US Army Corps of Engineers ®
Northwestern Division

Missouri River Basin
Water Management Division

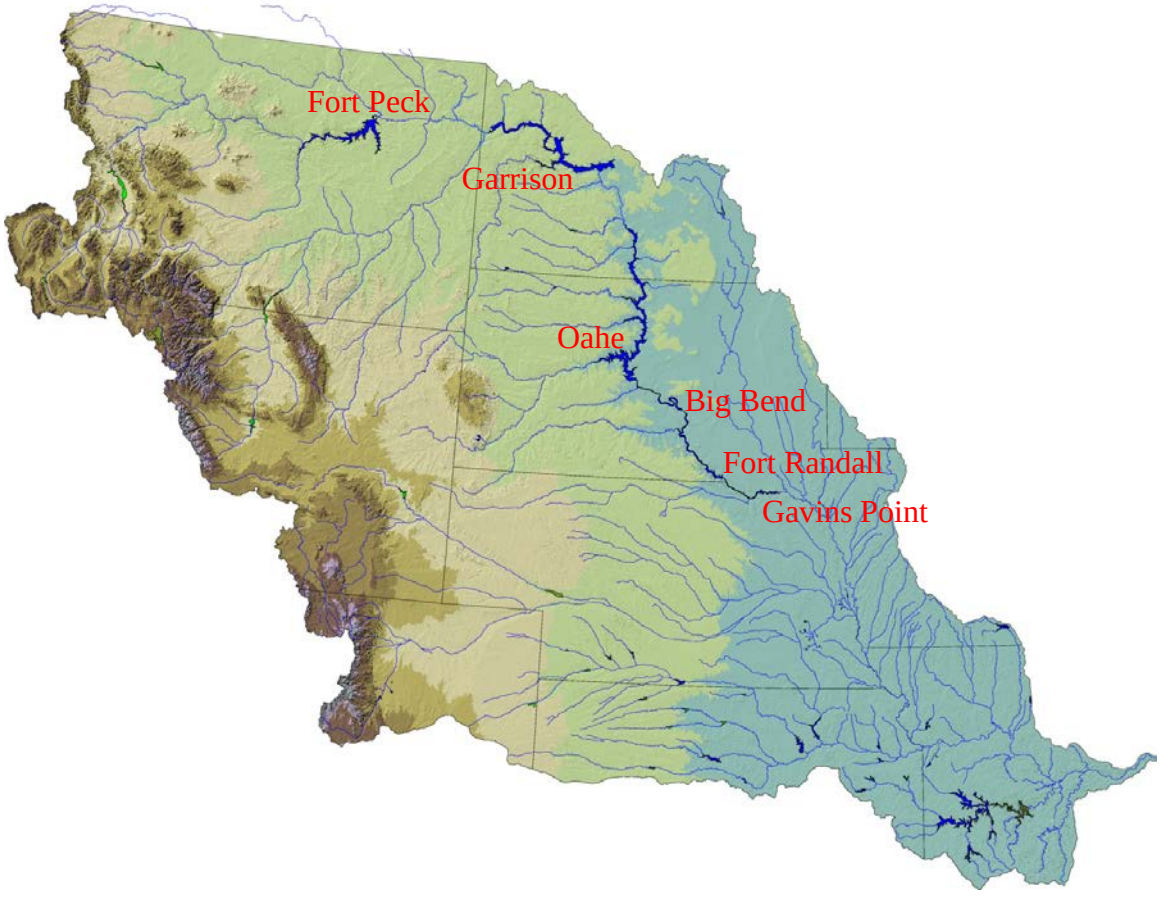
Final

AOP

2013-2014

Missouri River Mainstem System

2013-2014 Annual Operating Plan



Annual Operating Plan Process
61 Years Serving the Missouri River Basin

December 2013

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, NORTHWESTERN DIVISION
PO BOX 2870
PORTLAND OR 97208-2870

Dear Stakeholders and Concerned Citizens, DEC 16 2013

This Annual Operating Plan (AOP) presents the Corps of Engineers' regulation of the Missouri River Mainstem Reservoir System through December 2014. The information in this AOP is based upon water management guidelines designed to meet the reservoir regulation objectives of the 2006 Missouri River Master Water Control Manual (Master Manual). Management of the reservoir system is provided by my staff at the Missouri River Basin Water Management Division, Northwestern Division, U.S. Army Corps of Engineers, located in Omaha, Nebraska.

The AOP presents plans for the regulation of the reservoir system under widely varying water supply conditions. The AOP is not intended to be a forecast for the coming year; rather the guidelines included in the Master Manual are applied to computer simulations of the reservoir system regulation assuming five statistically derived inflow scenarios based on an analysis of water supply records from 1898 to 2011. This approach provides a good range of water management simulation for dry, average, and wet conditions. The AOP provides a framework for the development of detailed monthly, weekly, and daily regulation schedules for the mainstem reservoir system's six individual dams during the upcoming year to serve its Congressionally-authorized project purposes.

A draft of this AOP was made available to the public in September 2013. Five public meetings scheduled for October were canceled due to a lapse in Federal appropriations. In lieu of the public meetings, a conference call was held in late October to discuss plans for regulating the reservoir system in 2014. As part of continued communication, monthly conference calls will be conducted by the Corps beginning in January 2014 with Federal, state, county and local officials, Tribes, emergency management officials, independent experts and the press to discuss conditions on the ground and current Corps' reservoir release plans and forecasts.

While runoff into the Missouri River basin was near normal during 2013, the amount of water stored in the system of reservoirs remains below normal due to drought conditions in 2012. As a result, water conservation measures will be implemented to ensure service to all project purposes should drought conditions continue. We realize that the benefits provided by the reservoir system are vitally important to the Nation and the people that live and work in the Basin. We believe that the continued implementation of the Master Manual, and more specifically this AOP, will result in an appropriate balance of benefits provided to all of the people who rely on the reservoir system. Thank you for your interest in the regulation of the mainstem reservoir system.

Sincerely,

John S. Kem
Brigadier General, US Army
Division Commander

MISSOURI RIVER MAINSTEM RESERVOIR SYSTEM

Annual Operating Plan
2013 - 2014

TABLES

PLATES

ABBREVIATIONS

AOP	-	annual operating plan
ACHP	-	Advisory Council on Historic Preservation
AF	-	acre-feet
B	-	Billion
BiOp	-	Biological Opinion
BOR	-	Bureau of Reclamation
cfs	-	cubic feet per second
Corps	-	Corps of Engineers
CY	-	calendar year (January 1 to December 31)
elev	-	elevation
ESA	-	Endangered Species Act
ft	-	feet
FTT	-	Flow-to-Target
FY	-	fiscal year (October 1 to September 30)
GWh	-	gigawatt hour
ISAP	-	Independent Science Advisory Panel
KAF	-	1,000 acre-feet
kcfs	-	1,000 cubic feet per second
kW	-	kilowatt
kWh	-	kilowatt hour
MAF	-	million acre-feet
MRNRC	-	Missouri River Natural Resources Committee
msl	-	mean sea level
MW	-	megawatt
MWh	-	megawatt hour
NEPA	-	National Environmental Policy Act
plover	-	piping plover
PA	-	Programmatic Agreement
P-S MBP	-	Pick-Sloan Missouri Basin Program
RCC	-	Reservoir Control Center
RM	-	river mile
RPA	-	Reasonable and Prudent Alternative
SHPO	-	State Historic Preservation Officers
SR	-	Steady Release
System	-	Missouri River Mainstem System
tern	-	interior least tern
T&E	-	Threatened and Endangered
THPO	-	Tribal Historic Preservation Officers
USFWS	-	United States Fish and Wildlife Service
WY	-	water year
yr	-	year

DEFINITION OF TERMS

Acre-foot (AF, ac-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or 325,850 gallons.

Cubic foot per second (cfs) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute. The volume of water represented by a flow of 1 cubic foot per second for 24 hours is equivalent to 86,400 cubic feet, approximately 1.983 acre-feet, or 646,272 gallons.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontributing areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by drainage system, which consists of a surface stream or body of impounded surface water together with all tributary surface streams and bodies of impounded water.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Runoff in inches shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

MISSOURI RIVER MAINSTEM RESERVOIR SYSTEM

Annual Operating Plan
2013 – 2014

I. FOREWORD

This Annual Operating Plan (AOP) presents pertinent information and plans for regulating the Missouri River Mainstem Reservoir System (System) through December 2014 under widely varying water supply conditions. It provides a framework for the development of detailed monthly, weekly, and daily regulation schedules for the System's six individual projects during the coming year to serve the Congressionally authorized project purposes; to fulfill the Corps' responsibilities to Native American Tribes; and to comply with environmental laws, including the Endangered Species Act (ESA). Regulation of the System is directed by the Missouri River Basin Water Management Division, Northwestern Division, U. S. Army Corps of Engineers (Corps) located in Omaha, Nebraska. A map of the Missouri River basin is shown on ***Plate 1*** and the summary of engineering data for the six individual mainstem projects and System is shown on ***Plate 2***.

It is important to note that the AOP is not intended to be a forecast for the coming year; rather it examines a range of potential runoff scenarios which span 80 percent of the historic record. There is still a 10 percent chance that runoff will be higher than shown in the AOP and a 10 percent chance that it will be lower. The studies included in the AOP provide an array of reservoir levels and releases that may be expected under the various runoff scenarios. Actual real-time regulation of the System is done using the best information and tools available and is adjusted to respond to changing conditions on the ground. As the runoff season unfolds, there is a possibility that real-time regulation plans will indicate runoff volumes, reservoir levels and releases outside those anticipated in this report. Should that occur, the Corps will appreciably increase its communication and outreach efforts to convey that information to stakeholders throughout the basin so that other Federal, state and local agencies, Tribes, communities, and local residents can take appropriate actions.

This plan may require adjustments such as when substantial departures from expected runoff occur; to meet emergencies including short-term intrasystem adjustments to protect human health and safety, to maintain minimum river or reservoir levels to keep intakes operational during periods of extended drought, and to prevent loss of historic and cultural properties; or to meet the provisions of applicable laws, including the ESA. These adjustments would be made to the extent possible after evaluating impacts to all System uses, would generally be short-term in nature and would continue only until the issue is resolved.

