lovewell Reservoir reached the desired target level. Approximately 23,000 AF was released from the reservoir. Lovewell Dam recorded 11.41 inches of precipitation during May 2015, the greatest ever recorded for the month.

Canal releases from Lovewell Reservoir began on May 19, 2015 and continued through September 12, 2015. The reservoir elevation at the end of the irrigation season was at 1578.80 feet. Republican River flow was diverted via Courtland Canal into Lovewell Reservoir through mid-December 2015. Lovewell Dam recorded 4.76 inches of precipitation during November and December 2015, the second greatest ever recorded for the period. The pool level at the end of 2015 was 1582.13 feet (0.5 foot below top of conservation). Lovewell Reservoir prevented $27,900 of downstream flood damages during 2015 according to the Corps of Engineers.

KBID diverted a total of 51,980 AF to serve 11,173 acres above Lovewell Dam and 27,797 acres below Lovewell Dam. District farm delivery totaled 25,665 AF for an efficiency of 49 percent.

The district was selected for a 2015 NKAO WCFSP grant for a project that allowed the district to convert an open ditch lateral to buried pipe.

Bostwick Division 2016

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.

On August 27, 2015 the RRCA adopted a Resolution Approving Accounting Adjustments and Agreements Related to the Operation of Harlan County Lake for Compact Call Year 2016 (Resolution). The Resolution (with several provisions) essentially provided that KBID would be assured of at least 40,000 AF of irrigation water supply held in Harlan County Lake on June 1, 2016. This supply includes KBID's share of project water, with the remaining balance being provided through the N-CORPE augmentation project. KBID has also entered into an Excess Capacity Contract (Warren Act authority) with Reclamation for compact water stored in Harlan County Lake. As of December 31, 2015 a total of 10,900 AF remained in this pool. Additional project water will be allocated in accordance to the MOA between the Bostwick, Nebraska Irrigation District and KBID.

Both districts have applied for 2016 NKAO WCFSP grants which will, if chosen, allow the districts to continue replacing open ditch canals and laterals with buried pipe.

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.

CHAPTER IV - SMOKY HILL RIVER BASIN

Kirwin Unit, Solomon Division in Kansas

General

The water supply for the 11,465 acres of land in the Kirwin Irrigation District is furnished by Kirwin Reservoir storage and inflows from the North Fork Solomon River and Bow Creek.

The operation of Kirwin Dam and Reservoir affords many opportunities for recreation, fishing, hunting, fish spawning, and preservation of waterfowl species.

The U.S. Fish and Wildlife Service (Service) has completed the Kirwin National Wildlife Refuge Comprehensive Conservation Plan (CCP). The 1997 National Refuge System Improvement Act required the Service to develop a CCP for each of its refuges. The Kirwin Refuge CCP will guide the refuge management activities through 2025.

2015 Summary

The annual precipitation total of 23.36 inches at Kirwin Dam was 99 percent of normal. The inflow of 17,802 AF was between the dry year and normal year forecasts. The reservoir level was 14.1 feet below the top of conservation pool at the beginning of 2015 (elevation 1715.11 feet). The reservoir level slowly increased to an elevation of 1716.21 feet on June 15, 2015. Irrigation releases began on June 29, 2015 and continued through August 28, 2015 decreasing the reservoir level to 1713.47 feet. The reservoir level gradually decreased throughout the fall and early winter to a minimum elevation of 1712.66 feet on November 16, 2015. Kirwin Dam recorded 2.54 inches of precipitation during the month of December 2015, the second greatest ever recorded for the month. The reservoir level increased to an elevation of 1713.10 feet on December 31, 2015 (16.1 feet below the top of conservation). The Corps of Engineers determined that Kirwin Reservoir prevented $8,100 in flood damages.

A total of 11,997 AF was released into Kirwin Canal to irrigate 8,717 acres of project lands during 2015. Farm delivery efficiency was 65 percent with 5,692 AF delivered to farms.

2016 Outlook

Carry-over storage and the forecasted inflows in the North Fork of the Solomon River are expected to be inadequate by 6,100 AF to irrigate district lands under dry year conditions. Normal year and wet year forecasted inflows would be adequate to irrigate all district lands.

The district continues to explore opportunities for replacing sections of open ditch lateral with buried pipe. The district is also assisting landowners with on-farm improvements such as the installation of sprinklers, assisting with burying lines to pivots and through the relocation of turnouts. Future conservation projects include the possibility of installing remote monitoring equipment at the wasteways and at the Kirwin North and South Canal split. Future conservation projects may be delayed due to the declining water supply and availability of cost-share funding.

During the Comprehensive Facility Review in 2002, a recommendation was made to patch the spalled and delaminated area of the spillway chute floor. The deterioration of the spillway chute concrete floor was examined further in 2012 during the scoping and design data collection phase of the project. Coring's were performed at spillway locations to assist in determining the depths of the delaminations. A Value Engineering Study was conducted in 2013 and a contract was awarded in September 2013. Work included removing and replacing deteriorated concrete on the spillway floor, upstream apron, stilling basin and spillway chute blocks; and repairing the earthen dike located downstream of the stilling basin. Construction was completed in 2015.

Webster Unit, Solomon Division in Kansas

General

The Webster Irrigation District has service available to 8,537 acres. The project water supply is provided by Webster Reservoir storage and flows of the South Fork Solomon River.

2015 Summary

In 2015, the precipitation at Webster Dam was 92 percent of normal (21.84 inches). The inflow of 5,057 AF was slightly above the dry year forecast. The reservoir level was 21.6 feet below the top of conservation pool at the beginning of 2015 (elevation 1870.85 feet). The reservoir level slowly increased to an elevation of 1871.44 on July 28, 2015. No irrigation releases were made in 2015 due to the short water supply. The pool level slowly decreased in the fall and winter, and the elevation was 1870.03 feet on December 31, 2015 (22.4 feet below the top of conservation). Webster Dam recorded 2.61 inches of precipitation during the month of December 2015, the second greatest ever recorded for the month. The Corps of Engineers determined that Webster Reservoir prevented $5,100 in flood damages.

2016 Outlook

The carry-over storage and the flows in the South Fork Solomon River are expected to be inadequate to irrigate district lands in 2016 under dry year conditions by 28,100 AF and under normal conditions by 8,500 AF. The water supply will be adequate under wet year inflow conditions.

The district continued to explore opportunities to cost share with Reclamation and district irrigators for the replacement of open ditch laterals with buried pipe. The district will continue to seek outside funding for water conservation improvement projects. Future conservation projects include the possibility of installing remote monitoring equipment at the wasteways and at the beginning of the second and third sections of Osborne Canal. These projects may be delayed due to current low water supplies and the availability of cost-share funding.

Glen Elder Unit, Solomon Division in Kansas

General

Releases from Waconda Lake are regulated as outlined in two memorandums of understanding between the State of Kansas and Reclamation. Releases are made for the city of Beloit, the Mitchell County Rural Water District, the long-term water service contract with Glen Elder Irrigation District, and for water right administration.

Renewal of the long term water service contract with the City of Beloit, Kansas was completed in 2008. The new repayment contract became effective on January 1, 2009. The repayment contract with Beloit, Kansas, provides for the annual use of up to 2,000 AF from Waconda Lake storage. Water is measured at the Glen Elder Dam river outlet works.

The water service contract with the Mitchell County Rural Water District No. 2 provides for 1,009 AF of storage water as available from Waconda Lake.

The water service contract with the Glen Elder Irrigation District provides for the use of up to 18,000 AF of storage water each year. Based on the current State of Kansas Certificate of Appropriation, water usage is not to exceed 15,170 AF per calendar year. Water is released and measured through the river outlet works.

When compatible with flood control operations, the operating criteria for Waconda Lake provide for a stable or rising pool level during the fish spawning period each spring.

When possible, Waconda Lake is allowed to fill during the late summer and early fall to flood exposed shoreline vegetation. This flooded aquatic vegetation is very beneficial to waterfowl management.

Waconda Lake is normally regulated at one to two feet below the top of conservation capacity during the winter months. Maintaining the lake at this level reduces shoreline erosion, provides a buffer for spring runoff and lessens ice damage to the upstream face of Glen Elder Dam. Releases from Waconda Lake are regulated each year to maintain a constant water surface level while the lake is ice covered.

2015 Summary

The annual precipitation total of 25.66 inches at Glen Elder Dam was 101 percent of normal. The inflow of 103,844 AF was between the dry year and normal year forecasts. The lake level at the beginning of 2015 was 2.4 feet below the top of conservation at 1453.25 feet. Evaporation combined with minimal irrigation releases to offset inflows during the first four months of 2015 and the lake level was 1453.31 feet on May 6, 2015. Irrigation releases began on April 1, 2015. Glen Elder Dam recorded 9.78 inches of precipitation from May 7, 2015 through June 19, 2015, gradually increasing the lake level to elevation 1455.26 feet on June 20, 2015.

A storm system passing through North Central Kansas overnight on August 4, 2015 resulted in unofficial reports of five inches of rain in the North Fork Solomon River Basin above Waconda Lake. Waconda Lake storage increased 31,000 AF from the storm runoff with a peak average daily inflow of approximately 5,300 cfs. Storage peaked with 22,000 AF of the flood pool occupied (1.7 feet into the flood pool). A flood release began on August 7, 2015, and the lake level was reduced to a target level by August 24, 2015. Irrigation releases continued through September 16, 2015. Waconda Lake ended the year 0.5 foot (elevation 1455.12 feet) below the top of conservation. Waconda Lake prevented $14,589,400 of downstream flood damages during 2015 according to the Corps of Engineers.

A total of 35,610 AF of water was released from Glen Elder Dam in 2015. Storage releases of 3,626 AF combined with natural flow releases of 5,253 AF for the irrigation of 5,544 acres in the Glen Elder Irrigation District. The district delivered 3,530 AF to the farms resulting in a delivery efficiency of 40 percent. Storage releases totaling 932 AF were made for the City of Beloit, with an additional 3,787 AF bypassed for water quality as directed by the State Water Commissioner. Releases to the Mitchell County Rural Water District No. 2 totaled 719 AF.

2016 Outlook

The municipal requirement of Beloit and the requirements of the Mitchell County Rural Water District No. 2 will be met in full with releases as required from Waconda Lake. It is expected that the Kansas Water Commissioner will request that inflows be passed through the lake for water right administration. The storage in Waconda Lake and flows in the North and South Forks of the Solomon River will furnish a full water supply to the Glen Elder Irrigation District. The reservoir will be regulated to maintain a constant level during the winter months when the

reservoir is ice-covered to minimize ice damage. Under normal year conditions, the lake is expected to be maintained between one and two feet below the top of the conservation pool during the winter.

The Glen Elder Irrigation District continues to encourage their producers to advance water ordering times to improve on water releases, making more efficient use of the district's water supply. Some district pumping sites present problems due to river conditions at the sites. In order to minimize required reservoir releases, the district is investigating potential improvements to those water pumping sites.

Cedar Bluff Unit, Smoky Hill Division in Kansas

General

Cedar Bluff Reservoir storage furnishes a maximum of 2,000 AF each year for the City of Russell, Kansas when required. Prior to 1993, Cedar Bluff Reservoir storage and Smoky Hill River flows had provided a water supply for 6,800 acres in the Cedar Bluff Irrigation District. Reformulation of the Cedar Bluff Unit in October of 1992 resulted in the dissolution of the Cedar Bluff Irrigation District with the Kansas Water Office and Kansas Department of Wildlife and Parks acquiring the use and control of portions of the reservoir conservation capacity. A "designated operating pool" was established for Cedar Bluff Reservoir and includes the following sub allocation pools: The City of Russell's existing water storage right which remained unchanged (2,700 AF); an artificial recharge pool under control of the Kansas Water Office (5,110 AF); and a fish, wildlife and recreation pool under control of the KDWPT (21,061 AF). A "joint-use pool" has been established between the operating pool and the flood control pool for water supply, flood control, environmental and fish, wildlife and recreation purposes. Water rights for the "joint-use pool" are held jointly between the KDWPT and the Kansas Water Office. A Contract Administration Memorandum between the United States of America, represented by Reclamation, the State of Kansas and the City of Russell was signed in November and December of 2003, establishing an accounting procedure for water storage in Cedar Bluff Reservoir. In January 2006 a Memorandum of Understanding was signed by the State of Kansas agencies, Kansas Water Office, and Kansas Department of Wildlife and Parks. The KDWPT will be responsible for the joint pool releases and for the water rights.

2015 Summary

The annual precipitation total at Cedar Bluff Dam was 25.47 inches which is 121 percent of normal. The 2015 inflow of 7,763 AF was between the dry year and normal year forecasts. The reservoir level at the beginning of 2015 was 2121.08 feet (22.9 feet below top of conservation). The level of Cedar Bluff Reservoir slowly increased to an elevation of 2121.20 on June 6, 2015. Water was not released from the reservoir for the City of Russell or the Kansas Water Office in 2015. Evaporation and seepage losses exceeded inflows throughout the remainder of 2015 and the reservoir level gradually decreased to an elevation of 2119.29 feet on December 31, 2015 (24.7 feet below the top of conservation). October through December 2015 precipitation at Cedar Bluff Dam totaled 7.95 inches and was the greatest ever recorded for the period. The Corps of Engineers determined that the reservoir prevented $2,850,800 in flood damages.

The State of Kansas operates and maintains the fish hatchery facility located below Cedar Bluff Dam. There were no releases to the facility in 2015.

2016 Outlook

Storage in Cedar Bluff Reservoir on December 31, 2015 was within the joint use pool. The KDWPT is expected to use very little if any water in the operations of the fish hatchery facility. If conditions are dry, the City of Russell and the Kansas Water Office may request a release to the river for recharge in 2016.

TABLE 1

RESERVOIR DATA - NIOBRARA, LOWER PLATTE AND KANSAS RIVER BASINS

		CAPACITY ALLOCATIONS*			
			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	- 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	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***	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 **
Total Net Acre-feet		32,379	232,385	1,192,684	2,357,677

* Includes space for sediment storage.

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

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

TABLE 2
SUMMARY OF 2015 OPERATIONS
MIRAGE FLATS PROJECT

	BOX BUTTE RESERVOIR					MIRAGE FLATS CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	1,126	28	84	0.05	11,860	0	0
Feb.	1,525	24	111	1.02	13,250	0	0
Mar.	1,552	27	208	0.18	14,567	0	0
Apr.	1,732	30	357	2.52	15,912	0	0
May	4,132	36	464	7.19	19,544	0	0
June	4,219	30	641	6.35	23,092	0	0
July	1,537	3,715	741	2.86	20,173	4,003	1,381
Aug.	260	4,608	588	0.94	15,237	5,183	2,735
Sep.	259	1,777	386	0.81	13,333	1,968	1,070
Oct.	1,447	36	275	1.57	14,469	0	0
Nov.	1,602	36	157	0.60	15,878	0	0
Dec.	1,589	32	96	1.01	17,339	0	0
TOTAL	20,980	10,379	4,108	25.10	--	11,154	5,186

NOTE -- Acres irrigated 2015: Mirage Flats Canal 6,765 acres.

SANDHILLS DIVISION
AINSWORTH UNIT

	MERRITT RESERVOIR					AINSWORTH CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month (AF)	Release To Canal (AF)	Delivered To Farms (AF)
Jan.	16,001	14,123	239	0.16	62,739	0	0
Feb.	14,909	16,245	303	0.79	61,100	0	0
Mar.	14,855	14,440	415	0.05	61,100	0	0
Apr.	16,163	9,818	719	1.75	66,726	0	0
May	21,973	20,948	734	7.35	67,017	1,158	0
June	17,084	16,211	1,164	4.43	66,726	3,673	3
July	17,618	29,576	1,139	3.44	53,629	27,568	15,675
Aug.	17,537	27,017	842	1.67	43,307	25,751	16,140
Sep.	17,449	14,291	639	5.05	45,826	13,402	8,735
Oct.	16,666	1,785	673	1.66	60,034	0	0
Nov.	15,336	13,825	445	1.20	61,100	0	0
Dec.	16,874	16,562	312	1.44	61,100	0	0
TOTAL	202,465	194,841	7,624	28.99	--	71,552	40,553

NOTE -- Acres irrigated 2015: Ainsworth Canal 34,626 acres.

NORTH LOUP DIVISION

	CALAMUS RESERVOIR						ABOVE DAVIS CREEK MIRDAN CANAL		
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month (AF)	Release to Calamus Fish Hatch. (AF)	Release to Canal (AF)	Canal Use (AF)	Delivered To Farms (AF)
Jan.	19,878	14,763	431	0.01	102,590	195	0	0	0
Feb.	18,904	13,305	556	0.58	107,633	176	0	0	0
Mar.	19,652	10,392	1,033	0.00	115,860	248	0	0	0
Apr.	21,131	16,082	1,744	2.16	119,165	659	8,557	14	0
May	23,411	21,319	1,889	3.32	119,368	278	19,843	2,942	32
June	23,422	22,592	2,243	3.63	117,955	433	18,424	3,311	466
July	23,820	46,904	3,186	2.94	91,685	577	33,142	18,871	13,159
Aug	22,046	41,011	2,015	3.31	70,705	577	27,072	19,686	12,539
Sep.	20,271	21,644	1,607	2.60	67,725	569	7,837	6,267	4,170
Oct.	19,664	2,934	1,062	1.32	83,393	173	0	0	0
Nov.	19,201	4,175	642	2.28	97,777	114	0	0	0
Dec.	19,188	14,115	394	0.46	102,456	111	0	0	0
TOTAL	250,588	229,236	16,802	22.61	--	4,110	114,875	51,091	30,366

NOTE -- Acres irrigated 2015: Mirdan Canal 34,110 acres.

NORTH LOUP DIVISION (Continued)

	DAVIS CREEK RESERVOIR					BELOW DAVIS CREEK FULLERTON CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month (AF)	Release To Canal (AF)	Delivered To Farms (AF)
Jan.	41	190	50	0.60	9,552	0	0
Feb.	44	165	61	0.51	9,370	0	0
Mar.	0	173	110	0.05	9,087	0	0
Apr.	5,950	226	203	3.21	14,608	0	0
May	13,463	3,957	306	2.03	23,808	3,074	0
June	13,173	5,225	461	4.36	31,295	3,834	283
July	11,522	17,340	522	2.19	24,955	15,900	11,511
Aug.	6,066	14,841	332	2.99	15,848	13,976	5,017
Sep.	1,502	6,920	272	4.65	10,158	6,768	2,293
Oct.	167	212	149	0.97	9,964	0	0
Nov.	330	202	81	4.13	10,011	0	0
Dec.	90	206	46	0.79	9,849	0	0
TOTAL	52,348	49,657	2,593	26.48	--	43,552	19,104

NOTE - Acres irrigated 2015: Fullerton Canal 21,016 acres.

TABLE 2
SUMMARY OF 2015 OPERATIONS

UPPER REPUBLICAN DIVISION
ARMEL UNIT

BONNY RESERVOIR

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month (AF)	Outflow To Hale Ditch (AF)
Jan.	307	307	0	0.54	0	0
Feb.	333	333	0	0.05	0	0
Mar.	425	425	0	0.00	0	0
Apr.	456	456	0	1.62	0	286
May	817	817	0	9.10	0	346
June	2,184	2,184	0	2.40	0	298
July	442	442	0	3.49	0	98
Aug.	123	123	0	0.32	0	0
Sep.	119	119	0	1.25	0	0
Oct.	123	123	0	1.11	0	0
Nov.	119	119	0	0.89	0	0
Dec.	123	123	0	0.01	0	0
TOTAL	5,571	5,571	0	20.78	--	1,028

TABLE 2
SUMMARY OF 2015 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 (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	535	185	47	0.00	9,453	0	0	0	0
Feb.	465	167	57	0.30	9,694	0	0	0	0
Mar.	465	185	95	0.00	9,879	0	0	0	0
Apr.	610	179	196	2.04	10,114	809	0	0	0
May	1,227	185	260	8.25	10,896	2,254	0	0	0
June	547	179	347	2.07	10,917	2,264	54	0	0
July	107	185	404	0.52	10,435	1,261	134	0	0
Aug.	324	185	351	2.52	10,223	1,275	145	0	0
Sep.	92	179	270	1.11	9,866	873	103	0	0
Oct.	296	185	151	2.06	9,826	385	2	0	0
Nov.	441	179	109	1.05	9,979	0	0	0	0
Dec.	445	185	61	0.31	10,178	0	0	0	0
TOTAL	5,554	2,178	2,348	20.23	--	9,121	438	0	0

NOTE: Acres irrigated 2015: Culbertson Canal - 871 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 (AF)	Release To Canal (AF)	Delivered To Farms (AF)
Jan.	4,684	61	181	0.05	32,130	0	0
Feb.	4,151	56	252	0.34	35,973	0	0
Mar.	3,990	61	402	0.10	39,500	0	0
Apr.	4,819	60	913	3.89	43,346	0	0
May	10,085	61	1,057	4.71	52,313	0	0
June	8,991	732	1,524	2.90	59,048	833	12
July	1,281	7,974	1,815	2.33	50,540	7,948	2,612
Aug.	419	6,006	1,309	2.66	43,644	5,951	2,324
Sep.	0	855	1,270	0.76	41,519	618	300
Oct.	0	61	889	0.93	40,569	0	0
Nov.	1,236	60	485	1.33	41,260	0	0
Dec.	2,660	61	268	0.21	43,591	0	0
TOTAL	42,316	16,048	10,365	20.21	--	15,350	5,248

NOTE: Acres irrigated 2015: Meeker-Driftwood Canal - 9,326 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 (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	665	123	45	0.00	8,638	0	0	0	0
Feb.	610	111	58	0.00	9,079	0	0	0	0
Mar.	582	123	101	0.00	9,437	0	0	0	0
Apr.	1,142	119	345	2.73	10,115	0	0	1,517	0
May	1,256	123	302	4.53	10,946	0	0	2,331	57
June	2,111	119	436	4.36	12,502	0	0	2,153	36
July	618	123	496	2.58	12,501	0	0	1,403	180
Aug.	373	123	370	2.28	12,381	0	0	1,084	133
Sep.	51	119	323	1.01	11,990	0	0	102	55
Oct.	427	123	190	1.70	12,104	0	0	0	0
Nov.	694	119	138	2.35	12,541	0	0	0	0
Dec.	535	123	74	0.26	12,879	0	0	0	0
TOTAL	9,064	1,448	2,878	21.80	--	0	0	8,590	461

NOTE -- Acres irrigated 2015: Red Willow Canal - 0 acres; Bartley Canal 1,117 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 (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	6,691	5,764	131	0.00	38,780	0	0
Feb.	6,417	6,327	150	0.00	38,720	0	0
Mar.	7,197	6,972	265	0.00	38,680	0	0
Apr.	3,894	4,467	653	2.27	37,454	3,300	16
May	3,928	3,376	650	4.21	37,356	4,538	36
June	4,281	3,882	807	2.28	36,948	4,756	253
July	3,207	7,289	841	6.03	32,025	7,278	3,732
Aug.	4,223	6,500	617	2.65	29,131	7,387	3,604
Sep.	2,296	2,146	499	1.52	28,782	1,897	1,078
Oct.	2,530	62	458	1.05	30,792	0	0
Nov.	6,514	2,767	272	3.61	34,267	0	0
Dec.	6,908	7,256	146	0.12	33,773	0	0
TOTAL	58,086	56,808	5,489	23.74	--	29,156	8,719

NOTE -- Acres irrigated 2015: Cambridge Canal 15,363 acres.

TABLE 2
SUMMARY OF 2015 OPERATIONS

KANASKA DIVISION
ALMENA UNIT

	KEITH SEBELIUS LAKE						ALMENA CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month (AF)	Release To City of Norton (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	233	50	62	0.17	9,797	19	0	0
Feb.	226	45	79	0.30	9,899	17	0	0
Mar.	222	52	133	0.21	9,936	21	0	0
Apr.	693	54	430	3.77	10,145	24	0	0
May	658	58	417	4.67	10,328	27	0	0
June	476	63	520	2.42	10,221	33	0	0
July	300	85	639	3.23	9,797	54	0	0
Aug.	483	72	522	4.41	9,686	42	0	0
Sep.	88	75	465	1.18	9,234	46	0	0
Oct.	169	66	297	1.88	9,040	35	0	0
Nov.	469	49	145	4.09	9,315	19	0	0
Dec.	235	50	78	0.92	9,422	19	0	0
TOTAL	4,252	719	3,787	27.25	--	356	0	0

NOTE: Acres irrigated 2015: Almena Canal -0 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 (AF)	Release To Canal (AF)	Delivered To Farms (AF)	Release To Canal (AF)	Delivered To Farms (AF)
Jan.	7,597	0	496	0.00	155,943	0	0	0	0
Feb.	10,840	0	666	0.06	166,117	0	0	0	0
Mar.	12,228	0	987	0.23	177,358	0	0	0	0
Apr.	12,040	0	2,635	3.29	186,763	0	0	0	0
May	9,511	0	3,097	3.62	193,177	0	0	0	0
June	14,985	2,729	4,283	5.30	201,150	0	0	22	0
July	8,757	28,340	5,074	5.07	176,493	9,268	2,966	436	126
Aug.	8,618	19,363	5,014	6.09	160,734	5,972	3,010	354	127
Sep.	2,093	4,070	5,322	0.52	153,435	0	0	0	0
Oct.	1,775	0	3,118	1.18	152,092	0	0	0	0
Nov.	6,115	0	2,085	1.69	156,122	0	0	0	0
Dec.	12,169	0	875	1.80	167,416	0	0	0	0
TOTAL	106,728	54,502	33,652	28.85	--	15,240	5,976	812	253

NOTE: Acres irrigated 2015: Franklin Canal - 9,954 acres; Naponee Canal - 305 acres.

BOSTWICK DIVISION (Continued)
SUPERIOR-COURTLAND UNIT

	FRANKLIN PUMP CANAL		SUPERIOR CANAL			COURTLAND CANAL - ABOVE LOVEWELL			
						NEBRASKA USE		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	3,501	0	0	0	0
Feb.	0	0	0	0	3,138	0	0	0	0
Mar.	0	0	0	0	3,888	0	0	0	0
Apr.	0	0	157	0	2,887	0	0	0	0
May	0	0	639	0	0	0	0	0	0
June	74	14	0	0	3,960	0	0	2,580	139
July	634	251	3,251	878	13,504	305	274	8,388	3,373
Aug.	319	171	2,524	986	12,400	178	160	7,081	3,260
Sep.	0	0	0	0	6,577	0	0	2,387	1,294
Oct.	0	0	0	0	2,887	0	0	0	0
Nov.	0	0	0	0	3,432	0	0	0	0
Dec.	0	0	0	0	1,275	0	0	0	0
TOTAL	1,027	436	6,571	1,864	57,449	483	434	20,436	8,066

NOTE: Acres irrigated 2015: Franklin Pump Canal - 1,087 acres; Superior Canal - 6,154 acres.
Courtland Canal-Nebraska use - 1,412 acres.
Courtland Canal-Kansas use - 11,173 acres.

BOSTWICK DIVISION (Continued)
COURTLAND UNIT

	LOVEWELL RESERVOIR							COURTLAND (Below)	
Month	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)	Release To Canal (AF)	Delivered To Farms (AF)
Jan.	0	2,282	2,263	12	156	0.05	31,715	0	0
Feb.	59	2,719	2,778	11	203	0.92	34,279	0	0
Mar.	0	3,243	3,134	12	376	0.48	37,025	0	0
Apr.	896	2,741	3,637	12	1,037	2.47	39,613	0	0
May	26,677	120	26,797	23,409	828	11.41	42,173	385	0
June	6,314	687	7,001	6,842	1,531	4.11	40,801	3,709	504
July	2,041	3,966	6,007	11,251	1,482	4.72	34,075	11,268	6,763
Aug.	2,993	4,360	7,353	11,513	1,193	4.71	28,722	11,378	7,121
Sep.	1,003	3,718	4,721	4,975	1,009	0.75	27,459	4,804	3,211
Oct.	0	2,290	1,940	12	717	0.53	28,670	0	0
Nov.	112	3,076	3,188	12	408	2.37	31,438	0	0
Dec.	1,738	1,331	3,069	12	216	2.39	34,279	0	0
TOTAL	41,833	30,533	71,888	58,073	9,156	34.91	--	31,544	17,599

NOTE: Acres irrigated 2015: Courtland Canal below Lovewell 27,797 acres.

TABLE 2
SUMMARY OF 2015 OPERATIONS

SOLOMON DIVISION
KIRWIN UNIT

	KIRWIN RESERVOIR					KIRWIN CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month (AF)	Release To Canal (AF)	Delivered To Farms (AF)
Jan.	850	0	199	0.01	41,917	0	0
Feb.	936	0	278	0.78	42,575	0	0
Mar.	1,108	0	443	0.40	43,240	0	0
Apr.	1,687	0	1,272	1.43	43,655	0	0
May	1,844	0	1,104	3.57	44,395	0	0
June	1,790	149	2,093	2.03	43,943	267	0
July	5,583	5,786	2,196	6.10	41,544	6,025	2,051
Aug.	2,122	5,893	1,468	3.37	36,305	5,705	3,641
Sep.	154	0	1,453	0.37	35,006	0	0
Oct.	0	0	701	0.59	34,305	0	0
Nov.	498	0	418	2.17	34,385	0	0
Dec.	1,230	0	226	2.54	35,389	0	0
TOTAL	17,802	11,828	11,851	23.36	--	11,997	5,692

NOTE: Acres irrigated 2015: Kirwin Canal - 8,717 acres.

SOLOMON DIVISION (Continued)
WEBSTER UNIT

	WEBSTER RESERVOIR					OSBORNE CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	289	0	118	0.12	18,851	0	0
Feb.	233	0	148	0.62	18,936	0	0
Mar.	284	0	249	0.06	18,971	0	0
Apr.	965	0	655	2.62	19,281	0	0
May	856	0	597	2.90	19,540	0	0
June	482	0	983	1.99	19,039	0	0
July	1,449	0	948	6.10	19,540	0	0
Aug.	0	0	945	0.96	18,595	0	0
Sep.	0	0	975	0.64	17,620	0	0
Oct.	0	0	398	1.90	17,222	0	0
Nov	122	0	269	1.32	17,075	0	0
Dec.	377	0	147	2.61	17,305	0	0
TOTAL	5,057	0	6,432	21.84	--	0	0

NOTE: Acres irrigated 2015: Osborne Canal - 0 acres.

SOLOMON DIVISION (Continued)
GLEN ELDER UNIT

						OUTFLOW TO RIVER				
	WACONDA LAKE					City of Beloit		Irrig.District	Other	Release To
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month (AF)	Storage Release (AF)	Quality Bypass (AF)	Storage Release (AF)	Controlled Releases (AF)	Mitchell Co. RWD No. 2 (AF)
Jan.	2,286	802	682	0.05	191,899	0	738	0	0	64
Feb.	2,444	720	919	0.45	192,704	0	666	0	0	54
Mar.	2,159	804	1,585	0.01	192,474	0	738	0	0	66
Apr.	4,922	1,256	4,126	1.92	192,014	0	1	0	1,190	65
May	18,981	916	4,143	6.37	205,936	0	548	0	317	51
June	14,216	1,138	6,960	3.72	212,054	0	571	42	466	59
July	11,534	3,596	7,814	4.62	212,178	0	29	2,106	1,396	65
Aug.	35,144	11,105	5,933	3.40	230,284	0	0	1,319	9,729	57
Sep.	109	3,969	6,373	0.16	220,051	0	0	159	3,748	62
Oct.	1,862	953	4,428	1.79	216,532	583	107	0	199	64
Nov.	2,740	770	1,970	2.11	216,532	349	365	0	0	56
Dec.	7,447	9,581	981	1.06	213,417	0	24	0	9,501	56
TOTAL	103,844	35,610	45,914	25.66	--	932	3,787	3,626	26,546	719

NOTE: Acres irrigated 2015: Glen Elder District 5,544 acres.

SMOKY HILL DIVISION
ELLIS UNIT

	CEDAR BLUFF RESERVOIR					Releases To:		
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month (AF)	City of Russell (AF)	Fish Hatchery (AF)	Kansas Water (AF)
Jan.	87	0	243	0.08	60,961	0	0	0
Feb.	0	0	313	0.38	60,648	0	0	0
Mar.	89	0	493	0.07	60,244	0	0	0
Apr.	1,415	0	1,353	3.38	60,306	0	0	0
May	2,110	0	1,174	5.77	61,242	0	0	0
June	1,077	0	1,920	0.79	60,399	0	0	0
July	1,457	0	2,076	4.72	59,780	0	0	0
Aug.	104	0	1,786	1.23	58,098	0	0	0
Sep.	0	0	2,063	1.10	56,035	0	0	0
Oct.	429	0	988	3.38	55,476	0	0	0
Nov.	416	0	504	2.41	55,388	0	0	0
Dec.	579	0	286	2.16	55,681	0	0	0
TOTAL	7,763	0	13,199	25.47	--	0	0	0

TABLE 3

ACRES IRRIGATED IN 2015 AND ESTIMATES FOR 2016

Irrigation District and Canal	Acres With Service Available	Acres Irrigated in 2015	Estimated Acres to be Irrigated in 2016
Mirage Flats Irrigation District			
Mirage Flats Canal	11,662	6,765	11,000
Ainsworth Irrigation District			
Ainsworth Canal	35,000	34,626	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	871	1,000
H & RW Irrigation District			
Culbertson Extension Canal	11,915	0	0
Frenchman-Cambridge Irrigation District			
Meeker-Driftwood Canal	16,855	9,326	10,000
Red Willow Canal	4,797	0	0
Bartley Canal	6,353	1,117	3,000
Cambridge Canal	17,664	15,363	16,000
Total Frenchman-Cambridge Irrigation District	45,669	25,806	29,000
Almena Irrigation District			
Almena Canal	5,764	0	0
Bostwick Irrigation District in Nebraska			
Franklin Canal	11,031	9,954	10,000
Naponee Canal	1,607	305	500
Franklin Pump Canal	2,026	1,087	1,000
Superior Canal	6,056	6,154	6,000
Courtland Canal (Nebraska)	1,735	1,412	1,500
Total Bostwick Irrigation Dist. in Nebraska	22,455	18,912	19,000
Kansas-Bostwick Irrigation District			
Courtland Canal above Lovewell	13,378	11,173	11,500
Courtland Canal below Lovewell	29,122	27,797	28,000
Total Kansas-Bostwick Irrigation District	42,500	38,970	39,500
Kirwin Irrigation District			
Kirwin Canal	11,465	8,717	8,500
Webster Irrigation District			
Osborne Canal	8,537	0	0
Glen Elder Irrigation District	10,370	5,544	6,000
TOTAL PROJECT USES	269,745	195,337	203,500
Non-Project Uses			
Hale Ditch	700	200	200
TOTAL PROJECT AND NON-PROJECT	270,445	195,537	203,700

BOX BUTTE RESERVOIR OPERATION ESTIMATES - 2016

	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	13	0.8	1.6	0.1	2	0.1	0.0	0.0	3999.0	17.9	0.6
FEB	16	0.9	1.9	0.1	2	0.1	0.0	0.0	3999.6	18.6	0.7
MAR	21	1.3	3.8	0.3	2	0.1	0.0	0.0	4000.3	19.5	0.9
APR	18	1.1	5.4	0.4	2	0.1	0.0	0.0	4000.7	20.1	0.6
MAY	15	0.9	6.6	0.5	2	0.1	0.0	0.0	4001.0	20.4	0.3
JUN	8	0.5	8.8	0.7	89	5.3	0.0	0.0	3996.5	14.9	-5.5
JUL	6	0.4	10.1	0.7	226	13.9	0.0	1.7	3979.0	2.4	-12.5
AUG	10	0.6	8.8	0.2	213	13.1	0.0	12.7	3979.0	2.4	0.0
SEP	10	0.6	6.6	0.1	40	2.4	0.0	1.9	3979.0	2.4	0.0
OCT	13	0.8	5.0	0.1	2	0.1	0.0	0.0	3980.4	3.0	0.6
NOV	17	1.0	2.5	0.1	2	0.1	0.0	0.0	3982.1	3.8	0.8
DEC	13	0.8	1.9	0.1	2	0.1	0.0	0.0	3983.4	4.4	0.6
TOTAL		9.7	63.0	3.4		35.5	0.0	16.3			-12.9
MOST PROBABLE INFLOW CONDITIONS											
JAN	19	1.2	1.5	0.1	2	0.1	0.0	0.0	3999.3	18.3	1.0
FEB	27	1.5	1.8	0.1	2	0.1	0.0	0.0	4000.4	19.6	1.3
MAR	34	2.1	3.5	0.3	2	0.1	0.0	0.0	4001.6	21.3	1.7
APR	30	1.8	5.0	0.4	2	0.1	0.0	0.0	4002.6	22.6	1.3
MAY	23	1.4	6.1	0.5	2	0.1	0.0	0.0	4003.1	23.4	0.8
JUN	13	0.8	8.2	0.7	70	4.2	0.0	0.0	4000.1	19.3	-4.1
JUL	10	0.6	9.3	0.7	209	12.9	0.0	0.0	3986.6	6.3	-13.0
AUG	16	1.0	8.2	0.3	164	10.1	0.0	5.5	3978.9	2.4	-3.9
SEP	17	1.0	6.1	0.1	29	1.7	0.0	0.8	3979.0	2.4	0.0
OCT	19	1.2	4.7	0.1	2	0.1	0.0	0.0	3981.3	3.4	1.0
NOV	25	1.5	2.3	0.1	2	0.1	0.0	0.0	3983.9	4.7	1.3
DEC	21	1.3	1.8	0.1	2	0.1	0.0	0.0	3985.8	5.8	1.1
TOTAL		15.4	58.5	3.5		29.7	0.0	6.3			-11.5
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	24	1.5	1.3	0.1	2	0.1	0.0	0.0	3999.6	18.6	1.3
FEB	32	1.8	1.6	0.1	2	0.1	0.0	0.0	4000.8	20.2	1.6
MAR	42	2.6	3.2	0.2	2	0.1	0.0	0.0	4002.5	22.5	2.3
APR	37	2.2	4.6	0.4	2	0.1	0.0	0.0	4003.7	24.2	1.7
MAY	28	1.7	5.6	0.5	2	0.1	0.0	0.0	4004.5	25.3	1.1
JUN	17	1.0	7.5	0.6	47	2.8	0.0	0.0	4002.8	22.9	-2.4
JUL	11	0.7	8.6	0.7	135	8.3	0.0	0.0	3996.2	14.6	-8.3
AUG	19	1.2	7.5	0.5	104	6.4	0.0	0.0	3990.3	8.9	-5.7
SEP	20	1.2	5.6	0.3	18	1.1	0.0	0.0	3990.0	8.7	-0.2
OCT	24	1.5	4.3	0.2	2	0.1	0.0	0.0	3991.4	9.9	1.2
NOV	32	1.9	2.1	0.1	2	0.1	0.0	0.0	3993.2	11.6	1.7
DEC	26	1.6	1.6	0.1	2	0.1	0.0	0.0	3994.7	13.0	1.4
TOTAL		18.9	53.5	3.8		19.4	0.0	0.0			-4.3

MERRITT RESERVOIR OPERATION ESTIMATES - 2016

	INFLOW		EVAPORATION		RELEASE REQUIRMENT CANAL	RIVER	TOTAL		RESERVOIR SPILL	REQUIREMENT SHORTAGE	END OF MONTH ELEV	CONT	RESERVOIR CHANGE
	MEAN	1000		1000	1000	1000	MEAN	1000	1000	1000		1000	1000
MONTH	CFS	AF	INCHES	AF	AF	AF	CFS	AF	AF	AF	FT	AF	AF
REASONABLE MINIMUM INFLOW CONDITIO NS													
JAN	227	14.0	1.9	0.3	0.0	1.0	16	1.0	12.7	0.0	2944.0	61.1	0.0
FEB	248	13.8	2.6	0.4	0.0	1.0	18	1.0	12.4	0.0	2944.0	61.1	0.0
MAR	256	15.8	3.2	0.5	0.0	1.0	16	1.0	11.5	0.0	2945.0	63.9	2.8
APR	262	15.6	5.2	0.9	0.0	1.0	17	1.0	10.9	0.0	2946.0	66.7	2.8
MAY	253	15.6	6.5	1.1	3.4	1.0	71	4.4	10.1	0.0	2946.0	66.7	0.0
JUN	242	14.4	8.4	1.4	7.6	1.0	144	8.6	4.4	0.0	2946.0	66.7	0.0
JUL	242	14.9	9.7	1.6	33.4	1.0	558	34.4	0.0	0.0	2937.1	45.6	-21.1
AUG	247	15.2	8.4	1.0	31.0	1.0	519	32.0	0.0	0.0	2926.2	27.8	-17.8
SEP	243	14.5	7.1	0.5	8.5	1.0	159	9.5	0.0	0.0	2929.4	32.3	4.5
OCT	247	15.2	6.5	0.6	0.0	2.5	41	2.5	0.0	0.0	2936.5	44.4	12.1
NOV	242	14.4	3.2	0.4	0.0	4.0	67	4.0	0.0	0.0	2941.3	54.4	10.0
DEC	224	13.8	1.9	0.3	0.0	1.0	16	1.0	5.8	0.0	2944.0	61.1	6.7
TOTAL		177.2	64.6	9.0	83.9	16.5		100.4	67.8	0.0			0.0
MOST PROBABLE INFLOW CONDITIONS													
JAN	239	14.7	1.7	0.3	0.0	1.0	16	1.0	13.4	0.0	2944.0	61.1	0.0
FEB	261	14.5	2.3	0.4	0.0	1.0	18	1.0	13.1	0.0	2944.0	61.1	0.0
MAR	269	16.6	2.8	0.4	0.0	1.0	16	1.0	12.4	0.0	2945.0	63.9	2.8
APR	275	16.4	4.6	0.8	0.0	1.0	17	1.0	11.8	0.0	2946.0	66.7	2.8
MAY	266	16.4	5.7	1.0	2.9	1.0	63	3.9	11.5	0.0	2946.0	66.7	0.0
JUN	253	15.1	7.4	1.3	6.5	1.0	126	7.5	6.3	0.0	2946.0	66.7	0.0
JUL	253	15.6	8.5	1.4	28.5	1.0	479	29.5	0.0	0.0	2939.9	51.4	-15.3
AUG	260	16.0	7.4	0.9	26.6	1.0	448	27.6	0.0	0.0	2933.5	38.9	-12.5
SEP	257	15.3	6.3	0.6	7.3	1.0	139	8.3	0.0	0.0	2937.0	45.3	6.4
OCT	260	16.0	5.7	0.7	0.0	2.5	41	2.5	0.0	0.0	2942.8	58.1	12.8
NOV	253	15.1	2.8	0.4	0.0	4.0	67	4.0	7.7	0.0	2944.0	61.1	3.0
DEC	235	14.5	1.7	0.3	0.0	1.0	16	1.0	13.2	0.0	2944.0	61.1	0.0
TOTAL		186.2	56.9	8.5	71.8	16.5		88.3	89.4	0.0			0.0
REASONABLE MAXIMUM INFLOW CONDITIO NS													
JAN	255	15.7	1.5	0.2	0.0	1.0	16	1.0	14.5	0.0	2944.0	61.1	0.0
FEB	279	15.5	2.0	0.3	0.0	1.0	18	1.0	14.2	0.0	2944.0	61.1	0.0
MAR	286	17.6	2.5	0.4	0.0	1.0	16	1.0	13.4	0.0	2945.0	63.9	2.8
APR	292	17.4	4.0	0.7	0.0	1.0	17	1.0	12.9	0.0	2946.0	66.7	2.8
MAY	282	17.4	5.0	0.8	2.4	1.0	55	3.4	13.2	0.0	2946.0	66.7	0.0
JUN	270	16.1	6.5	1.1	5.3	1.0	106	6.3	8.7	0.0	2946.0	66.7	0.0
JUL	269	16.6	7.5	1.3	23.3	1.0	394	24.3	0.0	0.0	2942.6	57.7	-9.0
AUG	276	17.0	6.5	0.9	21.8	1.0	370	22.8	0.0	0.0	2939.8	51.0	-6.7
SEP	273	16.3	5.5	0.7	5.9	1.0	116	6.9	0.0	0.0	2943.4	59.7	8.7
OCT	276	17.0	5.0	0.8	0.0	2.5	41	2.5	12.3	0.0	2944.0	61.1	1.4
NOV	270	16.1	2.5	0.4	0.0	4.0	67	4.0	11.7	0.0	2944.0	61.1	0.0
DEC	252	15.5	1.5	0.2	0.0	1.0	16	1.0	14.3	0.0	2944.0	61.1	0.0
TOTAL		198.2	50.0	7.8	58.7	16.5		75.2	115.2	0.0			0.0