This document provides the plan for future regulation of the System. Other documents that may be of interest include the "System Description and Regulation" report dated November 2007 or the "Summary of Actual 2012 Regulation," dated June 2013. Both reports are currently available at the "Reports and Publications" link on our website at: **www.nwd-mr.usace.army.mil/rcc**, or you may contact the Missouri River Basin Water Management Division at 1616 Capitol Avenue, Suite 365, Omaha, Nebraska 68102-4909, phone (402) 996-3841 for copies. The "Summary of Actual 2013 Regulation" will be available at the same site in late spring or early summer of 2014.

II. BACKGROUND AND AOP PROCESS

Beginning in 1953, projected System reservoir regulation for the year ahead was developed annually as a basis for advance coordination with the various interested Federal, State, and local agencies and private citizens. Also beginning in 1953, a coordinating committee was organized to make recommendations on each upcoming year's System regulation. The Coordinating Committee on Missouri River Mainstem Reservoir Operations held meetings semiannually until 1981 and provided recommendations to the Corps. In 1982, the Committee was dissolved because it did not conform to the provisions of the Federal Advisory Committee Act. Since 1982, to continue providing a forum for public participation, one or more open public meetings are held semiannually in the spring and fall. The fall public meetings are conducted to take public input on the Draft AOP, which typically is published in mid-September each year. The spring meetings are conducted to update the public on the current hydrologic conditions and projected System regulation for the remainder of the year as it relates to implementing the Final AOP.

Under the terms of Stipulation 18 of the March 2004 "Programmatic Agreement for the Operation and Management of the Missouri River Main Stem System for Compliance with the National Historic Preservation Act, as amended" (PA) the Corps has agreed to consult/meet with the affected Tribes and Tribal Historic Preservation Officers (THPOs), State Historic Preservation Officers (SHPOs), the Advisory Council on Historic Preservation (ACHP) and other parties on the Draft AOP. The purpose of this consultation/meeting is to determine whether operational changes are likely to cause changes to the nature, location or severity of adverse effects to historic properties or to the types of historic properties affected and whether amendments to the Corps Cultural Resources Management Plans and Five-Year Plan are warranted in order to better address such effects to historic properties. During 2006 the Corps worked with the affected Tribes to establish processes for consultation on AOPs under 36 CFR Part 800, the PA, and Executive Order 13175. The process consists of a series of informational meetings with the Tribes and/or government-to-government consultation with Tribes, as requested. A letter dated September 17, 2013 was sent to

the Tribes offering consultation on the 2013-2014 AOP. Meeting times and locations of the five fall public meetings were also provided. Separate meetings will be scheduled for all Tribes requesting government-to-government consultation. All tribes, whether signatory to the PA or not, may request government-to-government consultation on this and all future AOPs. In addition, the Tribes have reserved water rights to the Missouri River and its major tributaries. In no way does this AOP attempt to define, regulate or quantify water rights or any other rights that the Tribes are entitled to by law or treaty.

The 2013 spring public meetings were held at the following locations and dates: April 8 at Nebraska City, Nebraska; April 9 at Fort Peck, Montana and Bismarck, North Dakota; and April 11 at Smithville, Missouri. The meeting scheduled at Pierre, South Dakota was canceled due to inclement weather. The attendees were given an update regarding the outlook for 2013 runoff and projected System regulation for the remainder of 2013. Five fall public meetings on the Draft 2013-2014 AOP were planned at the following locations: October 8 in Kansas City, Missouri and Nebraska City, Nebraska; October 9 in Fort Peck, Montana; and October 10 in Bismarck, North Dakota and Pierre, South Dakota. The meetings were canceled due to a lapse in Federal appropriations. A conference call was held October 28 to discuss plans for regulating the System in 2014, to take comments and answer questions. In the spring of 2014, public meetings will be held to discuss the basin's hydrologic conditions and the effects those conditions are expected to have on the implementation of the Final 2013-2014 AOP.

III. MAINSTEM MASTER MANUAL AND ESA CONSULTATIONS

The System is comprised of six dam and reservoir projects authorized by the Rivers and Harbors Act of 1935 and the Flood Control Act of 1944. Section 9 of the 1944 Flood Control Act authorized the System to be operated for the purposes of flood control, navigation, irrigation, hydropower, water supply, water quality control, recreation and fish and wildlife. In addition, operation of the System must also comply with other applicable Federal statutory and regulatory requirements, including the ESA. The System is regulated using guidelines published in the Master Manual. The Master Manual presents the water control plan and operational objectives for the integrated regulation of the System. Annual water management plans (Annual Operating Plans) are prepared each year, based on the water control criteria contained in the Master Manual, in order to describe potential reservoir regulation of the System for the current operating year under a variety of runoff conditions.

First published in 1960 and subsequently revised during the 1970s, the Master Manual was revised in March 2004 to include more stringent drought conservation measures. A 2000 Biological Opinion issued by the U. S. Fish and Wildlife Service (USFWS) while revising the Master Manual concluded that the operation and regulation

of the System would jeopardize the continued existence of three endangered or threatened species: the pallid sturgeon, the interior least tern and the piping plover. In 2003 the USFWS amended the BiOp (2003 Amended BiOp) and provided a Reasonable and Prudent Alternative (RPA) to avoid jeopardy to the endangered pallid sturgeon that included a provision for the Corps to develop a plan to implement a bimodal spring pulse from Gavins Point Dam. Working with the USFWS, Tribes, states and basin stakeholders, the Corps developed technical criteria for the bimodal spring pulse releases. In March 2006 the Master Manual was revised to include technical criteria for a spring pulse. Neither the 2004 Master Manual, nor the 2006 revisions to the Master Manual, changed the volume of storage in the system reserved for flood risk reduction or the manner in which it is regulated. The Corps does not store water in the reservoirs specifically for the endangered species and the Master Manual storage allocations were not altered to facilitate the spring pulses. In years when water is released for endangered species reservoir storage levels are not adjusted.

Current regulation of the System in accordance with the Master Manual to serve authorized project purposes is dependent on successful implementation of the 2003 Amended BiOp. Implementation of the RPA elements is accomplished through the Missouri River Recovery Program (MRRP) which includes the following elements: habitat construction including emergent sandbar habitat and shallow water habitat, flow modifications, propagation/hatchery support, research, monitoring and evaluation, and adaptive management. Simply put, the Corps must comply with environmental laws including the ESA, and the MRRP is the vehicle used to accomplish this. This AOP identifies flow modifications at Garrison, Fort Randall and Gavins Point for the benefit of the endangered interior least tern (tern) and the threatened piping plover (plover) while maintaining flood control and navigation as primary authorized purposes.

On November 30, 2011 the Missouri River Recovery Program Independent Science Advisory Panel (ISAP) released its Final Report on Spring Pulses and Adaptive Management. This report, commissioned by the Missouri River Recovery Implementation Committee (MRRIC), evaluated the Gavins Point spring pulses that have been implemented to date in regards to the biological outcomes the USFWS sought in the 2003 Amended BiOp. The ISAP concluded that spring pulses as currently implemented are not accomplishing their intended outcomes and provided recommendations towards achieving a new management paradigm for the Missouri River.

Based on this report, the Corps and USFWS, in coordination with MRRIC, have been aggressively pursuing completing the recommendations laid out by the ISAP. At the center of this effort is the development of a Missouri River Recovery Management Plan/EIS that will establish an overarching Adaptive Management process for implementation of the 2003 Amended BiOp. Accordingly, while this plan is being

developed, the agencies believe it is prudent to forego a spring pulse during the 2014 Missouri River operating season and that this suspension is not likely to have an adverse effect on the listed species.

Additional information on other efforts undertaken through the MRRP to meet the requirements of the 2003 Amended BiOp can be found in the Annual Report on the Biological Opinion which can be found on the "MRRP Documents" page of the Recovery Program website at: www.moriverrecovery.org. The ISAP report is also available at this website.

IV. ON-GOING COORDINATION, STUDIES AND REPORTS

As committed to following the 2011 Flood, the Corps communicated more broadly and frequently in 2013 holding monthly conference calls from January to July with Federal, state, county and local officials, Tribes, emergency management officials, independent experts and the media to discuss conditions on the ground and the current release plans and forecasts. Recordings of the conference calls were made available to the public through the Corps' website. Outreach calls will be re-initiated in January 2014 or as needed if basin and/or weather conditions change dramatically.

The Corps continues to update a number of technical reports used in the regulation of the reservoir system. The "Runoff Volumes for Annual Operating Plan Studies" and "Hydrologic Statistics" reports have been completed and are posted on the Corps' website. Additional reports include incremental runoff below the System and long-term runoff forecasting, which includes an analysis of the relationship of hydrologic factors as they relate to plains snowmelt, and incremental runoff below the System. The Corps continues to collaborate with other Federal, state and local agencies and our field offices to improve runoff forecasts, particularly as it relates to plains snowpack. This will require a collaborative effort to improve both data collection (i.e. plains snowpack water equivalent, soil moisture and frost depth) and hydrologic modeling. A proposal for the Missouri River basin plains snow and basin condition network was prepared by subject matter experts from various Federal and State agencies. This proposal outlined timelines, costs, and agency responsibilities. The Water Management office continues to participate in a variety of regional and national climate change teams. The National Oceanic and Atmospheric Administration (NOAA) is also collaborating with the Corps and other agencies on a two-part study. The first part is a climate attribution effort focusing on the 2011 event. The second part is an assessment of the skill and reliability of predictions of seasonal climate and the ability to predict rapid transitions of cycles from wet to dry and dry to wet. Results of these studies are expected in early 2014.

The System reservoirs are surveyed periodically (10- to 25-year intervals) to update reservoir capacities and to assess aggradation and degradation trends. The

frequency of reservoir surveys was established based on historic data and reservoir size. Intervening resurveys may be conducted when conditions dictate. High flood events are the most likely causes for these additional surveys. Following the 2011 Flood, Garrison, Oahe, Big Bend, Fort Randall and Gavins Point reservoirs were surveyed. Reservoir capacity (elevation-storage) tables were updated for Garrison, Oahe, Fort Randall and Gavins Point on August 1, 2013. Updated survey data for Big Bend will likely be completed in the spring of 2014. Adjustments to the System storage zones were made due to the changed reservoir storages. Total System storage was reduced from 73.1 MAF to 72.4 MAF, the base of the Exclusive Flood Control Zone was reduced from 68.4 MAF to 67.7 MAF, the base of the Annual Flood Control and Multiple Use Zone was reduced from 56.8 MAF to 56.1 MAF, and the Permanent Pool was lowered from 17.9 MAF to 17.6 MAF. Overall flood storage of 16.3 MAF remained the same (11.6 MAF in the Annual Flood Control and Multiple Use Zone and 4.7 MAF in the Exclusive Flood Control Zone).

V. FUTURE RUNOFF: AUGUST 2013 - DECEMBER 2014

Runoff into the six System reservoirs is typically low and relatively stable during the August-February period. The August 1 calendar year runoff forecast is used as input to the basic reservoir regulation simulation (Basic) in the AOP studies for the period August 2013 to February 2014. The August 1 runoff forecast for 2013 was 22.7 million acre-feet (MAF). Two other runoff scenarios based on the August 1 runoff forecast were developed for the same period. These are the Upper Basic and Lower Basic simulations, which are based on 120 percent and 80 percent of the August through February runoff forecast, respectively.

Simulations for the March 1, 2014 to February 28, 2015 time period use five statistically derived runoff scenarios based on an analysis of historic water supply. Runoff scenarios were updated for last year's AOP to include 5 additional years of runoff data that now extends from 1898 to 2011. The report detailing the development of these updated runoff scenarios was completed in August 2013. The updated analysis added two runoff scenarios, one each at the upper and lower end, to span 96 percent of the historic record. Using statistically derived runoff scenarios for the AOP provides a good range of simulation for dry, average, and wet conditions, and eliminates the need to forecast future precipitation months in advance, which is very difficult. In contrast, real-time regulation of the System is based on all available and relevant hydrometerological information including, but not limited to observed runoff volumes, National Weather Service short and long-range outlooks, plains and mountain snow water equivalent data, observed base flows, soil moisture and frost depths.

The five statistically derived runoffs used in the AOP are identified as the Upper Decile, Upper Quartile, Median, Lower Quartile and Lower Decile runoff conditions. Upper Decile runoff (34.5 MAF) has a 1 in 10 chance of being exceeded, Upper Quartile

runoff (30.6 MAF) has a 1 in 4 chance of being exceeded, and Median runoff (24.6 MAF) has a 1 in 2 chance of being exceeded. Lower Quartile runoff (19.3 MAF) has a 1 in 4 chance of the occurrence of less runoff, and Lower Decile runoff (16.1 MAF) has a 1 in 10 chance of the occurrence of less runoff. There is still a 20 percent chance that a runoff condition may occur that has not been simulated; i.e., a 10 percent chance runoff could be lower than Lower Decile and a 10 percent chance runoff could be greater than Upper Decile.

Two additional runoff volumes included in the updated "Runoff Volumes for Annual Operating Plan Studies" report are the 2 percent and 98 percent exceedance levels. Annual runoff at the 2 percent exceedance (40.1 MAF) has a 1 in 50 chance of being exceeded; the 98 percent exceedance (11.4 MAF) has a 1 in 50 chance of the occurrence of less runoff. Although these runoff volumes were not included as scenarios in this year's AOP, additional monthly studies could be performed based on these runoff volumes as the 2014 runoff season unfolds should the runoff forecast exceed the upper decile runoff scenario or be lower than the lower decile runoff.

The Upper Decile and Upper Quartile simulations extend from the end of the Upper Basic simulation through February 2015. Likewise, the Median simulation extends from the end of the Basic simulation, and the Lower Quartile and Lower Decile simulations extend from the end of the Lower Basic simulation through February 2015.

The estimated natural flow at Sioux City, the corresponding post-1949 water use effects, and the net flow available above Sioux City are shown in ***Table I,*** where water supply conditions are quantified for the period August 2013 through February 2015. The natural water supply for calendar year (CY) 2012 totaled 19.5 MAF.

TABLE I
NATURAL AND NET RUNOFF AT SIOUX CITY
(Volumes in 1,000 Acre-Feet)

	Natural 1/	Post-1949 Depletions	Net 2/
August 2013 through February 2014 (Basic Runoff Scenario)			
Basic	6,300	800	7,100
Upper Basic (120%)	7,600	800	8,400
Lower Basic (80%)	5,100	300	5,400
Runoff Year March 2014 through February 2015 (Statistical Analysis of Past Records)			
Upper Decile	34,500	-2,900	31,600
Upper Quartile	30,600	-2,800	27,800
Median	24,600	-2,800	21,800
Lower Quartile	19,300	-3,000	16,300
Lower Decile	16,100	-2,800	13,300

1/ The word "Natural" is used to designate runoff adjusted to the 1949 level of basin development, except that regulation and evaporation effects of the Fort Peck reservoir have also been eliminated during its period of regulation prior to 1949.

2/ The word "Net" represents the total runoff after deduction of the post-1949 irrigation, upstream storage, and other use effects.

VI. ANNUAL OPERATING PLAN FOR 2013-2014

A. General. The anticipated regulation described in this AOP is designed to meet the regulation objectives presented in the current Master Manual. While some aspects of System and individual project regulation are clearly defined by technical criteria in the Master Manual, for example navigation service level and season length, others such as minimum releases for irrigation and water supply in the reaches between the reservoirs are based on regulation experience and may be adjusted as needed to respond to changing conditions. Consideration has been given to all of the authorized project purposes, to historic and cultural resources and to the needs of threatened and endangered (T&E) species. The "System Description and Regulation" report provides a concise summary of the primary aspects of System regulation and should be referred to for further information. For ease of use, a summary of the frequently used technical criteria included in the Master Manual is presented on ***Plate 3.***

The plan relies on a wealth of regulation experience. Reservoir regulation experience available for preparation of the 2013-2014 AOP includes 13 years of regulation at Fort Peck (1940) as the sole Mainstem project, plus 60 years of System

experience as Fort Randall (1953), Garrison (1955), Gavins Point (1955), Oahe (1962), and Big Bend (1964) were brought progressively into System regulation. This regulation experience includes lessons learned during two major droughts of six and eight years (1987-1992 and 2000–2007) that have occurred since the System filled in 1967. It also includes the high runoff period 1993–1999 during which five of the seven years experienced runoff greater than Upper Quartile including the previous record runoff of 49.0 MAF in 1997, and the record runoff of 61.0 MAF in 2011. In addition to the long period of actual System reservoir regulation experience, many background regulation studies for the completed System are available for reference.

B. 2013-2014 AOP Simulations. Reservoir simulations for the Upper Basic, Basic, and Lower Basic runoff scenarios, which span the period of August 2013 through February 2014, are shown in the final section of this AOP as studies 1 through 3. AOP simulations for the five statistically derived runoff scenarios, which span the period of March 2014 through February 2015, are shown in the final section of this AOP as studies 4 through 8. As previously stated, the simulations use five statistically derived runoff scenarios and reflect 80 percent of the historic annual runoff volumes (between Upper Decile and Lower Decile). The simulations provide information for planning purposes on a range of future reservoir levels and release rates, and are not meant to represent a particular forecast. The simulations shown use a monthly time-step, and thus do not provide the level of detail necessary to address specific flood control regulations. Detailed routing of specific flood flows is accomplished using daily and hourly time-step forecast models which incorporate real-time information including observed and forecasted precipitation, and these situations are handled individually during real-time regulation.

The AOP studies, in summary, provide the following: the full flood control capacity of the reservoir system will be available at the start of the runoff season, as well as additional space in the Carryover Multiple Use Zone; use of the Exclusive Flood Control Zone is not anticipated under any of the five runoff scenarios covered in the AOP; reduced navigation flow support under all runoff scenarios to start the navigation season; full service flow support under Upper Quartile and Upper Decile runoff scenarios after the July 1 System storage check and reduced flow support for Median runoff and below; a full length navigation season for Median runoff and above; minimum winter releases for Median and lower runoff, and above normal winter releases for Upper Decile and Upper Quartile runoff; a steady release-flow to target regulation during the tern and plover nesting season for Upper Quartile and below runoff and nearly steady releases for Upper Decile runoff with flood water evacuation; emphasis on Garrison for a steady to rising reservoir level during the forage fish spawn; and reservoir releases and pool levels sufficient to keep all intakes operational under all runoff scenarios. Water conservation measures may be implemented if runoff conditions indicate that it would be appropriate including cycling releases from Gavins Point during the early part of the nesting season, only supporting flow targets in

reaches being used by commercial navigation, and utilization of the Kansas River projects authorized for Missouri River navigation flow support. Additional details about the studies are provided in the following paragraphs. Results of the simulations are shown in ***Plate 4*** and ***Plate 5*** for the System storage and the Fort Peck, Garrison and Oahe pool elevations.

Under all runoff scenarios modeled for the AOP, the full flood control capacity of the System is available at the start of the 2014 runoff season. In addition, due to the dry conditions in 2012 and near normal runoff in 2013 System storage will begin the runoff season below the base of the Annual Flood Control and Multiple Use Zone. Although the March 1 and May 1 System storage is above the Gavins Point spring pulse precludes of 40.0 MAF, as discussed in Chapter III, spring pulses will not be conducted in 2014. The Corps will continue to work closely with the USFWS to ensure the AOP will meet the intent of the 2003 Amended BiOp and comply with the ESA.