CALAMUS RESERVOIR OPERATION ESTIMATES - 2016

	INFLOW		EVAPORATION		RELEASE REQUIRMENT CANAL	RIVER	TOTAL		RESERVOIR SPILL	REQUIREMENT SHORTAGE	END OF MONTH ELEV	CONT	RESERVOIR CHANGE
	MEAN	1000		1000	1000	1000	MEAN	1000	1000	1000		1000	1000
MONTH	CFS	AF	INCHES	AF	AF	AF	CFS	AF	AF	AF	FT	AF	AF
REASONABLE MINIMUM INFLOW CONDITION S													
JAN	299	18.4	1.9	0.5	0.5	3.1	58	3.6	14.3	0.0	2240.4	102.5	0.0
FEB	318	17.7	2.3	0.6	0.5	2.8	59	3.3	13.8	0.0	2240.4	102.5	0.0
MAR	356	21.9	4.2	1.1	0.5	3.1	58	3.6	10.0	0.0	2242.0	109.7	7.2
APR	367	21.9	6.6	1.8	0.5	3.0	59	3.5	6.8	0.0	2244.0	119.5	9.8
MAY	406	25.0	6.9	2.0	2.7	3.1	94	5.8	17.2	0.0	2244.0	119.5	0.0
JUN	371	22.1	8.4	2.5	5.6	3.0	144	8.6	11.0	0.0	2244.0	119.5	0.0
JUL	347	21.4	9.5	2.8	33.8	21.4	896	55.2	0.0	0.0	2235.8	82.9	-36.6
AUG	326	20.1	9.5	2.2	30.4	20.1	820	50.5	0.0	0.0	2226.3	50.3	-32.6
SEP	309	18.4	7.4	1.3	8.2	18.4	446	26.6	0.0	0.0	2222.8	40.8	-9.5
OCT	307	18.9	5.6	0.8	0.5	3.1	58	3.6	0.0	0.0	2227.9	55.3	14.5
NOV	334	19.9	3.0	0.5	0.5	3.0	59	3.5	0.0	0.0	2232.7	71.2	15.9
DEC	323	19.9	1.7	0.4	0.5	3.1	58	3.6	0.0	0.0	2236.8	87.1	15.9
TOTAL		245.6	67.0	16.5	84.2	87.2		171.4	73.1	0.0			-15.4
MOST PROBABLE INFLOW CONDITIONS													
JAN	330	20.3	1.7	0.4	0.5	3.1	58	3.6	16.3	0.0	2240.4	102.5	0.0
FEB	350	19.5	2.0	0.5	0.5	2.8	54	3.3	15.7	0.0	2240.4	102.5	0.0
MAR	391	24.1	3.7	1.0	0.5	3.1	58	3.6	12.3	0.0	2242.0	109.7	7.2
APR	404	24.1	5.9	1.6	0.5	3.0	57	3.5	9.2	0.0	2244.0	119.5	9.8
MAY	450	27.7	6.1	1.8	2.3	3.1	88	5.4	20.5	0.0	2244.0	119.5	0.0
JUN	409	24.4	7.4	2.2	4.7	3.0	125	7.7	14.5	0.0	2244.0	119.5	0.0
JUL	383	23.6	8.4	2.5	25.8	23.6	802	49.4	0.0	0.0	2237.8	91.2	-28.3
AUG	360	22.2	8.4	2.0	23.0	22.2	734	45.2	0.0	0.0	2231.3	66.2	-25.0
SEP	341	20.3	6.5	1.3	5.2	20.3	414	25.5	0.0	0.0	2229.4	59.7	-6.5
OCT	339	20.9	5.0	0.9	0.5	3.1	58	3.6	0.0	0.0	2234.0	76.1	16.4
NOV	369	22.0	2.7	0.6	0.5	3.0	57	3.5	0.0	0.0	2238.5	94.0	17.9
DEC	357	22.0	1.5	0.4	0.5	3.1	58	3.6	11.5	0.0	2240.0	100.5	6.5
TOTAL		271.1	59.3	15.2	64.5	93.4		157.9	100.0	0.0			-2.0
REASONABLE MAXIMUM INFLOW CONDITIO NS													
JAN	378	23.3	1.5	0.4	0.5	3.1	58	3.6	19.3	0.0	2240.4	102.5	0.0
FEB	403	22.4	1.8	0.5	0.5	2.8	59	3.3	18.6	0.0	2240.4	102.5	0.0
MAR	450	27.7	3.3	0.9	0.5	3.1	58	3.6	16.0	0.0	2242.0	109.7	7.2
APR	465	27.7	5.2	1.4	0.5	3.0	59	3.5	13.0	0.0	2244.0	119.5	9.8
MAY	515	31.7	5.4	1.6	1.9	3.1	81	5.0	25.1	0.0	2244.0	119.5	0.0
JUN	470	28.0	6.6	2.0	3.8	3.0	114	6.8	19.2	0.0	2244.0	119.5	0.0
JUL	438	27.0	7.5	2.2	17.9	27.0	729	44.9	0.0	0.0	2239.8	99.4	-20.1
AUG	414	25.5	7.5	1.9	15.7	25.5	669	41.2	0.0	0.0	2235.5	81.8	-17.6
SEP	391	23.3	5.8	1.3	4.1	23.3	460	27.4	0.0	0.0	2234.1	76.4	-5.4
OCT	388	23.9	4.4	1.0	0.5	3.1	58	3.6	0.0	0.0	2238.8	95.7	19.3
NOV	423	25.2	2.4	0.6	0.5	3.0	59	3.5	16.3	0.0	2240.0	100.5	4.8
DEC	409	25.2	1.4	0.4	0.5	3.1	58	3.6	21.2	0.0	2240.0	100.5	0.0
TOTAL		310.9	52.8	14.2	46.9	103.1		150.0	148.7	0.0			-2.0

TABLE 4

DAVIS CREEK RESERVOIR OPERATION ESTIMATES - 2016

	INFLOW		EVAPORATION		RELEASE REQUIRMENT		RESERVOIR SPILL	REQUIREMENT SHORTAGE	END OF MONTH		RESERVOIR CHANGE
	MEAN	1000		1000	MEAN	1000	1000	1000		1000	1000
MONTH	CFS	AF	INCHES	AF	CFS	AF	AF	AF	ELEV FT	CONT AF	AF
REASONABLE MINIMUM INFLOW CONDITIONS											
JAN	0	0.0	1.9	0.1	3	0.2	0.0	0.0	2049.0	9.5	-0.3
FEB	0	0.0	2.3	0.1	4	0.2	0.0	0.0	2048.4	9.2	-0.3
MAR	0	0.0	4.2	0.1	3	0.2	0.0	0.0	2047.8	8.9	-0.3
APR	96	5.7	6.6	0.2	5	0.3	0.0	0.0	2056.9	14.1	5.2
MAY	239	14.7	7.0	0.3	57	3.5	0.0	0.0	2070.2	25.0	10.9
JUN	240	14.3	8.5	0.5	127	7.6	0.0	0.0	2076.0	31.2	6.2
JUL	179	11.0	9.1	0.6	297	18.3	0.0	0.0	2068.4	23.3	-7.9
AUG	161	9.9	7.0	0.4	273	16.8	0.0	0.0	2059.6	16.0	-7.3
SEP	35	2.1	6.2	0.3	133	7.9	0.0	0.0	2049.7	9.9	-6.1
OCT	0	0.0	5.5	0.2	3	0.2	0.0	0.0	2048.9	9.5	-0.4
NOV	0	0.0	2.9	0.1	3	0.2	0.0	0.0	2048.3	9.2	-0.3
DEC	0	0.0	1.7	0.0	3	0.2	0.0	0.0	2047.9	9.0	-0.2
TOTAL		57.7	62.9	2.9		55.6	0.0	0.0			-0.8
MOST PROBABLE INFLOW CONDITIONS											
JAN	0	0.0	1.8	0.1	3	0.2	0.0	0.0	2048.9	9.5	-0.3
FEB	0	0.0	2.2	0.1	4	0.2	0.0	0.0	2048.3	9.2	-0.3
MAR	0	0.0	3.9	0.1	3	0.2	0.0	0.0	2047.7	8.9	-0.3
APR	50	3.0	6.1	0.2	3	0.2	0.0	0.0	2052.6	11.5	2.6
MAY	239	14.7	6.5	0.2	42	2.6	0.0	0.0	2068.5	23.4	11.9
JUN	240	14.3	7.9	0.4	99	6.1	0.0	0.0	2076.0	31.2	7.8
JUL	112	6.9	8.4	0.6	231	14.2	0.0	0.0	2068.4	23.3	-7.9
AUG	99	6.1	6.5	0.4	211	13.0	0.0	0.0	2059.6	16.0	-7.3
SEP	3	0.2	5.7	0.2	99	6.1	0.0	0.0	2049.7	9.9	-6.1
OCT	0	0.0	5.1	0.2	3	0.2	0.0	0.0	2048.9	9.5	-0.4
NOV	0	0.0	2.7	0.1	3	0.2	0.0	0.0	2048.3	9.2	-0.3
DEC	0	0.0	1.6	0.0	3	0.2	0.0	0.0	2047.9	9.0	-0.2
TOTAL		45.2	58.4	2.6		43.4	0.0	0.0			-0.8
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	0	0.0	1.7	0.1	3	0.2	0.0	0.0	2048.9	9.5	-0.3
FEB	0	0.0	2.0	0.1	4	0.2	0.0	0.0	2048.3	9.2	-0.3
MAR	0	0.0	3.6	0.1	3	0.2	0.0	0.0	2047.7	8.9	-0.3
APR	15	0.9	5.8	0.2	3	0.2	0.0	0.0	2048.7	9.4	0.5
MAY	239	14.7	6.2	0.2	32	2.0	0.0	0.0	2066.9	21.9	12.5
JUN	240	14.3	7.4	0.4	77	4.6	0.0	0.0	2076.0	31.2	9.3
JUL	52	3.2	7.9	0.5	172	10.6	0.0	0.0	2068.4	23.3	-7.9
AUG	39	2.4	6.2	0.3	156	9.6	0.0	0.0	2059.4	15.8	-7.5
SEP	0	0.0	5.4	0.2	97	5.8	0.0	0.0	2049.5	9.8	-6.0
OCT	0	0.0	4.8	0.1	3	0.2	0.0	0.0	2048.9	9.5	-0.3
NOV	0	0.0	2.5	0.1	3	0.2	0.0	0.0	2048.3	9.2	-0.3
DEC	0	0.0	1.5	0.0	3	0.2	0.0	0.0	2047.9	9.0	-0.2
TOTAL		35.5	55.0	2.3		34.0	0.0	0.0			-0.8

BONNY RESERVOIR OPERATION ESTIMATES - 2016

	INFLOW		EVAPORATION		RELEASE REQUIRMENT CANAL	RIVER	TOTAL		RESERVOIR SPILL	REQUIREMENT SHORTAGE	END OF MONTH ELEV	CONT	RESERVOIR CHANGE
	MEAN	1000		1000	1000	1000	MEAN	1000	1000	1000		1000	1000
MONTH	CFS	AF	INCHES	AF	AF	AF	CFS	AF	AF	AF	FT	AF	AF
REASONABLE MINIMUM INFLOW CONDITIONS													
JAN	5	0.3	2.3	0.0	0.0	0.1	2	0.1	0.2	0.0	3638.0	0.0	0.0
FEB	5	0.3	3.1	0.0	0.0	0.1	2	0.1	0.2	0.0	3638.0	0.0	0.0
MAR	6	0.4	3.9	0.0	0.0	0.1	2	0.1	0.3	0.0	3638.0	0.0	0.0
APR	7	0.4	6.2	0.0	0.1	0.1	3	0.2	0.2	0.0	3638.0	0.0	0.0
MAY	8	0.5	7.8	0.0	0.4	0.1	8	0.5	0.0	0.0	3638.0	0.0	0.0
JUN	7	0.4	10.1	0.0	0.5	0.1	10	0.6	0.0	0.2	3638.0	0.0	0.0
JUL	3	0.2	11.6	0.0	0.8	0.1	15	0.9	0.0	0.7	3638.0	0.0	0.0
AUG	2	0.1	10.1	0.0	0.6	0.1	11	0.7	0.0	0.6	3638.0	0.0	0.0
SEP	2	0.1	8.5	0.0	0.5	0.1	10	0.6	0.0	0.5	3638.0	0.0	0.0
OCT	3	0.2	7.8	0.0	0.5	0.1	10	0.6	0.0	0.4	3638.0	0.0	0.0
NOV	5	0.3	3.9	0.0	0.0	0.1	2	0.1	0.2	0.0	3638.0	0.0	0.0
DEC	5	0.3	2.3	0.0	0.0	0.1	2	0.1	0.2	0.0	3638.0	0.0	0.0
TOTAL		3.5	77.6	0.0	3.4	1.2		4.6	1.3	2.4			0.0
MOST PROBABLE INFLOW CONDITIONS													
JAN	13	0.8	2.1	0.0	0.0	0.1	2	0.1	0.7	0.0	3638.0	0.0	0.0
FEB	14	0.8	2.8	0.0	0.0	0.1	2	0.1	0.7	0.0	3638.0	0.0	0.0
MAR	15	0.9	3.5	0.0	0.0	0.1	2	0.1	0.8	0.0	3638.0	0.0	0.0
APR	17	1.0	5.5	0.0	0.1	0.1	3	0.2	0.8	0.0	3638.0	0.0	0.0
MAY	19	1.2	6.9	0.0	0.3	0.1	6	0.4	0.8	0.0	3638.0	0.0	0.0
JUN	17	1.0	9.0	0.0	0.3	0.1	7	0.4	0.6	0.0	3638.0	0.0	0.0
JUL	8	0.5	10.4	0.0	0.5	0.1	10	0.6	0.0	0.1	3638.0	0.0	0.0
AUG	6	0.4	9.0	0.0	0.4	0.1	8	0.5	0.0	0.1	3638.0	0.0	0.0
SEP	3	0.2	7.6	0.0	0.3	0.1	7	0.4	0.0	0.2	3638.0	0.0	0.0
OCT	6	0.4	6.9	0.0	0.3	0.1	6	0.4	0.0	0.0	3638.0	0.0	0.0
NOV	12	0.7	3.5	0.0	0.0	0.1	2	0.1	0.6	0.0	3638.0	0.0	0.0
DEC	11	0.7	2.1	0.0	0.0	0.1	2	0.1	0.6	0.0	3638.0	0.0	0.0
TOTAL		8.6	69.3	0.0	2.2	1.2		3.4	5.6	0.4			0.0
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	23	1.4	1.8	0.0	0.0	0.1	2	0.1	1.3	0.0	3638.0	0.0	0.0
FEB	24	1.4	2.5	0.0	0.0	0.1	2	0.1	1.3	0.0	3638.0	0.0	0.0
MAR	26	1.6	3.1	0.0	0.0	0.1	2	0.1	1.5	0.0	3638.0	0.0	0.0
APR	30	1.8	4.9	0.0	0.0	0.1	2	0.1	1.7	0.0	3638.0	0.0	0.0
MAY	34	2.1	6.1	0.0	0.1	0.1	3	0.2	1.9	0.0	3638.0	0.0	0.0
JUN	30	1.8	8.0	0.0	0.1	0.1	3	0.2	1.6	0.0	3638.0	0.0	0.0
JUL	16	1.0	9.2	0.0	0.1	0.1	3	0.2	0.8	0.0	3638.0	0.0	0.0
AUG	10	0.6	8.0	0.0	0.1	0.1	3	0.2	0.4	0.0	3638.0	0.0	0.0
SEP	7	0.4	6.7	0.0	0.1	0.1	3	0.2	0.2	0.0	3638.0	0.0	0.0
OCT	11	0.7	6.1	0.0	0.0	0.1	2	0.1	0.6	0.0	3638.0	0.0	0.0
NOV	20	1.2	3.1	0.0	0.0	0.1	2	0.1	1.1	0.0	3638.0	0.0	0.0
DEC	21	1.3	1.8	0.0	0.0	0.1	2	0.1	1.2	0.0	3638.0	0.0	0.0
TOTAL		15.3	61.3	0.0	0.5	1.2		1.7	13.6	0.0			0.0

ENDERS RESERVOIR OPERATION ESTIMATES - 2016

	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	6	0.4	1.4	0.1	3	0.2	0.0	0.0	3084.5	10.3	0.1
FEB	5	0.3	1.6	0.1	4	0.2	0.0	0.0	3084.5	10.3	0.0
MAR	5	0.3	2.7	0.1	3	0.2	0.0	0.0	3084.5	10.3	0.0
APR	5	0.3	5.8	0.2	3	0.2	0.0	0.0	3084.3	10.2	-0.1
MAY	6	0.4	7.4	0.3	3	0.2	0.0	0.0	3084.2	10.1	-0.1
JUN	5	0.3	9.4	0.4	176	10.5	0.0	9.4	3082.4	8.9	-1.2
JUL	6	0.4	10.3	0.4	532	32.8	0.0	32.6	3082.0	8.7	-0.2
AUG	6	0.4	8.7	0.3	505	31.1	0.0	30.9	3081.8	8.6	-0.1
SEP	5	0.3	6.5	0.2	75	4.5	0.0	4.3	3081.7	8.5	-0.1
OCT	5	0.3	4.1	0.1	3	0.2	0.0	0.0	3081.7	8.5	0.0
NOV	5	0.3	3.0	0.1	3	0.2	0.0	0.0	3081.7	8.5	0.0
DEC	5	0.3	1.7	0.1	3	0.2	0.0	0.0	3081.7	8.5	0.0
TOTAL		4.0	62.6	2.4		80.5	0.0	77.2			-1.7
MOST PROBABLE INFLOW CONDITIONS											
JAN	11	0.7	1.3	0.1	3	0.2	0.0	0.0	3084.8	10.6	0.4
FEB	11	0.6	1.4	0.1	3	0.2	0.0	0.0	3085.3	10.9	0.3
MAR	10	0.6	2.5	0.1	3	0.2	0.0	0.0	3085.7	11.2	0.3
APR	10	0.6	5.4	0.2	3	0.2	0.0	0.0	3086.0	11.4	0.2
MAY	11	0.7	6.8	0.3	3	0.2	0.0	0.0	3086.2	11.6	0.2
JUN	10	0.6	8.7	0.4	114	7.0	0.0	4.1	3082.4	8.9	-2.7
JUL	11	0.7	9.5	0.3	487	30.0	0.0	29.6	3082.4	8.9	0.0
AUG	11	0.7	8.0	0.3	388	23.9	0.0	23.5	3082.4	8.9	0.0
SEP	10	0.6	5.9	0.2	36	2.2	0.0	1.8	3082.4	8.9	0.0
OCT	10	0.6	3.8	0.1	3	0.2	0.0	0.0	3082.7	9.2	0.3
NOV	10	0.6	2.8	0.1	3	0.2	0.0	0.0	3083.2	9.5	0.3
DEC	10	0.6	1.6	0.1	3	0.2	0.0	0.0	3083.7	9.8	0.3
TOTAL		7.6	57.7	2.3		64.7	0.0	59.0			-0.4
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	23	1.4	1.2	0.0	3	0.2	0.0	0.0	3086.0	11.4	1.2
FEB	22	1.2	1.3	0.1	4	0.2	0.0	0.0	3087.2	12.3	0.9
MAR	21	1.3	2.3	0.1	3	0.2	0.0	0.0	3088.5	13.3	1.0
APR	22	1.3	4.9	0.2	3	0.2	0.0	0.0	3089.6	14.2	0.9
MAY	23	1.4	6.2	0.3	3	0.2	0.0	0.0	3090.6	15.1	0.9
JUN	22	1.3	7.9	0.4	40	2.4	0.0	0.0	3088.8	13.6	-1.5
JUL	26	1.6	8.6	0.4	297	18.3	0.0	12.4	3082.4	8.9	-4.7
AUG	23	1.4	7.3	0.3	229	14.1	0.0	13.0	3082.4	8.9	0.0
SEP	20	1.2	5.4	0.2	3	0.2	0.0	0.0	3083.6	9.7	0.8
OCT	21	1.3	3.5	0.1	3	0.2	0.0	0.0	3085.0	10.7	1.0
NOV	22	1.3	2.5	0.1	3	0.2	0.0	0.0	3086.4	11.7	1.0
DEC	21	1.3	1.4	0.1	3	0.2	0.0	0.0	3087.7	12.7	1.0
TOTAL		16.0	52.5	2.3		36.6	0.0	25.4			2.5

SWANSON LAKE OPERATION ESTIMATES - 2016

					RELEASE REQUIRMENT				RESERVOIR	REQUIREMENT	END OF MONTH		RESERVOIR
	INFLOW		EVAPORATION		CANAL	RIVER	TOTAL		SPILL	SHORTAGE	ELEV	CONT	CHANGE
	MEAN	1000		1000	1000	1000	MEAN	1000	1000	1000		1000	1000
MONTH	CFS	AF	INCHES	AF	AF	AF	CFS	AF	AF	AF	FT	AF	AF
REASONABLE MINIMUM INFLOW CONDITI ONS													
JAN	19	1.2	1.5	0.3	0.0	0.1	2	0.1	0.0	0.0	2735.1	44.4	0.8
FEB	31	1.7	1.6	0.3	0.0	0.1	2	0.1	0.0	0.0	2735.5	45.7	1.3
MAR	34	2.1	2.9	0.5	0.0	0.1	2	0.1	0.0	0.0	2736.0	47.2	1.5
APR	37	2.2	6.4	1.2	0.0	0.1	2	0.1	0.0	0.0	2736.3	48.1	0.9
MAY	34	2.1	7.6	1.4	0.1	0.1	3	0.2	0.0	0.0	2736.4	48.6	0.5
JUN	27	1.6	9.8	1.8	4.4	0.9	89	5.3	0.0	0.0	2734.6	43.1	-5.5
JUL	15	0.9	9.8	1.7	16.3	6.9	377	23.2	0.0	0.0	2725.0	19.1	-24.0
AUG	8	0.5	9.8	1.2	13.6	6.3	323	19.9	0.0	19.8	2724.7	18.3	-0.8
SEP	3	0.2	7.6	0.9	2.0	2.1	69	4.1	0.0	4.0	2724.3	17.5	-0.8
OCT	6	0.4	4.6	0.5	0.0	0.1	2	0.1	0.0	0.0	2724.1	17.3	-0.2
NOV	15	0.9	3.2	0.4	0.0	0.1	2	0.1	0.0	0.0	2724.3	17.7	0.4
DEC	16	1.0	1.7	0.2	0.0	0.1	2	0.1	0.0	0.0	2724.7	18.4	0.7
TOTAL		14.8	66.5	10.4	36.4	17.0		53.4	0.0	23.8			-25.2
MOST PROBABLE INFLOW CONDITIONS													
JAN	36	2.2	1.3	0.2	0.0	0.1	2	0.1	0.0	0.0	2735.4	45.5	1.9
FEB	56	3.1	1.5	0.3	0.0	0.1	2	0.1	0.0	0.0	2736.3	48.2	2.7
MAR	63	3.9	2.7	0.5	0.0	0.1	2	0.1	0.0	0.0	2737.3	51.5	3.3
APR	69	4.1	5.8	1.1	0.0	0.1	2	0.1	0.0	0.0	2738.2	54.4	2.9
MAY	62	3.8	6.9	1.3	0.1	0.1	3	0.2	0.0	0.0	2738.9	56.7	2.3
JUN	50	3.0	8.9	1.8	3.8	0.1	63	3.9	0.0	0.0	2738.1	54.0	-2.7
JUL	28	1.7	8.9	1.7	14.2	4.2	299	18.4	0.0	0.0	2732.0	35.6	-18.4
AUG	15	0.9	8.9	1.4	11.7	4.1	256	15.8	0.0	0.0	2725.1	19.3	-16.3
SEP	7	0.4	6.9	0.8	1.7	0.1	29	1.8	0.0	1.7	2724.9	18.8	-0.5
OCT	11	0.7	4.2	0.5	0.0	0.1	2	0.1	0.0	0.0	2724.9	18.9	0.1
NOV	27	1.6	2.9	0.3	0.0	0.1	2	0.1	0.0	0.0	2725.5	20.1	1.2
DEC	29	1.8	1.6	0.2	0.0	0.1	2	0.1	0.0	0.0	2726.2	21.6	1.5
TOTAL		27.2	60.5	10.1	31.5	9.3		40.8	0.0	1.7			-22.0
REASONABLE MAXIMUM INFLOW CONDITI ONS													
JAN	65	4.0	1.2	0.2	0.0	0.1	2	0.1	0.0	0.0	2736.0	47.3	3.7
FEB	101	5.6	1.3	0.2	0.0	0.1	2	0.1	0.0	0.0	2737.7	52.6	5.3
MAR	112	6.9	2.4	0.5	0.0	0.1	2	0.1	0.0	0.0	2739.6	58.9	6.3
APR	122	7.3	5.3	1.1	0.0	0.1	2	0.1	0.0	0.0	2741.3	65.0	6.1
MAY	110	6.8	6.3	1.3	0.1	0.1	3	0.2	0.0	0.0	2742.7	70.3	5.3
JUN	89	5.3	8.2	1.8	3.1	0.1	54	3.2	0.0	0.0	2742.8	70.6	0.3
JUL	47	2.9	8.2	1.8	11.6	1.2	208	12.8	0.0	0.0	2739.6	58.9	-11.7
AUG	26	1.6	8.2	1.6	9.6	1.7	183	11.3	0.0	0.0	2736.1	47.6	-11.3
SEP	13	0.8	6.3	1.1	1.4	0.1	25	1.5	0.0	0.0	2735.5	45.8	-1.8
OCT	19	1.2	3.9	0.7	0.0	0.1	2	0.1	0.0	0.0	2735.7	46.2	0.4
NOV	47	2.8	2.7	0.5	0.0	0.1	2	0.1	0.0	0.0	2736.4	48.4	2.2
DEC	52	3.2	1.4	0.3	0.0	0.1	2	0.1	0.0	0.0	2737.2	51.2	2.8
TOTAL		48.4	55.4	11.1	25.8	3.9		29.7	0.0	0.0			7.6

HUGH BUTLER LAKE OPERATION ESTIMATES - 2016

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	EVAPORATION INCHES	EVAPORATION 1000 AF	RELEASE REQUIRMENT MEAN CFS	RELEASE REQUIRMENT 1000 AF	RESERVOIR SPILL 1000 AF	REQUIREMENT SHORTAGE 1000 AF	END OF MONTH ELEV FT	END OF MONTH CONT 1000 AF	RESERVOIR CHANGE 1000 AF
REASONABLE MINIMUM INFLOW CONDITIONS											
JAN	10	0.6	1.3	0.1	3	0.2	0.0	0.0	2563.3	13.2	0.3
FEB	13	0.7	1.4	0.1	4	0.2	0.0	0.0	2563.8	13.6	0.4
MAR	15	0.9	2.6	0.1	3	0.2	0.0	0.0	2564.4	14.2	0.6
APR	15	0.9	7.2	0.4	3	0.2	0.0	0.0	2564.7	14.5	0.3
MAY	16	1.0	8.5	0.5	3	0.2	0.0	0.0	2565.1	14.8	0.3
JUN	15	0.9	10.4	0.6	29	1.7	0.0	0.0	2563.5	13.4	-1.4
JUL	13	0.8	11.5	0.6	73	4.5	0.0	2.1	2560.9	11.2	-2.2
AUG	13	0.8	10.2	0.5	62	3.8	0.0	3.5	2560.9	11.2	0.0
SEP	8	0.5	7.9	0.4	15	0.9	0.0	0.7	2560.8	11.1	-0.1
OCT	8	0.5	5.0	0.2	3	0.2	0.0	0.0	2560.9	11.2	0.1
NOV	10	0.6	3.0	0.1	3	0.2	0.0	0.0	2561.3	11.5	0.3
DEC	10	0.6	1.6	0.1	3	0.2	0.0	0.0	2561.7	11.8	0.3
TOTAL		8.8	70.6	3.7		12.5	0.0	6.3			-1.1
MOST PROBABLE INFLOW CONDITIONS											
JAN	15	0.9	1.1	0.1	3	0.2	0.0	0.0	2563.6	13.5	0.6
FEB	18	1.0	1.3	0.1	4	0.2	0.0	0.0	2564.4	14.2	0.7
MAR	21	1.3	2.3	0.1	3	0.2	0.0	0.0	2565.4	15.2	1.0
APR	22	1.3	6.4	0.4	3	0.2	0.0	0.0	2566.2	15.9	0.7
MAY	23	1.4	7.5	0.4	3	0.2	0.0	0.0	2567.0	16.7	0.8
JUN	22	1.3	9.2	0.5	23	1.4	0.0	0.0	2566.4	16.1	-0.6
JUL	18	1.1	10.2	0.6	62	3.8	0.0	0.0	2562.8	12.8	-3.3
AUG	18	1.1	9.1	0.5	52	3.2	0.0	1.0	2560.9	11.2	-1.6
SEP	12	0.7	7.0	0.3	13	0.8	0.0	0.4	2560.9	11.2	0.0
OCT	13	0.8	4.5	0.2	3	0.2	0.0	0.0	2561.4	11.6	0.4
NOV	15	0.9	2.7	0.1	3	0.2	0.0	0.0	2562.1	12.2	0.6
DEC	15	0.9	1.4	0.1	3	0.2	0.0	0.0	2562.8	12.8	0.6
TOTAL		12.7	62.7	3.4		10.8	0.0	1.4			-0.1
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	21	1.3	1.0	0.1	3	0.2	0.0	0.0	2564.1	13.9	1.0
FEB	27	1.5	1.1	0.1	4	0.2	0.0	0.0	2565.3	15.1	1.2
MAR	32	2.0	2.1	0.1	3	0.2	0.0	0.0	2567.1	16.8	1.7
APR	32	1.9	5.9	0.4	3	0.2	0.0	0.0	2568.3	18.1	1.3
MAY	32	2.0	6.9	0.4	3	0.2	0.0	0.0	2569.6	19.5	1.4
JUN	34	2.0	8.4	0.5	18	1.1	0.0	0.0	2569.9	19.9	0.4
JUL	26	1.6	9.4	0.6	45	2.8	0.0	0.0	2568.3	18.1	-1.8
AUG	26	1.6	8.3	0.5	39	2.4	0.0	0.0	2567.1	16.8	-1.3
SEP	17	1.0	6.4	0.4	8	0.5	0.0	0.0	2567.2	16.9	0.1
OCT	19	1.2	4.1	0.2	3	0.2	0.0	0.0	2567.9	17.7	0.8
NOV	22	1.3	2.5	0.2	3	0.2	0.0	0.0	2568.8	18.6	0.9
DEC	21	1.3	1.3	0.1	3	0.2	0.0	0.0	2569.7	19.6	1.0
TOTAL		18.7	57.4	3.6		8.4	0.0	0.0			6.7

HARRY STRUNK LAKE OPERATION ESTIMATES - 2016

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	EVAPORATION INCHES	EVAPORATION 1000 AF	RELEASE REQUIRMENT MEAN CFS	RELEASE REQUIRMENT 1000 AF	RESERVOIR SPILL 1000 AF	REQUIREMENT SHORTAGE 1000 AF	END OF MONTH ELEV FT	END OF MONTH CONT 1000 AF	RESERVOIR CHANGE 1000 AF
REASONABLE MINIMUM INFLOW CONDITIONS											
JAN	34	2.1	1.3	0.1	2	0.1	1.1	0.0	2366.1	34.6	0.8
FEB	43	2.4	1.4	0.2	2	0.1	2.1	0.0	2366.1	34.6	0.0
MAR	45	2.8	2.6	0.3	2	0.1	2.4	0.0	2366.1	34.6	0.0
APR	45	2.7	7.1	0.8	2	0.1	1.8	0.0	2366.1	34.6	0.0
MAY	49	3.0	8.2	0.9	2	0.1	2.0	0.0	2366.1	34.6	0.0
JUN	50	3.0	10.2	1.1	89	5.3	0.0	0.0	2364.1	31.2	-3.4
JUL	47	2.9	11.2	1.1	318	19.6	0.0	0.0	2349.8	13.4	-17.8
AUG	37	2.3	9.9	0.5	268	16.5	0.0	9.2	2343.0	7.9	-5.5
SEP	23	1.4	7.8	0.3	27	1.6	0.0	0.5	2343.0	7.9	0.0
OCT	29	1.8	5.1	0.2	2	0.1	0.0	0.0	2345.1	9.4	1.5
NOV	34	2.0	3.0	0.1	2	0.1	0.0	0.0	2347.3	11.2	1.8
DEC	32	2.0	1.6	0.1	2	0.1	0.0	0.0	2349.3	13.0	1.8
TOTAL		28.4	69.4	5.7		43.8	9.4	9.7			-20.8
MOST PROBABLE INFLOW CONDITIONS											
JAN	47	2.9	1.2	0.1	2	0.1	1.9	0.0	2366.1	34.6	0.8
FEB	59	3.3	1.3	0.1	2	0.1	3.1	0.0	2366.1	34.6	0.0
MAR	63	3.9	2.3	0.2	2	0.1	3.6	0.0	2366.1	34.6	0.0
APR	62	3.7	6.4	0.7	2	0.1	2.9	0.0	2366.1	34.6	0.0
MAY	67	4.1	7.4	0.8	2	0.1	3.2	0.0	2366.1	34.6	0.0
JUN	69	4.1	9.2	1.0	74	4.4	0.0	0.0	2365.3	33.3	-1.3
JUL	63	3.9	10.2	1.1	265	16.3	0.0	0.0	2355.8	19.8	-13.5
AUG	50	3.1	9.0	0.6	222	13.7	0.0	0.0	2344.0	8.6	-11.2
SEP	34	2.0	7.0	0.3	20	1.2	0.0	0.0	2344.7	9.1	0.5
OCT	41	2.5	4.6	0.2	2	0.1	0.0	0.0	2347.4	11.3	2.2
NOV	45	2.7	2.8	0.1	2	0.1	0.0	0.0	2350.2	13.8	2.5
DEC	44	2.7	1.4	0.1	2	0.1	0.0	0.0	2352.7	16.3	2.5
TOTAL		38.9	62.8	5.3		36.4	14.7	0.0			-17.5
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	71	4.4	1.1	0.1	2	0.1	3.4	0.0	2366.1	34.6	0.8
FEB	92	5.1	1.1	0.1	2	0.1	4.9	0.0	2366.1	34.6	0.0
MAR	96	5.9	2.1	0.2	2	0.1	5.6	0.0	2366.1	34.6	0.0
APR	96	5.7	5.7	0.6	2	0.1	5.0	0.0	2366.1	34.6	0.0
MAY	102	6.3	6.6	0.7	2	0.1	5.5	0.0	2366.1	34.6	0.0
JUN	106	6.3	8.2	0.9	47	2.8	2.6	0.0	2366.1	34.6	0.0
JUL	97	6.0	9.1	1.0	182	11.2	0.0	0.0	2362.3	28.4	-6.2
AUG	78	4.8	8.0	0.7	154	9.5	0.0	0.0	2358.4	23.0	-5.4
SEP	52	3.1	6.3	0.5	2	0.1	0.0	0.0	2360.3	25.5	2.5
OCT	63	3.9	4.1	0.3	2	0.1	0.0	0.0	2362.7	29.0	3.5
NOV	70	4.2	2.5	0.2	2	0.1	0.0	0.0	2365.1	32.9	3.9
DEC	67	4.1	1.3	0.1	2	0.1	2.2	0.0	2366.1	34.6	1.7
TOTAL		59.8	56.1	5.4		24.4	29.2	0.0			0.8

KEITH SEBELIUS LAKE OPERATION ESTIMATES - 2016

	INFLOW		EVAPORATION		RELEASE REQUIRMENT		RESERVOIR SPILL	REQUIREMENT SHORTAGE	END OF MONTH ELEV	END OF MONTH 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	2	0.1	1.5	0.1	2	0.1	0.0	0.0	2287.6	9.3	-0.1
FEB	4	0.2	1.9	0.1	2	0.1	0.0	0.0	2287.6	9.3	0.0
MAR	6	0.4	3.0	0.2	2	0.1	0.0	0.0	2287.7	9.4	0.1
APR	7	0.4	7.9	0.4	2	0.1	0.0	0.0	2287.6	9.3	-0.1
MAY	10	0.6	8.8	0.5	6	0.4	0.0	0.0	2287.2	9.0	-0.3
JUN	12	0.7	11.1	0.6	57	3.4	0.0	0.0	2283.0	5.7	-3.3
JUL	8	0.5	12.4	0.5	146	9.0	0.0	7.3	2280.4	4.0	-1.7
AUG	8	0.5	11.1	0.4	138	8.5	0.0	8.4	2280.4	4.0	0.0
SEP	3	0.2	8.8	0.3	27	1.6	0.0	1.5	2280.0	3.8	-0.2
OCT	2	0.1	6.0	0.2	2	0.1	0.0	0.0	2279.6	3.6	-0.2
NOV	2	0.1	3.3	0.1	2	0.1	0.0	0.0	2279.5	3.5	-0.1
DEC	2	0.1	1.7	0.1	2	0.1	0.0	0.0	2279.3	3.4	-0.1
TOTAL		3.9	77.5	3.5		23.6	0.0	17.2			-6.0
MOST PROBABLE INFLOW CONDITIONS											
JAN	5	0.3	1.4	0.1	2	0.1	0.0	0.0	2287.8	9.5	0.1
FEB	5	0.3	1.6	0.1	2	0.1	0.0	0.0	2287.9	9.6	0.1
MAR	10	0.6	2.7	0.1	2	0.1	0.0	0.0	2288.3	10.0	0.4
APR	12	0.7	6.9	0.4	2	0.1	0.0	0.0	2288.5	10.2	0.2
MAY	16	1.0	7.7	0.4	3	0.2	0.0	0.0	2288.9	10.6	0.4
JUN	22	1.3	9.7	0.6	45	2.8	0.0	0.0	2286.6	8.5	-2.1
JUL	16	1.0	10.9	0.5	138	8.5	0.0	3.5	2280.4	4.0	-4.5
AUG	15	0.9	9.7	0.3	112	6.9	0.0	6.3	2280.4	4.0	0.0
SEP	7	0.4	7.7	0.3	21	1.3	0.0	1.2	2280.4	4.0	0.0
OCT	3	0.2	5.3	0.2	2	0.1	0.0	0.0	2280.2	3.9	-0.1
NOV	5	0.3	2.9	0.1	2	0.1	0.0	0.0	2280.4	4.0	0.1
DEC	3	0.2	1.5	0.1	2	0.1	0.0	0.0	2280.4	4.0	0.0
TOTAL		7.2	68.0	3.2		20.4	0.0	11.0			-5.4
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	10	0.6	1.2	0.1	2	0.1	0.0	0.0	2288.1	9.8	0.4
FEB	13	0.7	1.5	0.1	2	0.1	0.0	0.0	2288.6	10.3	0.5
MAR	23	1.4	2.4	0.1	2	0.1	0.0	0.0	2289.9	11.5	1.2
APR	23	1.4	6.2	0.4	2	0.1	0.0	0.0	2290.7	12.4	0.9
MAY	36	2.2	6.9	0.4	3	0.2	0.0	0.0	2292.0	14.0	1.6
JUN	47	2.8	8.7	0.6	27	1.6	0.0	0.0	2292.5	14.6	0.6
JUL	34	2.1	9.7	0.7	71	4.4	0.0	0.0	2289.9	11.6	-3.0
AUG	31	1.9	8.7	0.5	68	4.2	0.0	0.0	2287.0	8.8	-2.8
SEP	13	0.8	6.9	0.3	15	0.9	0.0	0.0	2286.5	8.4	-0.4
OCT	6	0.4	4.7	0.2	2	0.1	0.0	0.0	2286.6	8.5	0.1
NOV	10	0.6	2.6	0.1	2	0.1	0.0	0.0	2287.1	8.9	0.4
DEC	8	0.5	1.3	0.1	2	0.1	0.0	0.0	2287.4	9.2	0.3
TOTAL		15.4	60.8	3.6		12.0	0.0	0.0			-0.2

HARLAN COUNTY LAKE OPERATION ESTIMATES - 2016

	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	39	2.4	1.4	1.1	0	0.0	0.0	0.0	1932.9	168.7	1.3
FEB	61	3.4	1.6	1.3	0	0.0	0.0	0.0	1933.2	170.8	2.1
MAR	81	5.0	2.8	2.2	0	0.0	0.0	0.0	1933.5	173.6	2.8
APR	70	4.2	6.5	5.2	0	0.0	0.0	0.0	1933.4	172.6	-1.0
MAY	89	5.5	8.1	6.5	0	0.0	0.0	0.0	1933.3	171.6	-1.0
JUN	74	4.4	9.6	7.6	198	11.8	0.0	0.0	1931.6	156.6	-15.0
JUL	75	4.6	10.8	8.1	739	45.5	0.0	10.5	1927.0	118.1	-38.5
AUG	60	3.7	9.5	5.8	554	34.1	0.0	34.1	1926.7	116.0	-2.1
SEP	30	1.8	7.5	4.5	54	3.2	0.0	3.2	1926.3	113.3	-2.7
OCT	28	1.7	5.1	3.0	0	0.0	0.0	0.0	1926.1	112.0	-1.3
NOV	37	2.2	3.2	1.9	0	0.0	0.0	0.0	1926.1	112.3	0.3
DEC	37	2.3	2.0	1.2	0	0.0	0.0	0.0	1926.3	113.4	1.1
TOTAL		41.2	68.1	48.4		94.6	0.0	47.8			-54.0
MOST PROBABLE INFLOW CONDITIONS											
JAN	106	6.5	1.3	1.0	0	0.0	0.0	0.0	1933.4	172.9	5.5
FEB	167	9.3	1.4	1.1	0	0.0	0.0	0.0	1934.2	181.1	8.2
MAR	224	13.8	2.4	2.0	0	0.0	0.0	0.0	1935.4	192.9	11.8
APR	193	11.5	5.7	4.9	0	0.0	0.0	0.0	1936.0	199.5	6.6
MAY	243	15.0	7.0	6.1	0	0.0	0.0	0.0	1936.9	208.4	8.9
JUN	203	12.1	8.4	7.5	64	3.8	0.0	0.0	1937.0	209.2	0.8
JUL	205	12.6	9.4	8.4	456	28.1	0.0	0.0	1934.7	185.3	-23.9
AUG	166	10.2	8.3	6.9	610	37.6	0.0	0.0	1931.0	151.0	-34.3
SEP	82	4.9	6.6	4.8	34	2.0	0.0	0.0	1930.8	149.1	-1.9
OCT	76	4.7	4.5	3.3	0	0.0	0.0	0.0	1931.0	150.5	1.4
NOV	102	6.1	2.8	2.0	0	0.0	0.0	0.0	1931.5	154.6	4.1
DEC	101	6.2	1.8	1.3	0	0.0	0.0	0.0	1932.0	159.5	4.9
TOTAL		112.9	59.6	49.3		71.5	0.0	0.0			-7.9
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	247	15.2	1.1	0.9	0	0.0	0.0	0.0	1934.3	181.7	14.3
FEB	386	21.5	1.3	1.1	0	0.0	0.0	0.0	1936.3	202.1	20.4
MAR	521	32.1	2.1	1.8	0	0.0	0.0	0.0	1939.1	232.4	30.3
APR	450	26.8	5.0	4.7	0	0.0	0.0	0.0	1941.0	254.5	22.1
MAY	567	34.9	6.2	6.2	0	0.0	0.0	0.0	1943.3	283.2	28.7
JUN	471	28.1	7.4	7.7	37	2.2	0.0	0.0	1944.7	301.4	18.2
JUL	477	29.4	8.3	8.8	143	8.8	0.0	0.0	1945.6	313.2	11.8
AUG	383	23.6	7.3	8.1	136	8.4	6.2	0.0	1945.7	314.1	0.9
SEP	190	11.3	5.8	6.4	20	1.2	3.7	0.0	1945.7	314.1	0.0
OCT	179	11.0	3.9	4.3	0	0.0	6.7	0.0	1945.7	314.1	0.0
NOV	238	14.2	2.5	2.8	0	0.0	11.4	0.0	1945.7	314.1	0.0
DEC	235	14.5	1.6	1.8	0	0.0	12.7	0.0	1945.7	314.1	0.0
TOTAL		262.6	52.5	54.6		20.6	40.7	0.0			146.7