The March 15 and July 1 System storage checks were used to determine the level of flow support for navigation and other downstream purposes as well as the navigation season length in 2014. Median runoff starts the season slightly above minimum service and increases to slightly below full service based on the July 1 System storage check (see ***Plate 3***). Upper Quartile and Upper Decile runoff conditions start the season at an intermediate service level and increase to full service or higher after the July 1 System storage check. Minimum service levels are provided for Lower Quartile and Lower Decile throughout the navigation season. Application of the July 1 System storage check indicated that a full length navigation season would be provided for the Median runoff condition. The upper two runoff scenarios provide a 10-day extension to the navigation season, while Lower Quartile runoff contains a 9-day shortening to the navigation season and Lower Decile runoff contains a 17-day shortening. Upper Quartile and Upper Decile simulations reach the desired 56.1 MAF System storage level on March 1, 2014. Storage is below the base of the Annual Flood Control and Multiple Use Zone for Median and lower runoff conditions.

For modeling purposes in this AOP, the Steady Release – Flow-to-Target (SR-FTT) regulation scenario for Gavins Point is shown during the 2014 tern and plover nesting season for Upper Quartile and lower runoff conditions. For these simulations, the monthly average May release used in the simulations was determined by using the long-term average release (see ***Plate 3***) based on the service level for the first third of the month, followed by cycling between the May and July table values for the remainder of the month to reflect an every third day peaking cycle from Gavins Point. The modeled June release was set equal to the long-term average release for July (see ***Plate 3***) based on the service level for the first half of the navigation season. The long-term average releases (see ***Plate 3***) were used for July and August to indicate flowing to target. The Upper Decile runoff simulations follow the Master Manual, with much above normal runoff requiring release increases mid-year to evacuate flood water from

the reservoirs. Although these modeled Gavins Point releases represent our best estimate of required releases during 2014, actual releases will be based on hydrologic conditions and the availability of habitat at that time. To the extent reasonably possible, measures to minimize incidental take of the protected species will be utilized. These may include not meeting flow targets in reaches without commercial navigation and utilizing the Kansas River tributary reservoirs for navigation flow support when appropriate. It may also be necessary to cycle releases for flood control regulation during the T&E species' nesting season.

The long-term average Gavins Point releases to meet target flows were used in the AOP studies for navigation support during the spring and fall months with the exception of Upper Decile. Under this runoff scenario, releases were based on flood water evacuation. Based on the September 1 storage checks and flood evacuation criteria, modeled Gavins Point winter releases were 12,500 cfs during the 2013-2014 winter season and from 12,500 cfs to 20,000 cfs during the 2014-2015 winter season depending on the runoff scenario. Gavins Point releases will be increased to meet downstream water supply requirements in critical reaches, to the extent reasonably possible, if downstream incremental runoff is low.

The Gavins Point releases shown in this and previous AOPs are estimates based on historic averages and experience. Adjustments are made as necessary in real-time based on hydrologic conditions.

Intrasystem releases are adjusted to best serve the multiple purposes of the projects with special emphasis placed on regulation for non-listed fisheries starting in early April and for T&E bird species beginning in early May and continuing through August. As part of the overall plan to rotate emphasis among the upper three reservoirs during low runoff years, Garrison is scheduled to be favored during the 2014 forage fish spawn while also attempting to maintain rising water levels at Fort Peck and Oahe. The Median, Upper Quartile, and Upper Decile simulations show that it is possible to provide steady-to-rising pool levels in each of the three large upper reservoirs during the spring forage fish spawn period. Releases in the Lower Quartile and Lower Decile simulations are adjusted to maintain steady-to-rising pool levels at Garrison. The Lower Quartile simulation shows the Fort Peck pool dropping slightly in April and the Lower Decile simulation shows Fort Peck dropping in April and Oahe dropping during April and May.

Intrasystem releases are also adjusted so that the upper three reservoirs are shown in a balanced condition each year on March 1, the approximate start of the runoff season. This balancing is computed based on the percent of storage in the respective Carryover Multiple Use Zone.

Actual System regulation from January 1 through July 31, 2013 and the simulated regulating plans for each project through CY 2014 using the five runoff scenarios described on Page 4 are presented on ***Plate 6*** through ***Plate 11***, inclusive. Big Bend regulation is omitted since storage at that project is relatively constant and average monthly releases are essentially the same as those at Oahe. These plates also show, on a condensed scale, actual regulation since 1953.

Plate 12 illustrates for Fort Peck, Garrison, Oahe, and Gavins Point the actual releases (Regulated Flow) as well as the Missouri River flows that would have resulted if the reservoirs were not in place (Unregulated Flow) during the period January 2012 through July 2013. ***Plate 13*** presents past and simulated gross average monthly power generation and gross peaking capability for the System.

C. Actual Regulation for the Balance of the 2013 Navigation Season and Fall of 2013. The actual regulation of the System for the period of August though November 2013 is presented in the following paragraphs.

Fort Peck. Releases averaged about 8,000 cfs through mid-September and were then lowered to 5,000 cfs as irrigation ceased. Releases were held near that level through the end of November. The Fort Peck pool slowly receded through early October and then remained fairly steady through the end of November, ending the month at 2223.6 feet msl or 2.6 feet below the August 1 elevation of 2226.2 feet msl.

Garrison. The threatened least terns and endangered piping plovers were fledged by August 22 on the reach downstream of Garrison and peaking restrictions were discontinued at that time. Releases were maintained at 19,000 cfs through mid-September when they were decreased to 13,000 cfs. Releases were held steady until near the end of November when they were increased to 14,000 cfs in preparation of the Missouri River freeze in at Bismarck. The Garrison pool steadily dropped through early October when an increase in runoff caused the pool to climb about half a foot. The pool remained nearly level through mid-November before starting to drop again. Garrison ended the month of November at 1834.0 feet msl or 2.1 feet below the August 1 elevation of 1836.1 feet msl.

Oahe. The reservoir started the month of August at elevation 1602.6 feet msl. Releases averaged 24,200 cfs in August and 29,000 cfs in September in support of navigation. Releases were reduced in October and November to 15,200 and 18,300 cfs, respectively to accommodate the fall drawdown of the Fort Randall pool. The Oahe pool was steadily dropping through early October when high runoff in western North Dakota and South Dakota caused the reservoir to quickly climb about three feet and then hold steady through mid-November before starting to fall again. At the end of

November, the Oahe pool was at elevation 1601.0 feet msl or 1.6 feet below the August 1 elevation.

Big Bend. Releases generally parallel those from Oahe. Big Bend generally fluctuates between 1420.0 feet msl and 1421.0 feet msl for weekly cycling during high power load periods.

Fort Randall. Releases averaged 23,700 cfs in August, 30,300 cfs in September, and 25,800 cfs in October to back up the releases from Gavins Point. Releases were reduced when the navigation season ended in late November to the level required to back up Gavins Point winter releases. The fall pool drawdown of Fort Randall started after Labor Day in early September and was completed near the end of November.

Gavins Point. Releases were scheduled to support downstream intermediate service (3,000 cfs below full service based on the July 1 storage check) flows in reaches with scheduled commercial navigation throughout the 2013 navigation season. A full-length navigation season was provided in accordance with the technical criteria for the July 1 System storage check presented in the Master Manual. The closing dates for the commercial navigation season ranged from November 22 at Sioux City to December 1 at the mouth near St. Louis. Releases were reduced by approximately 3,000 cfs per day beginning on November 23, working toward a target winter release of 12,000 cfs. The final 3,000 cfs of release reductions were made in smaller increments and held constant over several days to ensure water intakes along the lower river remained operational. In addition, releases were increased for a short period during river ice formation in early December before returning to the planned reduction schedule. The Gavins Point pool level was raised 1.5 feet to elevation 1207.5 feet msl in September. The pool level will remain near that elevation during the fall and winter months.

D. Regulation Plan for Winter 2013-2014. The regulation of the System presented in the following paragraphs is based on the previously discussed AOP simulations. Actual real-time regulation of the System is adjusted to respond to changing conditions on the ground. The September 1 System storage check is used to determine the winter release rate from Gavins Point. A winter release of 12,000 cfs is scheduled if System storage is less than 55.0 MAF on September 1; 17,000 cfs is scheduled when System storage is above 58.0 MAF; and the release is prorated for System storages between 55.0 and 58.0 MAF. The planned winter System release for 2013-2014 is 12,000 cfs. The planned winter release rate may be less than is required for downstream water supply intakes without sufficient incremental tributary flows below the System, and therefore, releases may need to be set at levels higher than the winter release rate at times to ensure downstream water supply intakes are operable. Water supply is discussed in more detail in Chapter VII, Section B.

Fort Peck. Releases are expected to average 6,500 cfs in December and 7,000 cfs in January and February to serve winter power loads and to help balance System storage. The Fort Peck pool level is expected to hold fairly steady, increasing only about 0.4 foot from elevation 2223.4 feet msl at the end of November to near elevation 2223.8 feet msl by March 1, 10.2 feet below the base of its Annual Flood Control and Multiple Use Zone. The percent of carryover multiple purpose storage in the three large upper reservoirs is shown as balanced on March 1, 2014.

Garrison. Releases are scheduled to be 18,000 cfs in December increasing to 20,000 cfs for January and February to serve winter power loads and to better balance storage in the upper three reservoirs. Releases will be reduced, most likely in December, to prevent ice-induced flooding at the time of freeze-in and then gradually increased as river conditions permit. These temporary reductions in the releases may be scheduled to prevent exceedance of a 13-foot stage at the Missouri River at Bismarck streamgaging station. The Bismarck flood stage is 14.5 feet. Water Management staff will coordinate closely with other Federal, state and local agencies during periods of freeze-in and ice-out to reduce flood risk and ensure communities and local residents are aware of the rapidly changing conditions and are prepared to take appropriate actions. The Garrison pool level is expected to decline about 4.3 feet from elevation 1833.4 feet msl at the end of November to near elevation 1829.1 feet msl by March 1, 8.4 feet below the base of its Annual Flood Control and Multiple Use Zone.