TABLE 4

LOVEWELL RESERVOIR OPERATION ESTIMATES - 2016

	WHITE ROCK CREEK INFLOW 1000	COURTLAND CANAL INFLOW 1000	TOTAL INFLOW MEAN	TOTAL INFLOW 1000	EVAPORATION	EVAPORATION 1000	RELEASE REQUIRMENT MEAN	RELEASE REQUIRMENT 1000	RESERVOIR SPILL 1000	REQUIREMENT SHORTAGE 1000	END OF MONTH RESERVOIR ELEV	END OF MONTH RESERVOIR CONT 1000	RESERVOIR CHANGE 1000
MONTH	AF	AF	CFS	AF	INCHES	AF	CFS	AF	AF	AF	FT	AF	AF
REASONABLE MINIMUM INFLOW CONDITIONS													
JAN	0.4	0.0	6	0.4	1.2	0.3	0	0.0	0.0	0.0	1582.1	34.4	0.1
FEB	0.6	0.0	11	0.6	1.5	0.4	0	0.0	0.0	0.0	1582.2	34.6	0.2
MAR	1.3	3.2	73	4.5	2.6	0.6	0	0.0	0.0	0.0	1583.5	38.5	3.9
APR	1.2	2.3	59	3.5	5.3	1.4	0	0.0	0.0	0.0	1584.1	40.6	2.1
MAY	1.5	2.5	65	4.0	6.8	1.8	15	0.9	0.0	0.0	1584.6	41.9	1.3
JUN	1.7	0.0	29	1.7	8.8	2.4	168	10.0	0.0	0.0	1581.0	31.2	-10.7
JUL	1.1	2.5	58	3.6	9.6	2.2	505	31.1	0.0	10.2	1571.7	11.7	-19.5
AUG	0.1	0.0	2	0.1	7.8	1.0	347	21.4	0.0	21.4	1571.1	10.8	-0.9
SEP	0.9	0.0	15	0.9	5.9	0.7	47	2.8	0.0	2.8	1571.2	11.0	0.2
OCT	0.6	1.9	41	2.5	4.1	0.5	0	0.0	0.0	0.0	1572.5	13.0	2.0
NOV	0.5	2.5	50	3.0	3.0	0.4	0	0.0	0.0	0.0	1574.1	15.6	2.6
DEC	0.3	2.6	47	2.9	1.5	0.2	0	0.0	0.0	0.0	1575.5	18.3	2.7
TOTAL	10.2	17.5		27.7	58.1	11.9		66.2	0.0	34.4			-16.0
MOST PROBABLE INFLOW CONDITIONS													
JAN	0.9	0.0	15	0.9	1.0	0.2	0	0.0	0.0	0.0	1582.3	35.0	0.7
FEB	1.7	0.0	31	1.7	1.3	0.3	0	0.0	0.0	0.0	1582.8	36.4	1.4
MAR	3.8	0.0	62	3.8	2.3	0.6	0	0.0	0.0	0.0	1583.8	39.6	3.2
APR	3.4	0.0	57	3.4	4.6	1.2	0	0.0	0.0	0.0	1584.6	41.8	2.2
MAY	4.3	0.0	70	4.3	5.9	1.6	13	0.8	1.8	0.0	1584.6	41.9	0.1
JUN	4.7	3.1	131	7.8	7.6	2.1	133	7.9	0.0	0.0	1583.9	39.7	-2.2
JUL	3.2	0.0	52	3.2	8.3	2.2	404	24.9	0.0	0.0	1574.2	15.8	-23.9
AUG	0.3	13.7	227	14.0	6.8	1.0	278	17.1	0.0	0.0	1571.7	11.7	-4.1
SEP	2.5	0.3	47	2.8	5.1	0.6	37	2.2	0.0	0.0	1571.7	11.7	0.0
OCT	1.7	4.7	104	6.4	3.5	0.4	0	0.0	0.0	0.0	1575.2	17.7	6.0
NOV	1.5	4.1	94	5.6	2.6	0.4	0	0.0	0.0	0.0	1577.7	22.9	5.2
DEC	1.0	4.6	91	5.6	1.3	0.2	0	0.0	0.0	0.0	1580.0	28.3	5.4
TOTAL	29.0	30.5		59.5	50.3	10.8		52.9	1.8	0.0			-6.0
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	2.2	0.0	36	2.2	0.9	0.2	0	0.0	0.6	0.0	1582.6	35.7	1.4
FEB	3.2	0.0	58	3.2	1.1	0.3	0	0.0	2.9	0.0	1582.6	35.7	0.0
MAR	7.4	0.0	120	7.4	1.9	0.5	0	0.0	6.9	0.0	1582.6	35.7	0.0
APR	6.7	0.0	112	6.7	4.0	1.0	0	0.0	5.7	0.0	1582.6	35.7	0.0
MAY	8.4	0.0	136	8.4	5.0	1.2	8	0.5	6.7	0.0	1582.6	35.7	0.0
JUN	9.2	0.0	154	9.2	6.5	1.6	87	5.2	2.4	0.0	1582.6	35.7	0.0
JUL	6.2	0.0	101	6.2	7.1	1.8	265	16.3	0.0	0.0	1578.1	23.8	-11.9
AUG	0.6	0.0	10	0.6	5.8	1.1	179	11.0	0.0	0.0	1572.1	12.3	-11.5
SEP	4.9	0.0	82	4.9	4.4	0.6	23	1.4	0.0	0.0	1573.9	15.2	2.9
OCT	3.3	4.7	130	8.0	3.0	0.4	0	0.0	0.0	0.0	1577.7	22.8	7.6
NOV	2.8	3.1	99	5.9	2.2	0.4	0	0.0	0.0	0.0	1580.0	28.3	5.5
DEC	1.9	0.0	31	1.9	1.1	0.2	0	0.0	0.0	0.0	1580.6	30.0	1.7
TOTAL	56.8	7.8		64.6	43.0	9.3		34.4	25.2	0.0			-4.3

KIRWIN RESERVOIR OPERATION ESTIMATES - 2016

	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	5	0.3	1.3	0.2	0	0.0	0.0	0.0	1713.1	35.5	0.1
FEB	7	0.4	1.6	0.3	0	0.0	0.0	0.0	1713.1	35.6	0.1
MAR	13	0.8	2.8	0.4	0	0.0	0.0	0.0	1713.3	36.0	0.4
APR	13	0.8	6.4	1.0	0	0.0	0.0	0.0	1713.2	35.8	-0.2
MAY	21	1.3	7.9	1.3	8	0.5	0.0	0.0	1713.0	35.3	-0.5
JUN	18	1.1	9.6	1.5	87	5.2	0.0	0.0	1710.9	29.7	-5.6
JUL	16	1.0	10.9	1.5	193	11.9	0.0	0.0	1704.1	17.3	-12.4
AUG	11	0.7	9.6	0.8	179	11.0	0.0	5.6	1700.0	11.8	-5.5
SEP	7	0.4	7.4	0.5	8	0.5	0.0	0.5	1699.9	11.7	-0.1
OCT	3	0.2	5.1	0.4	0	0.0	0.0	0.0	1699.7	11.5	-0.2
NOV	5	0.3	3.0	0.2	0	0.0	0.0	0.0	1699.8	11.6	0.1
DEC	5	0.3	1.6	0.1	0	0.0	0.0	0.0	1700.0	11.8	0.2
TOTAL		7.6	67.2	8.2		29.1	0.0	6.1			-23.6
MOST PROBABLE INFLOW CONDITIONS											
JAN	15	0.9	1.1	0.2	0	0.0	0.0	0.0	1713.3	36.1	0.7
FEB	25	1.4	1.4	0.2	0	0.0	0.0	0.0	1713.7	37.3	1.2
MAR	41	2.5	2.5	0.4	0	0.0	0.0	0.0	1714.5	39.4	2.1
APR	45	2.7	5.7	1.0	0	0.0	0.0	0.0	1715.0	41.1	1.7
MAY	70	4.3	7.1	1.3	6	0.4	0.0	0.0	1715.8	43.7	2.6
JUN	59	3.5	8.6	1.6	71	4.4	0.0	0.0	1715.0	41.2	-2.5
JUL	55	3.4	9.8	1.8	193	11.9	0.0	0.0	1711.3	30.9	-10.3
AUG	39	2.4	8.6	1.2	149	9.2	0.0	0.0	1707.5	22.9	-8.0
SEP	20	1.2	6.6	0.7	8	0.5	0.0	0.0	1707.5	22.9	0.0
OCT	13	0.8	4.6	0.5	0	0.0	0.0	0.0	1707.7	23.2	0.3
NOV	17	1.0	2.7	0.3	0	0.0	0.0	0.0	1708.1	23.9	0.7
DEC	13	0.8	1.4	0.2	0	0.0	0.0	0.0	1708.4	24.5	0.6
TOTAL		24.9	60.1	9.4		26.4	0.0	0.0			-10.9
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	45	2.8	1.0	0.2	0	0.0	0.0	0.0	1714.0	38.0	2.6
FEB	75	4.2	1.3	0.2	0	0.0	0.0	0.0	1715.3	42.0	4.0
MAR	120	7.4	2.3	0.4	0	0.0	0.0	0.0	1717.4	49.0	7.0
APR	134	8.0	5.1	1.0	0	0.0	0.0	0.0	1719.4	56.0	7.0
MAY	211	13.0	6.3	1.3	5	0.3	0.0	0.0	1722.4	67.4	11.4
JUN	174	10.4	7.7	1.8	59	3.5	0.0	0.0	1723.7	72.5	5.1
JUL	164	10.1	8.8	2.2	167	10.3	0.0	0.0	1723.1	70.1	-2.4
AUG	115	7.1	7.7	1.8	119	7.3	0.0	0.0	1722.6	68.1	-2.0
SEP	60	3.6	6.0	1.4	7	0.4	0.0	0.0	1723.0	69.9	1.8
OCT	39	2.4	4.1	1.0	0	0.0	0.0	0.0	1723.4	71.3	1.4
NOV	52	3.1	2.4	0.6	0	0.0	0.0	0.0	1724.0	73.8	2.5
DEC	41	2.5	1.3	0.3	0	0.0	0.0	0.0	1724.5	76.0	2.2
TOTAL		74.6	54.0	12.2		21.8	0.0	0.0			40.6

WEBSTER RESERVOIR OPERATION ESTIMATES - 2016

	INFLOW		EVAPORATION		RELEASE REQUIRMENT		RESERVOIR SPILL	REQUIREMENT SHORTAGE	END OF MONTH ELEV	END OF MONTH 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	3	0.2	1.3	0.1	0	0.0	0.0	0.0	1870.0	17.4	0.1
FEB	4	0.2	1.6	0.2	0	0.0	0.0	0.0	1870.0	17.4	0.0
MAR	6	0.4	2.9	0.3	0	0.0	0.0	0.0	1870.1	17.5	0.1
APR	10	0.6	6.5	0.6	0	0.0	0.0	0.0	1870.1	17.5	0.0
MAY	15	0.9	8.2	0.8	16	1.0	0.0	0.0	1869.5	16.6	-0.9
JUN	10	0.6	10.4	1.0	107	6.4	0.0	0.0	1864.9	9.8	-6.8
JUL	10	0.6	11.5	0.9	253	15.6	0.0	13.5	1863.0	7.4	-2.4
AUG	6	0.4	10.6	0.7	227	14.0	0.0	14.0	1862.8	7.1	-0.3
SEP	3	0.2	7.8	0.5	10	0.6	0.0	0.6	1862.5	6.8	-0.3
OCT	2	0.1	5.2	0.3	0	0.0	0.0	0.0	1862.3	6.6	-0.2
NOV	3	0.2	3.2	0.2	0	0.0	0.0	0.0	1862.3	6.6	0.0
DEC	2	0.1	1.7	0.1	0	0.0	0.0	0.0	1862.3	6.6	0.0
TOTAL		4.5	70.9	5.7		37.6	0.0	28.1			-10.7
MOST PROBABLE INFLOW CONDITIONS											
JAN	10	0.6	1.1	0.1	0	0.0	0.0	0.0	1870.3	17.8	0.5
FEB	16	0.9	1.4	0.1	0	0.0	0.0	0.0	1870.8	18.6	0.8
MAR	24	1.5	2.6	0.3	0	0.0	0.0	0.0	1871.4	19.8	1.2
APR	35	2.1	5.9	0.6	0	0.0	0.0	0.0	1872.3	21.3	1.5
MAY	52	3.2	7.4	0.8	13	0.8	0.0	0.0	1873.2	22.9	1.6
JUN	39	2.3	9.3	1.0	71	4.4	0.0	0.0	1871.4	19.8	-3.1
JUL	36	2.2	10.3	1.0	208	12.8	0.0	0.0	1863.7	8.2	-11.6
AUG	21	1.3	9.5	0.7	161	9.9	0.0	8.5	1863.0	7.4	-0.8
SEP	13	0.8	7.0	0.5	5	0.3	0.0	0.0	1863.0	7.4	0.0
OCT	6	0.4	4.6	0.3	0	0.0	0.0	0.0	1863.1	7.5	0.1
NOV	10	0.6	2.9	0.2	0	0.0	0.0	0.0	1863.5	7.9	0.4
DEC	8	0.5	1.5	0.1	0	0.0	0.0	0.0	1863.7	8.3	0.4
TOTAL		16.4	63.5	5.7		28.2	0.0	8.5			-9.0
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	36	2.2	1.0	0.1	0	0.0	0.0	0.0	1871.3	19.4	2.1
FEB	56	3.1	1.3	0.1	0	0.0	0.0	0.0	1872.9	22.4	3.0
MAR	86	5.3	2.4	0.3	0	0.0	0.0	0.0	1875.5	27.4	5.0
APR	124	7.4	5.3	0.6	0	0.0	0.0	0.0	1878.6	34.2	6.8
MAY	183	11.3	6.7	0.9	6	0.4	0.0	0.0	1882.5	44.2	10.0
JUN	133	7.9	8.5	1.3	42	2.5	0.0	0.0	1884.0	48.3	4.1
JUL	125	7.7	9.3	1.6	125	7.7	0.0	0.0	1883.4	46.7	-1.6
AUG	73	4.5	8.6	1.4	101	6.2	0.0	0.0	1882.3	43.6	-3.1
SEP	44	2.6	6.3	1.0	2	0.1	0.0	0.0	1882.9	45.1	1.5
OCT	24	1.5	4.2	0.7	0	0.0	0.0	0.0	1883.1	45.9	0.8
NOV	34	2.0	2.6	0.4	0	0.0	0.0	0.0	1883.7	47.5	1.6
DEC	31	1.9	1.4	0.2	0	0.0	0.0	0.0	1884.3	49.2	1.7
TOTAL		57.4	57.6	8.6		16.9	0.0	0.0			31.9

WACONDA RESERVOIR OPERATION ESTIMATES - 2016

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	EVAPORATION INCHES	EVAPORATION 1000 AF	RELEASE REQUIRMENT MEAN CFS	RELEASE REQUIRMENT 1000 AF	RESERVOIR SPILL 1000 AF	REQUIREMENT SHORTAGE 1000 AF	END OF MONTH ELEV FT	END OF MONTH CONT 1000 AF	RESERVOIR CHANGE 1000 AF
REASONABLE MINIMUM INFLOW CONDITIONS											
JAN	29	1.8	1.2	0.9	19	1.2	6.0	0.0	1454.6	207.1	-6.3
FEB	43	2.4	1.4	1.0	20	1.1	0.3	0.0	1454.6	207.1	0.0
MAR	83	5.1	2.7	1.9	18	1.1	2.1	0.0	1454.6	207.1	0.0
APR	86	5.1	6.8	4.8	17	1.0	0.0	0.0	1454.5	206.4	-0.7
MAY	99	6.1	8.4	5.9	18	1.1	0.0	0.0	1454.5	205.5	-0.9
JUN	84	5.0	10.5	7.4	45	2.7	0.0	0.0	1454.0	200.4	-5.1
JUL	136	8.4	12.4	8.6	156	9.6	0.0	0.0	1453.2	190.6	-9.8
AUG	50	3.1	10.6	7.1	125	7.7	0.0	0.0	1452.1	178.9	-11.7
SEP	39	2.3	8.5	5.4	35	2.1	0.0	0.0	1451.6	173.7	-5.2
OCT	29	1.8	5.5	3.4	21	1.3	0.0	0.0	1451.3	170.8	-2.9
NOV	34	2.0	2.9	1.8	27	1.6	0.0	0.0	1451.2	169.4	-1.4
DEC	28	1.7	1.4	0.8	24	1.5	0.0	0.0	1451.2	168.8	-0.6
TOTAL		44.8	72.3	49.0		32.0	8.4	0.0			-44.6
MOST PROBABLE INFLOW CONDITIONS											
JAN	81	5.0	1.0	0.7	10	0.6	10.0	0.0	1454.6	207.1	-6.3
FEB	120	6.7	1.3	0.9	10	0.6	5.2	0.0	1454.6	207.1	0.0
MAR	227	14.0	2.4	1.7	10	0.6	11.7	0.0	1454.6	207.1	0.0
APR	237	14.1	6.1	4.3	8	0.5	0.0	0.0	1455.4	216.4	9.3
MAY	274	16.9	7.5	5.5	10	0.6	7.8	0.0	1455.6	219.4	3.0
JUN	233	13.9	9.4	6.9	32	2.0	5.0	0.0	1455.6	219.4	0.0
JUL	378	23.3	11.1	8.2	112	6.9	8.2	0.0	1455.6	219.4	0.0
AUG	140	8.6	9.5	7.0	89	5.5	0.0	0.0	1455.2	215.5	-3.9
SEP	106	6.3	7.6	5.5	21	1.3	0.0	0.0	1455.2	215.0	-0.5
OCT	83	5.1	4.9	3.6	10	0.6	0.0	0.0	1455.3	215.9	0.9
NOV	94	5.6	2.6	1.9	15	0.9	23.6	0.0	1453.6	195.1	-20.8
DEC	75	4.6	1.3	0.9	13	0.8	2.9	0.0	1453.6	195.1	0.0
TOTAL		124.1	64.7	47.1		20.9	74.4	0.0			-18.3
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	242	14.9	0.9	0.7	3	0.2	20.3	0.0	1454.6	207.1	-6.3
FEB	363	20.2	1.2	0.9	4	0.2	19.1	0.0	1454.6	207.1	0.0
MAR	685	42.2	2.2	1.6	5	0.3	40.3	0.0	1454.6	207.1	0.0
APR	715	42.6	5.5	3.9	5	0.3	26.1	0.0	1455.6	219.4	12.3
MAY	825	50.8	6.8	5.0	5	0.3	45.5	0.0	1455.6	219.4	0.0
JUN	703	41.9	8.6	6.3	22	1.3	34.3	0.0	1455.6	219.4	0.0
JUL	1141	70.3	10.1	7.4	70	4.3	58.6	0.0	1455.6	219.4	0.0
AUG	419	25.8	8.7	6.4	57	3.5	15.9	0.0	1455.6	219.4	0.0
SEP	320	19.1	7.0	5.1	12	0.7	13.3	0.0	1455.6	219.4	0.0
OCT	248	15.3	4.5	3.3	6	0.4	11.6	0.0	1455.6	219.4	0.0
NOV	282	16.8	2.4	1.8	5	0.3	39.0	0.0	1453.6	195.1	-24.3
DEC	224	13.8	1.2	0.8	5	0.3	12.7	0.0	1453.6	195.1	0.0
TOTAL		373.7	59.1	43.2		12.1	336.7	0.0			-18.3

CEDAR BLUFF RESERVOIR OPERATION ESTIMATES - 2016

	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	3	0.2	1.6	0.3	0	0.0	0.0	0.0	2119.3	55.6	-0.1
FEB	4	0.2	1.7	0.3	0	0.0	0.0	0.0	2119.2	55.5	-0.1
MAR	6	0.4	3.1	0.5	0	0.0	0.0	0.0	2119.2	55.4	-0.1
APR	10	0.6	7.8	1.3	0	0.0	0.0	0.0	2119.0	54.7	-0.7
MAY	15	0.9	9.3	1.6	3	0.2	0.0	0.0	2118.6	53.8	-0.9
JUN	15	0.9	11.4	1.9	3	0.2	0.0	0.0	2118.2	52.6	-1.2
JUL	21	1.3	13.7	2.2	11	0.7	0.0	0.0	2117.7	51.0	-1.6
AUG	15	0.9	11.7	1.9	11	0.7	0.0	0.0	2117.0	49.3	-1.7
SEP	5	0.3	10.1	1.6	3	0.2	0.0	0.0	2116.5	47.8	-1.5
OCT	2	0.1	7.1	1.1	0	0.0	0.0	0.0	2116.0	46.8	-1.0
NOV	3	0.2	3.3	0.5	0	0.0	0.0	0.0	2115.9	46.5	-0.3
DEC	2	0.1	1.9	0.3	0	0.0	0.0	0.0	2115.8	46.3	-0.2
TOTAL		6.1	82.7	13.5		2.0	0.0	0.0			-9.4
MOST PROBABLE INFLOW CONDITIONS											
JAN	6	0.4	1.4	0.2	0	0.0	0.0	0.0	2119.3	55.9	0.2
FEB	9	0.5	1.6	0.3	0	0.0	0.0	0.0	2119.4	56.1	0.2
MAR	15	0.9	2.8	0.5	0	0.0	0.0	0.0	2119.6	56.5	0.4
APR	25	1.5	7.0	1.2	0	0.0	0.0	0.0	2119.7	56.8	0.3
MAY	36	2.2	8.3	1.4	2	0.1	0.0	0.0	2119.9	57.5	0.7
JUN	39	2.3	10.3	1.8	2	0.1	0.0	0.0	2120.0	57.9	0.4
JUL	50	3.1	12.3	2.2	10	0.6	0.0	0.0	2120.1	58.2	0.3
AUG	36	2.2	10.6	1.9	6	0.4	0.0	0.0	2120.1	58.1	-0.1
SEP	13	0.8	9.1	1.6	2	0.1	0.0	0.0	2119.8	57.2	-0.9
OCT	5	0.3	6.4	1.1	0	0.0	0.0	0.0	2119.5	56.4	-0.8
NOV	8	0.5	3.0	0.5	0	0.0	0.0	0.0	2119.5	56.4	0.0
DEC	5	0.3	1.7	0.3	0	0.0	0.0	0.0	2119.5	56.4	0.0
TOTAL		15.0	74.5	13.0		1.3	0.0	0.0			0.7
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	19	1.2	1.3	0.2	0	0.0	0.0	0.0	2119.6	56.7	1.0
FEB	27	1.5	1.4	0.2	0	0.0	0.0	0.0	2120.0	58.0	1.3
MAR	47	2.9	2.5	0.4	0	0.0	0.0	0.0	2120.8	60.5	2.5
APR	79	4.7	6.2	1.1	0	0.0	0.0	0.0	2122.0	64.1	3.6
MAY	114	7.0	7.4	1.4	3	0.2	0.0	0.0	2123.6	69.5	5.4
JUN	122	7.3	9.1	1.8	3	0.2	0.0	0.0	2125.2	74.8	5.3
JUL	156	9.6	11.0	2.3	3	0.2	0.0	0.0	2127.0	81.9	7.1
AUG	109	6.7	9.4	2.1	0	0.0	0.0	0.0	2128.2	86.5	4.6
SEP	44	2.6	8.1	1.9	0	0.0	0.0	0.0	2128.4	87.2	0.7
OCT	18	1.1	5.7	1.3	0	0.0	0.0	0.0	2128.3	87.0	-0.2
NOV	25	1.5	2.7	0.6	0	0.0	0.0	0.0	2128.5	87.9	0.9
DEC	18	1.1	1.5	0.4	0	0.0	0.0	0.0	2128.8	88.6	0.7
TOTAL		47.2	66.3	13.7		0.6	0.0	0.0			32.9

TABLE 5

FLOOD DAMAGES PREVENTED BY NEBRASKA-KANSAS PROJECTS RESERVOIRS

RESERVOIR	DURING FY 2015	PRIOR TO 2015	ACCUMULATED TOTAL
BONNY	$0	$2,868,900	$2,868,900
ENDERS	$31,200	$3,574,000	$3,605,200
SWANSON	$8,741,900	$29,650,000	$38,391,900
HUGH BUTLER	$21,200	$6,389,500	$6,410,700
HARRY STRUNK	$0	$16,136,900	$16,136,900
KEITH SEBELIUS	$0	$4,067,200	$4,067,200
HARLAN COUNTY	$5,900,600	$228,609,200	$234,509,800
LOVEWELL	$27,900	$152,771,200	$152,799,100
KIRWIN	$8,100	$95,021,700	$95,029,800
WEBSTER	$5,100	$113,083,300	$113,088,400
WACONDA	$14,589,400	$1,279,430,500	$1,294,019,900
CEDAR BLUFF	$2,850,800	$135,951,200	$138,802,000
TOTAL	$32,176,200	$2,067,553,600	$2,099,729,800

Estimates of damages prevented are received from the Army Corps of Engineer's Kansas City District Office. The Accumulated Totals date from 1951 through 2015. 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 2015 AND THE
ESTIMATED DIVERSION FOR 2016
(Units - Acre-Feet)

Irrigation District and Canal	2015 Irrigation Operations From	To	10-Year Average Diversion (2005-2014)	2015 Diversion	Estimated Diversion in 2016
Mirage Flats Irrigation District					
Mirage Flats Canal	7/11	9/16	9,285	11,154	13,000
Ainsworth Irrigation District					
Ainsworth Canal	5/18	9/21	71,400	71,552	73,000
Twin Loups Irrigation District					
Above Davis Creek	4/16	9/30	45,178	51,091	46,000
Below Davis Creek	5/4	9/14	41,646	43,552	44,000
Total Twin Loups Irrigation District			86,824	94,643	90,000
Frenchman Valley Irrigation District					
Culbertson Canal	4/15	9/30	4,115	9,121	9,000
H & RW Irrigation District					
Culbertson Extension Canal	Did not run.		0	0	0
Frenchman-Cambridge Irrigation District					
Meeker-Driftwood Canal	6/24	9/03	11,448	15,350	25,000
Red Willow Canal	Did not run.		926	0	0
Bartley Canal	4/8	9/5	4,299	8,590	10,000
Cambridge Canal	4/13	9/9	18,834	29,156	26,000
Total Frenchman-Cambridge Irrigation District			35,507	53,096	61,000
Almena Irrigation District					
Almena Canal	Did not run.		1,731	0	0
Bostwick Irrigation District in Nebraska					
Franklin Canal	7/01	8/28	11,873	15,240	15,000
Naponee Canal	6/30	8/28	602	812	1,000
Franklin Pump Canal	6/29	8/27	582	1,027	1,000
Superior Canal	4/28	8/28	4,618	6,571	7,000
Courtland Canal (Nebraska)	6/11	9/30	310	483	1,000
Total Bostwick Irrigation District in Nebraska			17,985	24,133	25,000
Kansas-Bostwick Irrigation District					
Courtland Canal above Lovewell	6/20	9/30	16,395	20,436	19,000
Courtland Canal below Lovewell	5/19	9/13	35,107	31,544	33,000
Total Kansas-Bostwick Irrigation District			51,502	51,980	52,000
Kirwin Irrigation District					
Kirwin Canal	6/29	8/28	11,892	11,997	12,000
Webster Irrigation District					
Osborne Canal	Did not run.		5,802	0	0
Glen Elder Irrigation District	4/1	9/16	4,756	3,626	5,000
TOTAL			300,799	331,302	340,000

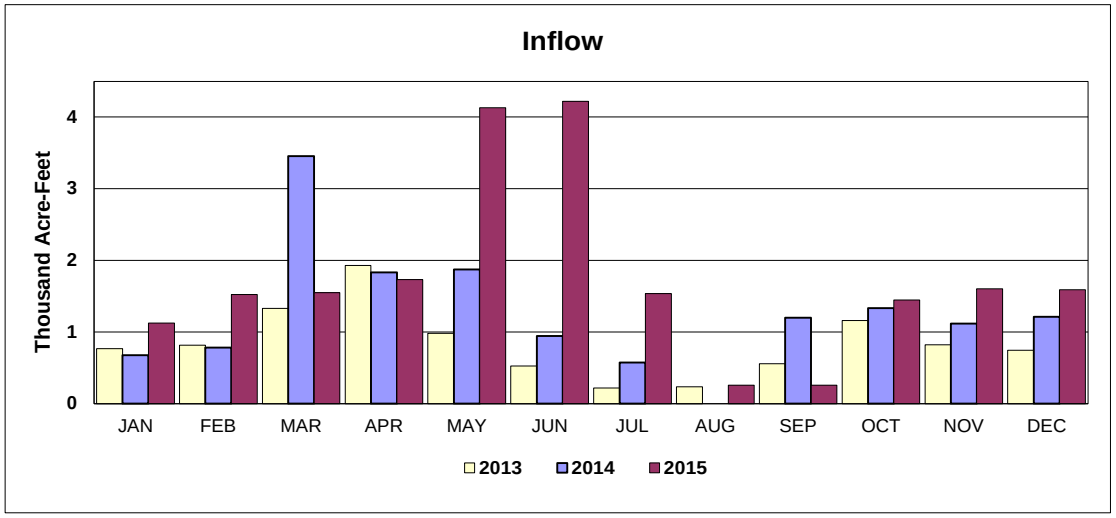
TABLE 7
NEBRASKA-KANSAS PROJECTS
Summary of Precipitation, Reservoir Storage and Inflows
CALENDAR YEAR 2015

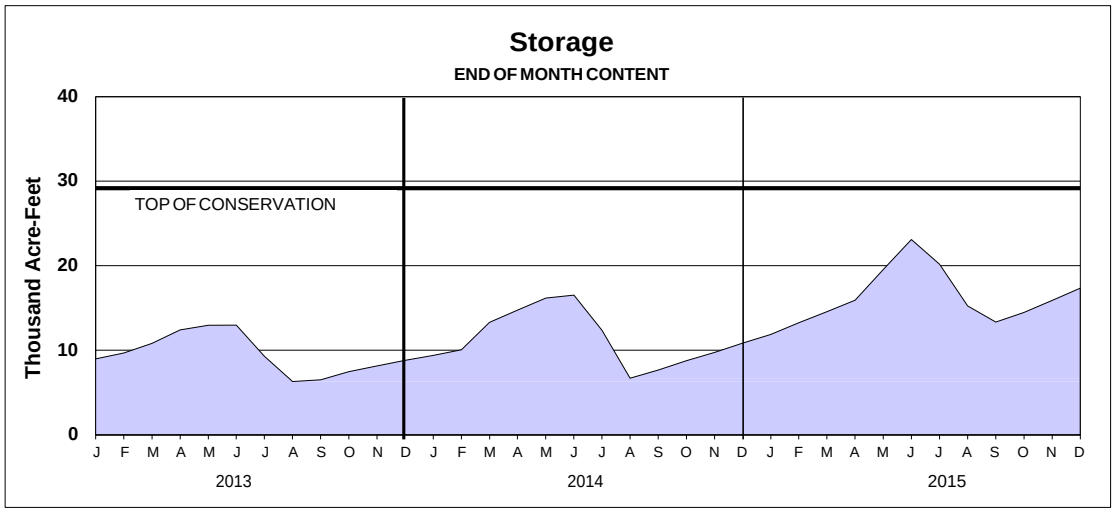
Reservoir	Total Precip. Inches	Percent Of Average %	Storage 12-31-14 AF	Storage 12-31-15 AF	Gain or Loss AF	Maximum Content AF	Storage Date	Minimum Content AF	Storage Date	Total Inflow AF	Percent Of Most Probable %
Box Butte	25.10	148	10,846	17,339	6,493	23,473	JUL 10	10,883	JAN 1	20,980	136
Merritt	28.99	142	61,100	61,100	0	68,191	MAY 16	39,120	SEP 16	202,465	109
Calamus	22.61	94	97,906	102,456	4,550	121,355	APR 13	65,268	SEP 13	250,588	91
Davis Creek	26.48	107	9,751	9,849	98	31,340	JUL 1	8,955	APR 16	52,348	116
Bonny	20.78	121	0	0	0	0	N/A	0	N/A	5,571	61
Enders	20.23	106	9,150	10,178	1,028	11,024	JUN 7	9,150	JAN 1	5,554	68
Swanson	20.21	101	27,688	43,591	15,903	59,359	JUN 26	27,736	JAN 1	42,316	154
Hugh Butler	21.80	111	8,141	12,879	4,738	12,879	DEC 31	8,155	JAN 1	9,064	69
Harry Strunk	23.74	115	37,984	33,773	-4,211	38,860	FEB 11	27,545	SEP 8	58,086	105
Keith Sebelius	27.25	111	9,676	9,422	-254	10,425	JUN 19	8,979	NOV 10	4,252	56
Harlan County	28.85	127	148,842	167,416	18,574	203,262	JUN 22	148,842	JAN 1	106,728	91
Lovewell	34.91	127	29,620	34,279	4,659	61,018	MAY 8	25,397	SEP 10	71,888	123
Kirwin	23.36	99	41,266	35,389	-5,877	44,752	JUN 15	34,199	OCT 30	17,802	65
Webster	21.84	92	18,680	17,305	-1,375	19,697	JUL 28	17,042	NOV 15	5,057	26
Waconda	25.66	101	191,097	213,417	22,320	241,452	AUG 10	190,868	APR 23	103,844	76
Cedar Bluff	25.47	121	61,117	55,681	-5,436	61,494	JUN 6	55,184	NOV 15	7,763	46

EXHIBIT 1A

BOX BUTTE RESERVOIR

ACTUAL OPERATION





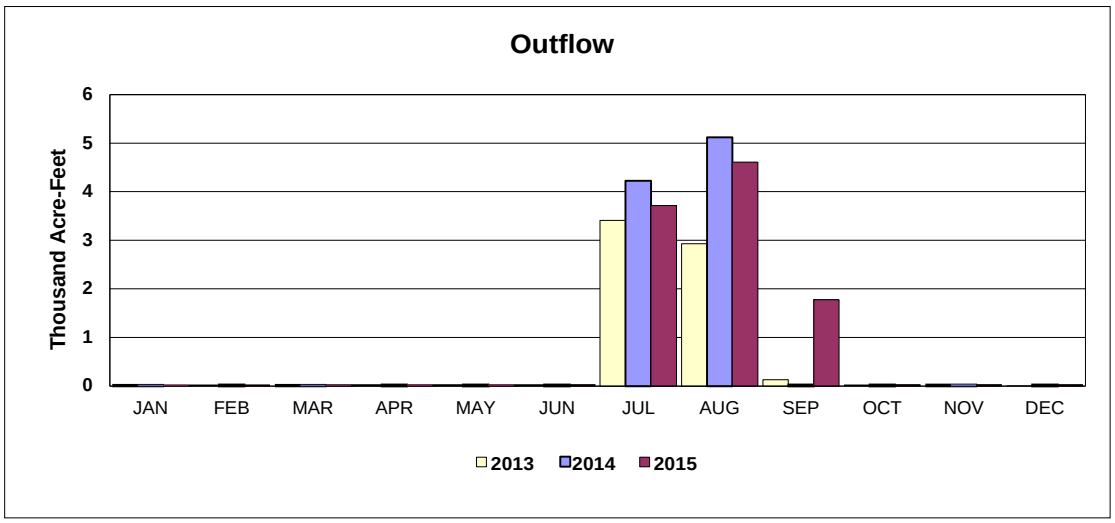
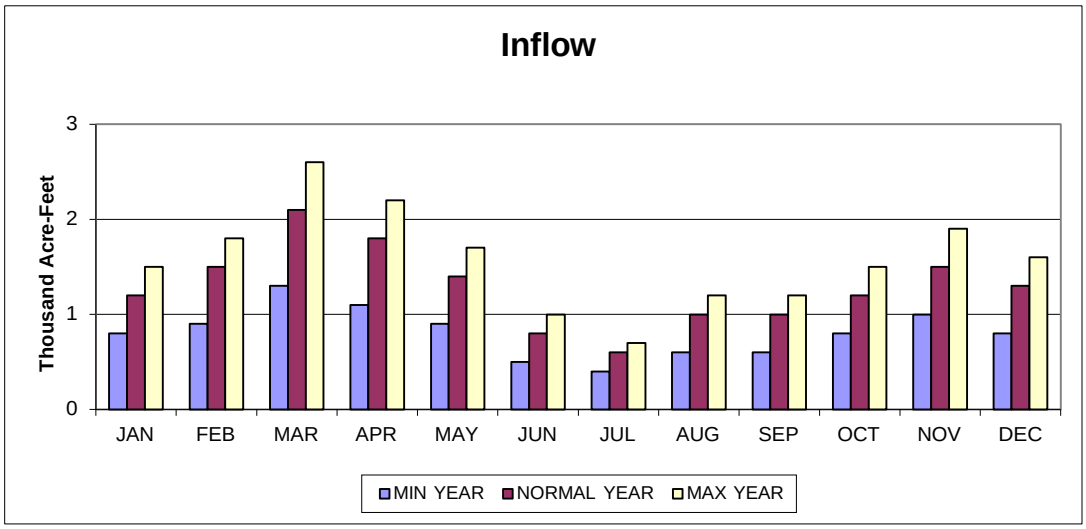
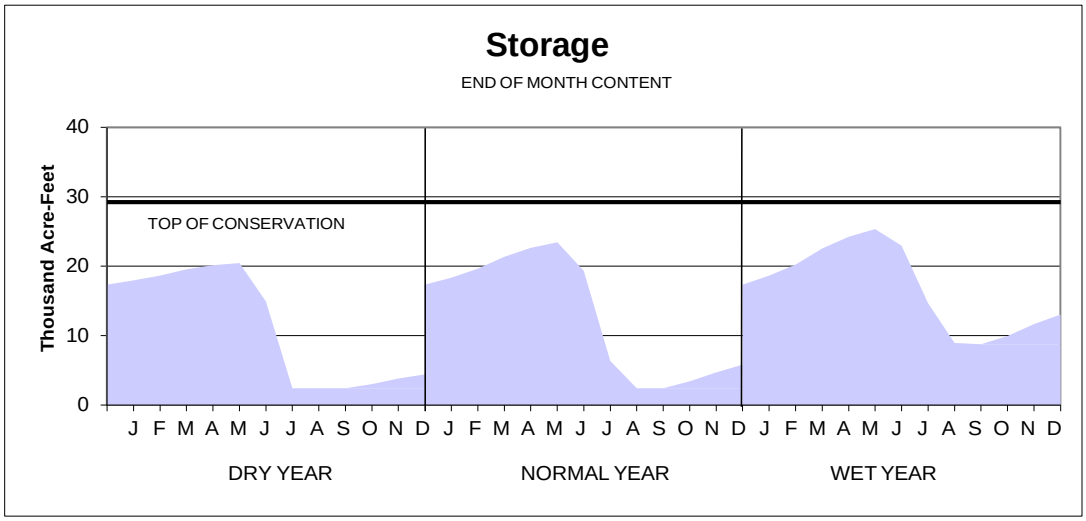


EXHIBIT 1B

BOX BUTTE RESERVOIR

2016 OPERATION PLAN





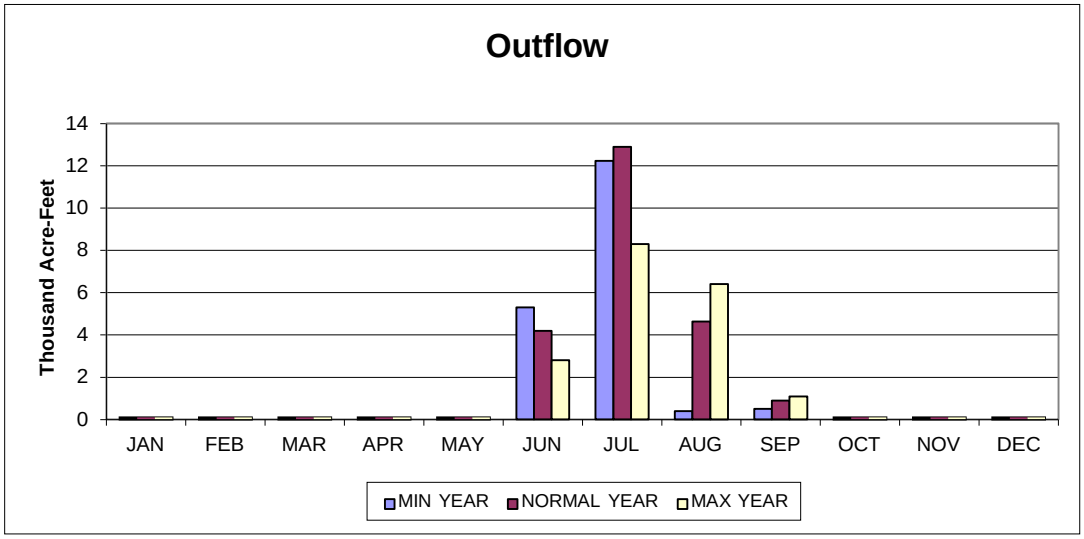
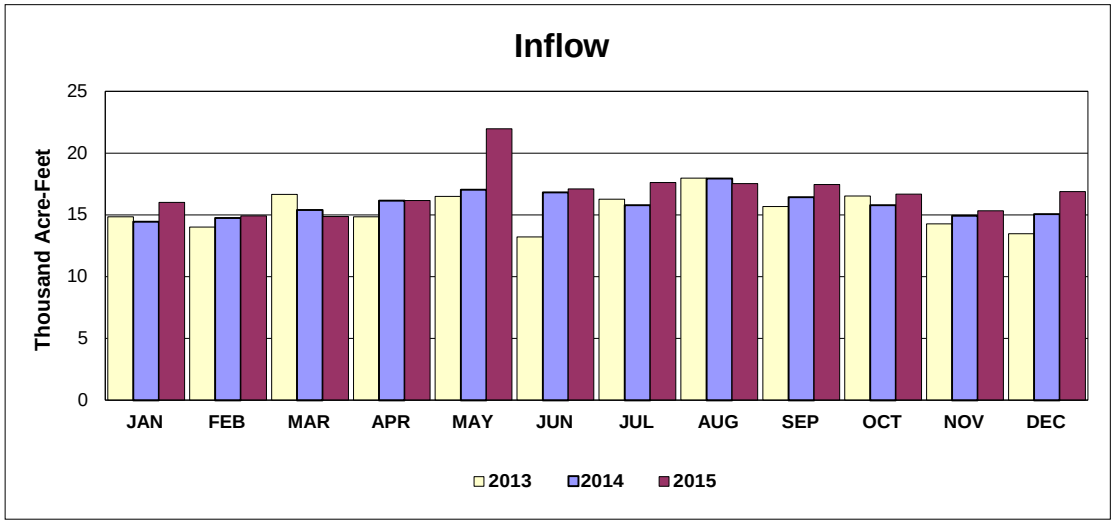
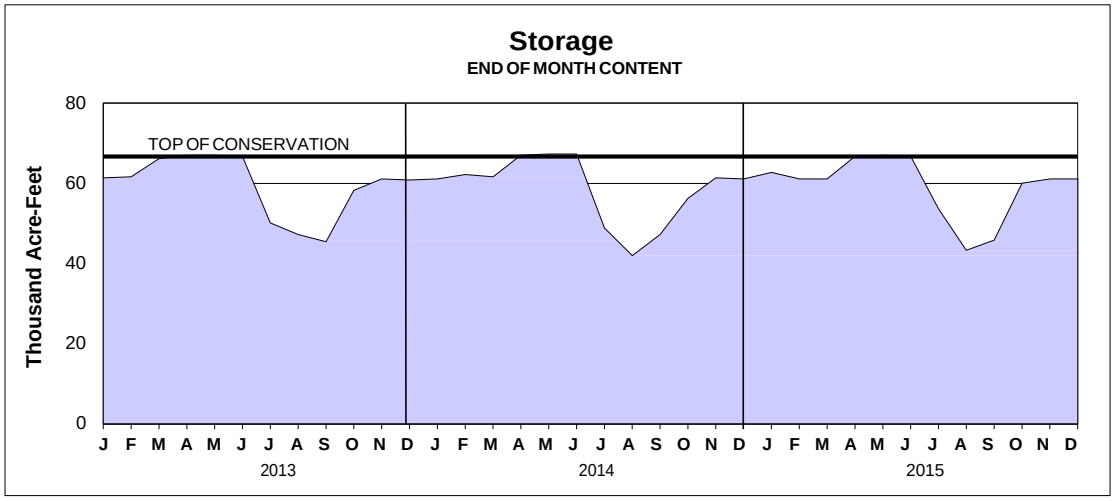


EXHIBIT 2A

MERRITT RESERVOIR

ACTUAL OPERATION





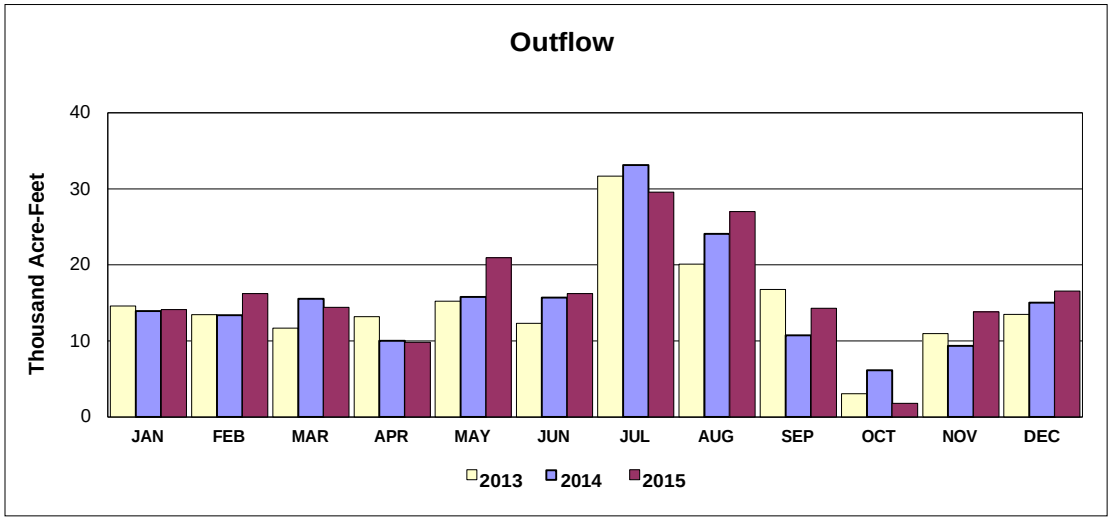
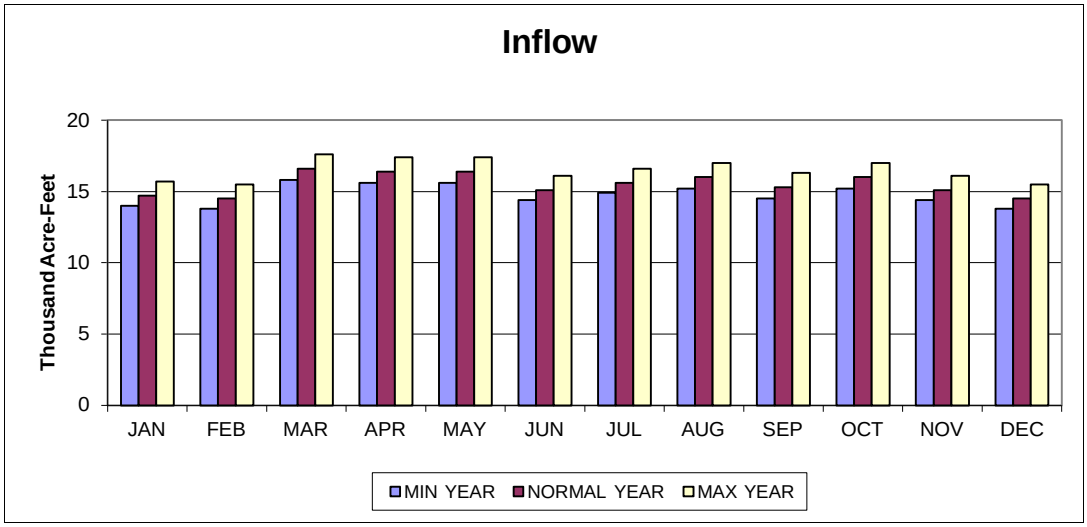
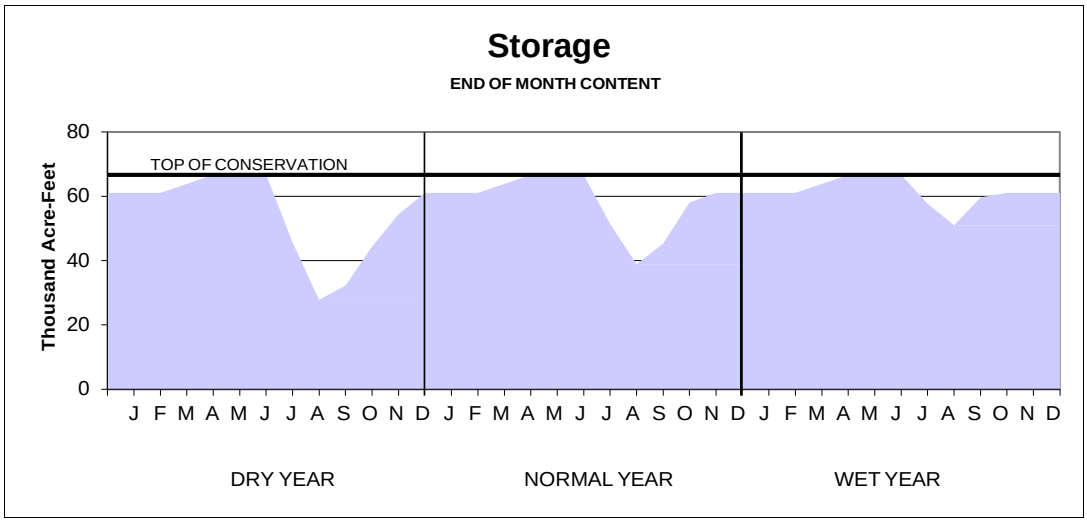


EXHIBIT 2B

MERRITT RESERVOIR

2016 OPERATION PLAN





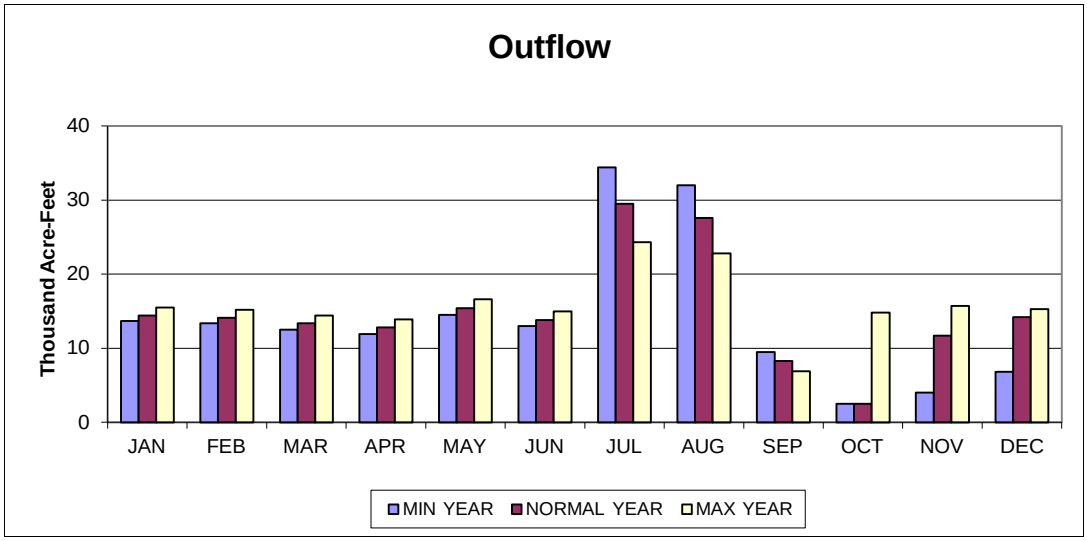
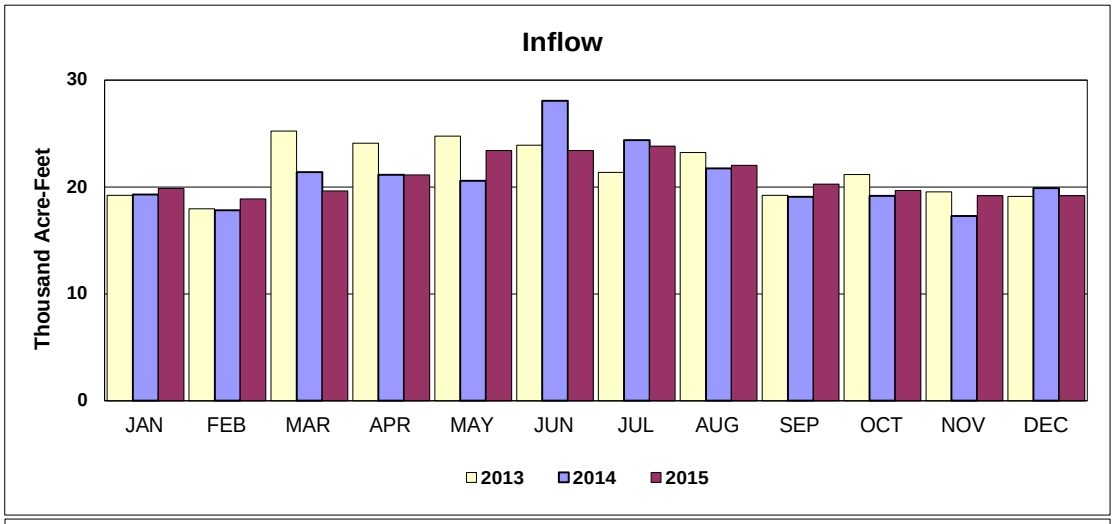
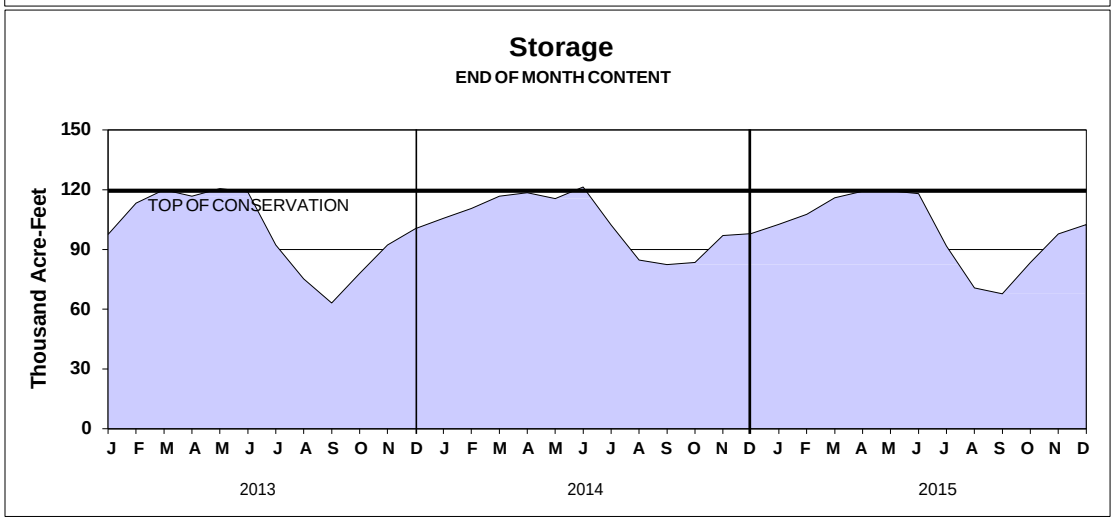


EXHIBIT 3A

CALAMUS RESERVOIR

ACTUAL OPERATION





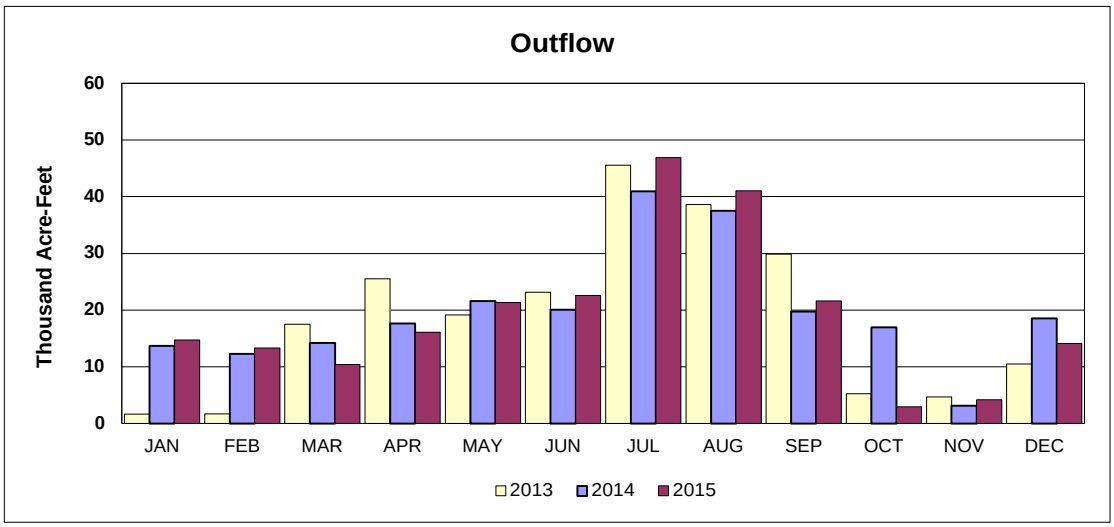
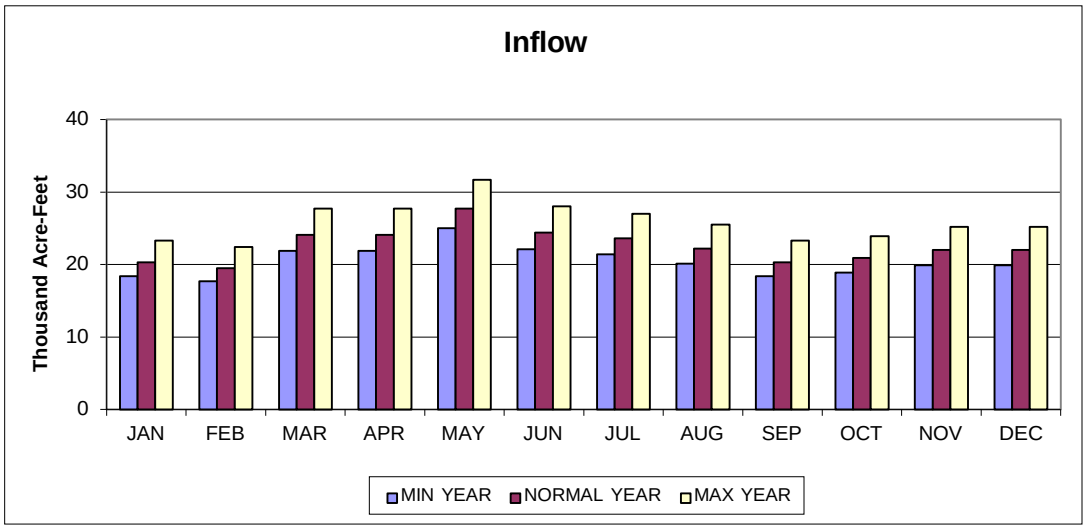
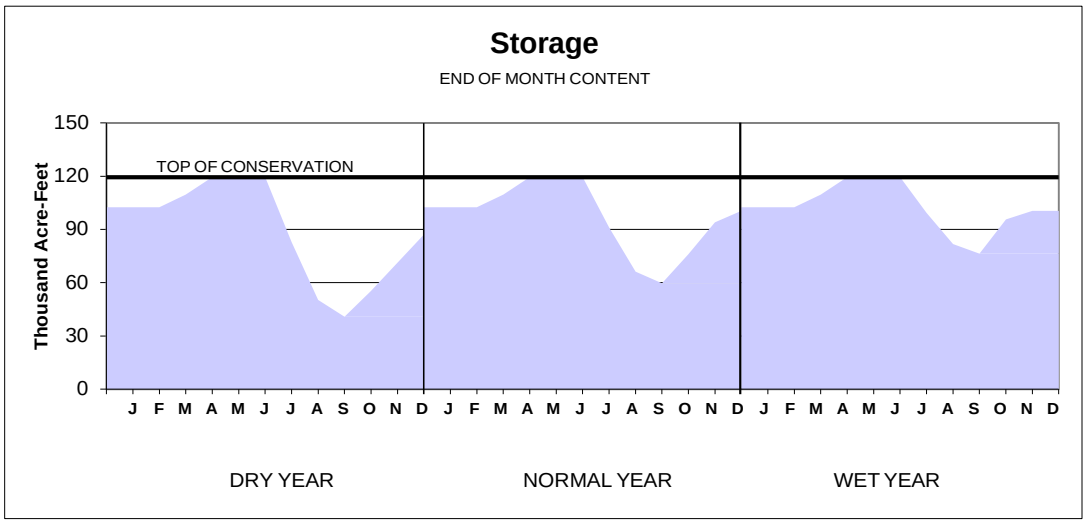


EXHIBIT 3B

CALAMUS RESERVOIR

2016 OPERATION PLAN





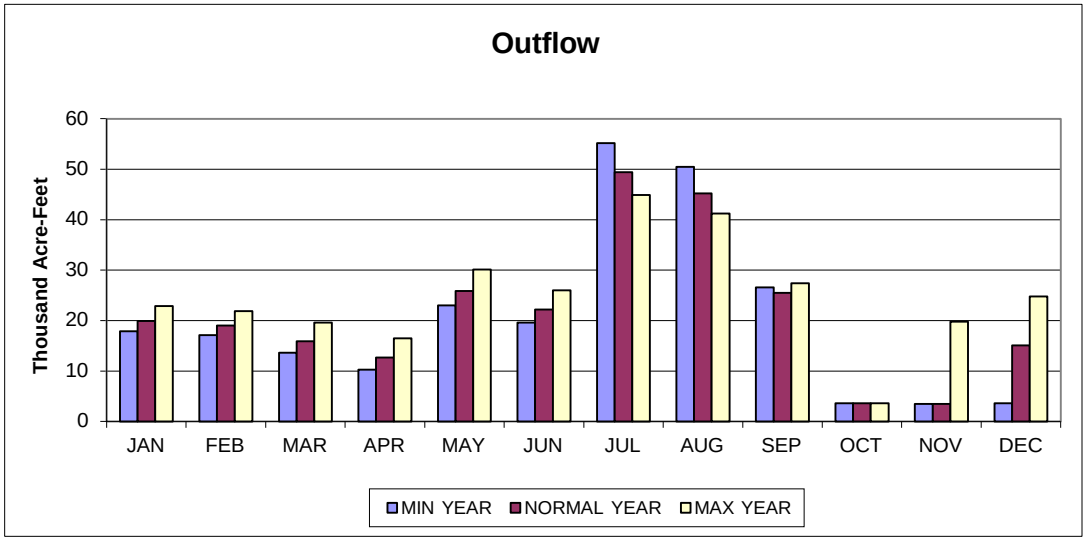
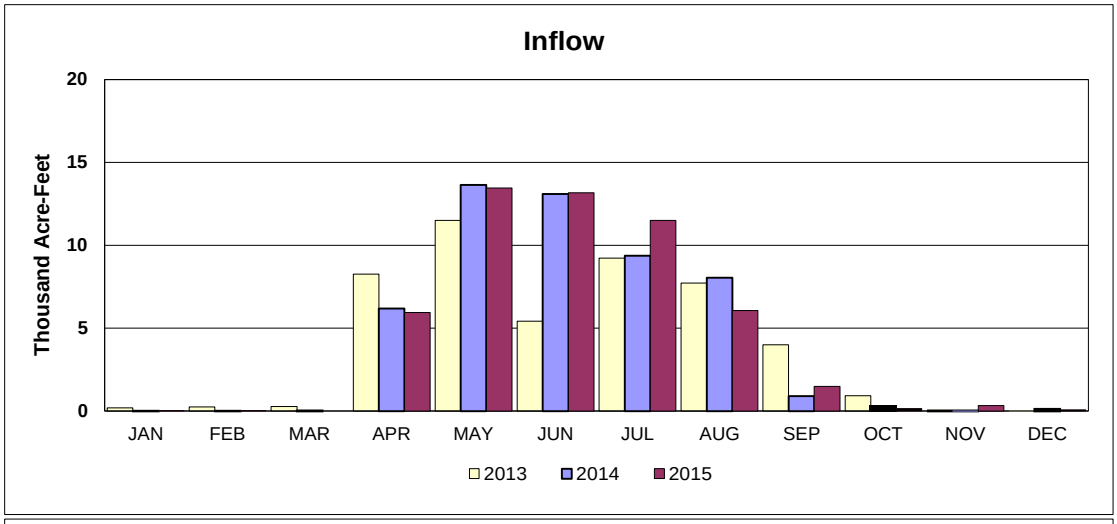
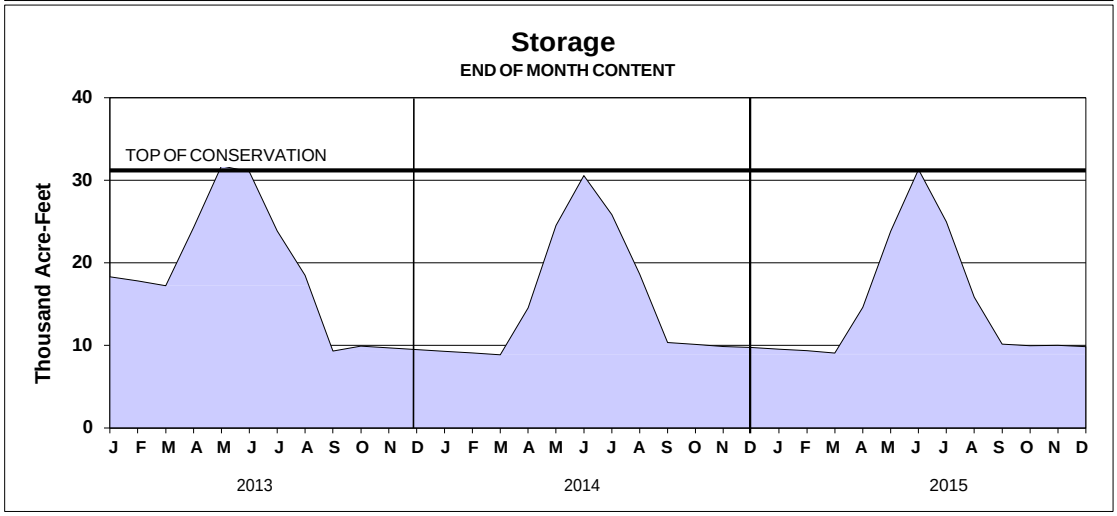


EXHIBIT 4A

DAVIS CREEK RESERVOIR

ACTUAL OPERATION





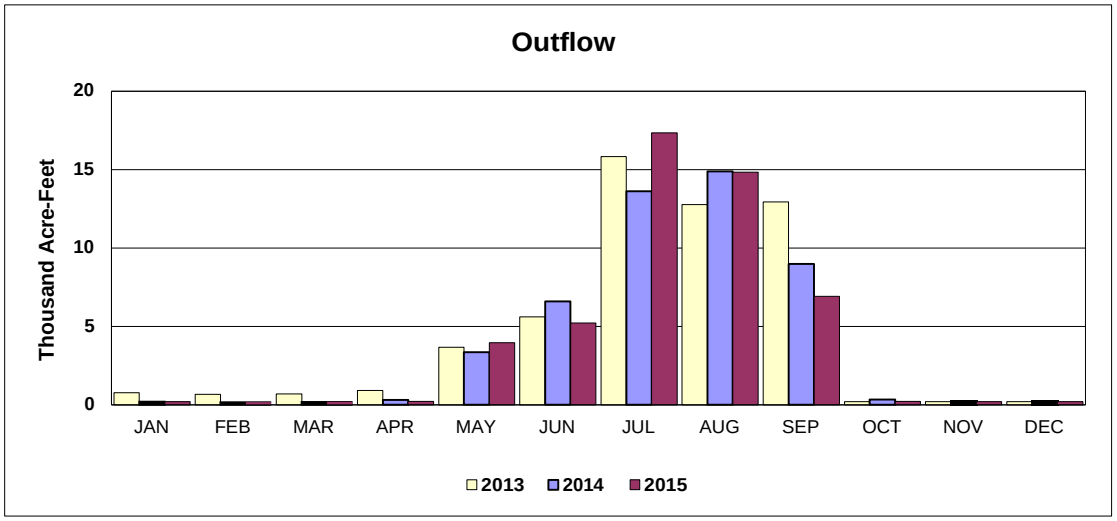
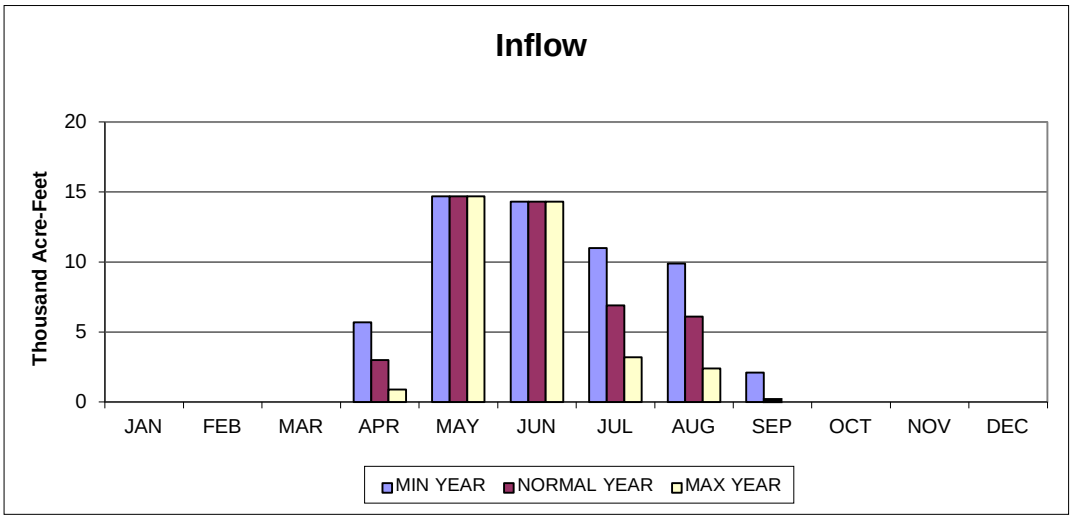
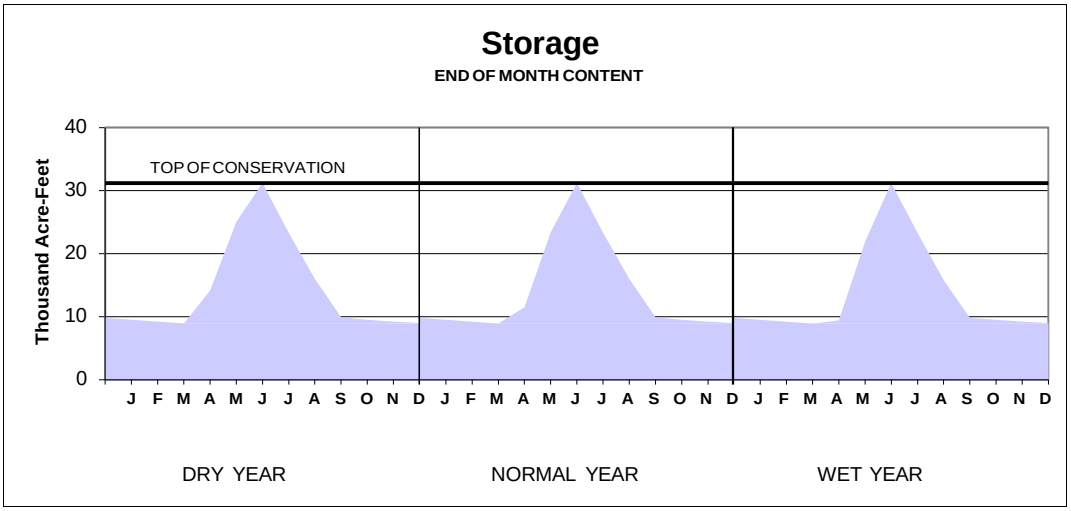


EXHIBIT 4B

DAVIS CREEK RESERVOIR

2016 OPERATION PLAN





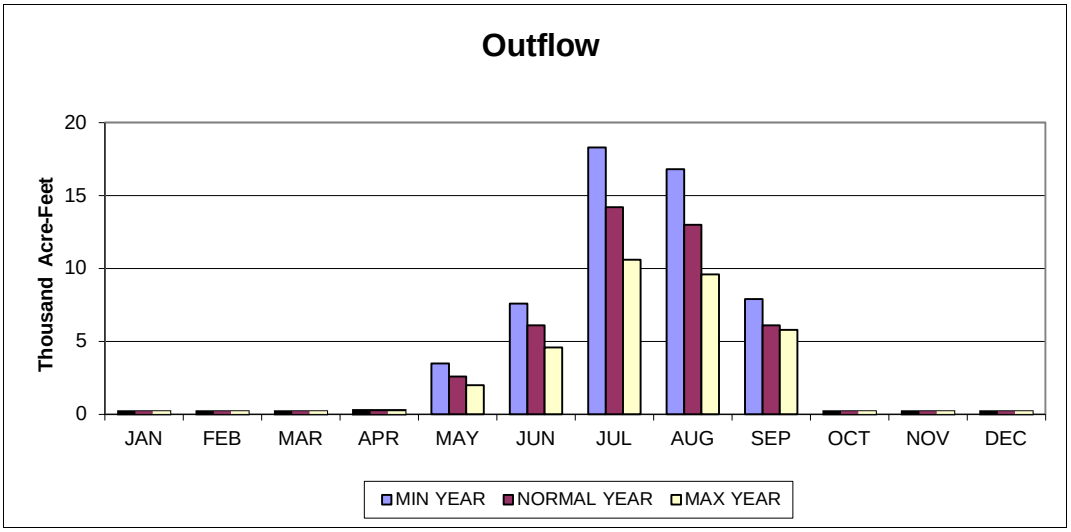
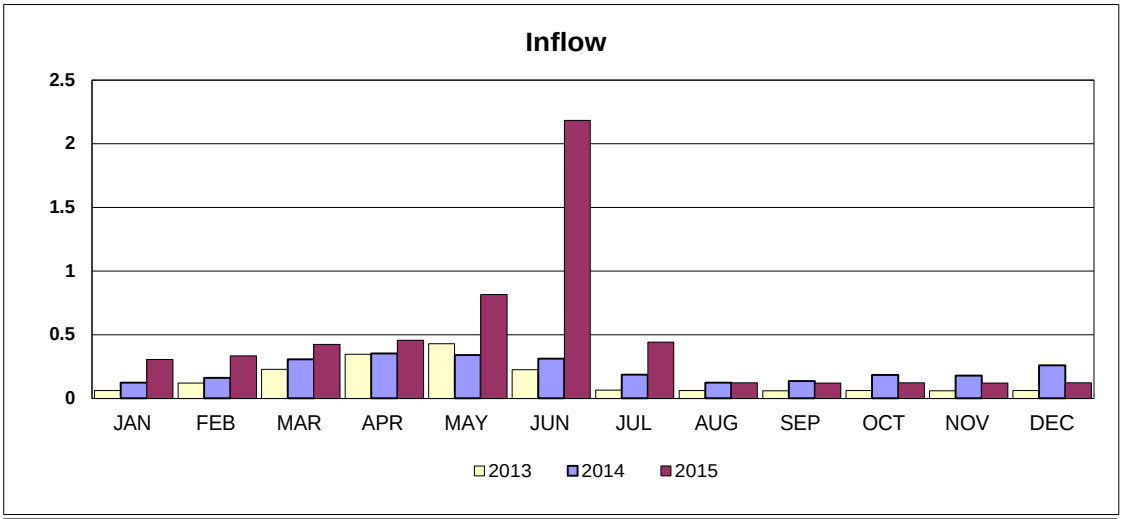
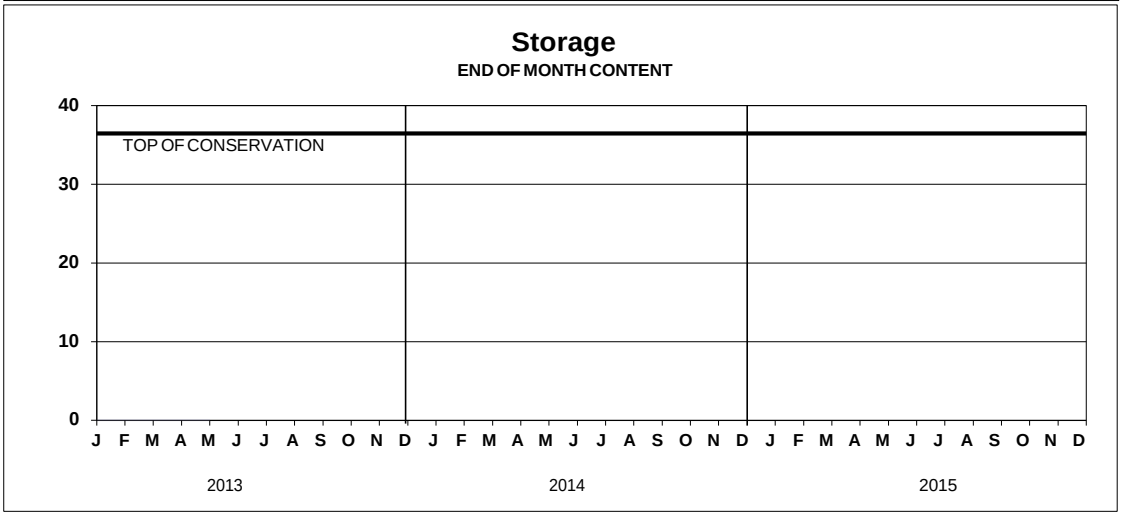


EXHIBIT 5A

BONNY RESERVOIR

ACTUAL OPERATION





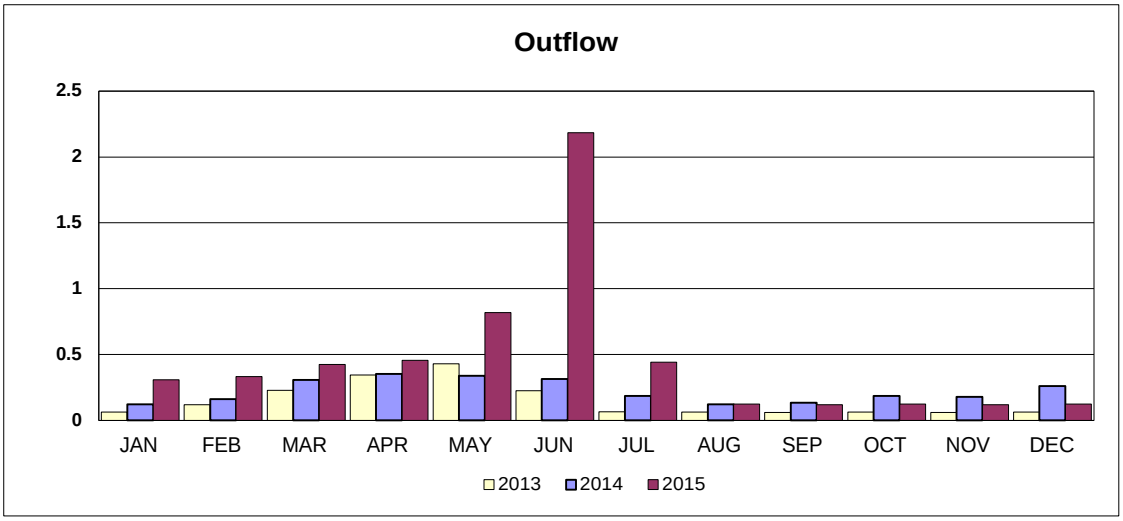
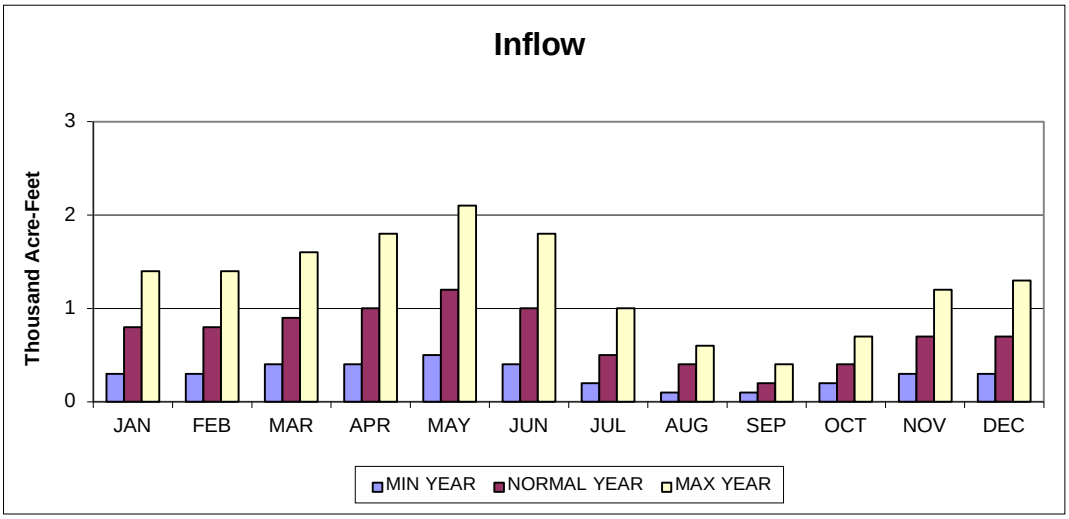
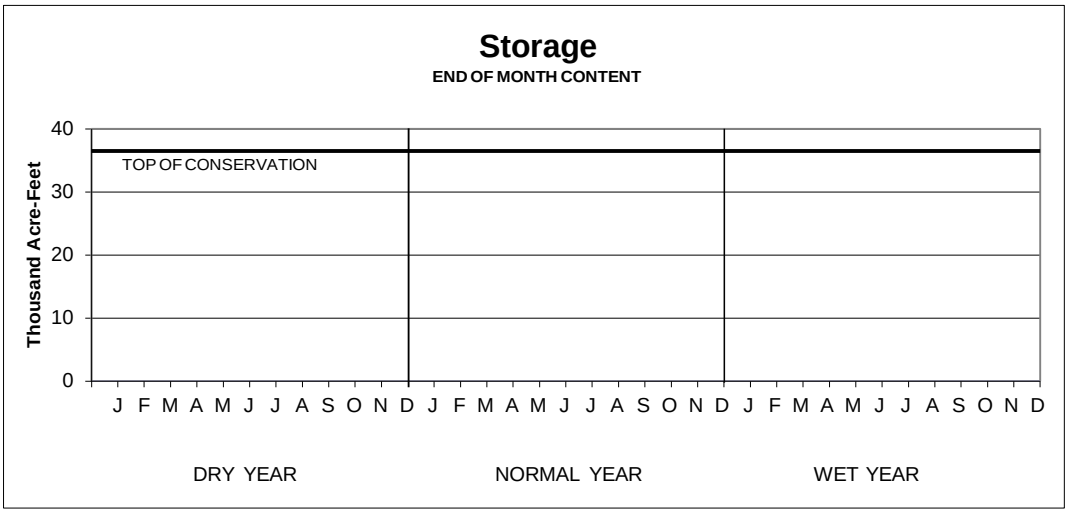


EXHIBIT 5B

BONNY RESERVOIR

2016 OPERATION PLAN





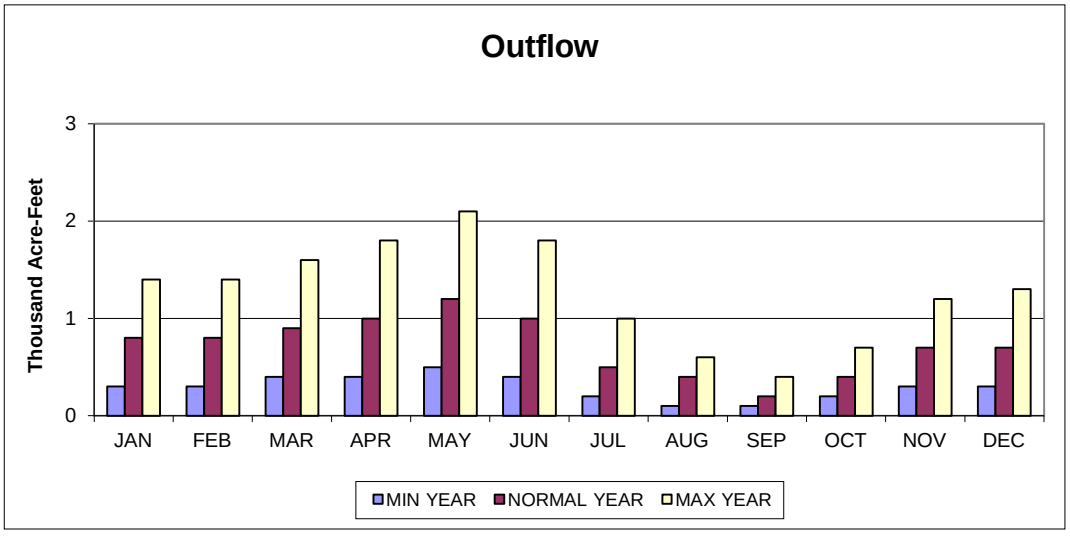
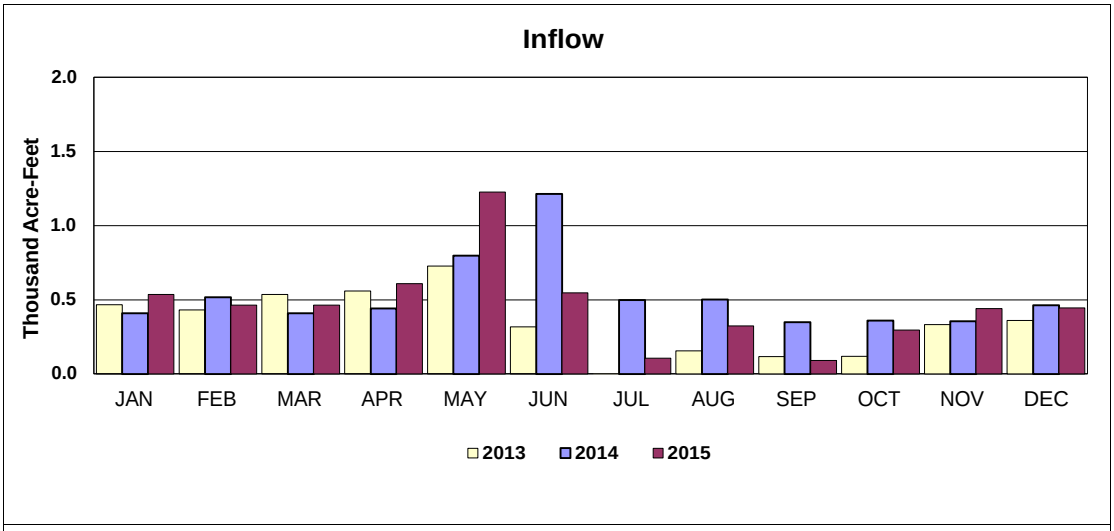
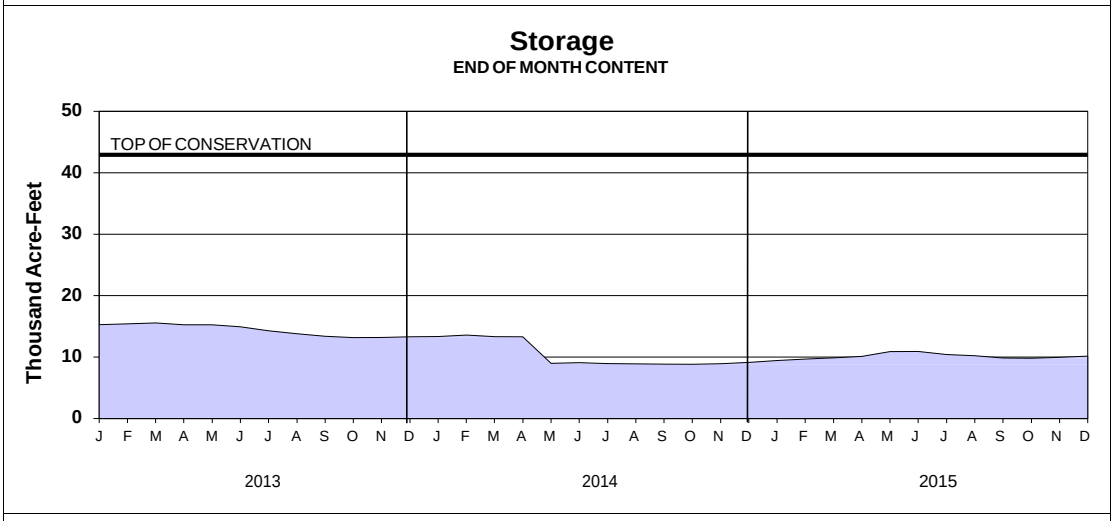