Oahe. Releases for the winter season will provide backup for the Fort Randall and Gavins Point releases as well as refill the recapture space available in the Fort Randall reservoir consistent with anticipated winter power loads. Monthly average releases may vary substantially with fluctuations in power loads occasioned by weather conditions but, in general, are expected to average between 13,100 cfs and 16,000 cfs. Daily and hourly releases will vary widely to best meet power loads. Peak hourly releases, as well as daily energy generation, will be constrained to prevent urban flooding in the Pierre and Fort Pierre areas if severe ice conditions develop downstream of Oahe Dam. This potential reduction is coordinated with the Western Area Power Administration (Western). The Oahe pool level is expected to slowly increase from 1596.6 feet msl at the end of November to 1599.4 feet msl at the end of February as the storage of the upper three reservoirs are balanced. The Oahe pool will be 8.1 feet below the base of its Annual Flood Control and Multiple Use Zone at the beginning of March.

Big Bend. The Big Bend pool level will be maintained in the normal 1420.0 to 1421.0 feet msl range during the winter.

Fort Randall. Releases will average about 10,600 cfs during the winter season to support Gavins Point winter releases. The Fort Randall pool level is expected to rise from its fall drawdown elevation of near 1337.5 feet msl at the end of November to near elevation 1350.0 feet msl, the seasonal base of flood control, by March 1. However, if

the plains snowpack flood potential downstream of Oahe Dam is lower than normal, the Fort Randall pool level will be raised to near 1353.0 feet msl by March 1. It is likely that a pool level as high as 1355.0 feet msl could be reached by the end of March if spring runoff has commenced. The Fort Randall pool level above the White River delta near Chamberlain, South Dakota will remain at a higher elevation than the pool level below the delta from early October through December, due to the damming effect of this delta area.

Gavins Point. Gavins Point winter releases are discussed in the first paragraph of this section. The Gavins Point pool level will be near elevation 1207.5 feet msl until late February when it will be lowered to elevation 1206.0 feet msl to create additional capacity to store spring runoff.

System storage for all runoff conditions will range between 47.2 and 50.9 MAF by March 1, 2014, the approximate beginning of next year's runoff season. System storage at the base of the Annual Flood Control and Multiple Use Zone is 56.1 MAF.

E. Regulation During the 2014 Navigation Season. All five runoff scenarios modeled for this year's AOP follow the technical criteria presented in the current Master Manual for downstream flow support. Beginning in mid-March, Gavins Point releases will be gradually increased to provide navigation flow support at the mouth of the Missouri near St. Louis, Missouri by April 1, 2014, the normal navigation season opening date. The corresponding dates at upstream locations are Sioux City, March 23; Omaha, March 25; Nebraska City, March 26; and Kansas City, March 28. However, if during the 2014 navigation season there is no commercial navigation scheduled to use the upper reaches of the navigation channel, we will consider not providing navigation flow support in those reaches to conserve water in the System, reduce flood risk, and/or minimize incidental take of the protected species during the nesting season.

Navigation flow support for the 2014 season will be determined by actual System storage on March 15 and July 1. Runoff scenarios modeled indicate reductions below full service flow support at the start of the 2014 navigation season for Upper Decile and Upper Quartile runoffs of 2,500 and 2,700 cfs, respectively. With Median runoff, navigation flow support would be 4,800 cfs below full service. Lower Quartile and Lower Decile runoffs would result in minimum service (6,000 cfs below full service). Following the July 1 System storage check, full service would be provided for Upper Decile and Upper Quartile runoffs and Median runoff would provide flows 1,800 cfs below full service. The service level would be minimum service for both Lower Quartile and Lower Decile runoff. The normal 8-month navigation season is provided for the Median runoff scenario as shown in ***Table II***, with Lower Quartile indicating a 9-day shortening of the navigation season and Lower Decile runoff indicating a 17-day shortening of the navigation season. A 10-day extension to the navigation season is provided for the upper two runoff scenarios.

TABLE II
NAVIGATION SERVICE SUPPORT
FOR THE 2014 SEASON

	Runoff Scenario (MAF)	System Storage March 15 (MAF)	System Storage July 1 (MAF)	Flow Level Above or Below Full Service (cfs) Spring	Flow Level Above or Below Full Service (cfs) Summer/Fall	Season Shortening (Days)
U.D.	34.5	52.2	60.8	-2,500	+10,000	0*
U.Q.	30.6	52.0	59.0	-2,700	0	0*
Med.	24.6	50.1	55.0	-4,800	-1,800	0
L.Q.	19.3	47.8	50.1	-6,000	-6,000	9
L.D.	16.1	47.7	48.9	-6,000	-6,000	17

*Includes 10-day extension for Upper Quartile and Upper Decile.

As previously stated, the modeled regulation for the 2014 nesting season below Gavins Point is Steady Release – Flow-to-Target (SR-FTT). When the SR-FTT release scenario is used, the initial steady release will be based on hydrologic conditions, the availability of habitat at that time and the potential for navigation service level increases after the July 1 storage check. Dry conditions in 2012 required the initial steady release to be set near 30,000 cfs, while in 2013, which had more normal conditions, the initial steady release was 24,000 cfs. Model runs included in this AOP have a Gavins Point release peaking cycle of 2 days down and 1 day up during the last two-thirds of May to keep birds from nesting at low elevations. Gavins Point releases will be adjusted to meet downstream targets as tributary flows recede, but ideally the initial steady release will be sufficient to meet downstream targets until the majority of the birds have nested. The purpose of this regulation is to continue to meet the project purposes while minimizing the loss of nesting T&E species and conserving water in the upper three reservoirs, if required. Gavins Point releases for the Upper Decile runoff simulation are much above normal to evacuate flood water from the reservoirs. Releases from Garrison and Fort Randall will follow repetitive daily patterns from early May, at the beginning of the T&E species' nesting season, to the end of the nesting in late August. In addition to the intra-day pattern, Fort Randall releases may also be cycled with two days of lower releases and one day of higher releases during the early part of the nesting season to maintain release flexibility in that reach while minimizing the potential for take.

Gavins Point releases may be quite variable during the 2014 navigation season but are expected to range from 22,000 to 42,000 cfs under the five modeled runoff scenarios. Release reductions necessary to minimize downstream flooding are not reflected in the monthly averages shown in the simulations but will be implemented as conditions warrant. Reductions in System releases to integrate the use of downstream Missouri

River flow support from the designated Kansas River projects (Milford, Tuttle Creek and Perry) authorized to provide Missouri River navigation flow support have not been modeled since they are based on downstream hydrologic conditions. However, this storage will be utilized to the extent possible as a water conservation measure, or to minimize incidental take of protected species during the nesting season if conditions indicate it is prudent to do so. Simulated storages and releases for the System and individual reservoirs within the System are shown on ***Plate 6*** through ***Plate 11.*** Due to the dry conditions during 2012, additional storage space exists in the System to control flood inflows under all scenarios simulated for this AOP. As experienced in 2011, runoff above or below simulated levels can occur and result in releases beyond those modeled for the AOP. As previously stated, should that occur, the Corps will increase its efforts to convey that information throughout the basin so that state, Tribal, and local agencies, communities, and local residents can take appropriate action.

F. <u>Regulation Activities for T&E Species and Fish Propagation Enhancement.</u> The ability to provide steady-to-rising pool levels in the upper three reservoirs in low runoff years is very dependent on the volume, timing, and distribution of runoff. The reservoir regulation simulations presented in this AOP for the Upper Decile, Upper Quartile, and Median runoff scenarios show that steady-to-rising pool levels would occur during the spring fish spawn period for the upper three reservoirs. As part of the overall plan to rotate emphasis among the upper three reservoirs during low runoff years, Garrison is scheduled to be favored during the 2014 forage fish spawn if runoff is below the Median runoff scenario. The studies show that inflows are sufficient to maintain a steady to rising pool at Garrison from April through June for the Lower Quartile and Lower Decile runoff scenarios. This will be accomplished by setting releases at Fort Peck and Garrison at a level that would maintain a rising Garrison pool, but no less than the minimum required for downstream water supply requirements, including irrigation. These adjustments may be restricted when the terns and plovers begin nesting in May. Fort Peck pool levels drop slightly in April under both lower runoff scenarios. Oahe pool levels remain steady with the Lower Quartile runoff scenario, but decline during April and May with Lower Decile runoff. If drought conditions develop, emphasis during the fish spawn will be rotated among the upper three reservoirs and may also be adjusted to be opportunistic in regard to runoff potential. The upper three reservoirs will be managed to benefit forage fish to the extent reasonably possible, while continuing to serve the other Congressionally authorized project purposes.

<u>Fort Peck</u>. The repetitive daily pattern of releases from Fort Peck has not been implemented since the 2004 tern and plover nesting season. This adaptive management decision was made based on data collected during previous nesting seasons. In recent years, birds in this reach have nested on available high elevation habitat, and thus were not expected to be impacted by the potential range of releases from Fort Peck during the

summer. Releases during the 2014 nesting season will not be restricted by the repetitive daily pattern unless habitat conditions or nesting patterns warrant a change.

If high tributary flows enter the Missouri River below the project during the nesting season, hourly releases will generally be lowered to no less than 3,000 cfs in order to keep traditional riverine fish rearing areas continuously inundated, while helping to lower river stages at downstream nesting sites. In rare instances releases below 3,000 cfs may be scheduled for flood damage reduction. April releases are expected to be adequate for trout spawning below the project.

Maintaining a rising Fort Peck pool level will be dependent upon the daily inflow pattern to the reservoir. The reservoir rises in April and May for Median and above runoff scenarios, but declines in April under both lower runoff scenarios.

Garrison. As in previous years, releases from Garrison will follow a repetitive daily pattern during the T&E nesting season to limit peak stages below the project for nesting birds. Releases are scheduled to be 1,000 cfs lower in July and early August than the June releases to enhance conditions for the fledging of chicks. High elevation nesting habitat is expected to be abundant below Garrison Dam during the 2014 nesting season.

During 2014, cold-water habitat in Garrison should be adequate for all runoff scenarios. Cold-water habitat will continue to be monitored during the year and adjustments will be considered if conditions warrant.