EXHIBIT 6A

ENDERS RESERVOIR

ACTUAL OPERATION





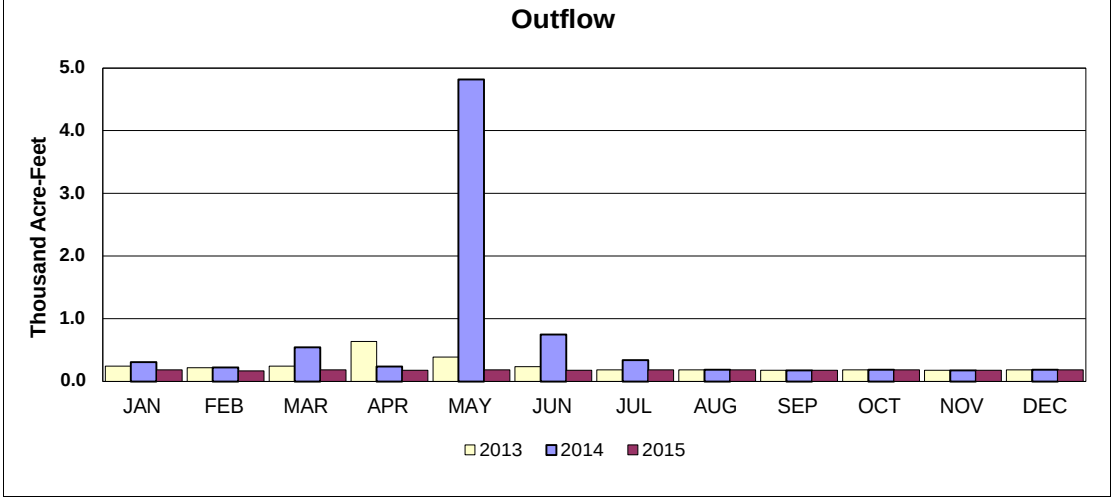
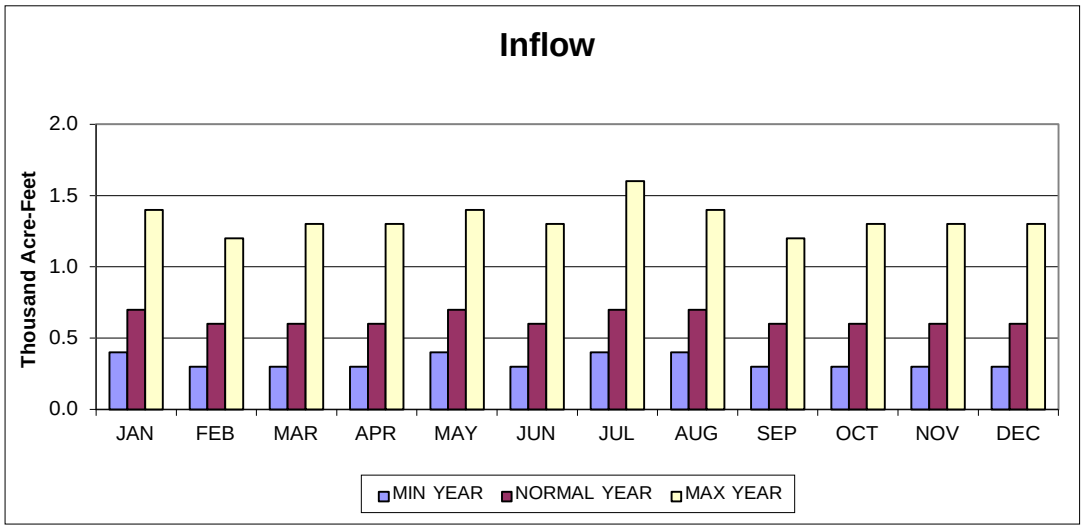
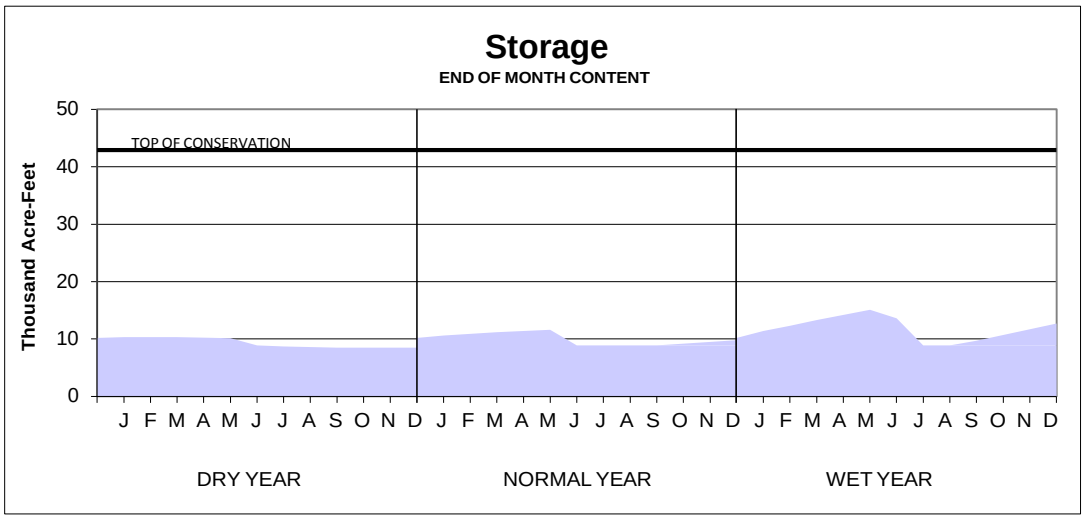


EXHIBIT 6B

ENDERS RESERVOIR

2016 OPERATION PLAN





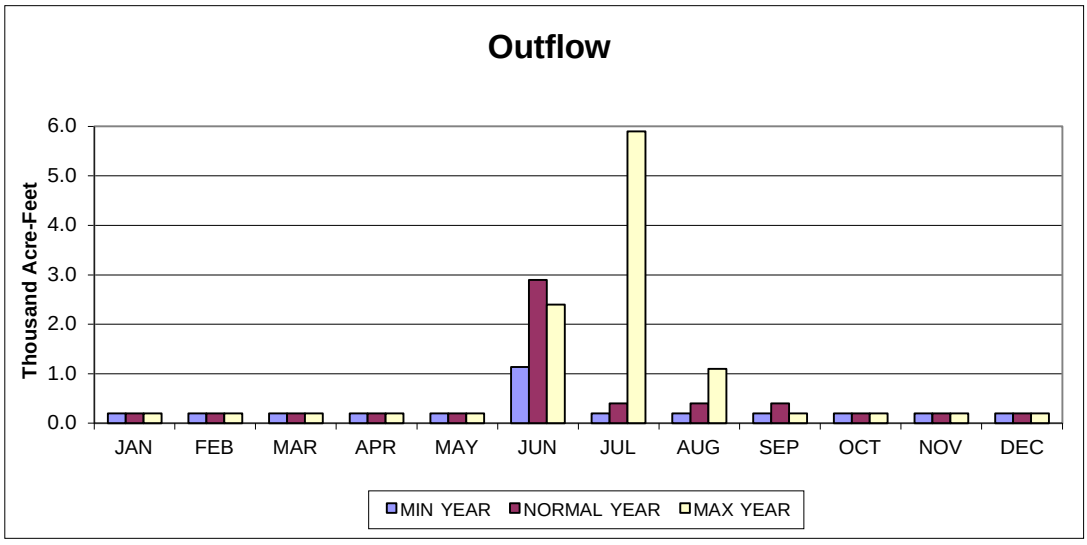
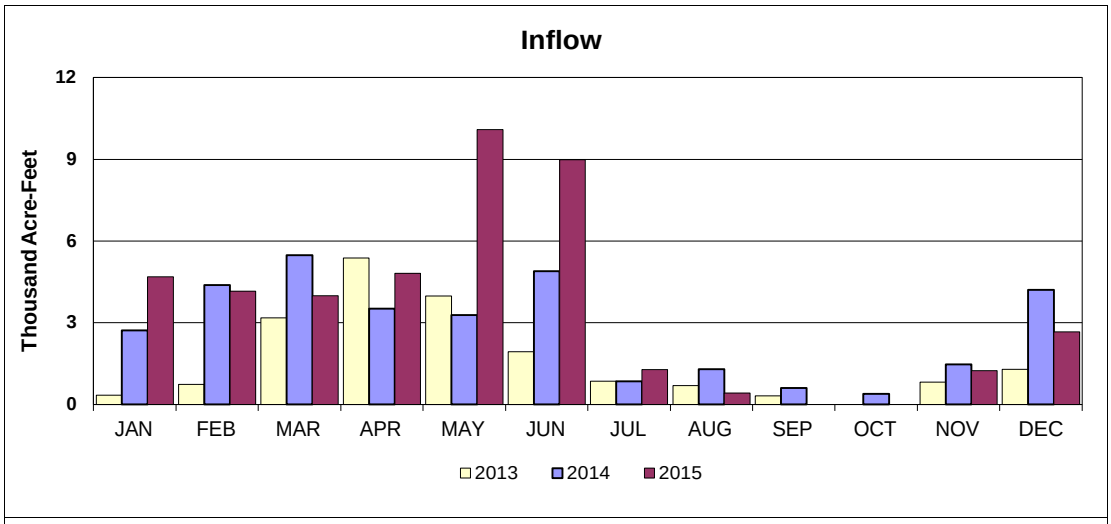
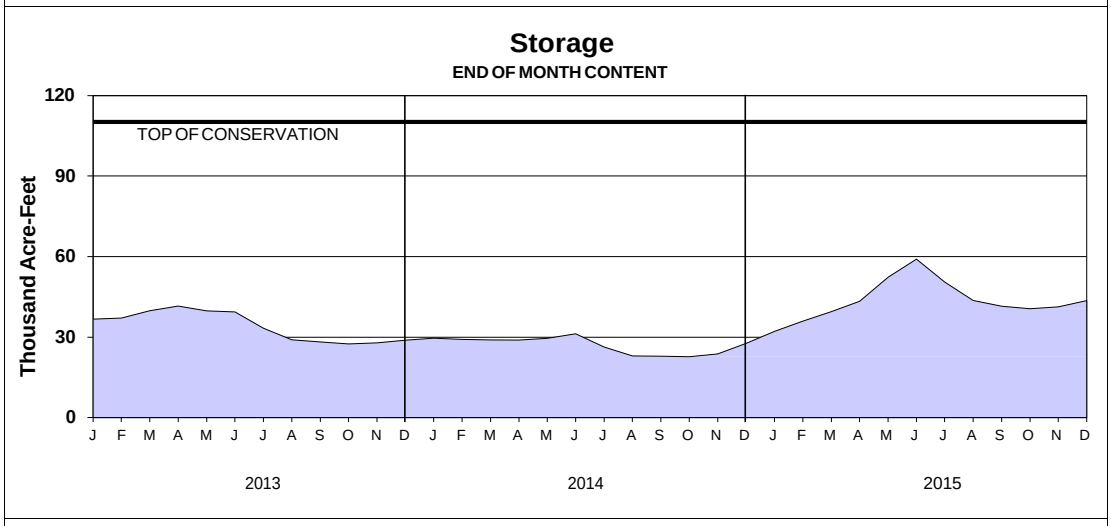


EXHIBIT 7A

SWANSON LAKE
ACTUAL OPERATION





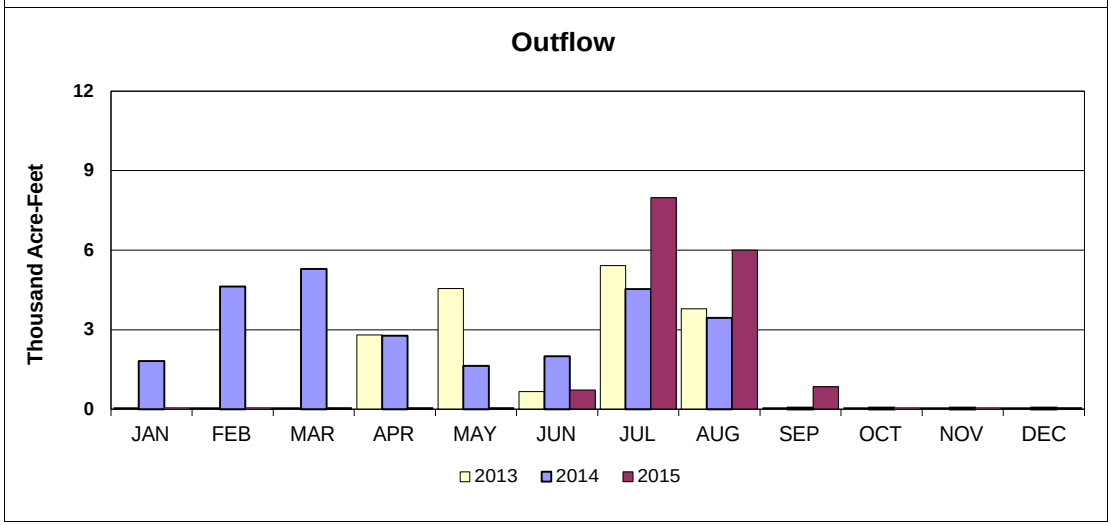
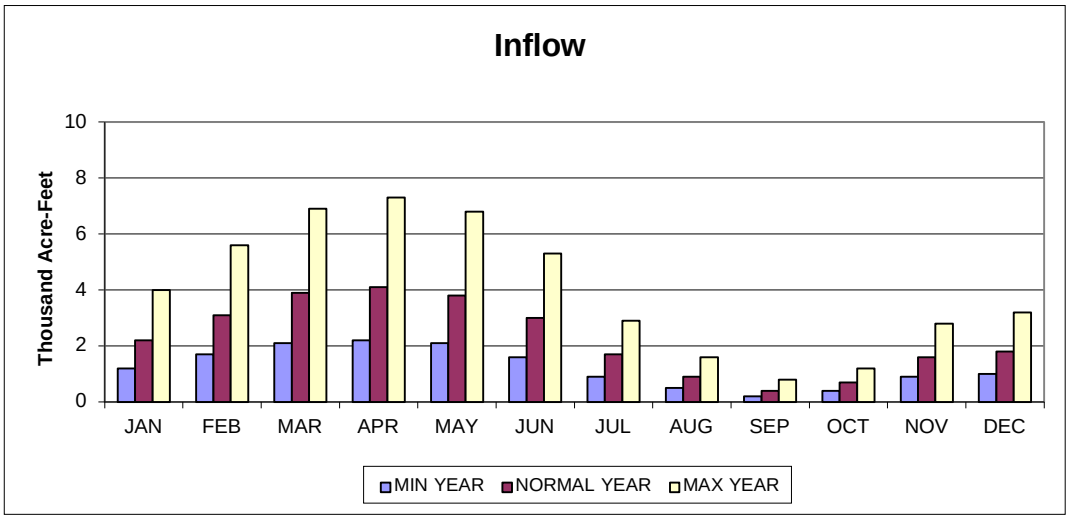
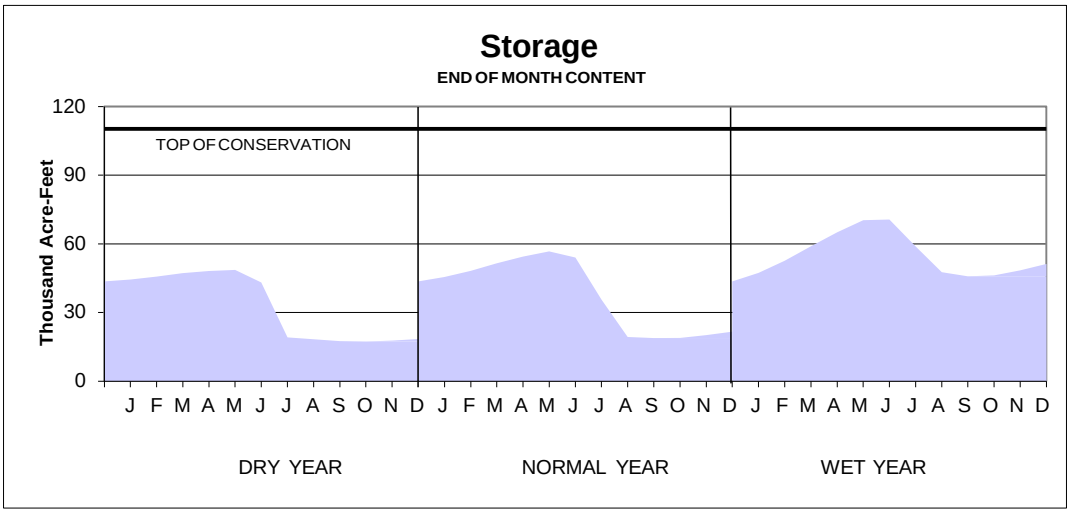


EXHIBIT 7B

SWANSON LAKE

2016 OPERATION PLAN





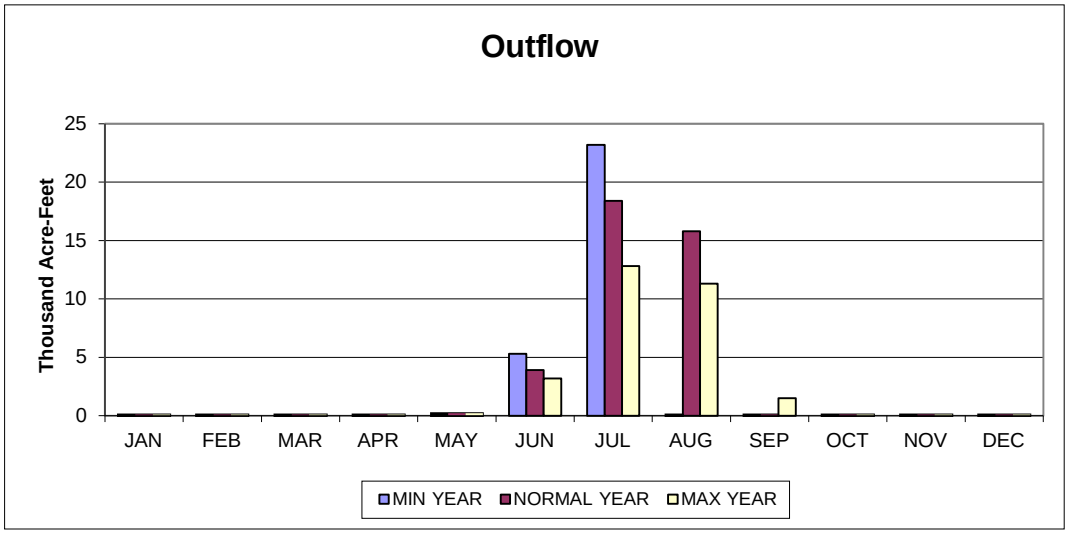
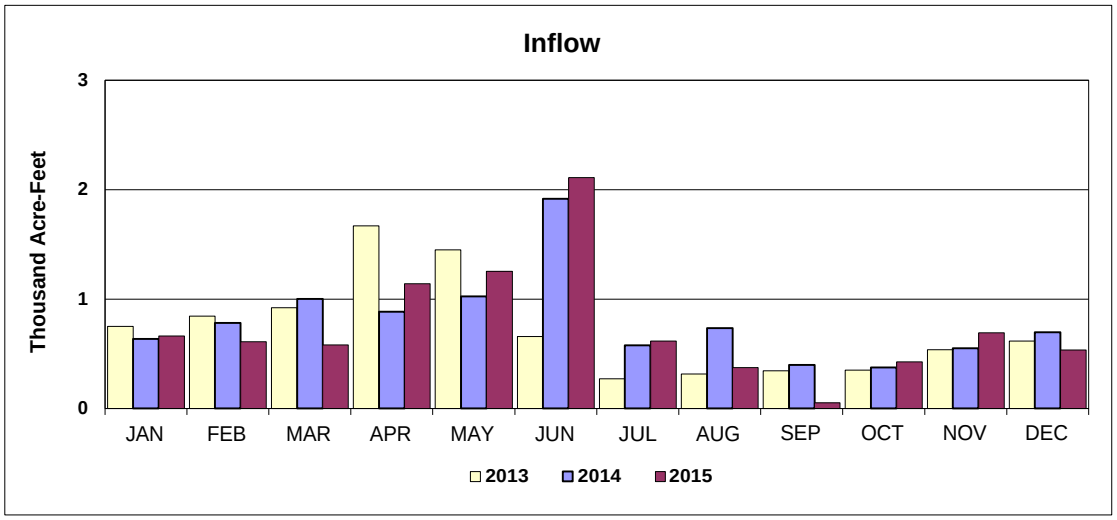
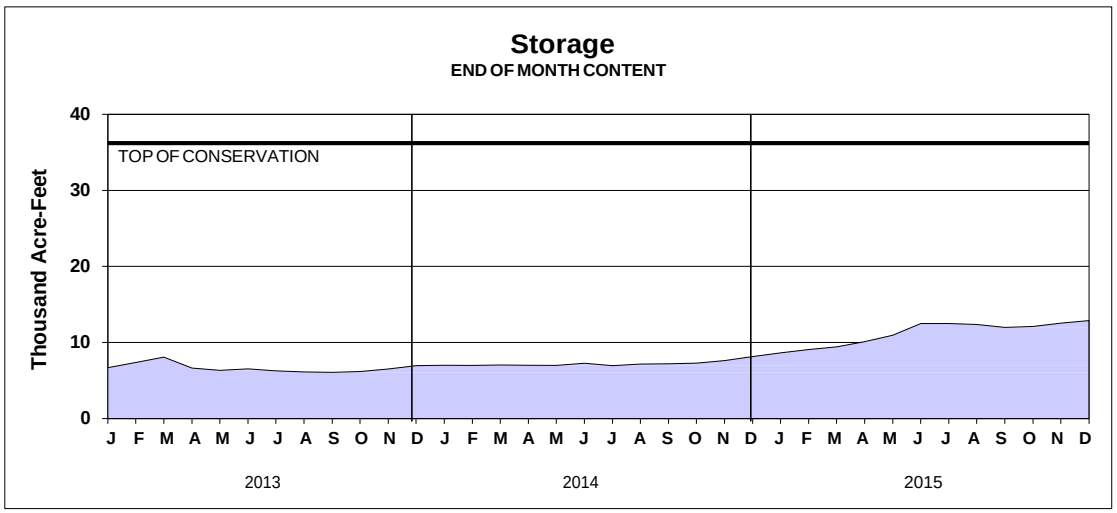


EXHIBIT 8A

HUGH BUTLER LAKE

ACTUAL OPERATION





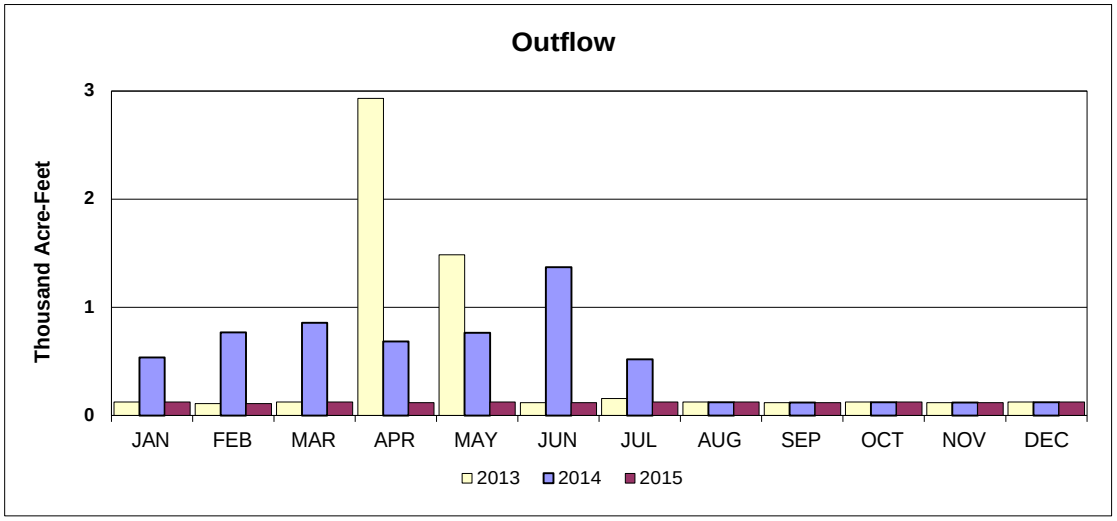
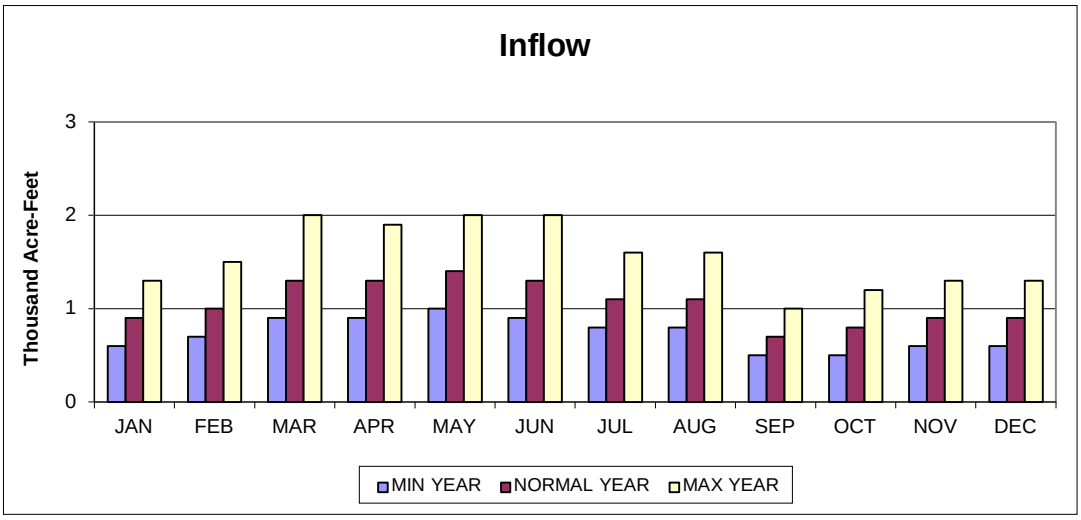
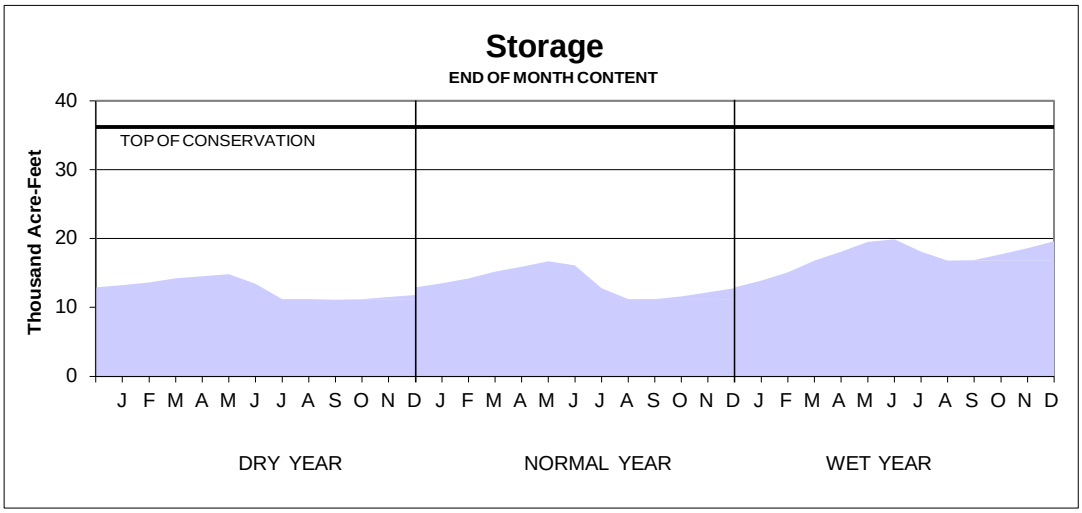


EXHIBIT 8B

HUGH BUTLER LAKE

2016 OPERATION PLAN





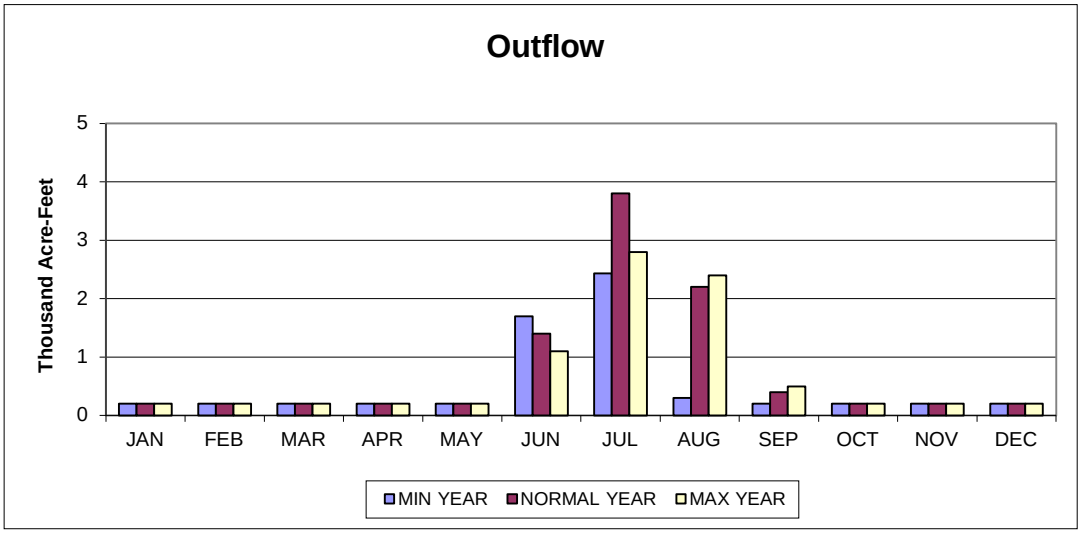
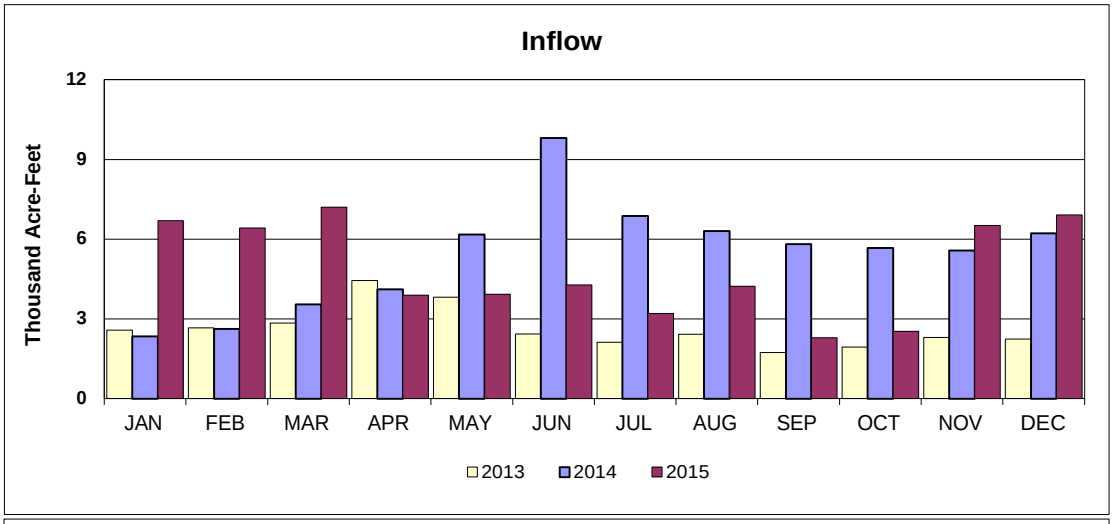
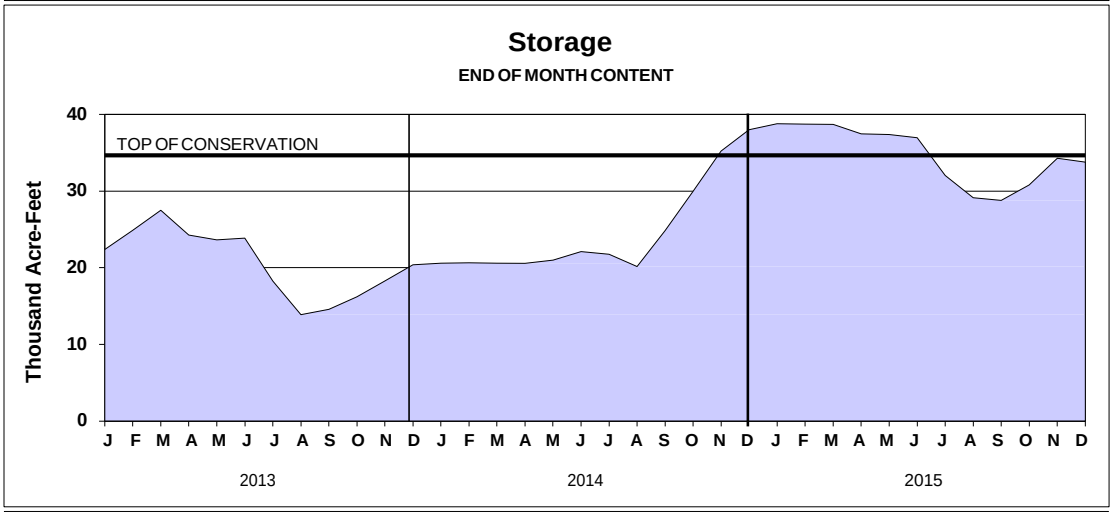


EXHIBIT 9A

HARRY STRUNK LAKE

ACTUAL OPERATION





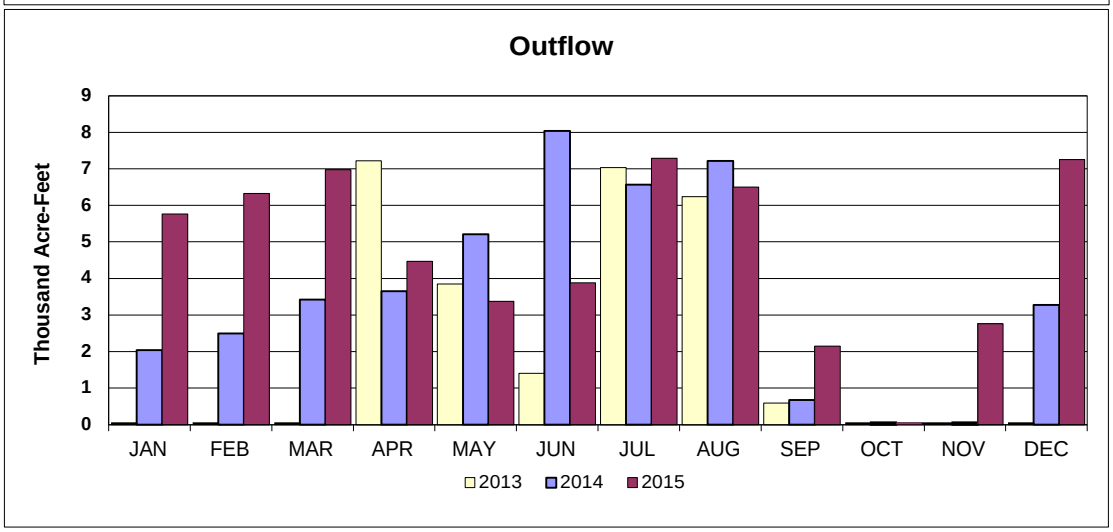
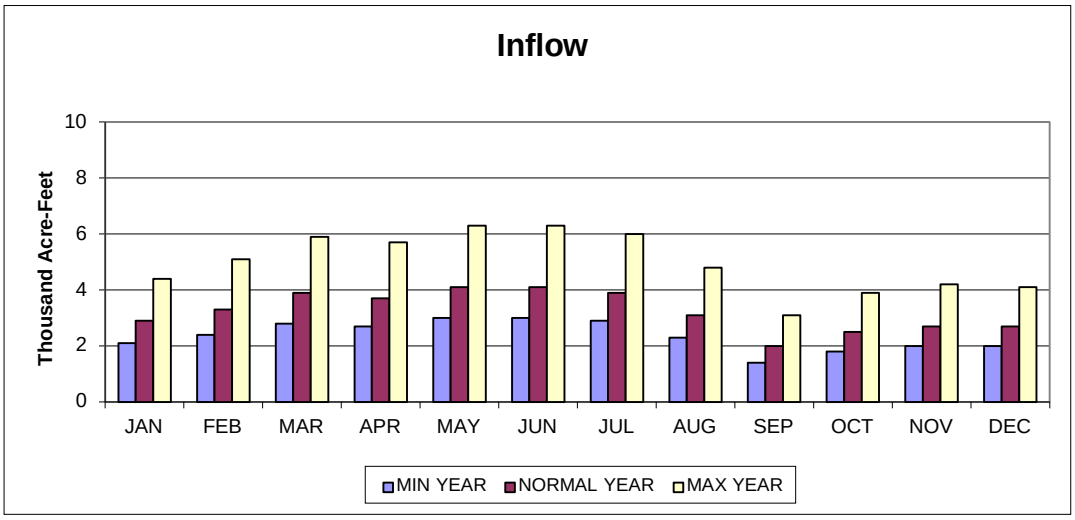
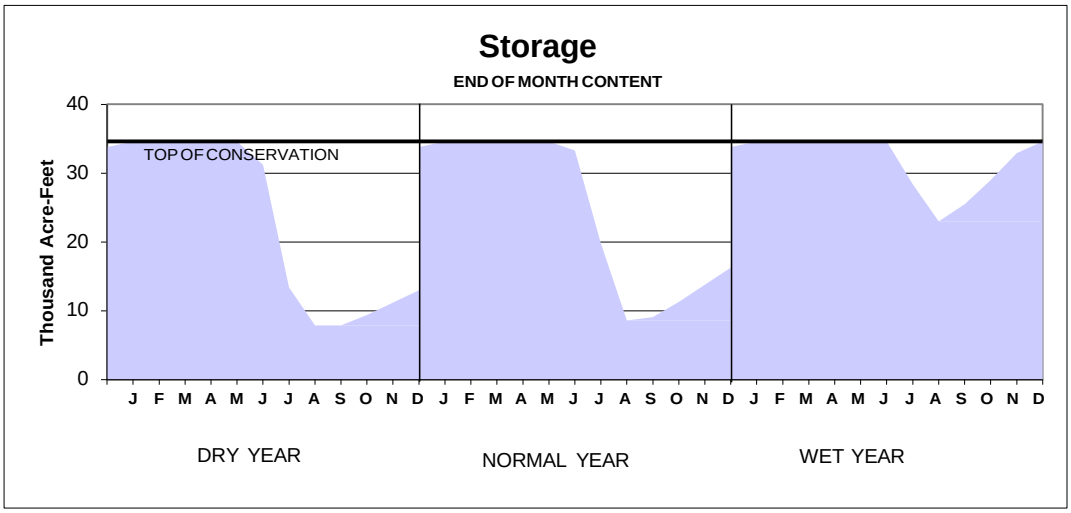


EXHIBIT 9B

HARRY STRUNK LAKE

2016 OPERATION PLAN





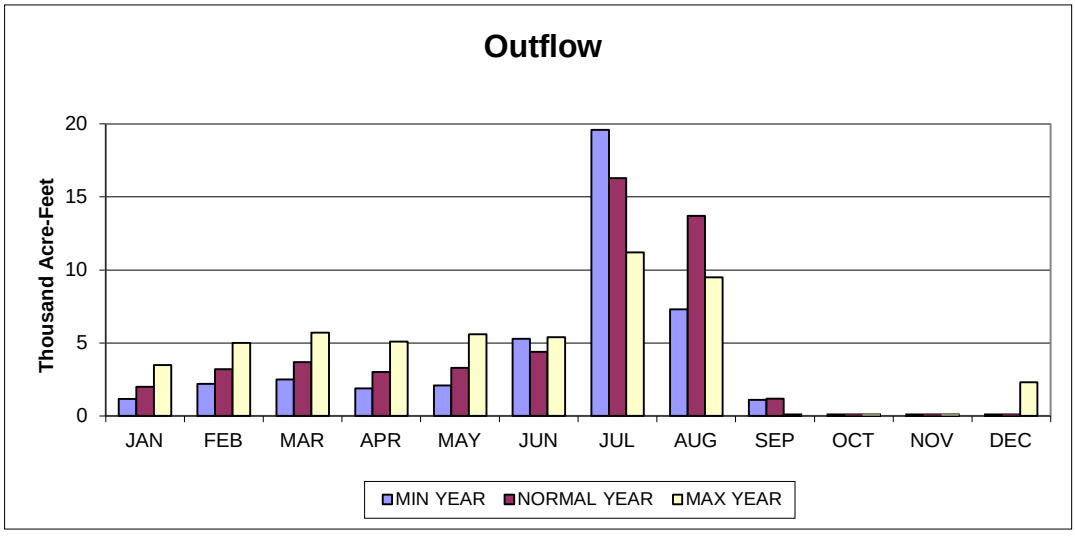
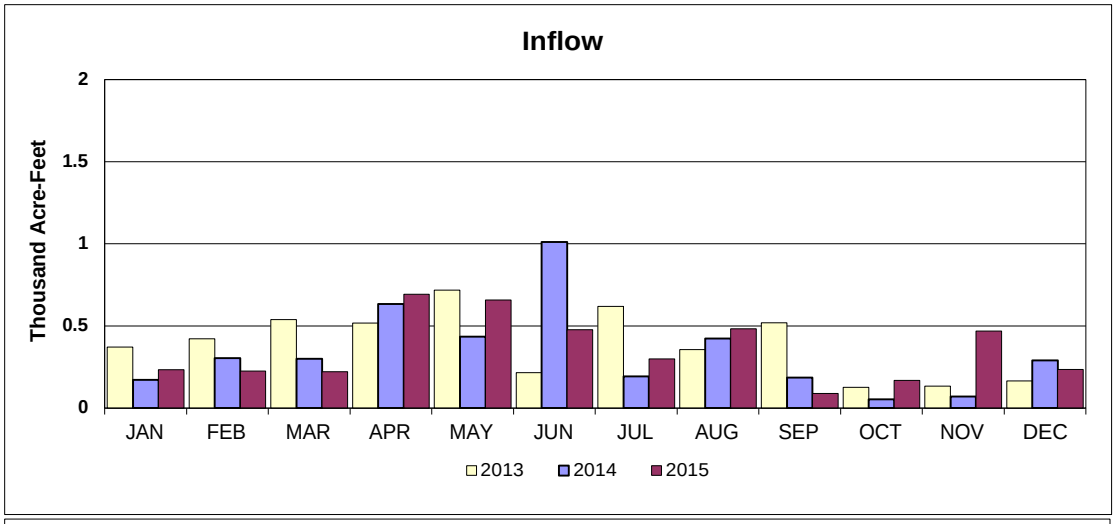
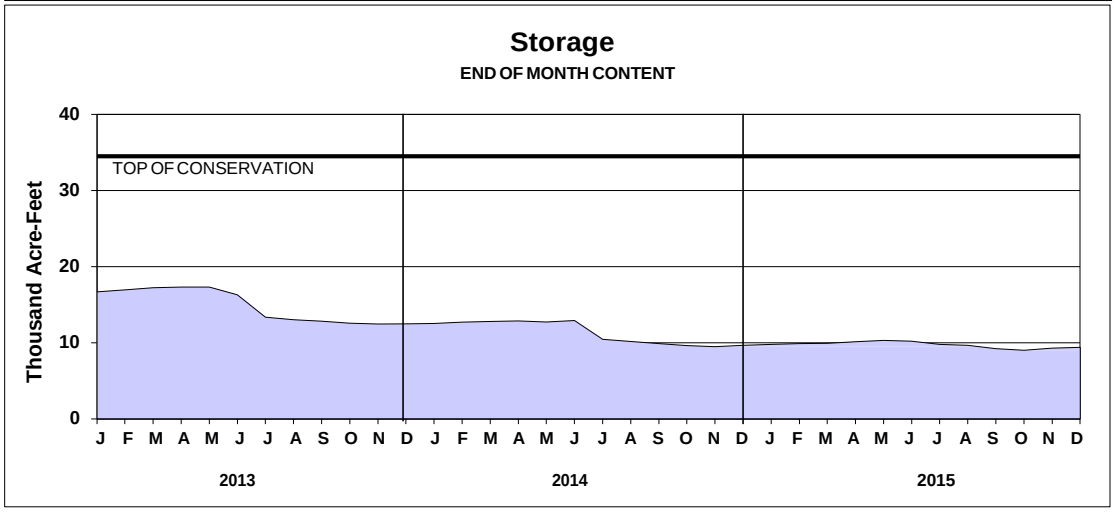


EXHIBIT 10A

KEITH SEBELIUS LAKE

ACTUAL OPERATION





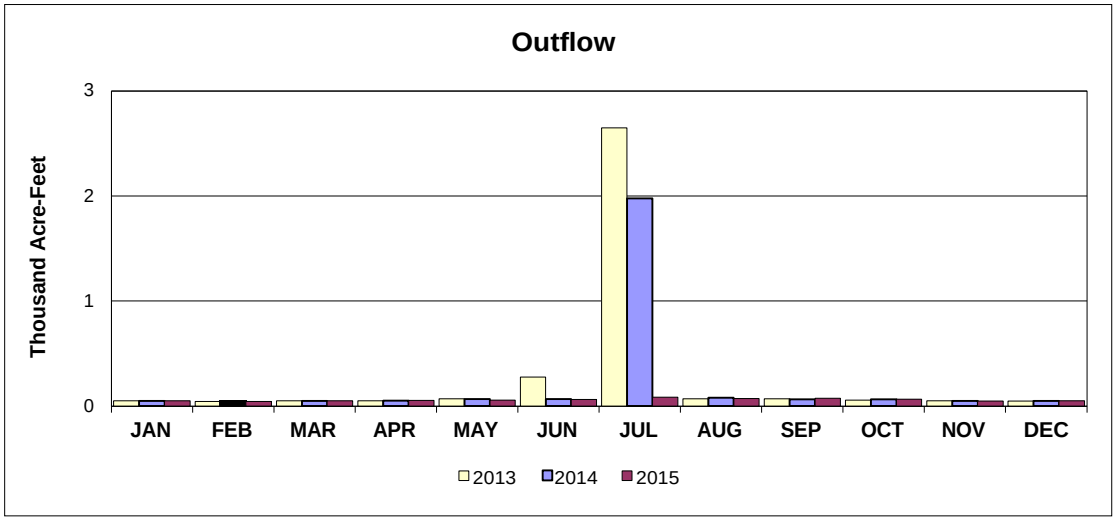
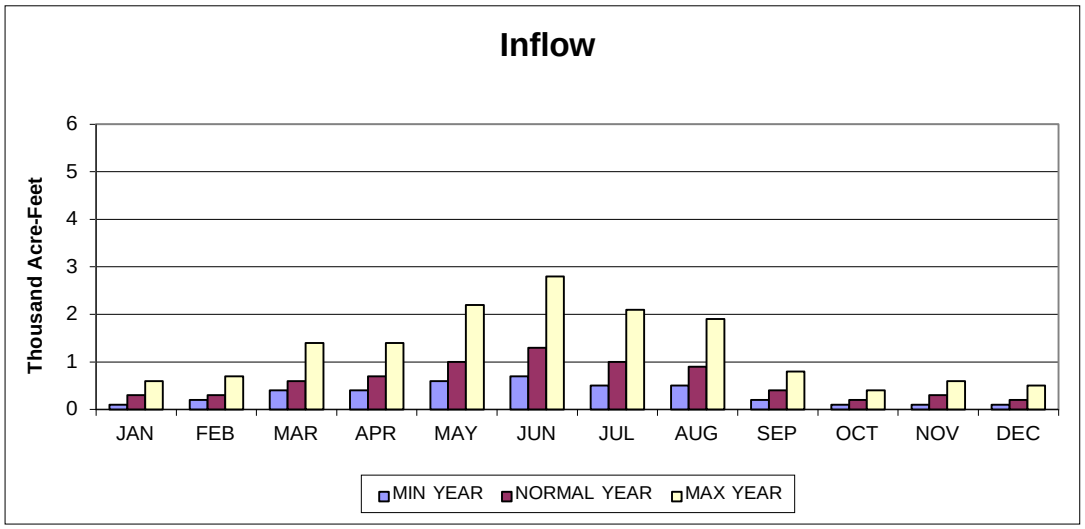
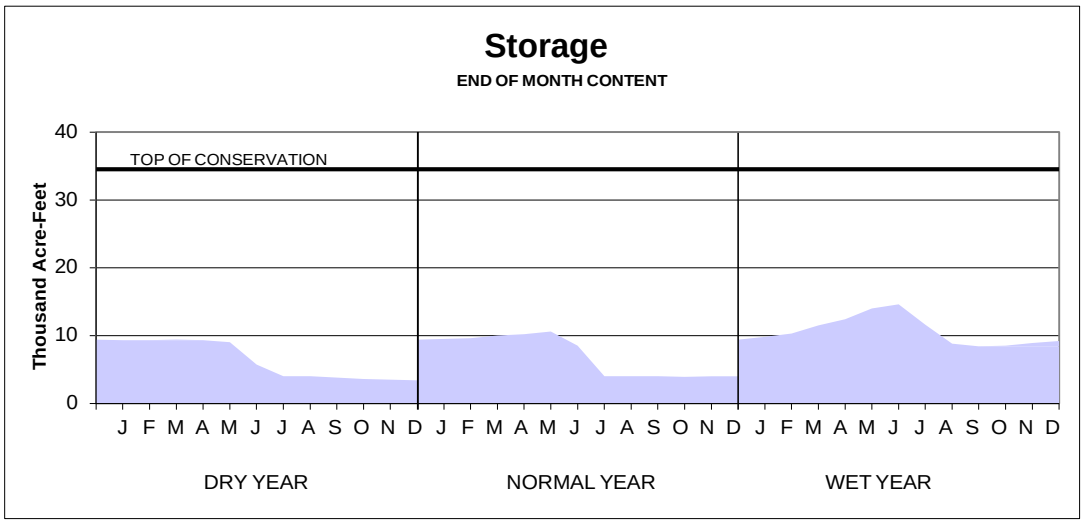


EXHIBIT 10B

KEITH SEBELIUS LAKE

2016 OPERATION PLAN





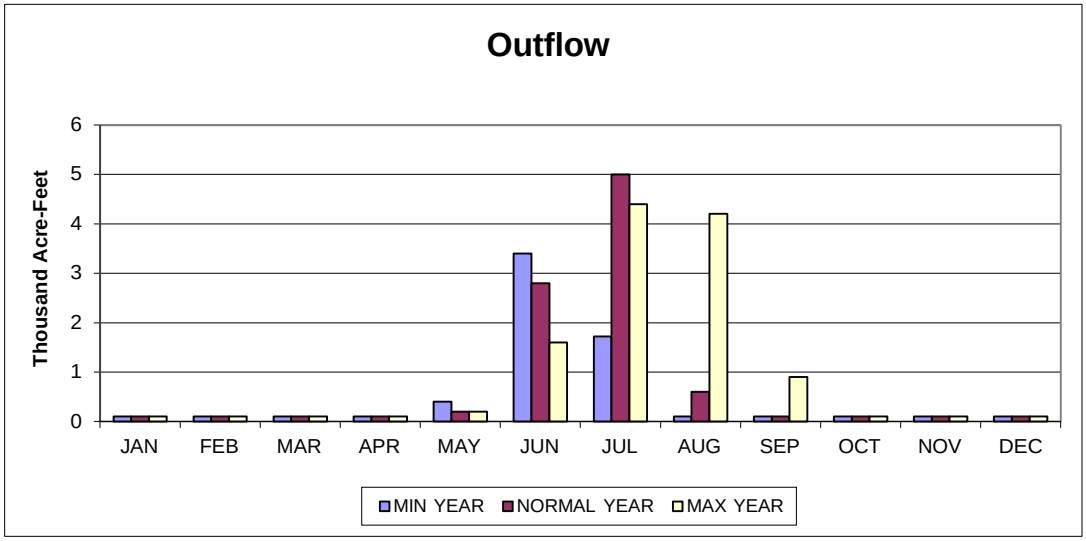
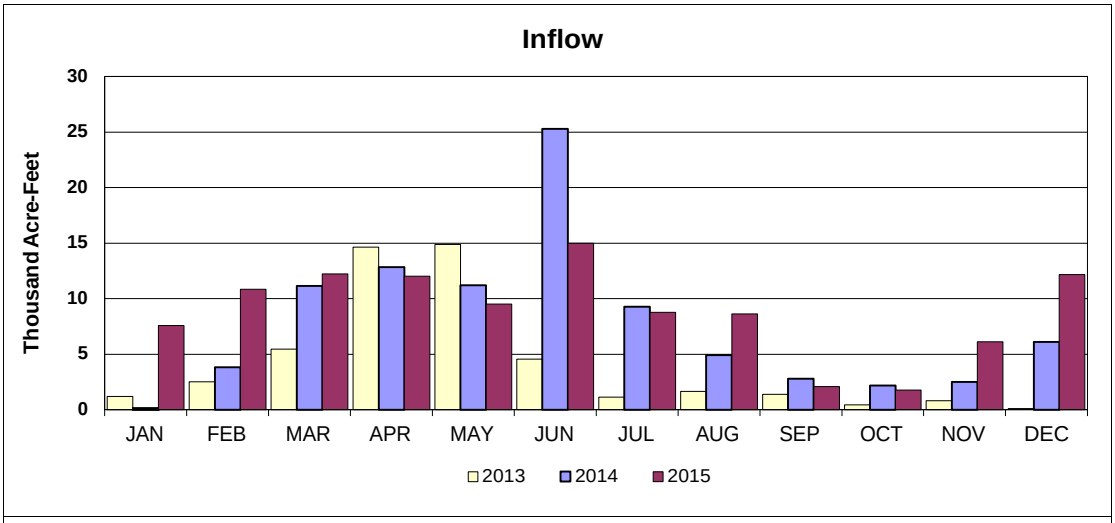
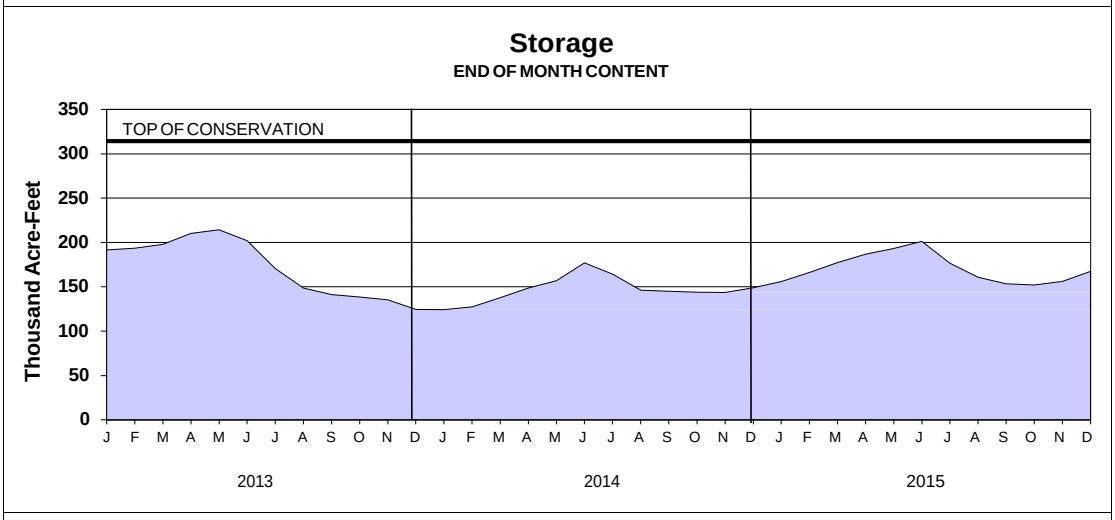


EXHIBIT 11A

HARLAN COUNTY LAKE

ACTUAL OPERATION





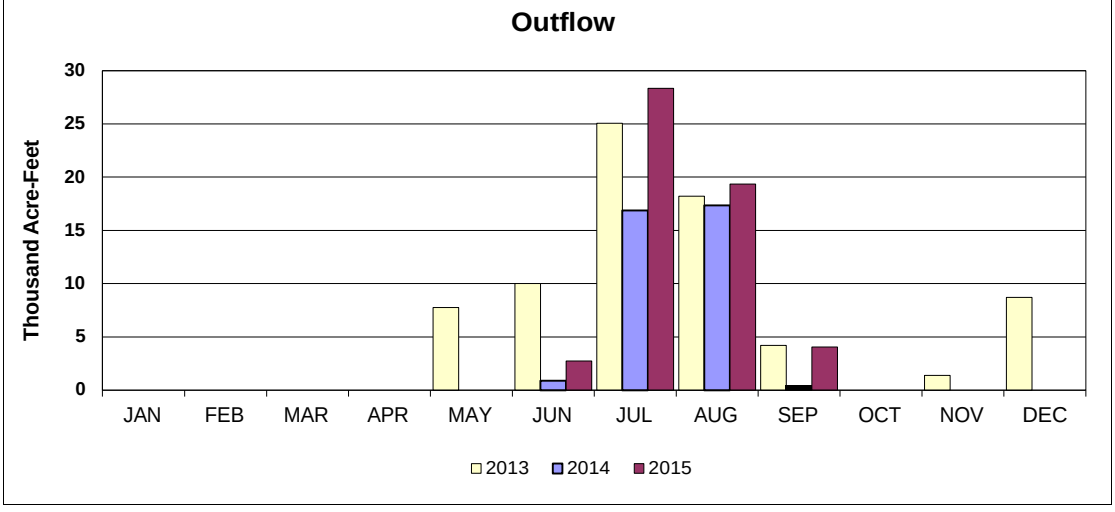
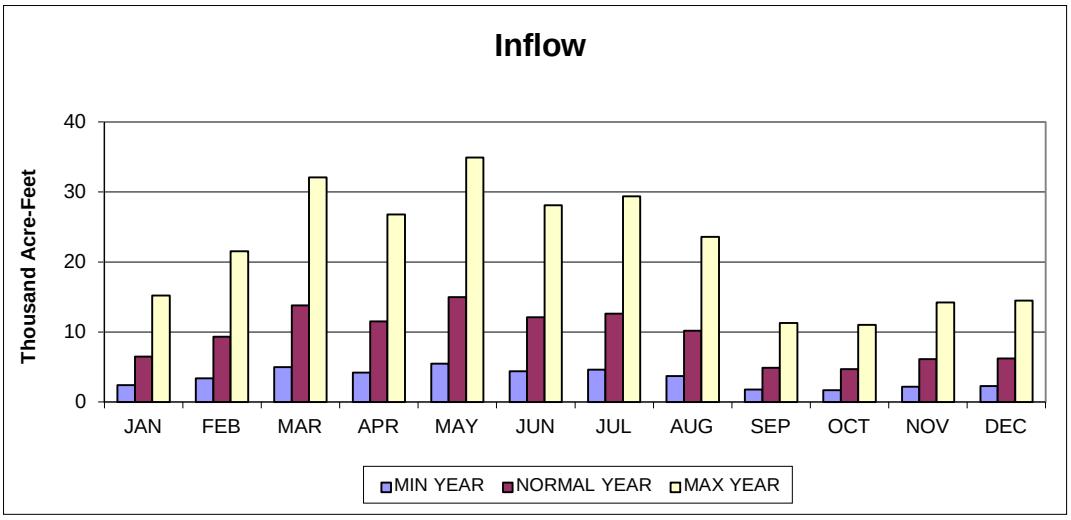
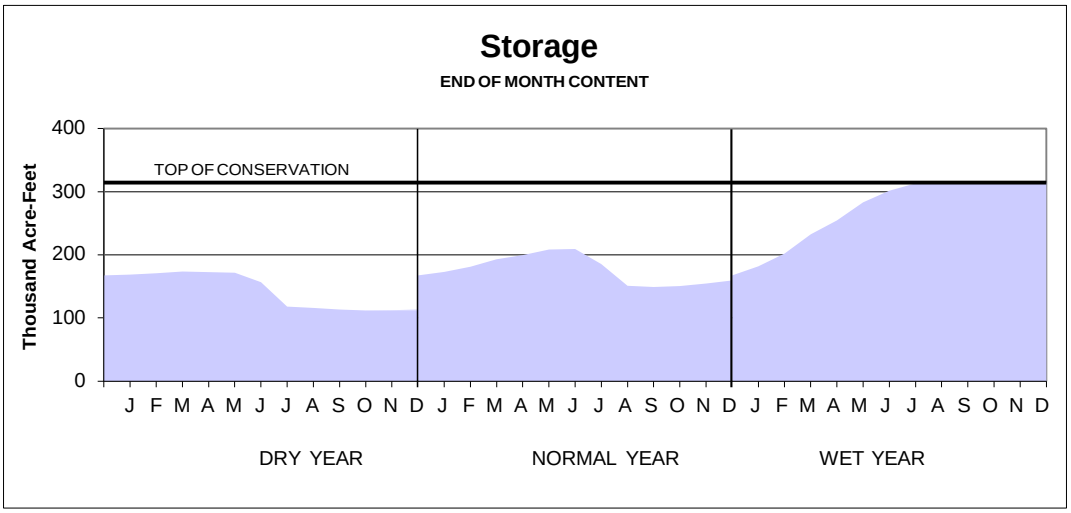


EXHIBIT 11B

HARLAN COUNTY LAKE

2016 OPERATION PLAN





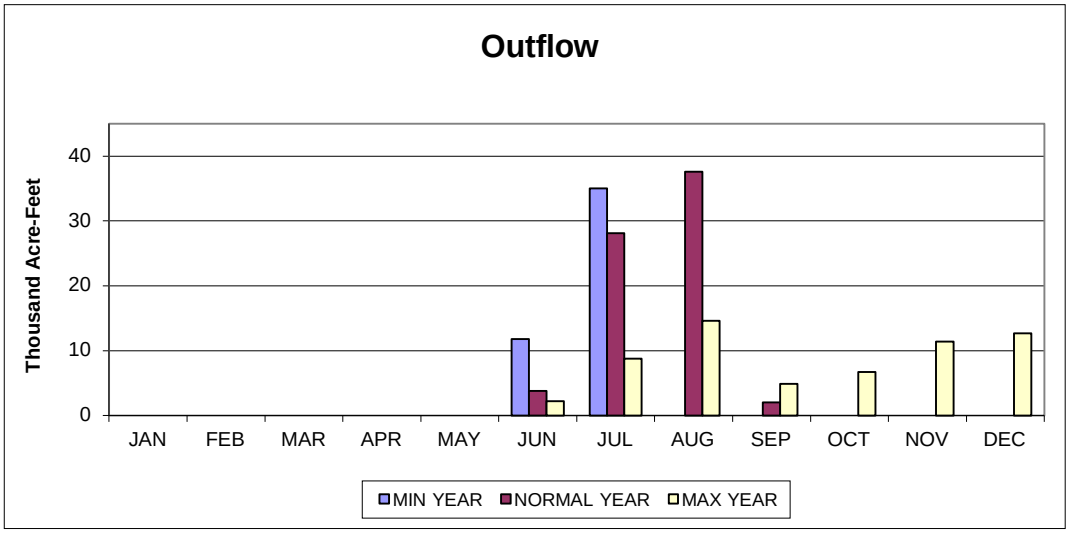
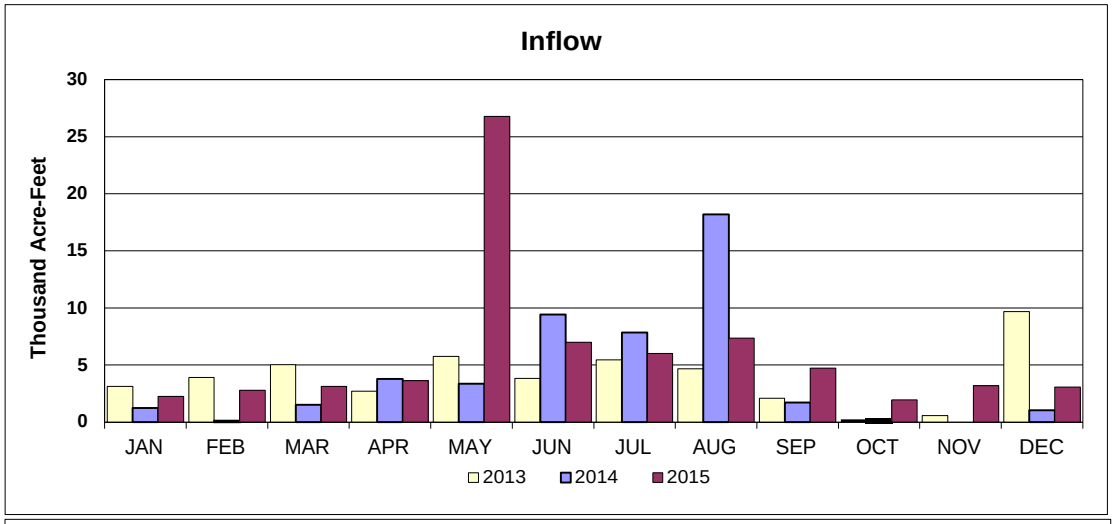
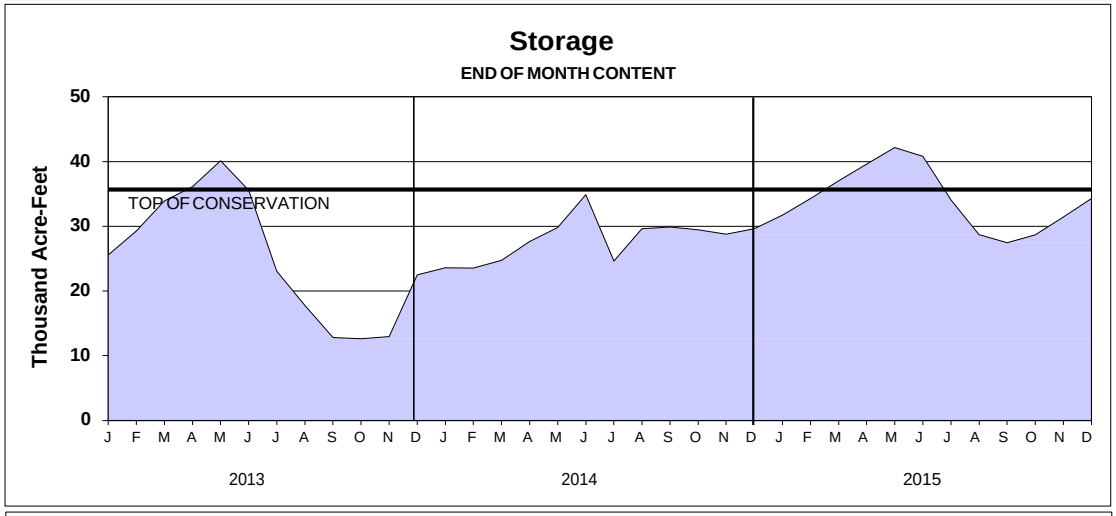


EXHIBIT 12A

LOVEWELL RESERVOIR

ACTUAL OPERATION





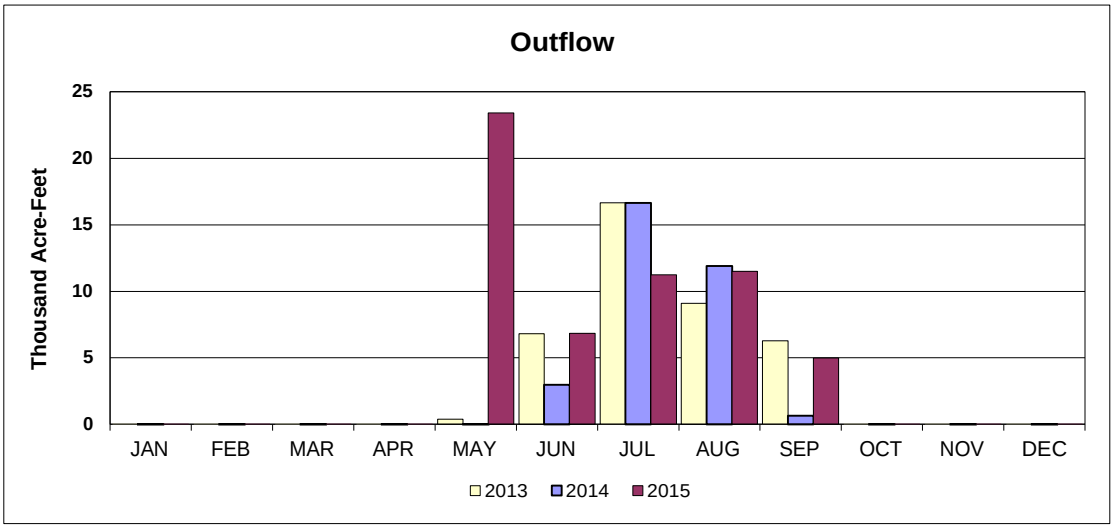
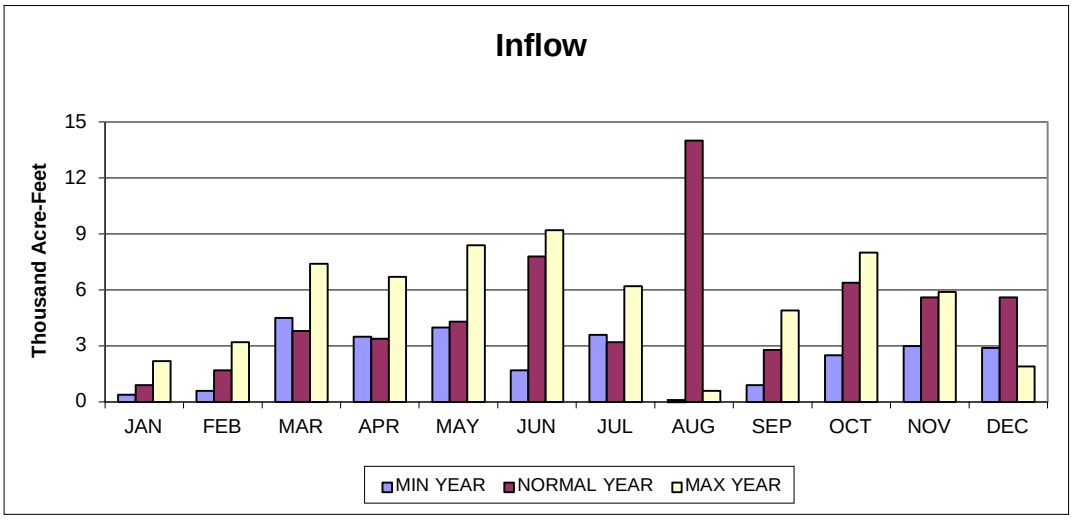
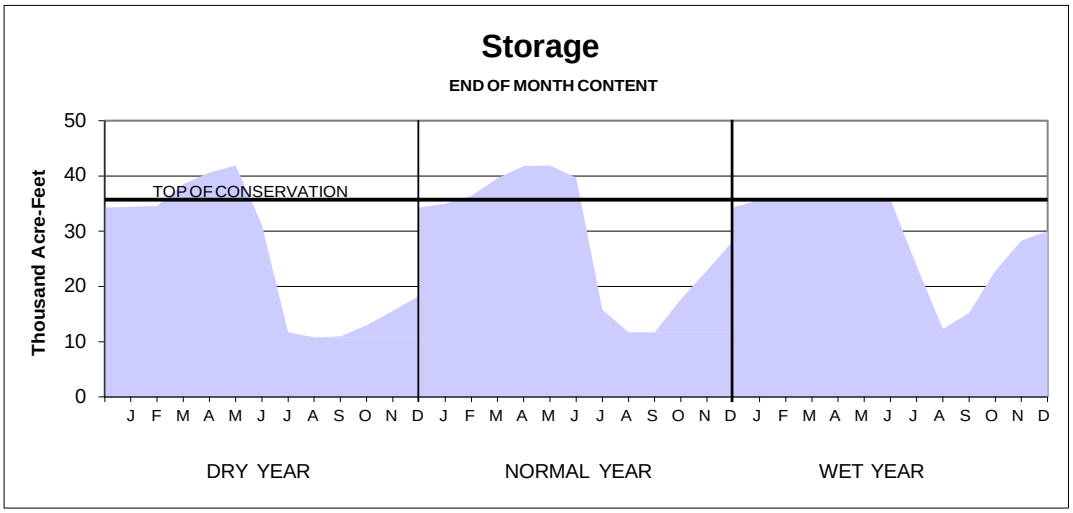


EXHIBIT 12B

LOVEWELL RESERVOIR

2016 OPERATION PLAN





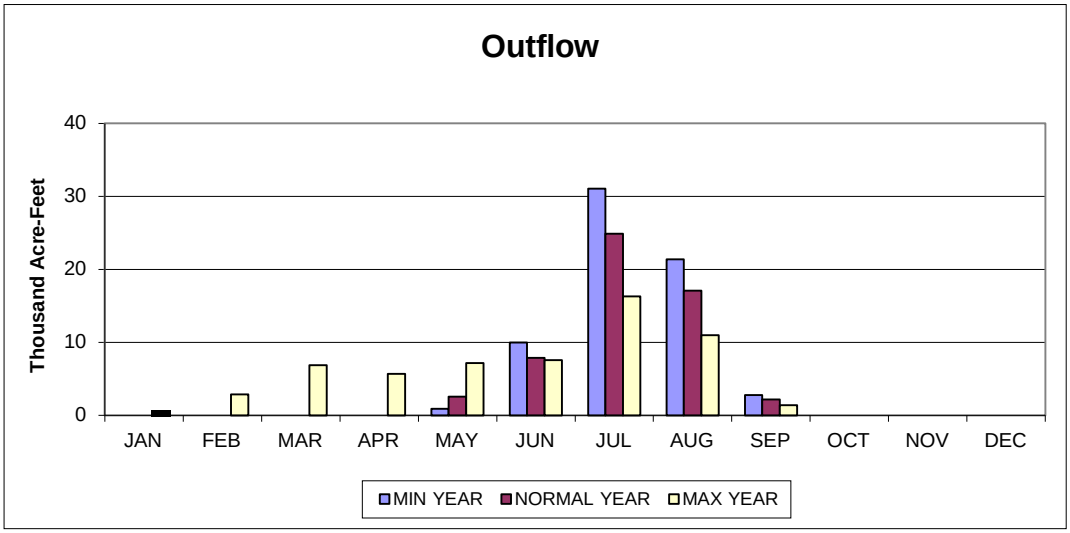
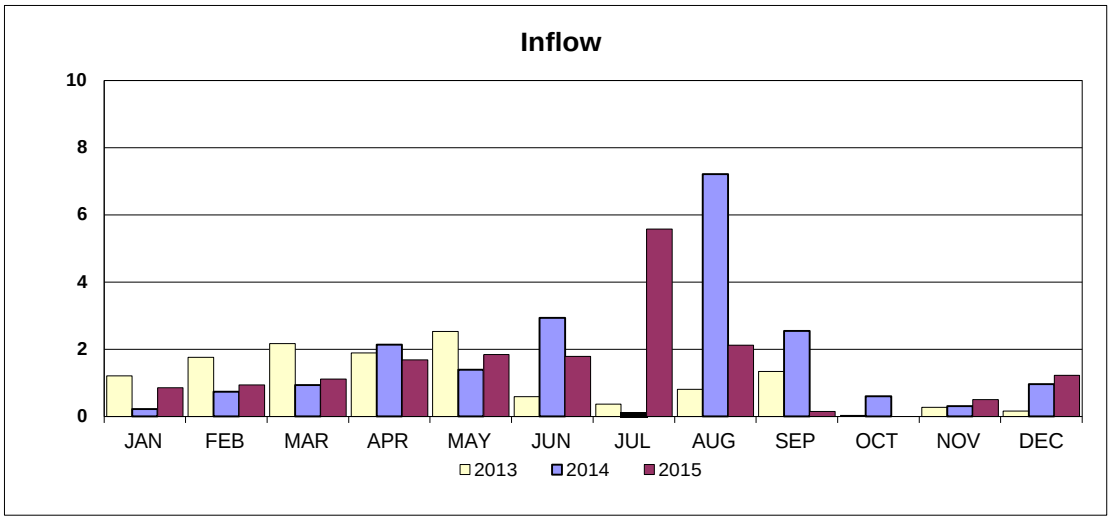
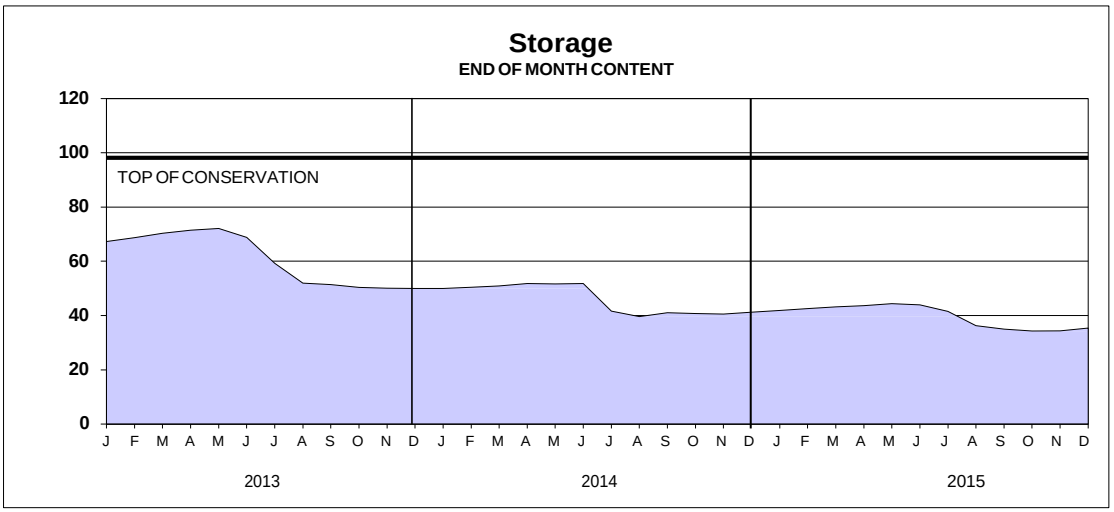


EXHIBIT 13A

KIRWIN RESERVOIR

ACTUAL OPERATION





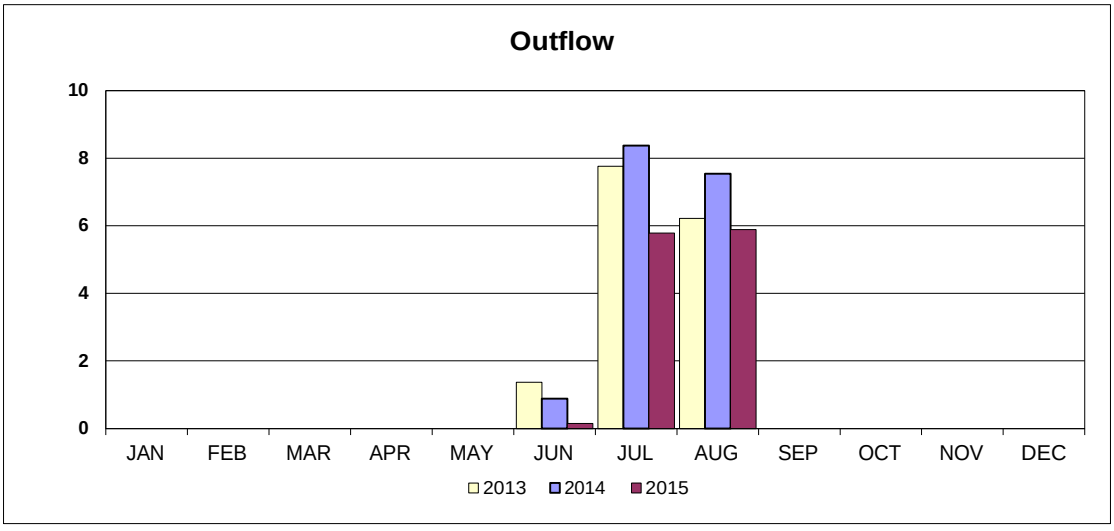
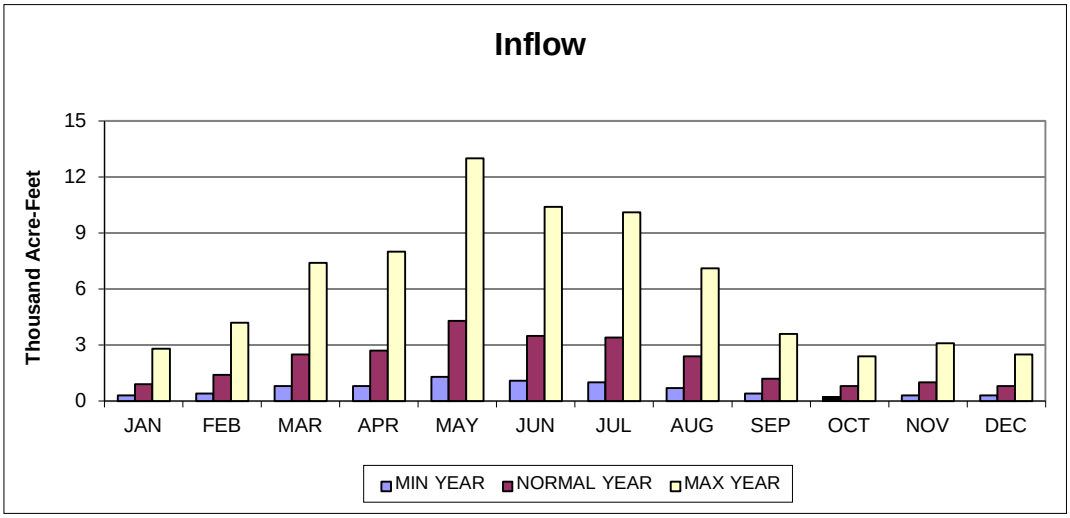
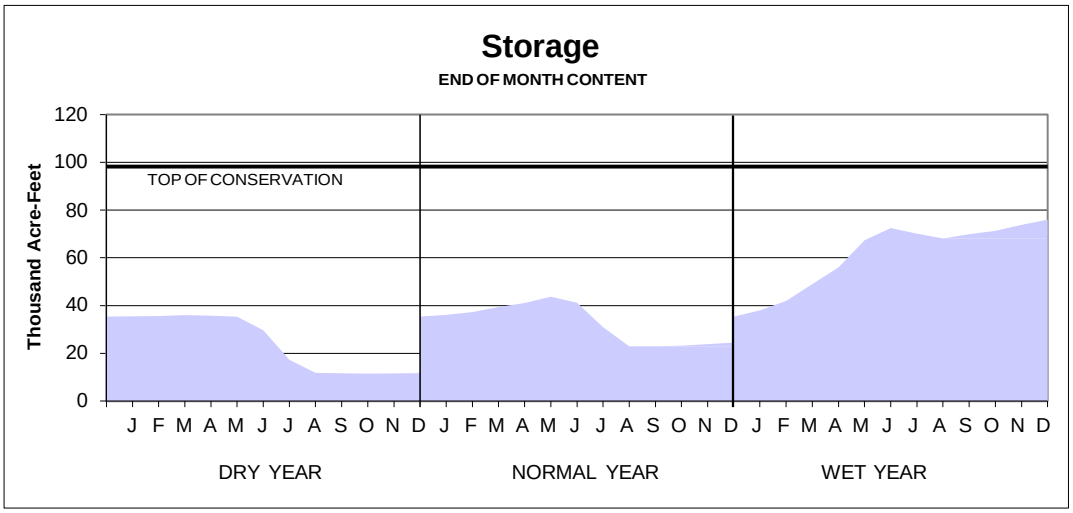


EXHIBIT 13B

KIRWIN RESERVOIR

2016 OPERATION PLAN





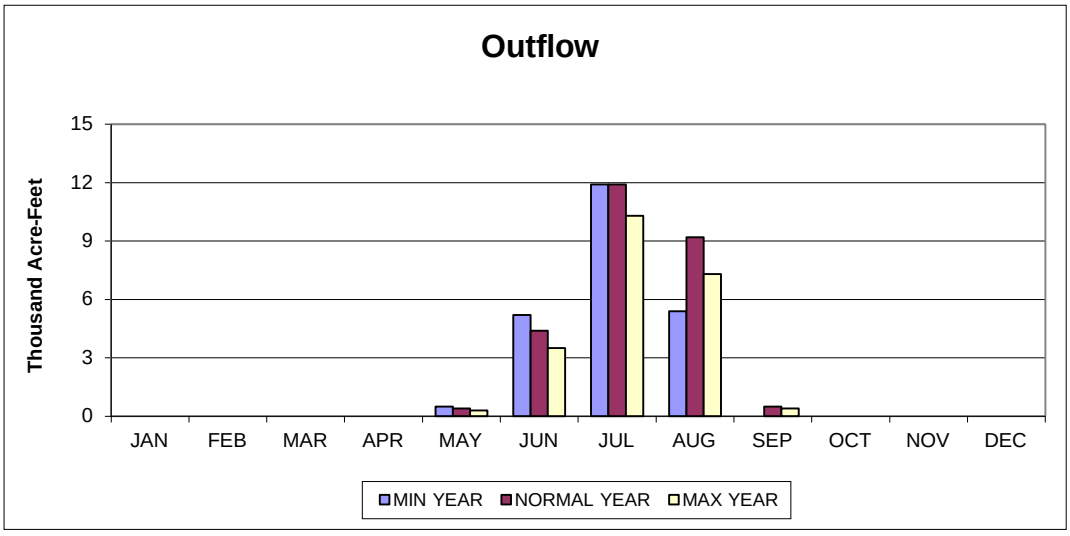
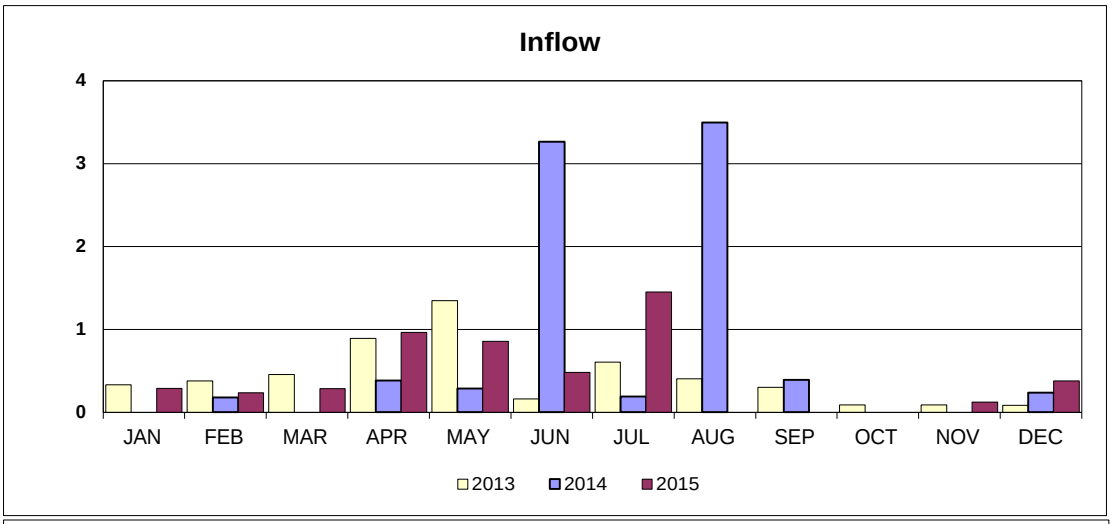
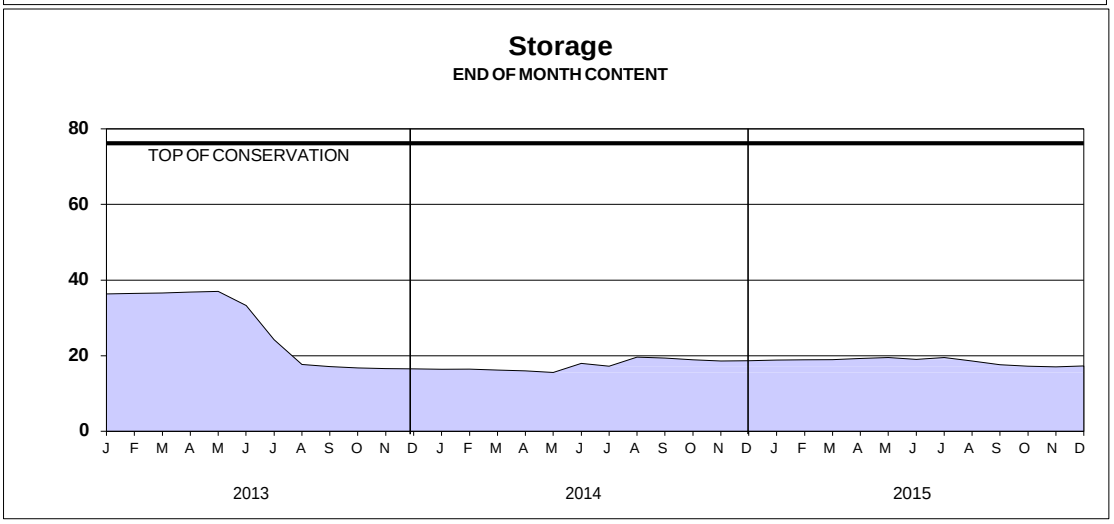