A rising pool at Garrison during the fish spawn in April and May will be dependent upon the daily inflow pattern to the reservoir but appears possible for all runoff simulations.

Oahe. Releases in the spring and summer will back up those from Gavins Point. The pool level should be steady to rising in the spring during the fish spawn for all runoff scenarios except Lower Decile. Under the Lower Decile runoff scenario, the Oahe pool would decline 1.3 feet from the beginning of April to the end of May.

Fort Randall. To the extent reasonably possible, Fort Randall will be regulated to provide for a pool elevation near 1355.0 feet msl during the fish spawn period, provided water can be supplied from other reservoirs for downstream uses. The pool will not be drawn down below elevation 1337.5 feet msl in the fall to ensure adequate supply for water intakes. As a measure to minimize take while maintaining the flexibility to increase releases during the nesting season, hourly releases from Fort Randall will follow a repetitive daily pattern to limit peak stages below the project for nesting birds. Daily average flows may be increased every third day to preserve the capability of increasing releases later in the summer with little or no incidental take if drier

downstream conditions occur. If higher daily releases are required later in the nesting season, the daily peaking pattern may be adjusted, reduced or eliminated resulting in a steady release to avoid increased stages at downstream nesting sites. The need to utilize measures to minimize take may be lessened because of the large quantity of nesting habitat expected during the 2014 nesting season. Periods of zero release will be minimized to the extent reasonably possible during the nesting season given daily average releases, real-time hydrologic conditions, and System generating constraints as defined in coordination with Western.

Gavins Point. As detailed in Section III of this report, the bimodal spring pulse from Gavins Point for the benefit of the endangered pallid sturgeon will not be implemented under any runoff scenarios in 2014.

It is anticipated that sufficient habitat to provide for successful nesting will be available at elevations above the planned release rates for all runoff conditions. This expectation is based on experience from the previous record runoff in 1997 and from the high elevation habitat resulting from the record releases in 2011. Following the 1997 runoff, high elevation nesting habitat was readily available and used successfully by the birds. Flows from Gavins Point Dam may follow the flow-to-target (FTT) release scenario. This scenario limits releases from Gavins Point to those needed to meet downstream targets. The actual release scenario will be evaluated when birds begin nesting in early May. If monitoring determines that nests are likely to be initiated at a lower elevation which would be inundated later in the summer, a steady release-flow to target release scenario may be implemented. A full description of these release scenarios can be found in the Master Manual. Actual releases will be based on hydrologic conditions and the availability of habitat at that time.

All reasonable measures to minimize the loss of nesting T&E bird species will be used. While not anticipated because of the large quantity of high elevation habitat available, these measures include, but are not limited to, a relatively high initial steady release during the peak of nest initiation, the use of the three Kansas River basin reservoirs, moving nests to higher ground, and monitoring nest fledge dates to determine if delaying an increase a few days might allow threatened chicks to fledge. The location of navigation tows and river conditions at intakes would also be monitored to determine if an increase could be temporarily delayed without impact. Cycling releases every third day may be used to conserve water early in the nesting season if extremely dry conditions develop. In addition, cycling may be used during downstream flood control regulation.

The Gavins Point pool will be regulated near 1206.0 feet msl in the spring and early summer, with minor day-to-day variations due to incremental inflows between Fort Randall and Gavins Point resulting from rainfall runoff. Several factors can limit the ability to protect nests from inundation in the upper end of the Gavins Point pool.

First, because there are greater numbers of T&E bird species nesting below Gavins Point, regulation to minimize incidental take usually involves restricting Gavins Point releases, which means that the Gavins Point pool can fluctuate significantly due to increased runoff from rainfall events. Second, rainfall runoff between Fort Randall and Gavins Point can result in relatively rapid pool rises because the Gavins Point project has a smaller storage capacity than the other System reservoirs. And third, the regulation of Gavins Point for downstream flood control may necessitate immediate release reductions to reduce downstream damage. When combined, all these factors make it difficult, and sometimes impossible, to prevent inundation of nests in the upper end of the Gavins Point reservoir. However, because of the considerable quantity of habitat expected we do not anticipate a large number of nests being inundated. The pool will be increased to elevation 1207.5 feet msl late in August when it is determined that there are no terns or plovers nesting along the reservoir.

G. Regulation Activities for Historic and Cultural Properties. As acknowledged in the 2004 Programmatic Agreement (PA) for the Operation and Management of the Missouri River Main Stem System, wave action and fluctuation in the level of the reservoirs results in erosion along the banks of the reservoirs. The Corps will work with the Tribes utilizing 36 CFR Part 800 and the PA to address the exposure of historic and cultural sites. The objective of a programmatic agreement is to deal "…with the potential adverse effects of complex projects or multiple undertakings…" The PA objective was to collaboratively develop a preservation program that would avoid, minimize and/or mitigate adverse effects along the System reservoirs. All tribes, whether signatory to the PA or not, may request government-to-government consultation on the regulation of the System and the resulting effect on historic and cultural properties and other resources. As a result of the 2011 flood event, there were impacts to cultural resources. A gradual drawdown of reservoir levels was preferred to avoid or minimize further damage to cultural resource sites. To address impacts, the most effective and comprehensive strategy is a phased approach; site assessment/ Native American Graves Protection and Repatriation Act (NAGPRA) survey, increased law enforcement efforts, engineering design, rip rap repair, and new rip rap placement. Although condition assessments continue to be conducted for all sites affected by flooding, priority will be given to site assessments at occupation sites to determine impacts and check for any NAGPRA-related items. Increased law enforcement will be necessary to detect or prevent, and possibly prosecute individuals for Archeological Resources Protection Act (ARPA) violations. Engineers will need to collect data and prepare designs to repair existing rip rap and design protection for any sites that were newly impacted.

Pool levels at the upper three reservoirs will likely remain below normal in 2014 but will vary depending on runoff conditions. Continuing exposure of cultural sites along the shoreline is still possible. Actions to avoid, minimize or mitigate adverse

impacts and expected results of the actions are covered under Chapter VII of this AOP. ***Plate 16*** shows the locations of the Tribal Reservations.

Fort Peck. Depending on runoff in the Missouri River basin, System regulation during 2014 could result in a Fort Peck pool elevation variation from a high of 2238 feet msl to a low of 2213 feet msl. This is based on the Upper and Lower Decile runoff scenarios (see ***Plate 8*** and the studies included at the end of this report). Based on a review of existing information, approximately one known site could be affected during this period.

Garrison. Based on the Upper and Lower Decile runoff scenarios (see ***Plate 9*** and the studies included at the end of this report), Garrison pool elevations could range between 1844 and 1821 feet msl during 2014. Based on a review of existing information, approximately 72 known sites could be affected during this period.

Oahe. At the Oahe reservoir, the System regulation under the Upper and Lower Decile runoff scenarios could result in pool elevations ranging from 1614 to 1587 feet msl (see ***Plate 10*** and the studies included at the end of this report). Based on a review of existing information, approximately 204 known sites could be affected during this period.

Big Bend. System regulation will be adjusted to maintain the Big Bend pool level in the normal 1420 to 1421 feet msl range during 2014. Short-term increases above 1421 due to local rainfall may also occur. Based on a review of existing information, no known sites will be affected during this period.

Fort Randall. As part of the normal System regulation, the Fort Randall pool elevations will vary between 1350 and 1355 feet msl during the spring and summer of 2014. Short-term increases above 1355 feet msl due to local rainfall may occur. The annual fall drawdown of the reservoir to elevation 1337.5 feet msl will begin prior to the close of the navigation season and will be accomplished by early December. The reservoir will then be refilled during the winter to elevation 1350 feet msl. Based on a review of existing information, approximately 30 known sites could be affected during this period.

Gavins Point. System regulation will be adjusted to maintain the Gavins Point pool level in the normal 1206 to 1207.5 feet msl range during 2014. Short-term increases above 1207.5 feet msl may occur due to local rainfall. Based on a review of existing information, one known site could be affected during this period.

VII. SUMMARY OF RESULTS EXPECTED IN 2014

With regulation of the System in accordance with the 2013-2014 AOP outlined in the preceding pages, the following results can be expected. ***Table III*** summarizes the critical decision points throughout the year for all runoff conditions.

Table III
Summary of 2013-2014 AOP Studies

Decision Points	2014-2015 Runoff Condition				
	Upper Decile	**Upper Quartile**	**Median**	**Lower Quartile**	**Lower Decile**
March 1 System Storage March 23-31 GP Release	50.9 MAF 24.2 kcfs	50.9 MAF 24.0 kcfs	49.3 MAF 21.9 kcfs	47.2 MAF 23.8 kcfs	47.2 MAF 23.8 kcfs
March 15 System Storage Spring Service Level	52.2 MAF 2.5 kcfs blw full service	52.0 MAF 2.7 kcfs blw full service	50.1 MAF 4.8 kcfs blw full service	47.8 MAF minimum service	47.7 MAF minimum service
May 1 System Storage May Cycling May GP Release	55.3 MAF 25.5/29.1 kcfs 26.2 kcfs	54.5 MAF 25.3/28.9 kcfs 26.0 kcfs	51.3 MAF 23.2/26.8 kcfs 23.9 kcfs	48.0 MAF 25.3/28.3 kcfs 25.9 kcfs	47.7 MAF 25.3/28.3 kcfs 25.9 kcfs
Fish Spawn Rise (Apr-Jun) FTPK Pool Elev Change GARR Pool Elev Change OAHE Pool Elev Change	 +9.0 feet +9.0 feet +8.7 feet	 +8.3 feet +8.6 feet +5.8 feet	 +6.3 feet +6.8 feet +3.8 feet	 +4.3 feet +4.4 feet 0.0 feet	 +1.5 feet +4.3 feet -1.8 feet
July 1 System Storage Sum-Fall Service Level (kcfs) Nav Season Length	60.8 MAF Full Service 10-Day extension	59.0 MAF Full Service 10- Day extension	55.0 MAF 1.8 kcfs blw Full Service 0 Days shortening	50.1 MAF Minimum Service 9 Days shortening	48.9 MAF Minimum Service 17 Days shortening
September 1 System Storage Winter 2014-15 GP Release	60.3 MAF 20.0 kcfs	58.7 MAF 18.0 kcfs	53.9 MAF 12.5 kcfs	48.2 MAF 12.5 kcfs	46.1 MAF 12.5 kcfs
February 28 System Storage End-Year Pool Balance Percent Pool	56.1 MAF Balanced 100%	56.1 MAF Balanced 100%	51.4 MAF Balanced 87%	45.1 MAF Balanced 70%	42.8 MAF Balanced 64%