EXHIBIT 14A

WEBSTER RESERVOIR

ACTUAL OPERATION





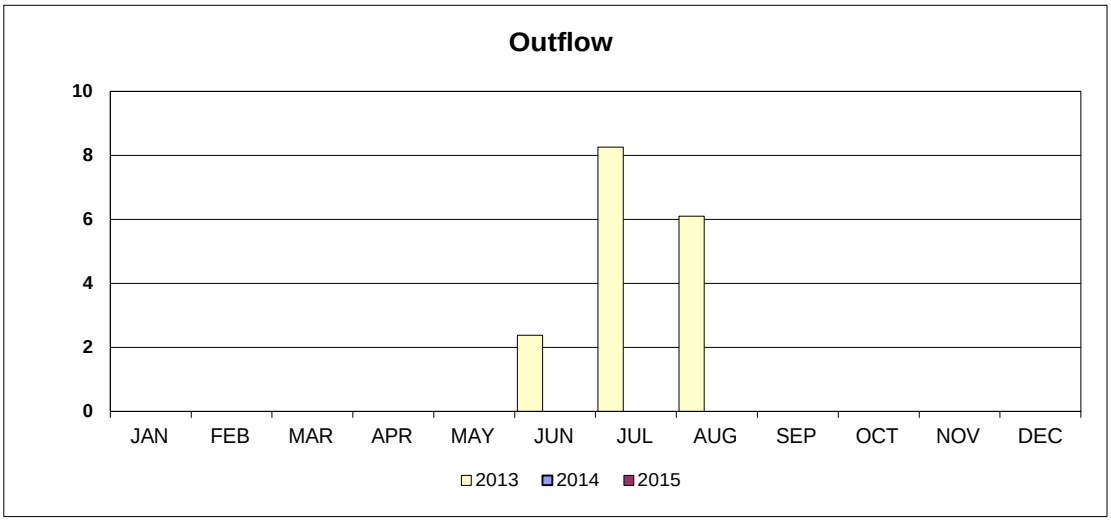
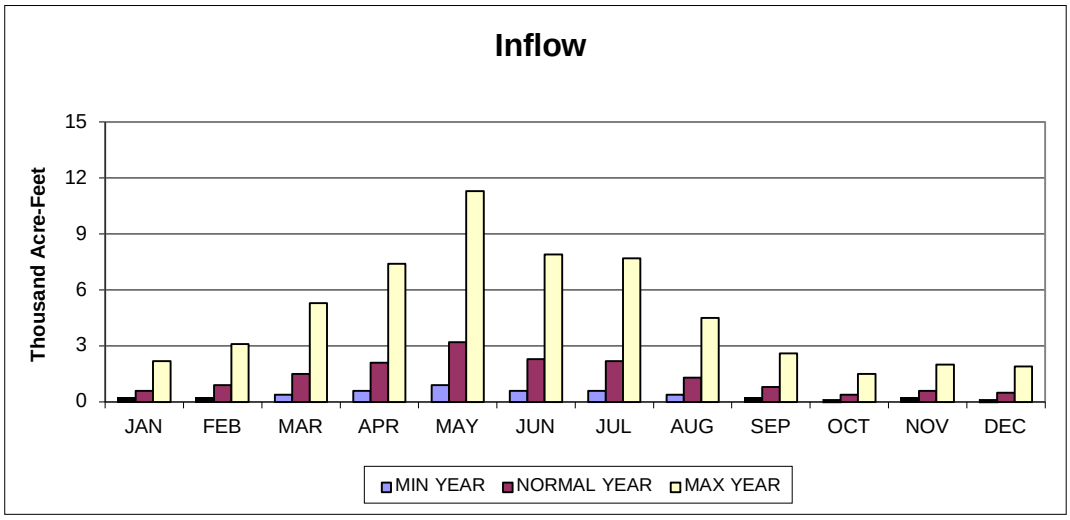
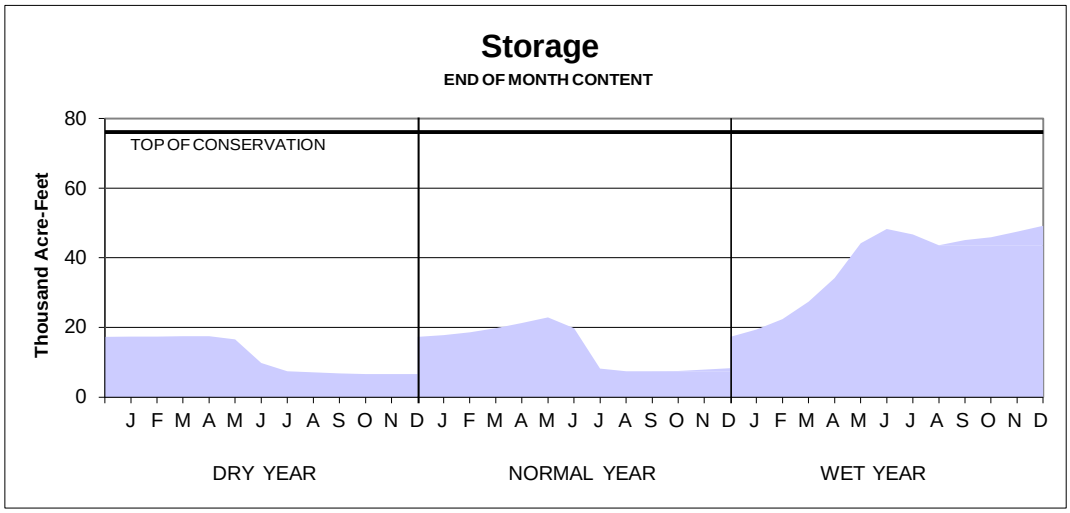


EXHIBIT 14B

WEBSTER RESERVOIR

2016 OPERATION PLAN





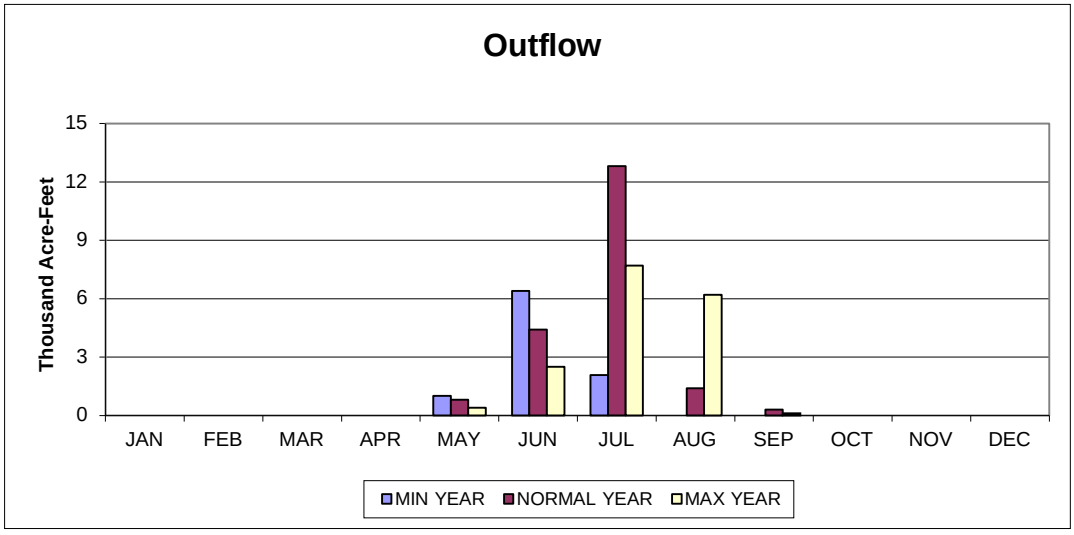
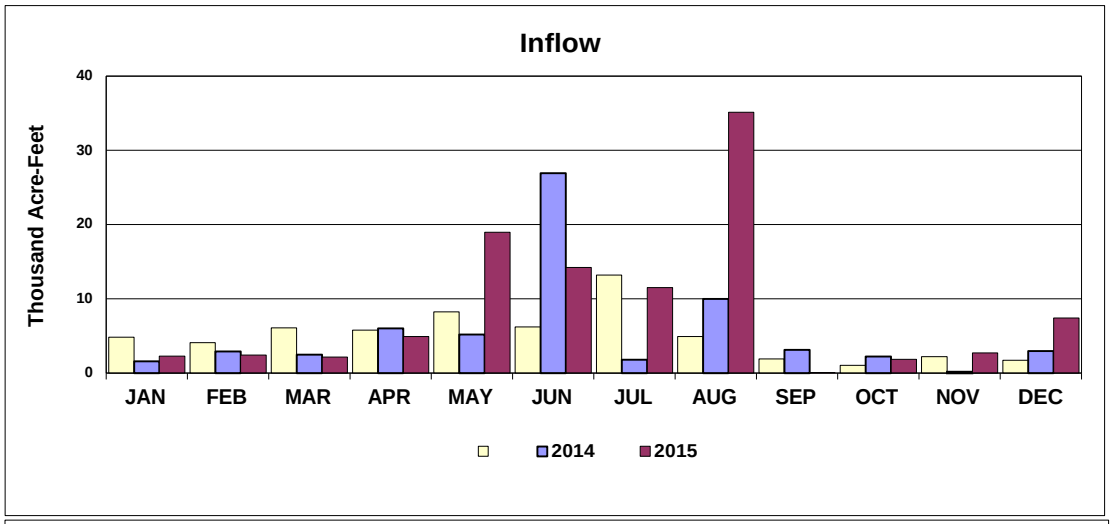
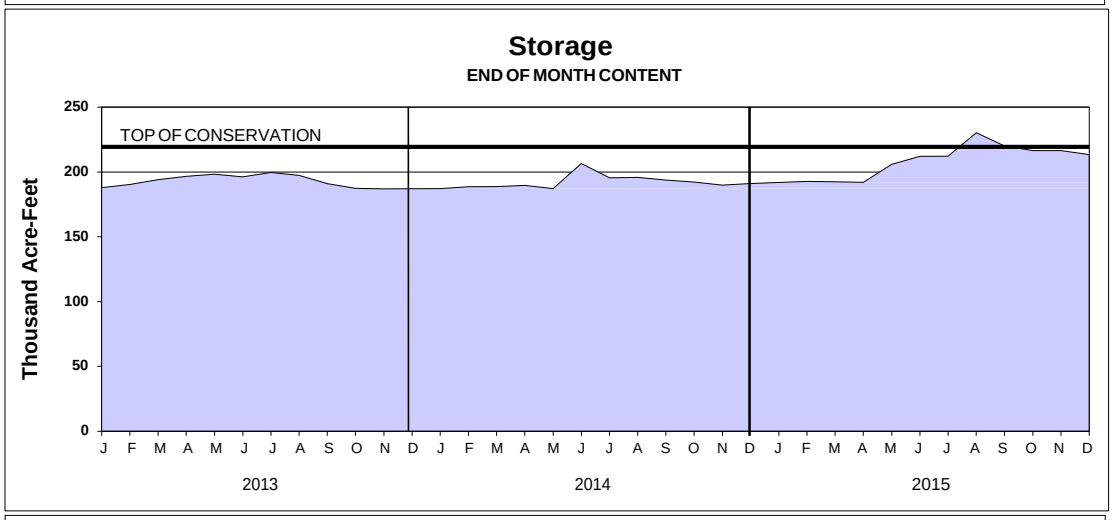


EXHIBIT 15A

WACONDA LAKE

ACTUAL OPERATION





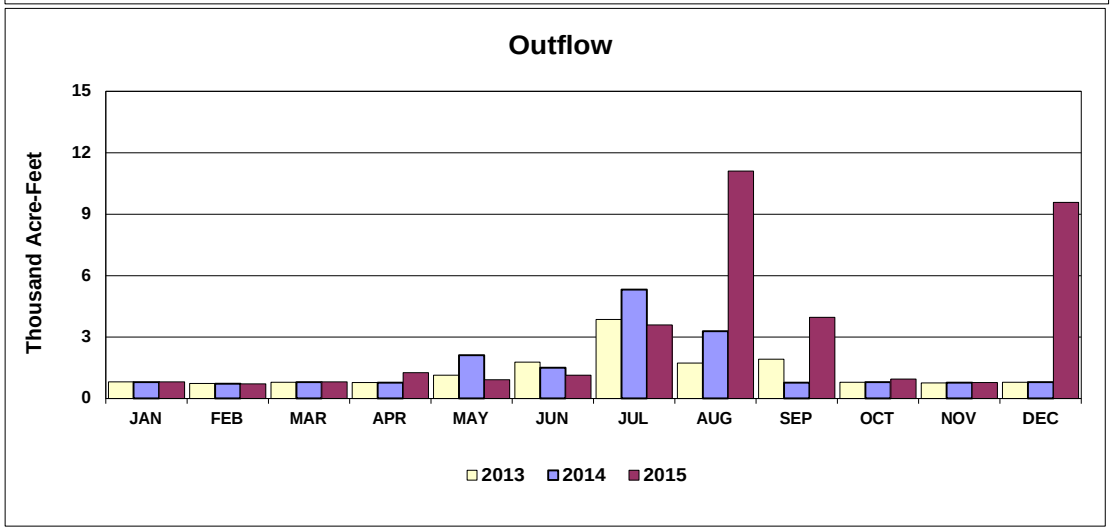
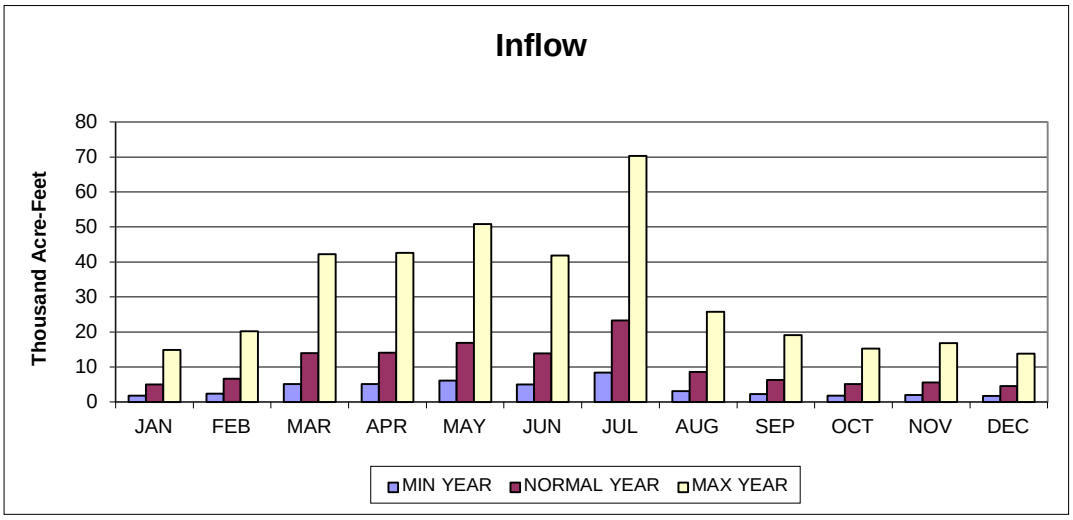
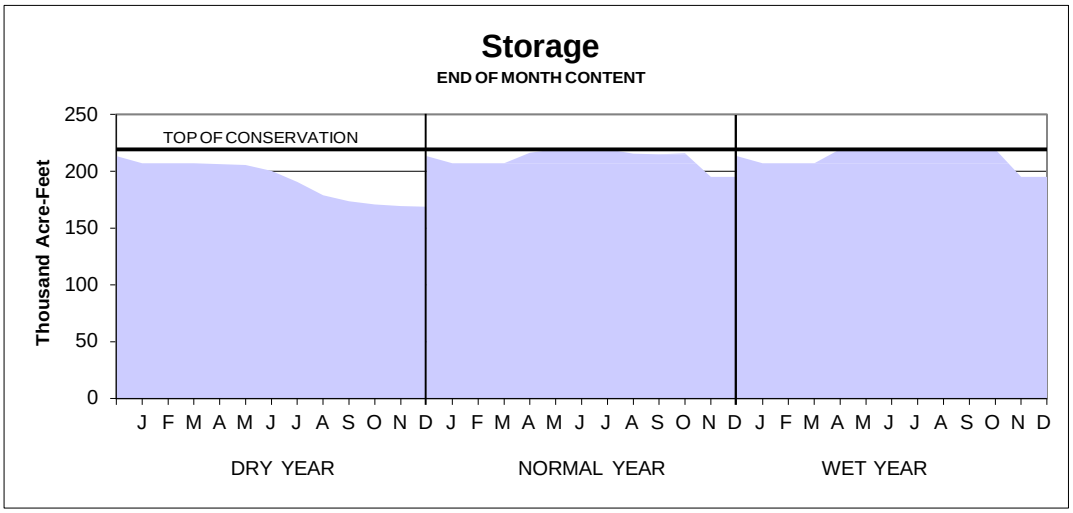


EXHIBIT 15B

WACONDA LAKE

2016 OPERATION PLAN





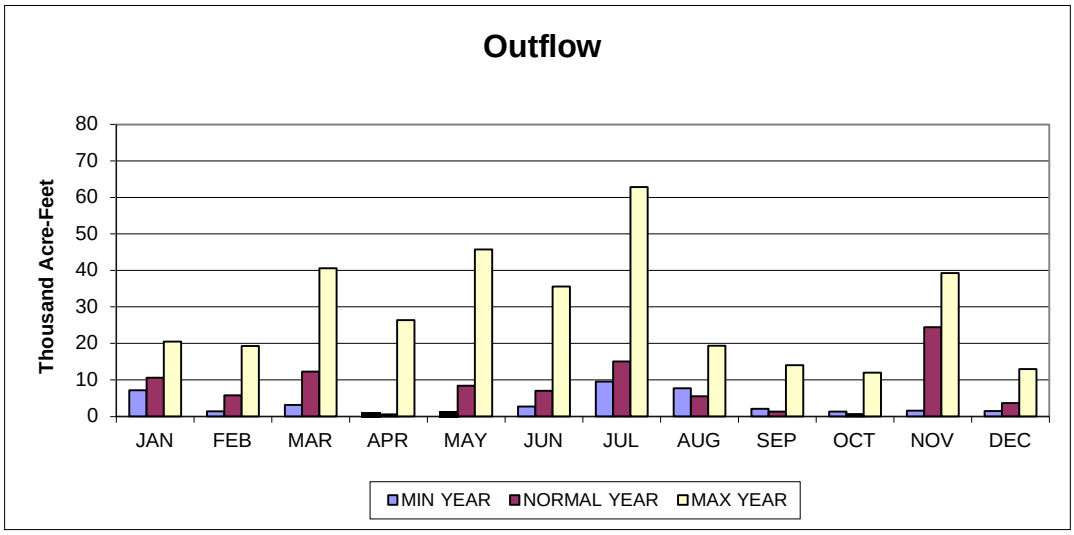
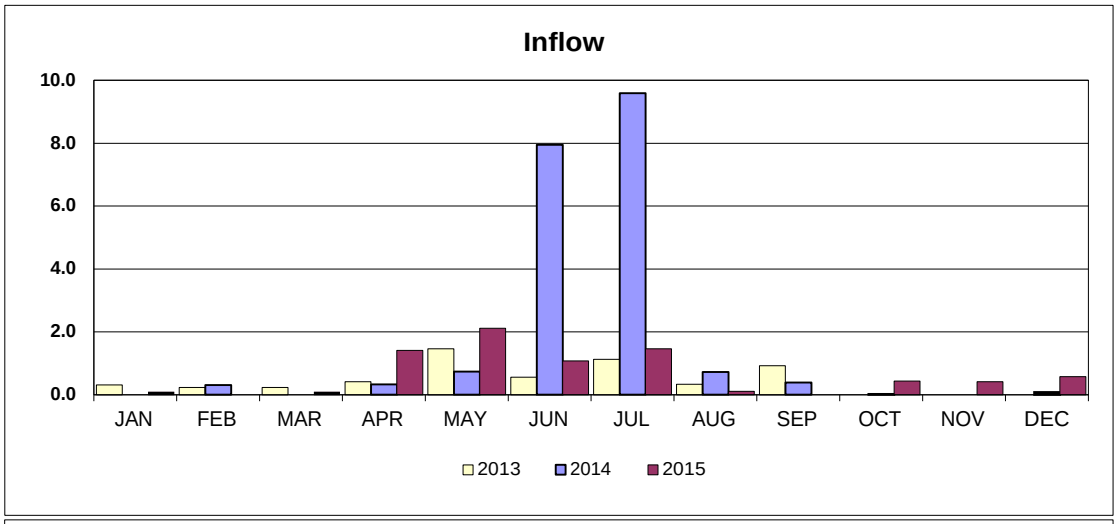
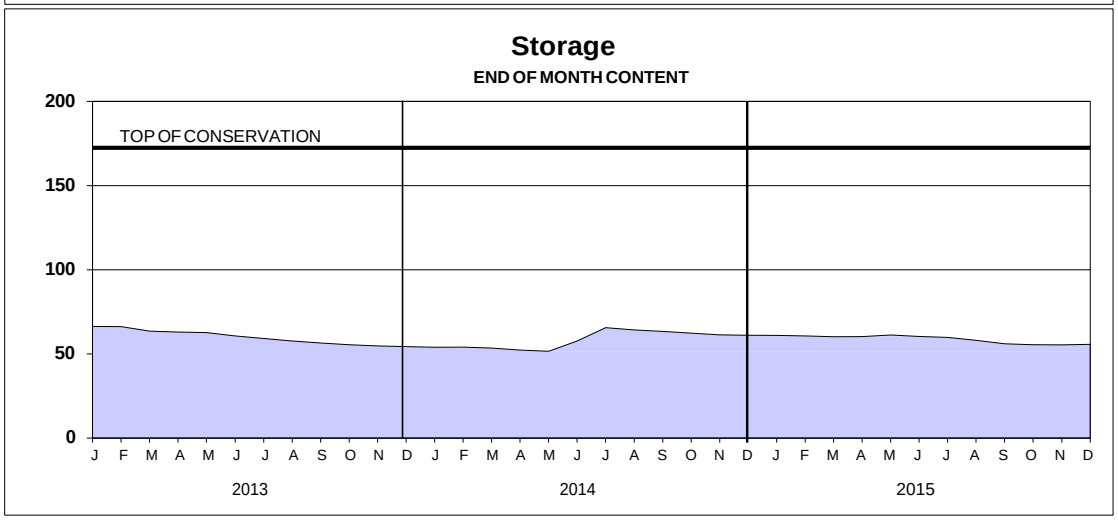


EXHIBIT 16A

CEDAR BLUFF RESERVOIR

ACTUAL OPERATION





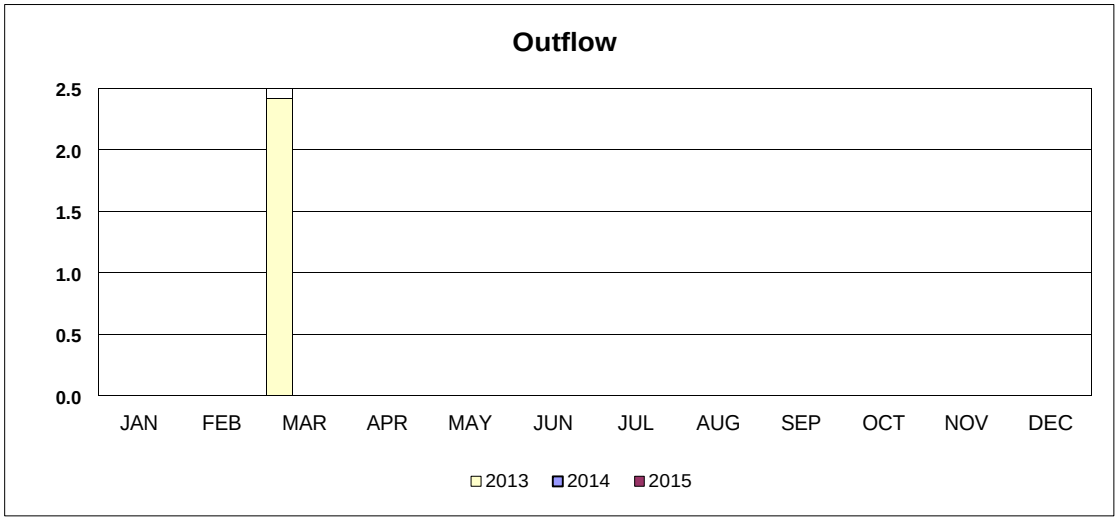
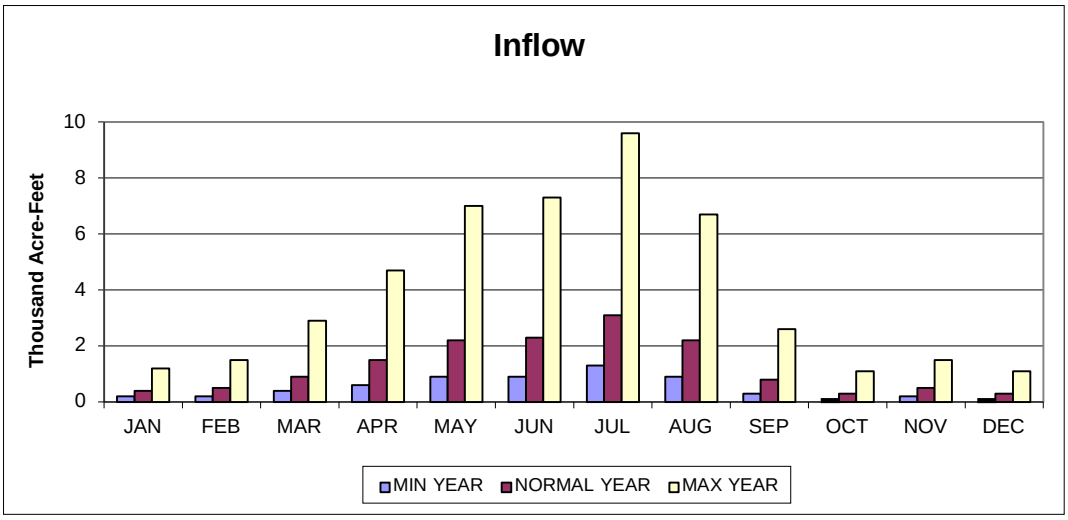
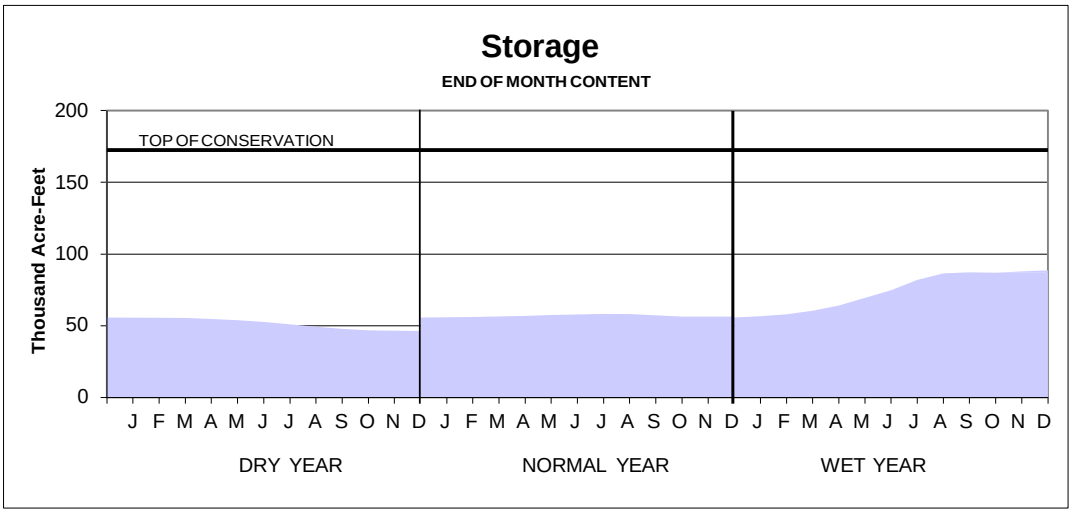


EXHIBIT 16B

CEDAR BLUFF RESERVOIR

2016 OPERATION PLAN





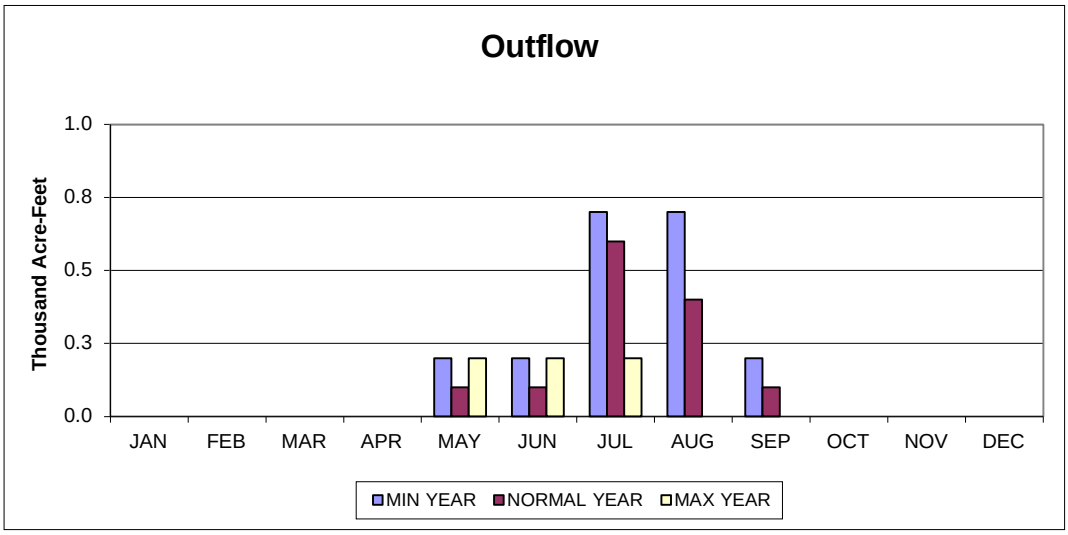
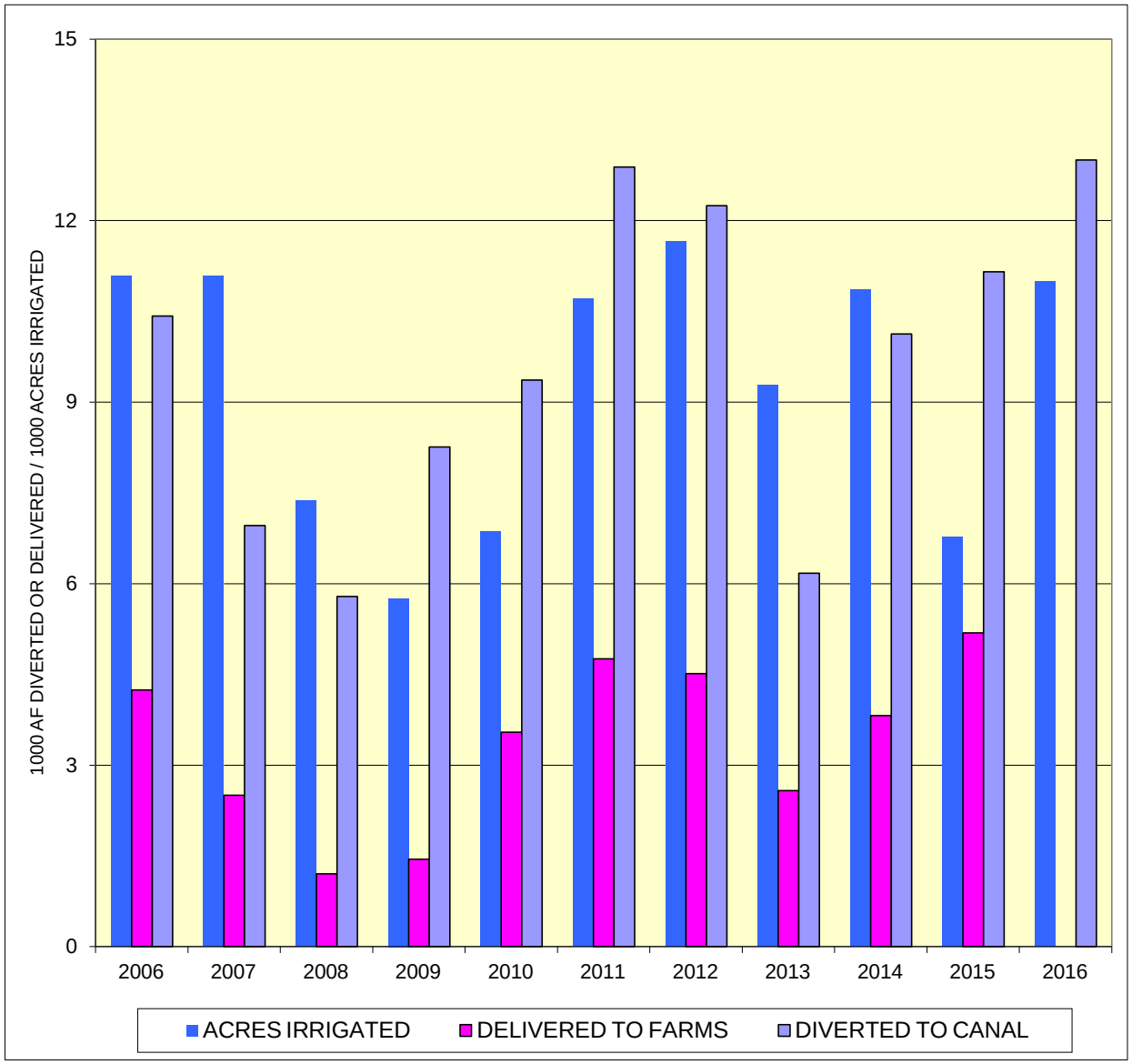


EXHIBIT 17

MIRAGE FLATS IRRIGATION DISTRICT

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



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DIVERTED af/acre	0.94	0.63	0.78	1.44	1.37	1.20	1.05	0.66	0.93	1.65
DELIVERED af/acre	0.38	0.23	0.16	0.25	0.52	0.44	0.39	0.28	0.35	0.77
EFFICIENCY	41%	36%	21%	18%	38%	37%	37%	42%	38%	46%

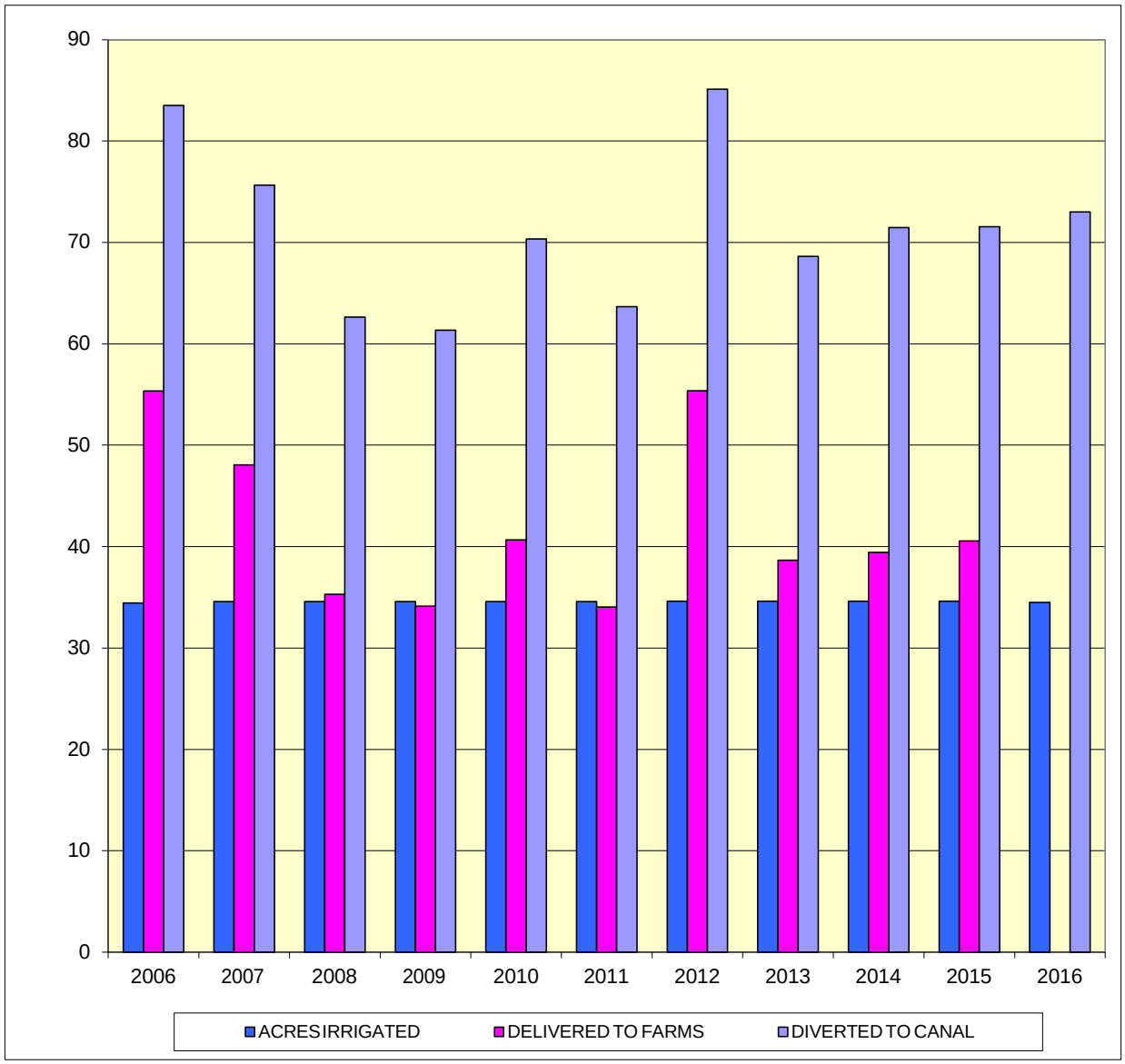
FORECASTED SHORTAGES (2016)

DRY YEAR	16,300 AF
NORMAL YEAR	6,300 AF
WET YEAR	0 AF

EXHIBIT 18

AINSWORTH IRRIGATION DISTRICT

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



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DIVERTED af/acre	2.42	2.19	1.81	1.77	2.03	1.84	2.46	1.98	2.06	2.07
DELIVERED af/acre	1.61	1.39	1.02	0.99	1.18	0.98	1.60	1.12	1.14	1.17
EFFICIENCY	66%	64%	56%	56%	58%	53%	65%	56%	55%	57%

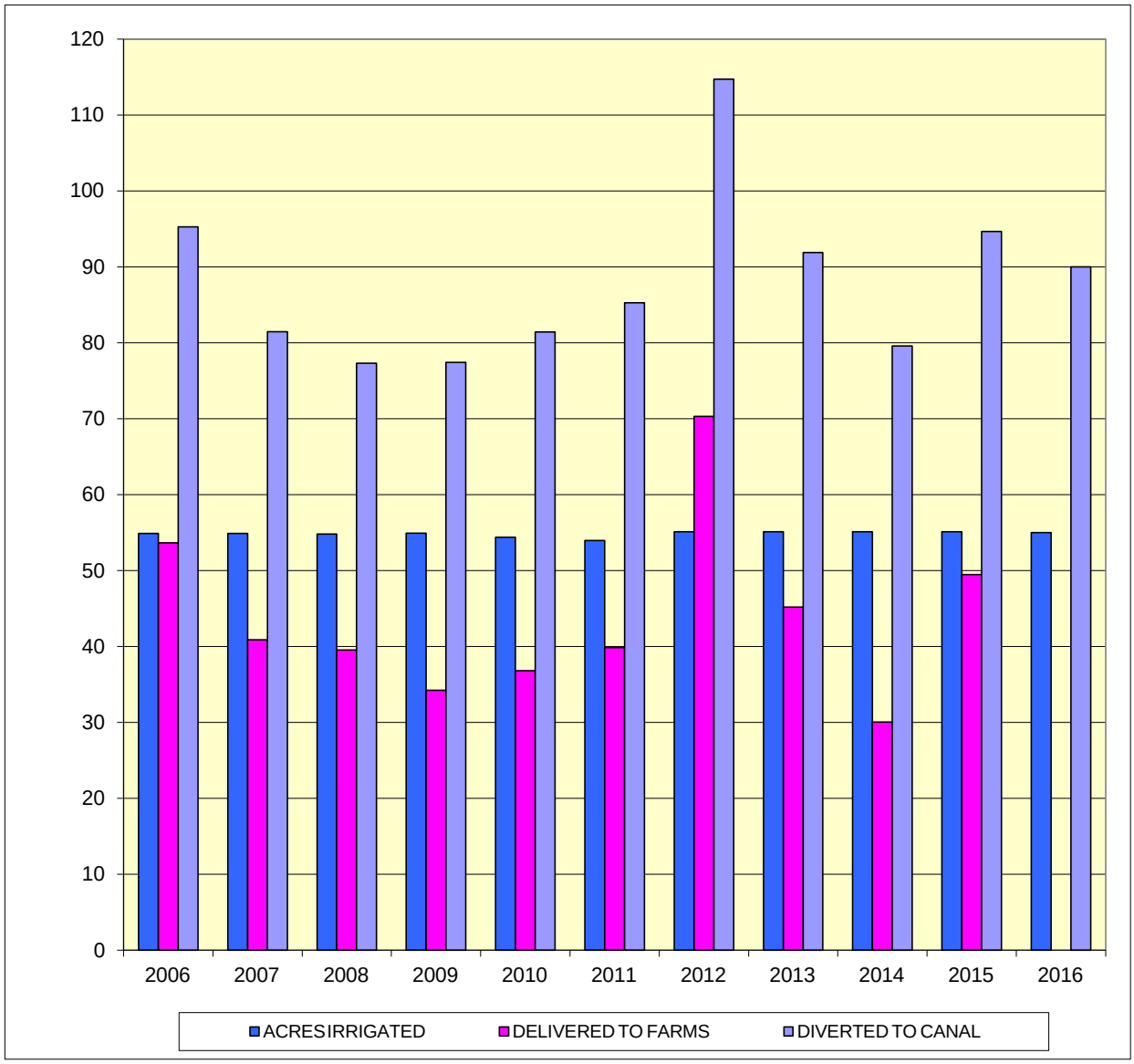
FORECASTED SHORTAGES (2016)

DRY YEAR	0 AF
NORMAL YEAR	0 AF
WET YEAR	0 AF

EXHIBIT 19

TWIN LOUPS IRRIGATION DISTRICT

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



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DIVERTED af/acre	1.74	1.48	1.41	1.41	1.50	1.58	2.08	1.67	1.44	1.72
DELIVERED af/acre	0.98	0.74	0.72	0.62	0.68	0.74	1.28	0.82	0.54	0.90
EFFICIENCY	56%	50%	51%	44%	45%	47%	61%	49%	38%	52%

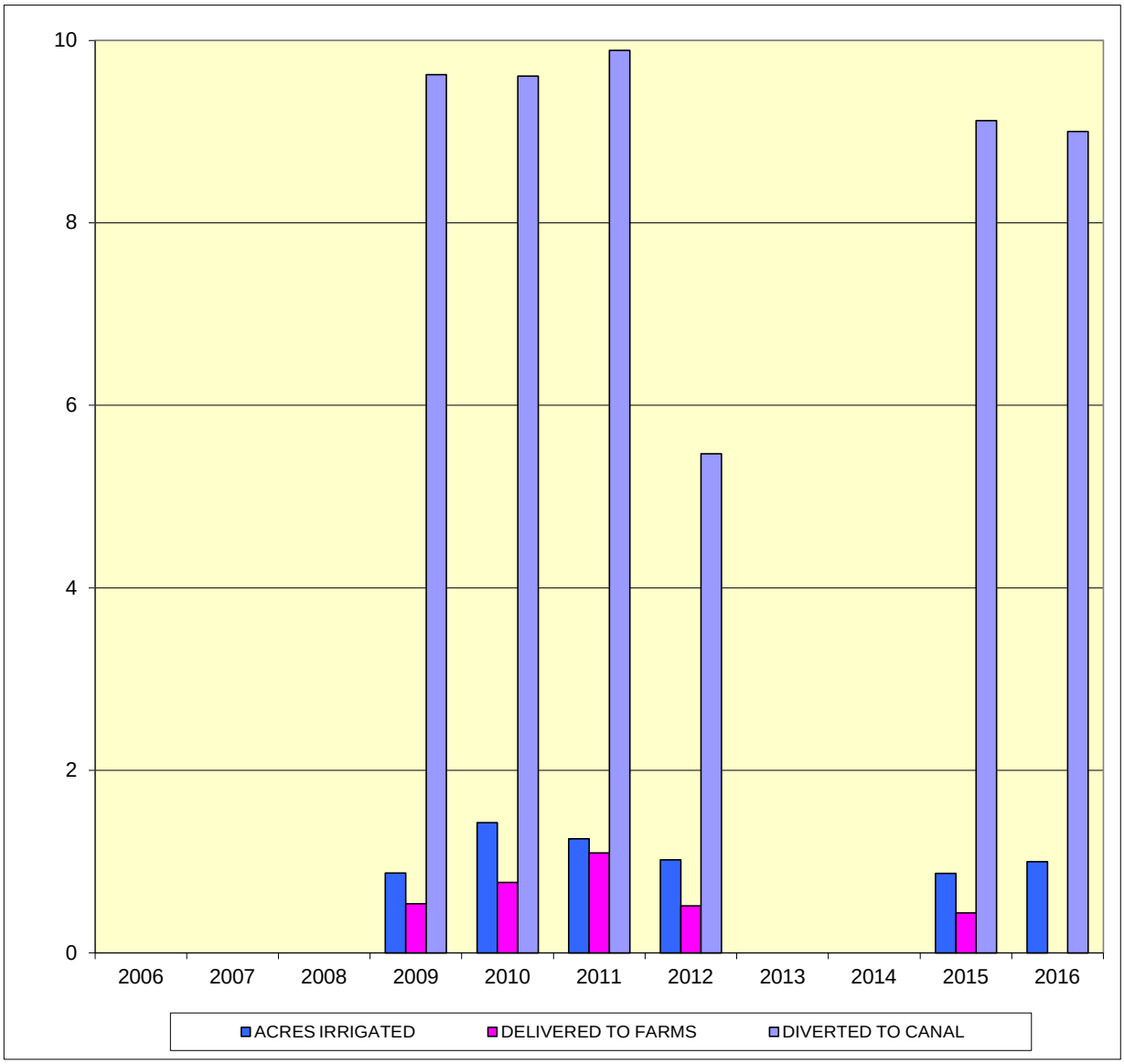
FORECASTED SHORTAGES (2016)

DRY YEAR	0 AF
NORMAL YEAR	0 AF
WET YEAR	0 AF

EXHIBIT 20

FRENCHMAN VALLEY IRRIGATION DISTRICT

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



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DIVERTED af/acre	0.00	0.00	0.00	11.01	6.74	7.91	5.36	0.00	0.00	10.47
DELIVERED af/acre	0.00	0.00	0.00	0.61	0.54	0.88	0.50	0.00	0.00	0.50
EFFICIENCY	0%	0%	0%	6%	8%	11%	9%	0%	0%	5%

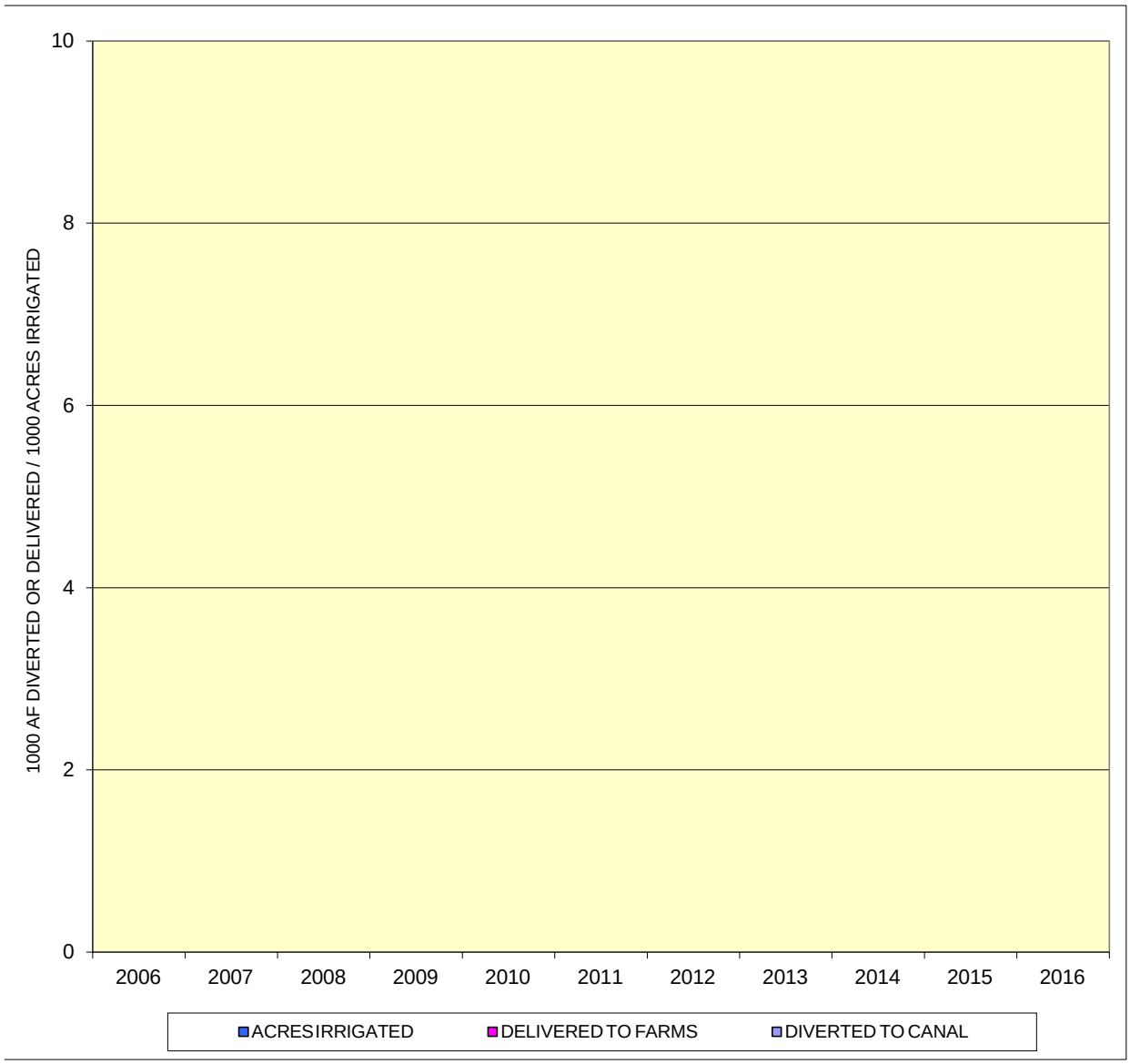
FORECASTED SHORTAGES (2016)

DRY YEAR	33,800 AF
NORMAL YEAR	25,800 AF
WET YEAR	11,100 AF

EXHIBIT 21

H AND RW IRRIGATION DISTRICT

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



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DIVERTED af/acre	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DELIVERED af/acre	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EFFICIENCY	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

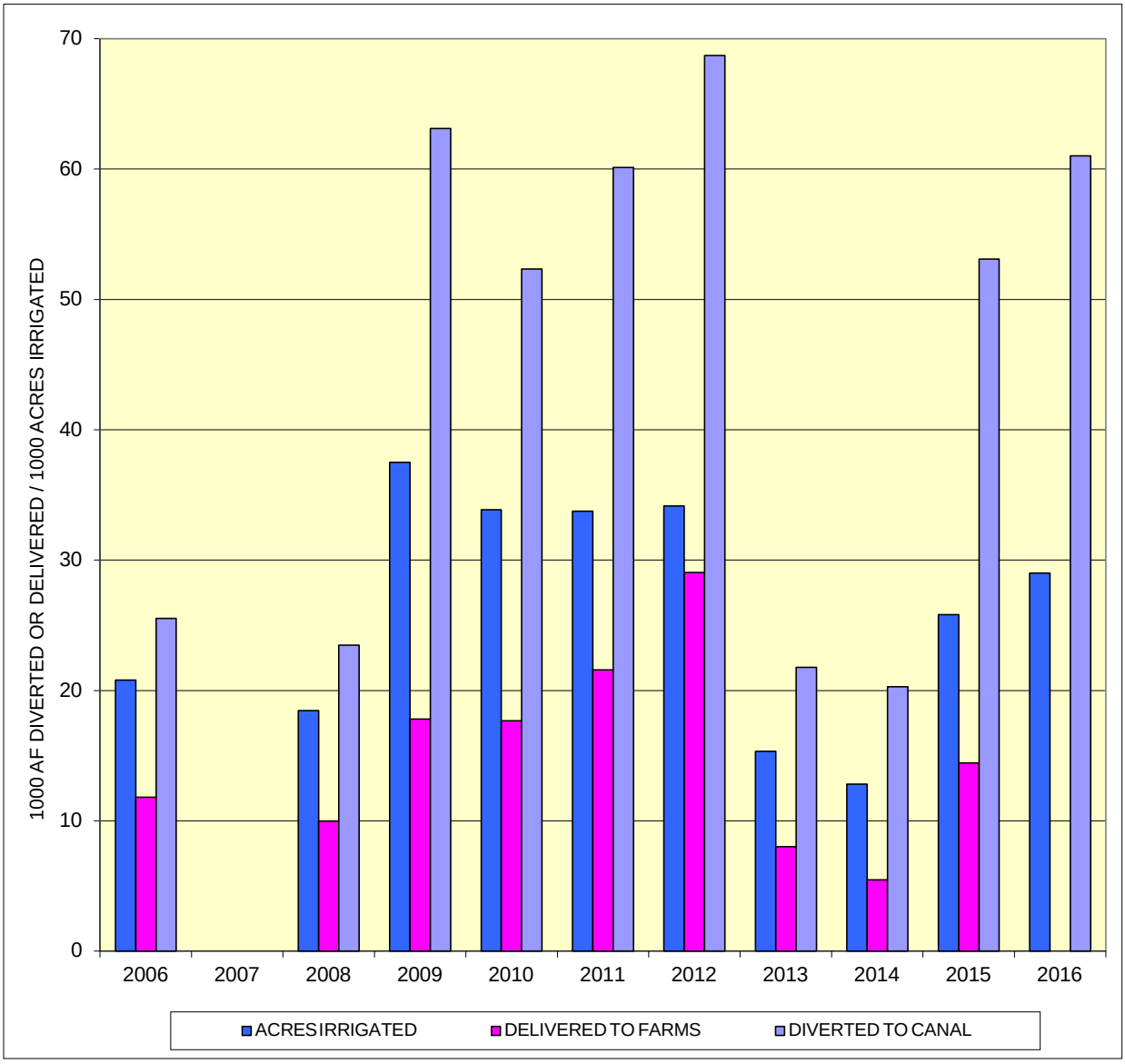
FORECASTED SHORTAGES (2016)

DRY YEAR	43,400 AF
NORMAL YEAR	33,200 AF
WET YEAR	14,300 AF

EXHIBIT 22

FRENCHMAN-CAMBRIDGE IRRIGATION DISTRICT

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



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DIVERTED af/acre	1.23	0.00	1.27	1.68	1.55	1.78	2.01	1.42	1.58	2.06
DELIVERED af/acre	0.57	0.00	0.54	0.47	0.52	0.64	0.85	0.52	0.43	0.56
EFFICIENCY	46%	0%	42%	28%	34%	36%	42%	37%	27%	27%

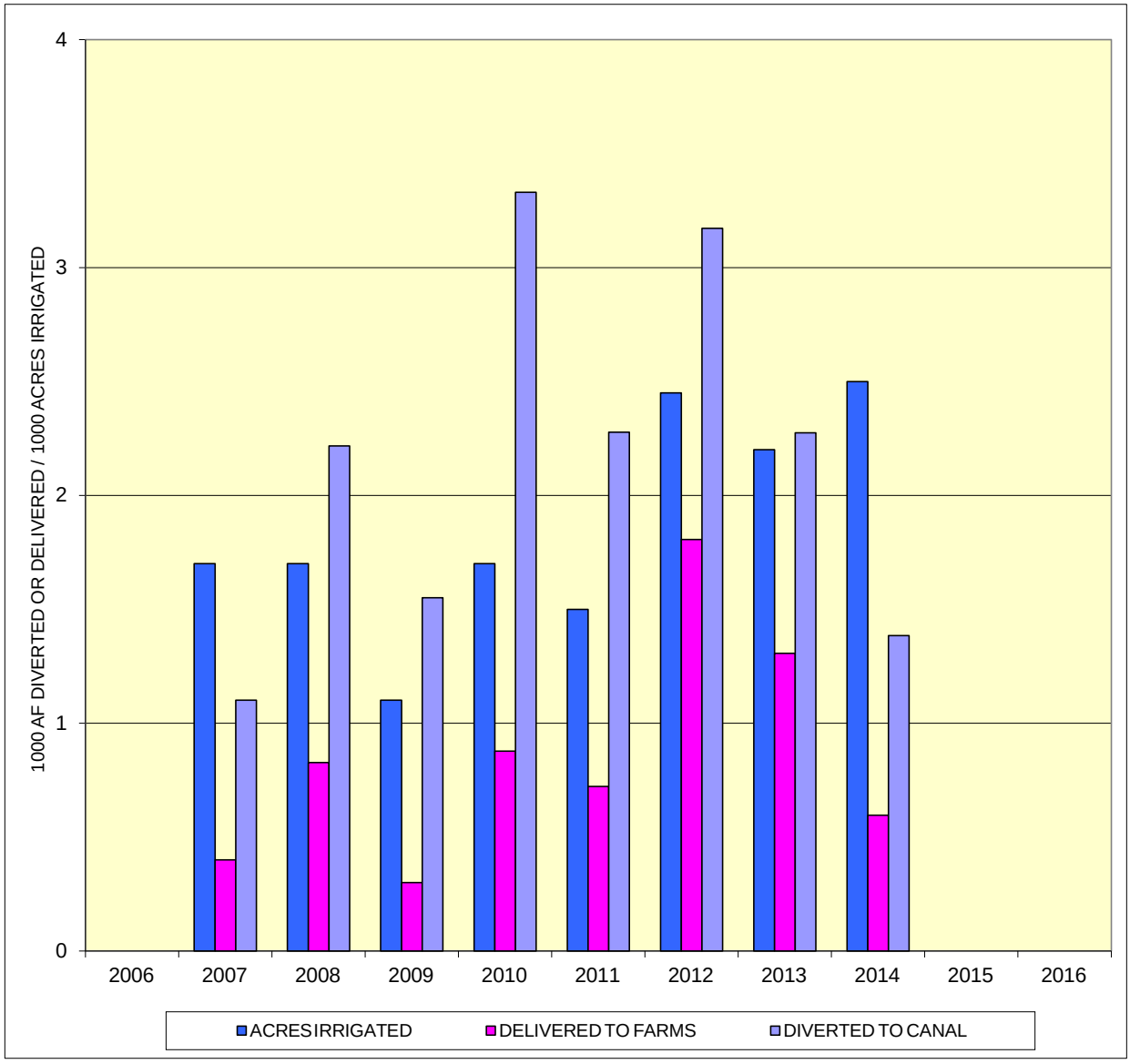
FORECASTED SHORTAGES (2016)

DRY YEAR	39,800 AF
NORMAL YEAR	3,100 AF
WET YEAR	0 AF

EXHIBIT 23

ALMENA IRRIGATION DISTRICT

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



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DIVERTED af/acre	0.00	0.65	1.30	1.41	1.96	1.52	1.29	1.03	0.55	0.00
DELIVERED af/acre	0.00	0.24	0.49	0.27	0.52	0.48	0.74	0.59	0.24	0.00
EFFICIENCY	0%	36%	37%	19%	26%	32%	57%	57%	43%	0%

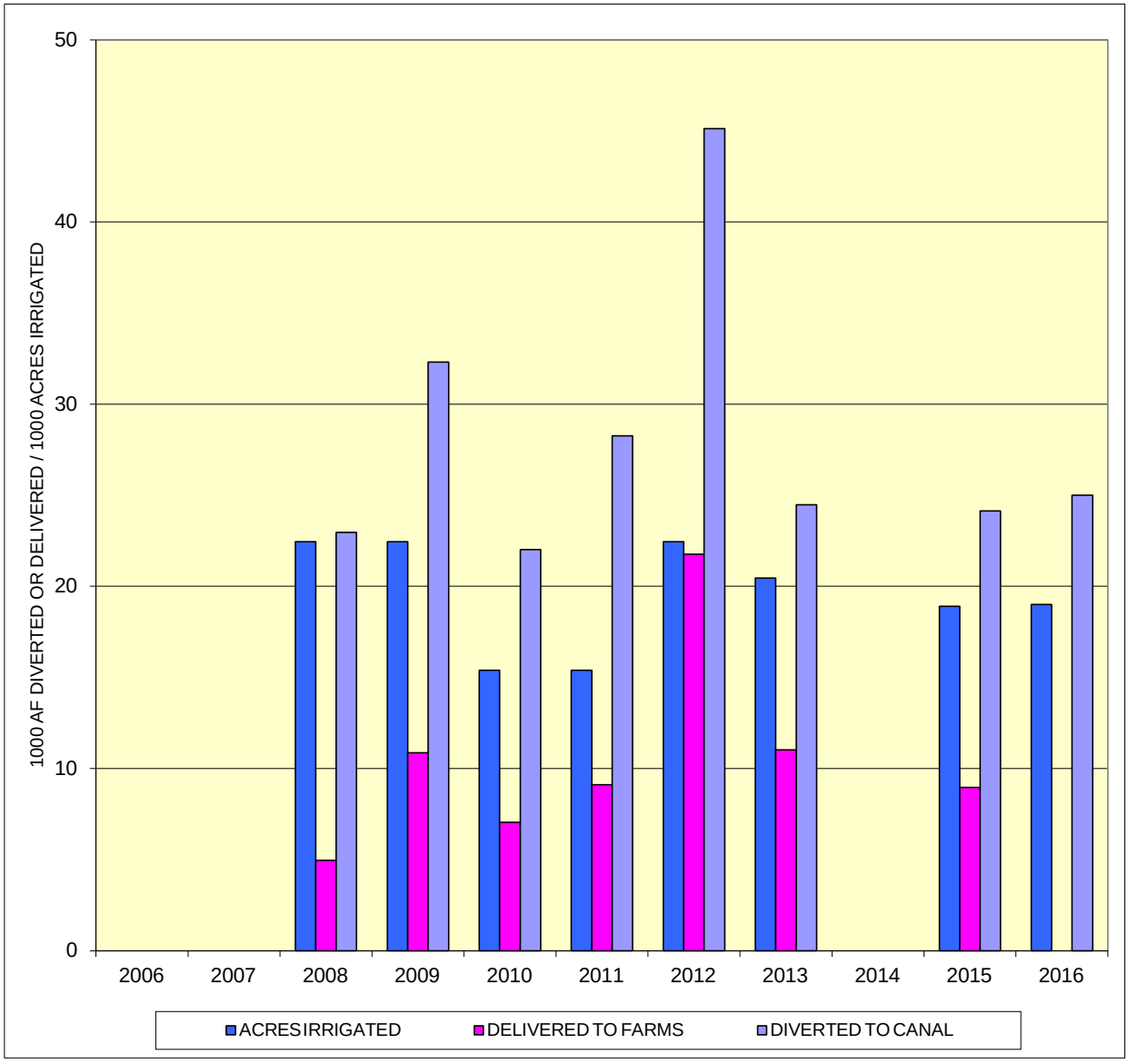
FORECASTED SHORTAGES (2016)

DRY YEAR	17,180 AF
NORMAL YEAR	11,000 AF
WET YEAR	0 AF

EXHIBIT 24

BOSTWICK IRRIGATION DISTRICT - NEBRASKA

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



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DIVERTED af/acre	0.00	0.00	1.02	1.44	1.43	1.84	2.01	1.20	0.00	1.28
DELIVERED af/acre	0.00	0.00	0.22	0.48	0.46	0.59	0.97	0.54	0.00	0.47
EFFICIENCY	0%	0%	22%	34%	32%	32%	48%	45%	0%	37%

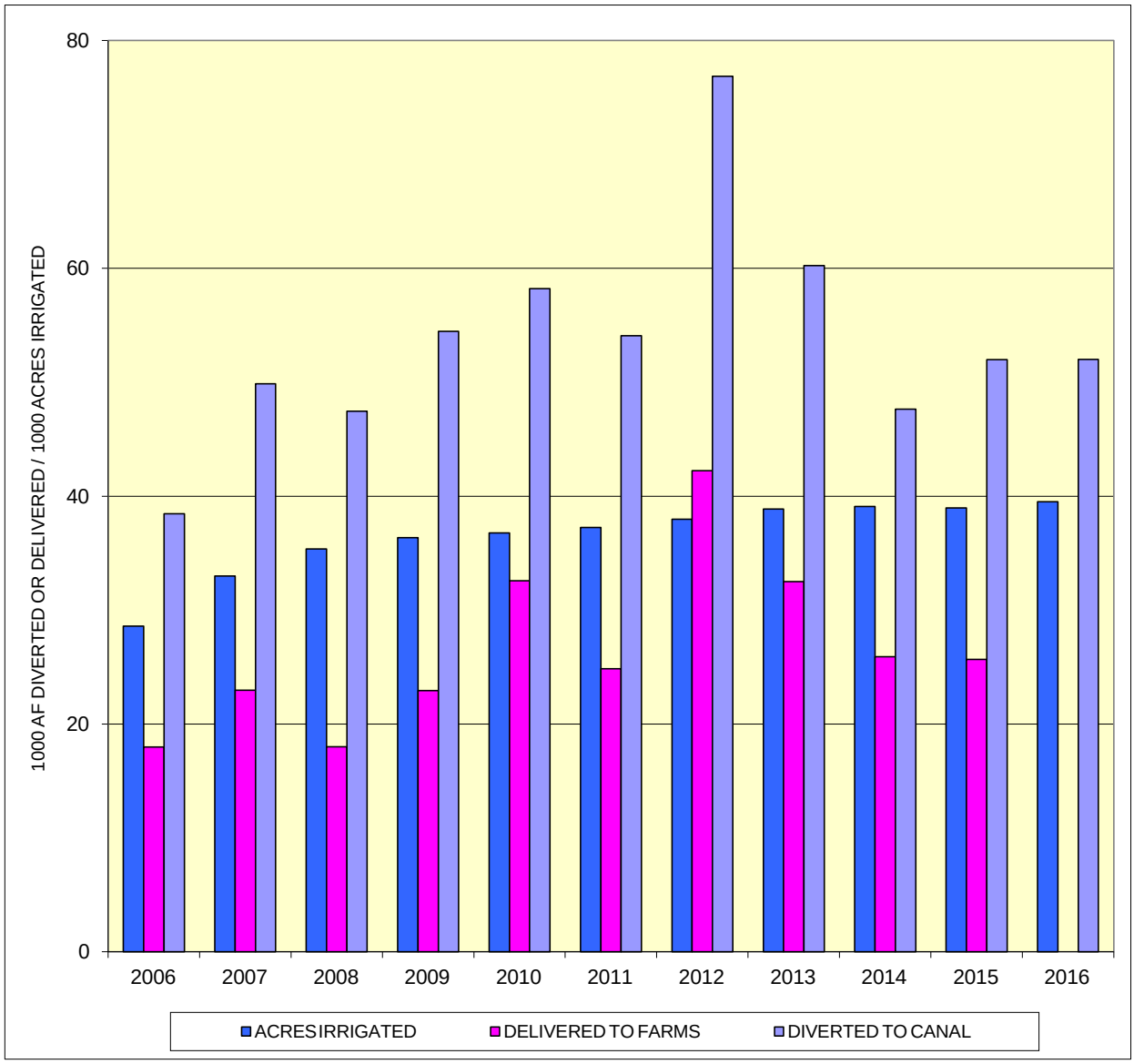
FORECASTED SHORTAGES (2016)

DRY YEAR	28,400 AF
NORMAL YEAR	0 AF
WET YEAR	0 AF

EXHIBIT 25

KANSAS BOSTWICK IRRIGATION DISTRICT

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



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DIVERTED af/acre	1.35	1.51	1.34	1.50	1.58	1.45	2.02	1.55	1.22	1.33
DELIVERED af/acre	0.63	0.70	0.51	0.63	0.89	0.67	1.11	0.84	0.66	0.66
EFFICIENCY	47%	46%	38%	42%	56%	46%	55%	54%	54%	49%

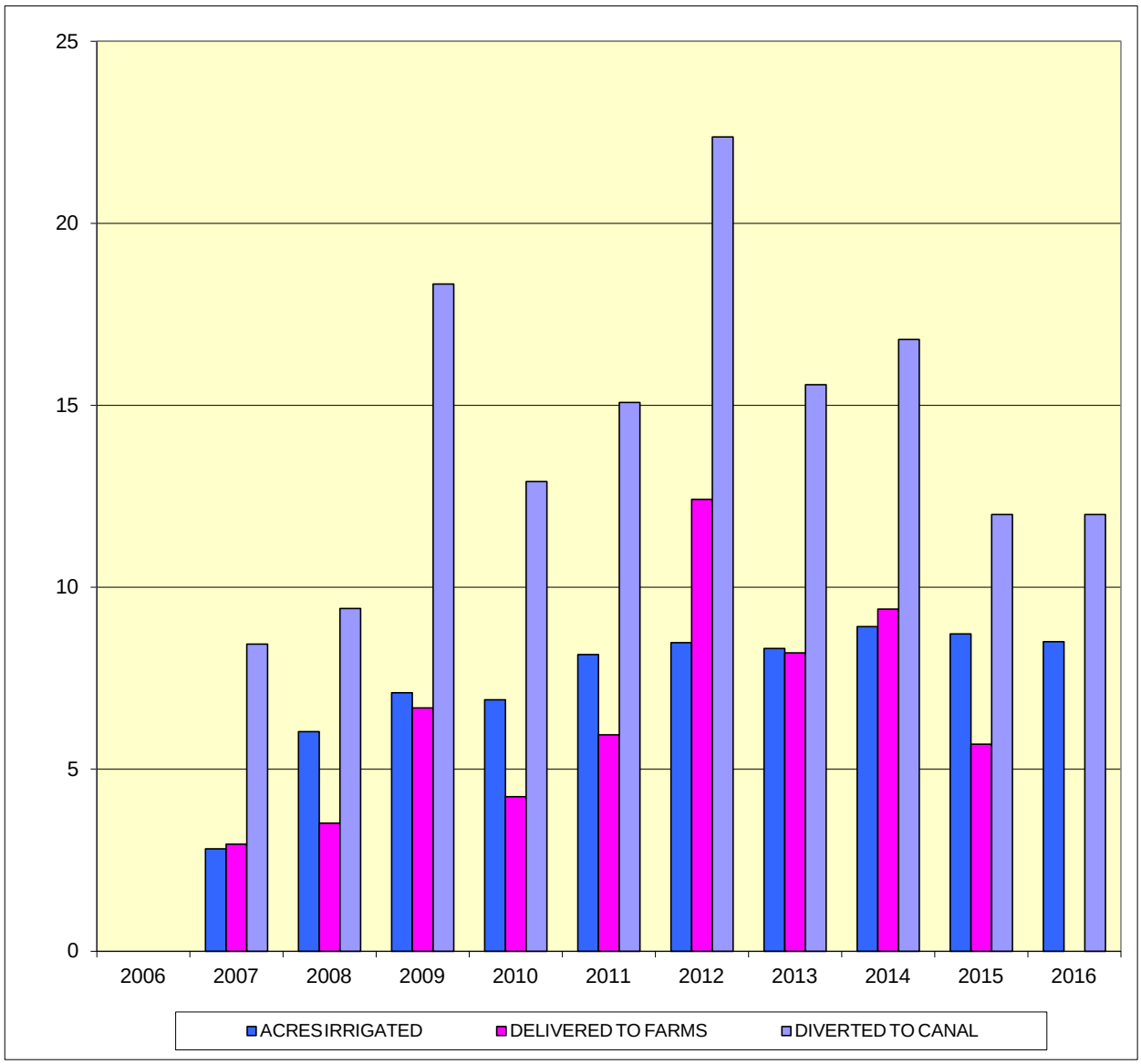
FORECASTED SHORTAGES (2016)

DRY YEAR	53,800 AF
NORMAL YEAR	0 AF
WET YEAR	0 AF

EXHIBIT 26

KIRWIN IRRIGATION DISTRICT

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



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DIVERTED af/acre	0.00	3.00	1.56	2.58	1.87	1.85	2.64	1.87	1.88	1.38
DELIVERED af/acre	0.00	1.05	0.58	0.94	0.61	0.73	1.46	0.99	1.05	0.65
EFFICIENCY	0%	35%	37%	36%	33%	39%	55%	53%	56%	47%

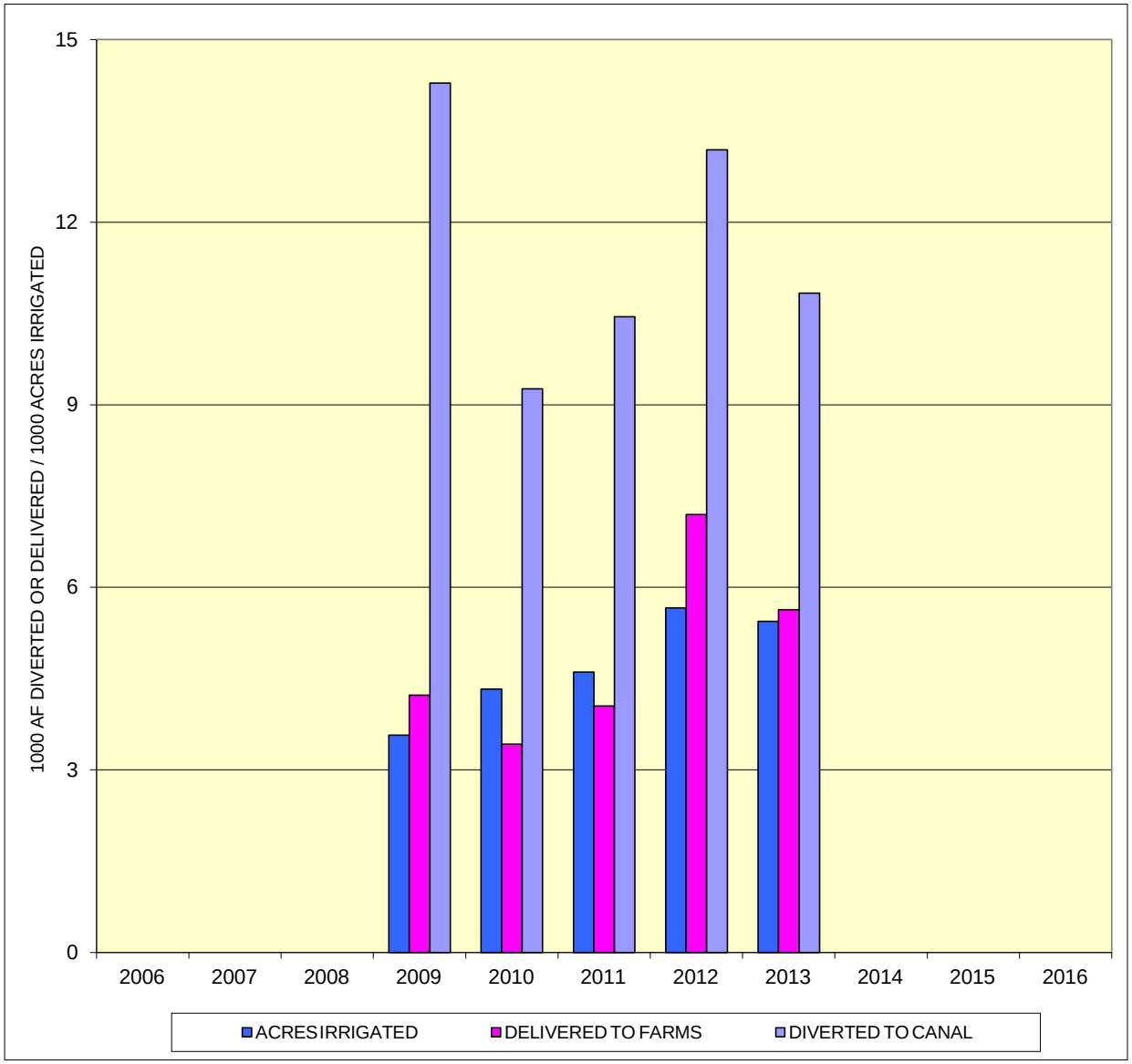
FORECASTED SHORTAGES (2016)

DRY YEAR	6,100 AF
NORMAL YEAR	0 AF
WET YEAR	0 AF

EXHIBIT 27

WEBSTER IRRIGATION DISTRICT

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



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DIVERTED af/acre	0.00	0.00	0.00	4.00	2.14	2.27	2.33	1.99	0.00	0.00
DELIVERED af/acre	0.00	0.00	0.00	1.18	0.79	0.88	1.27	1.04	0.00	0.00
EFFICIENCY	0%	0%	0%	30%	37%	39%	55%	52%	0%	0%

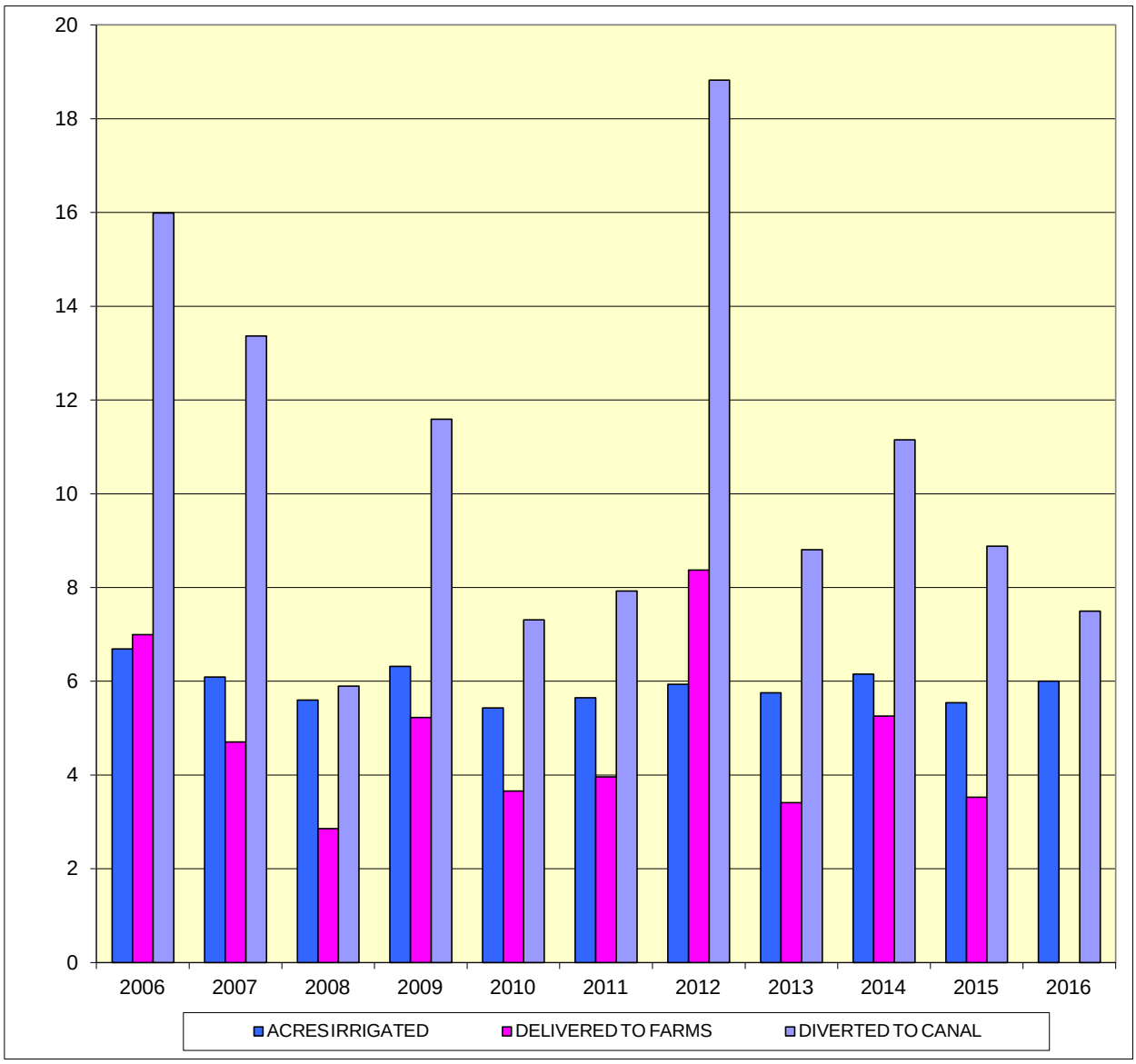
FORECASTED SHORTAGES (2016)

DRY YEAR	28,120 AF
NORMAL YEAR	8,500 AF
WET YEAR	0 AF

EXHIBIT 28

GLEN ELDER IRRIGATION DISTRICT

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



	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
DIVERTED af/acre	2.39	2.19	1.05	1.83	1.35	1.40	3.17	1.53	1.81	1.60
DELIVERED af/acre	1.04	0.77	0.51	0.83	0.67	0.70	1.41	0.59	0.86	0.64
EFFICIENCY	44%	35%	48%	45%	50%	50%	44%	39%	47%	40%

FORECASTED SHORTAGES (2016)

DRY YEAR	0 AF
NORMAL YEAR	0 AF
WET YEAR	0 AF

N

EXPLANATION

Reservoir

Diversion Dam

Pumping Plant

Canal

Irrigated Land

Chadron
Gordon
Valentine
Hay Springs
Niobrara River
Lewis & Clark Lake
Niobrara
Box Butte Dam
Mirage Flats Canal
Snake River
Merritt Dam
Ainsworth Canal
Ainsworth
SANDHILLS DIVISION
AINSWORTH UNIT
Merritt Reservoir Capacity Allocation
Conser. 65,952 a.f.
Dead 774 a.f.
Total 66,726 a.f.
Box Butte Reservoir Capacity Allocation
Conser. 30,420 a.f.
Dead 640 a.f.
Total 31,060 a.f.
Dunlap Diversion Dam
MIRAGE FLATS PROJECT
Alliance
Moon Lake
Calamus River
O'Neill
Elkhorn River
Missouri River
Norfork
Calamus Reservoir Capacity Allocation
Conser. 126,583 a.f.
Dead 817 a.f.
Total 127,400 a.f.
Scottsbluff
Middle Loup River
North Loup River
Kent Diversion Dam & Canal
Virginia Smith Dam
Burwell
Mirdan Canal
Geranium Canal Pumping Plant
Geranium Canal
Scotia Canal
NORTH LOUP DIVISION
Davis Creek Reservoir Capacity Allocation
Conser. 32,328 a.f.
Dead 131 a.f.
Total 32,459 a.f.
Ord
Davis Creek Dam
Fullerton Canal
Elba Canal
Fullerton
Loup River
Columbus
Platte River
Omaha
Thedford
Broken Bow
South Loup River
Sherman Dam
Turkey Cr.
Oak Cr.
Oshkosh
North Platte River
Lake McConaughy
Sidney
Ogallala
North Platte
Big Blue River
Lincoln
Grand Island
NEBRASKA
COLORADO
FRENCHMAN–CAMBRIDGE DIVISION
RED WILLOW UNIT
Lexington
Platte River
Kearney
Enders Reservoir Capacity Allocation
Flood 30,048 a.f.
Conser. 35,394 a.f.
Dead 7,516 a.f.
Total 72,958 a.f.
Hugh Butler Lake Capacity Allocation
Flood 48,846 a.f.
Conser. 31,039 a.f.
Dead 5,185 a.f.
Total 85,070 a.f.
Harry Strunk Lake Capacity Allocation
Flood 52,715 a.f.
Conser. 31,545 a.f.
Dead 4,160 a.f.
Total 88,420 a.f.
Harlan County Lake Capacity Allocation
Flood 500,00 a.f.
Conser. 314,111 a.f.
Dead
Total 814,111 a.f.
Stinking Water Cr.
Red Willow Creek
Medicine Creek
FRENCHMAN UNIT
CAMBRIDGE UNIT
Holyoke
Imperial
Frenchman River
Culbertson Diversion Dam
Culbertson Canal
Culbertson Extension Canal
Red Willow Dam
Red Willow Diversion Dam
Red Willow Canal
Cambridge
Cambridge Diversion Dam
Cambridge Canal
Medicine Creek Dam
Enders Dam
Swanson Lake Capacity Allocation
Flood 134,077 a.f.
Conser. 110,098 a.f.
Dead 2,118 a.f.
Total 246,291 a.f.
Trenton Dam
Upper Meeker Sub Canal
Trenton
McCook
Upper Meeker Canal
Driftwood Canal
Driftwood West Canal
Driftwood Sub Canal
Meeker Extension Canal
Bartley Diversion Dam
Bartley Canal
Republican River
Harlan County Dam (U.S.C.E.)
Alma
BOSTWICK DIVISION
FRANKLIN UNIT
SUPERIOR–COURTLAND UNIT
Franklin Canal
Franklin
Red Cloud
Superior–Courtland Diversion Dam
Superior Canal
Superior
Franklin Pump Canal
Naponee Canal
Courtland Canal
Pump No. 1 Canal
North Canal
Ridge Canal
White Rock Canal & Extension
Miller Canal
Pumps No. 3A & 3B
Courtland West Canal
Pump No. 4 Canal
COURTLAND UNIT
NEBRASKA
KANSAS
UPPER REPUBLICAN DIVISION
MEEKER–DRIFTWOOD UNIT
Wray
North Fork Republican River
Bonny Reservoir Capacity Allocation
Flood 128,820 a.f.
Conser. 39,922 a.f.
Dead 1,418 a.f.
Total 170,160 a.f.
ARMEL UNIT
KANASKA DIVISION
Sappa Creek
Almena Main Canal
Almena South Canal
Almena Diversion Dam
ALMENA UNIT
KIRWIN UNIT
Norton
Phillipsburg
Oberlin
Atwood
St. Francis
Keith Sebelius Lake Capacity Allocation
Flood 99,230 a.f.
Conser. 32,874 a.f.
Dead 1,636 a.f.
Total 133,740 a.f.
Norton Dam
Kirwin Reservoir Capacity Allocation
Flood 215,136 a.f.
Conser. 93,185 a.f.
Dead 4,869 a.f.
Total 313,290 a.f.
White Rock Creek
Lovewell Dam
Lovewell Reservoir Capacity Allocation
Flood 50,465 a.f.
Conser. 34,007 a.f.
Dead 1,659 a.f.
Total 86,131 a.f.
Kirwin Main Canal
Kirwin North Canal
Kirwin South Canal
Kirwin Dam
Glen Elder Dam
Arikaree River
Bonny Dam
Hale
Beaver Creek North Fork
Prairie Dog Creek North Fork
Solomon River South Fork
Webster Reservoir Capacity Allocation
Flood 183,353 a.f.
Conser. 74,271 a.f.
Dead 1,256 a.f.
Total 258,880 a.f.
Stockton
Osborne Canal
Glen Elder
Beloit
Osborne
Woodston Diversion Dam
Waconda Lake Capacity Allocation
Flood 722,988 a.f.
Conser. 219,172 a.f.
Dead 248 a.f.
Total 942,408 a.f.
Webster Dam
WEBSTER UNIT
GLEN ELDER UNIT
SOLOMON DIVISION
Burlington
Republican River
Tuttle Creek Dam (U.S.C.E.)
Manhattan
Kansas City
Topeka
Kansas River
Milford Dam (U.S.C.E.)
Junction City
Abilene
Beatrice
Saline River
Wilson Dam (U.S.C.E.)
Lincoln
Russell
Salina
Wakeeney
Cedar Bluff Reservoir Capacity Allocation
Flood 191,890 a.f.
Conser. 168,050 a.f.
Dead 4,402 a.f.
Total 364,342 a.f.
Big Creek
Hays
Smoky Hill River
Cedar Bluff Dam
SMOKY HILL DIVISION
CEDAR BLUFF UNIT
Kanopolis Dam (U.S.C.E.)
Lindsborg
Ness City
COLORADO
KANSAS

10 0 10 20 30
SCALE OF MILES

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

MIRAGE FLATS AND MISSOURI RIVER BASIN PROJECTS
NIOBRARA, LOWER PLATTE AND KANSAS RIVER BASINS

IRRIGATION AND FLOOD CONTROL FACILITIES

GRAND ISLAND, NEBRASKA FEBRUARY 2005

DWG. NO. 60–705–1 Rev. 10