A. Flood Control. Flood control is the only authorized project purpose that requires the availability of empty storage space rather than impounded water. Actual flood events, especially those that are a result of rainfall runoff, are difficult to predict with much advance notice; therefore, detailed routing of specific major flood flows is accomplished when floods occur. There is a recurring pattern of high-risk flood periods during each year: a season when snowmelt, ice jams, and protracted heavy rains will almost surely occur with or without generating consequent floods; and a season when these situations are less likely and the flood threat is correspondingly low. The high-risk flood season begins about March 1 and extends through the summer. As a consequence, regulation of the System throughout the fall and winter months is predicated on the achievement of a March 1 System storage level at or below the base of the Annual Flood Control and Multiple Use Zone. Drought conditions throughout the basin during 2012 reduced runoff and lowered System storage and near normal runoff in 2013 resulted in only a partial recovery. As a result, all runoff scenarios studied for this AOP indicate that the March 1, 2014 System storage will be below the desired 56.1 MAF base of the Annual Flood Control and Multiple Use Zone. Therefore, additional flood control storage beyond the normal 16.3 MAF, (11.6 MAF in the Annual Flood Control and Multiple Use Zone and 4.7 MAF in Exclusive Flood Control Zone) will be available to store surplus runoff. The additional space available varies from 5.2 MAF in the Upper Decile runoff scenario to 8.9 MAF in Lower Decile runoff scenario.

To the extent practical, the System is regulated to prevent damaging flows in the river reaches between and below the Mainstem dams. In 2014, the full capacity of the System will be available to capture a significant volume of runoff originating from the upper basin and meter it out over an extended period of time at a rate that does not contribute to flooding in the river reaches between and below the reservoirs. Additionally, the reservoir system will have the capacity to reduce releases and hold back water during periods of high runoff below the System to reduce peak stages and discharges on the lower river. The ability to significantly reduce peak stages on the lower river diminishes at locations further downstream due to the large uncontrolled drainage area and travel time from the dam.

The base of the Exclusive Flood Control Zone defines the maximum level of storage that will be accumulated for purposes other than flood control. When the Exclusive Flood Control Zone at a particular reservoir is encroached upon, the control of subsequent flood inflows becomes the dominant factor. During such periods, releases may substantially exceed the powerplant release capacity with the evacuation rate of any project dependent upon existing flood conditions, the potential for further inflows, and conditions of other reservoirs in the System. Maximum release rates at such times are based upon the Master Manual flood control criteria, the flood control status of the System, and the critical need to preserve the integrity of the dams. Detailed information regarding the adjustments of releases for flood control evacuation

and downstream flood control constraints can be found in Chapter 7 of the Master Manual.

Due to release limitations imposed by the formation of downstream ice cover, a major portion of the required flood control space must be evacuated prior to the winter season. Higher releases may be made on occasions when the downstream channel conditions permit. If plains and/or mountain snowpack accumulations are much above normal during the winter of 2013-2014, and studies indicate that available storage in the Carryover Multiple Use Zone as well as the Annual Flood Control and Multiple Use Zone will be fully utilized, releases may be adjusted to the extent reasonably possible to evacuate water from the reservoir system early in the runoff season. High releases during the late winter and early spring periods may exacerbate localized flooding if coincident with plains snowmelt or spring rains, and may also contribute to significant ice jam flooding. Therefore, if higher than normal releases are indicated, local conditions will need to be closely monitored. In addition, all 2014 runoff that is stored in the flood control zones will be evacuated prior to the start of the 2015 runoff season.

B. <u>Water Supply and Water Quality Control</u>. Water supply problems at intakes located in the river reaches both between and below the Mainstem dams and in the reservoirs are related primarily to intake elevations or river access rather than inadequate water supply. In emergency situations, short-term adjustments to protect human health and safety would be considered to keep intakes operational.

Low reservoir levels during the 2000-2007 drought contributed to both intake access and water quality problems for intakes on Garrison and Oahe reservoirs, including several Tribal intakes. A return to higher reservoir elevations has eliminated concern over many of these intakes. If the drought conditions return, reservoir pool levels and releases may decline renewing the potential for intake access and water quality problems at both river and reservoir intakes. Under the Lower Decile runoff scenario, minimum reservoir levels in 2014 would be at least 15 feet higher than the record lows set in the 2000-2007 drought. Although not below the critical shut-down elevations for any intake, return to lower levels would require extra monitoring to ensure the continued operation of the intakes.

Winter releases are determined based on the September 1 System storage check. The winter season extends from December through February and flows are provided during this time to support the Congressionally authorized project purposes of hydropower production and downstream water supply and water quality. Per the Master Manual, if September 1 System storage is 55.0 MAF or less, the winter release from Gavins Point will be 12,000 cfs. Planned winter release rates of 12,000 cfs may be less than required for downstream water supply intakes without sufficient incremental tributary flows below the System. Should that occur, releases may need to be set higher to ensure that downstream water supply intakes are operable. In 2012-2013, winter

releases were set at 14,000 cfs rather than 12,000 cfs due to channel degradation and low incremental tributary flows below the System. Improved tributary flows in future winters would facilitate releases reaching the target level of 12,000 cfs. While the Master Manual indicates that the water control plan's purpose is to meet water supply requirements in river reaches downstream of the reservoirs to the extent reasonably possible, the Corps believes the minimum winter release of 12,000 cfs presented in the Master Manual represents a reasonable long-term goal for water intake operability and for owners to strive for as they make improvements to their facilities. A letter was sent to intake owners in the spring of 2013 informing them of the Master Manual criteria and encouraging them to take necessary action to ensure their intakes are able to operate at reduced release rates. Coordination with intake owners will continue prior to and during the low release periods. In addition, it may be necessary at times to temporarily increase Gavins Point releases to provide adequate downstream flows during periods when excessive river ice formation is forecast or if ice jams or blockages form which temporarily restrict flow. Based on past experiences, these events are expected to occur infrequently and be of short duration.

System storage was below 55.0 MAF on September 1, 2013, therefore monthly average releases of 12,500 cfs are shown on the simulations in the winter of 2013-2014. The additional 500 cfs reflects how the Corps, when conditions warrant, temporarily increases Gavins Point releases during extreme cold periods to inhibit the formation of ice jams in the lower river reach. As shown in ***Table III***, 2014-2015 winter releases of 20,000 cfs would be made for the Upper Decile runoff scenario, 18,000 cfs for Upper Quartile, and 12,500 cfs under Median, Lower Quartile and Lower Decile runoff scenarios.

During non-navigation open water periods in the spring and fall the Master Manual includes System releases as low as 9,000 cfs as a water conservation measure provided that enough downstream tributary flow exists to allow for continued operation of downstream water intakes. If a non-navigation year would occur in the future, summer releases (May through August) could average around 18,000 cfs from the System. However, it should be noted that System releases will be set at levels that meet the operational requirements of water intakes to the extent reasonably possible. Problems have occurred at several downstream intakes in the past, however in all cases the problems have been associated with access to the river or reservoir rather than insufficient water supply. In addition, the low summer release rate would likely result in higher water temperatures in the river, which could impact a powerplant's ability to meet their thermal discharge permits. Again, it should be noted that System releases will be set at levels that allow the downstream powerplant to meet their thermal discharge permit requirements to the extent reasonably possible. This may mean that actual System releases in the hottest part of the summer period may be set well above the 18,000 cfs level. The Corps continues to encourage intake operators between and below the mainstem dams to make necessary modifications to their intakes to allow

efficient operation over the widest possible range of hydrologic conditions. While the current level of System storage should allow adequate access for all intakes during the coming year, intake operators that have experienced difficulty with access during the past drought years should continue to make adjustments to improve access and flexibility when drought returns to the basin.

C. Irrigation. Scheduled releases from the System reservoirs will be sufficient to meet the volumes of flow required for irrigation diversions from the Missouri River. Some access problems may be experienced, however, if Lower Quartile or Lower Decile runoff conditions return. Below Fort Peck, localized dredging may once again be required in the vicinity of irrigation intakes in order to maintain access to the water if releases are low next summer. Intake access problems are the responsibility of the intake owner and the Corps will not guarantee access, only that the supply of water in the Missouri River is adequate to meet this project purpose. Tributary irrigation water usage is fully accounted for in the estimates of water supply.

D. Navigation. The anticipated service level and season length for all runoff conditions simulated are shown in ***Table III***. Service to navigation in 2014 from the beginning of the navigation season through the July 1 storage check for Upper Decile, Upper Quartile, and Median runoff scenarios will be at 2,500, 2,700 and 4,800 cfs below full service, respectively. After the July 1 storage check, Upper Decile and Upper Quartile scenarios indicate at least full service to navigation, with Median runoff 1,800 cfs below full service. Lower Quartile and Lower Decile indicate minimum service throughout the navigation season. In addition, the Upper Decile and Upper Quartile runoff scenarios indicate a 10-day extension to the navigation season based on the July 1 storage check. The Median runoff scenario indicates a full season while the Lower Quartile and Lower Decile runoff scenarios indicate a 9-day and 17-day shortening of the navigation season respectively. Although the AOP simulations provide a comparison of typical flow support under varying runoff conditions, the actual rate of flow support for the 2014 navigation season will be based on actual System storage on March 15 and July 1, 2014.

E. Power. ***Table IV and Table V*** indicate the estimated monthly System load requirements and hydropower supply of the Eastern Division, Pick-Sloan Missouri Basin Program (P-S MBP), from August 2013 through December 2014. Estimates of monthly peak demands and energy include customer requirements for firm, short-term firm, summer firm, peaking, and various other types of power sales, System losses, and the effects of diversity. Also included in the estimated requirements are deliveries of power to the Western Division, P-S MBP, to help meet its firm power commitments. Under the Median runoff scenario, annual generation in 2014 is estimated to be 8.1 million MWh, 86 percent of the 1967-2012 average.

TABLE IV
PEAKING CAPABILITY AND SALES
(1,000 kW at plant)

2013	Estimated Committed Sales*	Expected C of E Capability					Expected Bureau Capability**					Expected Total System Capability				
			120%	Basic	80%			120%	Basic	80%			120%	Basic	80%	
Aug	2199		2267	2263	2259			198	197	197			2465	2460	2456	
Sep	2008		2259	2253	2243			200	198	197			2459	2451	2440	
Oct	1876		2244	2236	2220			200	198	197			2444	2434	2417	
Nov	1984		2221	2211	2193			198	198	196			2419	2409	2389	
Dec	2115		2219	2205	2182			195	195	194			2414	2400	2376	
2014																
Jan	2128		2245	2228	2203			192	193	191			2437	2421	2394	
Feb	2113		2258	2239	2211			188	191	190			2446	2430	2401	
		U.D.	U.Q.	Med	L.Q.	L.D.	U.D.	U.Q.	Med	L.Q.	L.D.	U.D.	U.Q.	Med	L.Q.	L.D.
Mar	2046	2284	2278	2251	2214	2212	189	189	190	190	190	2473	2467	2441	2404	2402
Apr	1916	2312	2299	2260	2214	2210	182	182	190	190	190	2494	2481	2450	2404	2400
May	1877	2336	2317	2270	2217	2210	188	191	195	194	194	2524	2508	2465	2411	2404
Jun	2081	2370	2346	2301	2235	2221	198	198	200	197	197	2568	2544	2501	2432	2418
Jul	2196	2386	2362	2301	2228	2203	201	201	201	197	197	2587	2563	2502	2425	2400
Aug	2199	2371	2345	2283	2208	2180	199	200	200	197	196	2570	2545	2483	2405	2376
Sep	2010	2353	2336	2275	2203	2171	201	201	200	199	197	2554	2537	2475	2402	2368
Oct	1874	2332	2323	2257	2168	2133	200	200	200	200	199	2532	2523	2457	2368	2332
Nov	1983	2307	2301	2233	2150	2121	199	199	199	199	198	2506	2500	2432	2349	2319
Dec	2114	2252	2252	2189	2114	2085	196	196	196	196	195	2448	2448	2385	2310	2280

* Estimated sales, including system reserves. Power in addition to hydro production needed for these load requirements will be obtained from other power systems by interchange or purchase.
** Total output of Canyon Ferry and 1/2 of the output of Yellowtail powerplant.

TABLE V
ENERGY GENERATION AND SALES
(Million kWh at plant)

2013	Estimated Committed Sales*	Expected C of E Generation					Expected Bureau Generation **					Expected Total System Generation				
			120%	Basic	80%			120%	Basic	80%			120%	Basic	80%	
Aug	861		826	835	844			48	44	41			874	879	885	
Sep	736		770	803	797			46	41	39			816	844	836	
Oct	736		636	642	657			56	41	38			692	683	695	
Nov	803		552	558	552			62	39	37			614	597	589	
Dec	913		494	488	481			64	48	38			558	536	519	
2014																
Jan	926		556	546	543			63	47	38			619	593	581	
Feb	895		484	478	479			55	42	34			539	520	513	
		U.D.	U.Q.	Med	L.Q.	L.D.	U.D.	U.Q.	Med	L.Q.	L.D.	U.D.	U.Q.	Med	L.Q.	L.D.
Mar	812	553	566	523	550	557	62	62	47	38	38	615	628	570	588	595
Apr	767	611	615	604	645	649	107	107	51	34	34	718	722	655	679	683
May	715	779	743	704	774	762	127	117	72	37	37	906	860	776	811	799
Jun	778	900	858	781	800	792	138	136	96	39	39	1038	994	877	839	831
Jul	880	1127	973	916	866	850	121	104	73	41	41	1248	1077	989	907	891
Aug	860	1250	1018	951	864	848	97	90	71	41	40	1347	1108	1022	905	888
Sep	736	1112	904	830	694	687	86	82	68	43	40	1198	986	898	737	727
Oct	735	974	767	683	619	609	82	82	67	49	40	1056	849	750	668	649
Nov	803	964	753	602	423	375	78	79	73	50	45	1042	832	675	473	420
Dec	912	785	683	525	504	492	80	81	75	59	49	865	764	600	563	541
CY TOT		10095	8920	8143	7761	7643	1096	1057	783	502	476	11191	9977	8926	8263	8119

* Estimated sales including system reserves and losses. Power in addition to hydro production needed for these load requirements will be obtained from other systems by interchange or purchase.
** Total output Canyon Ferry and 1/2 output of Yellowtail powerplant.

F. Recreation, Fish and Wildlife. The regulation of the System will continue to provide recreation and fish and wildlife opportunities in the project areas and along the Missouri River as well as other benefits of a managed system. Recreation access is expected to be at slightly below normal levels in 2014. If Lower Quartile or Lower Decile runoff were to occur in 2014, boat ramps that were lowered and low water ramps that were constructed during the two recent drought periods will provide adequate reservoir access. Special regulation adjustments incorporating specific objectives for these purposes will be made to the extent reasonably possible. Overall conditions should be favorable for the many visitors who enjoy the camping, boating, fishing, hunting, swimming, picnicking, and other recreational activities associated with the System reservoirs.

The effects of the simulated System regulation during 2014 on fish and wildlife are included in Chapter VI, Section F, entitled, "Regulation Activities for T&E Species and Fish Propagation Enhancement."

G. Historic and Cultural Properties. As mentioned in Chapter VI of this AOP, the regulation of the System during 2013 and 2014 will expose cultural sites due to erosion from the normal fluctuation of pool elevations. The Corps will work with the Tribes utilizing 36 CFR Part 800 and the PA to address the exposure of these sites. The objective of a programmatic agreement is to deal "…with the potential adverse effects of complex projects or multiple undertakings…" The PA objective was to collaboratively develop a preservation program that would avoid, minimize and/or mitigate the adverse affects of the System operation. All tribes, whether signatory to the PA or not, may request government-to-government consultation on the regulation of the System and the resulting effect on historic and cultural properties and other resources.

The planned preservation program for this AOP is outlined by multiple stipulations in the PA. One of the stipulations, or program components, is the Five-Year Plan. This plan outlines how the Corps will accomplish its responsibilities under the PA and the National Historic Preservation Act. The "Cultural Resource Program Final Five Year Plan, dated February 2012" (see http://www.nwo.usace.army.mil/Missions/CivilWorks/CulturalResources.aspx) is currently being implemented. The plan includes inventory, testing and evaluation, mitigation and other specific activities that will allow the Corps to avoid, minimize and/or mitigate the adverse effects to cultural sites on Corps lands within the System. Many of the actions listed in the plan are within the elevation ranges that will occur with the implementation of the Master Manual criteria in 2013 and 2014. Two critical components of the Five-Year Plan that are applicable to this AOP are monitoring and mitigation, which will be briefly discussed in the following paragraphs.

First, a collaboratively developed plan, entitled "Draft Monitoring and Enforcement Plan, dated April 2005" (see http://www.nwo.usace.army.mil/Missions/CivilWorks/CulturalResources.aspx) is in place. This monitoring plan outlines the sites that require monitoring and specifies a frequency for monitoring. The Corps is strategically monitoring sites, including those sites within the potential operating pool elevations, to document the effects of the implementation of the 2013-2014 AOP. Specific sites are identified in the draft Monitoring and Enforcement Plan for the monitoring team, comprised of Corps rangers and Tribal monitors, to visit and document impacts. This focused monitoring is resulting in more accurate data on the current impacts to sites along the river plus it is assisting with the identification of sites for mitigation. The most recent training for the monitoring teams was held in July 2013.

Second, mitigation or protection of sites that are being adversely impacted continues. During the reporting period for the 2012 Annual Report by the Corps on the implementation of the Programmatic Agreement, 16 sites were either completed, started, or in the design phase. The annual report is available at http://www.nwo.usace.army.mil/Missions/CivilWorks/CulturalResources.aspx. In addition the Corps completed a contract to develop an erosion model that will compare modeling data against actual erosion data, collected by the monitoring team, to assist in the prioritization of sites for protection. Work on the erosion model was completed in June 2011.

Results expected from the proposed monitoring and mitigation actions include more accurate horizontal and vertical data on existing cultural sites, detailed impact data, proactive protection and preservation of sites. The effects of the simulated System regulation during 2013-2014 on cultural sites are included in the Chapter VI, section G., entitled, "Regulation Activities for Historic and Cultural Properties."

H. System Storage. If the August 1, 2013 Basic runoff forecast verifies, System storage will decline to 48.7 MAF by the end of 2013. This would be 14.8 MAF higher than the record low System storage of 33.9 MAF set on February 9, 2007 and 0.3 MAF higher than the 2012 end-of-year storage of 48.4 MAF. This end-of-year storage is 1.9 MAF less than the 1967-2012 average. The lowest storage during the 1988-1992 drought was 40.8 MAF in January 1991, and the record low storage was set during the 2000-2007 drought at 33.9 MAF in February 2007. The end-of-year System storages have ranged from a maximum of 60.9 MAF in 1975, to the 2006 minimum of 34.4 MAF. Forecasted System storage on December 31, 2014 is presented in ***Table VI*** for the runoff scenarios simulated.

TABLE VI
ANTICIPATED DECEMBER 31, 2014 SYSTEM STORAGE

Water Supply Condition	Total (12/31/14)	Carryover Storage Remaining 1/	Unfilled Carryover Storage 2/	Total Change CY 2013
	(Volumes in 1,000 Acre-Feet)			
Upper Decile	56,300	38,500	0	6,200
Upper Quartile	56,200	38,500	0	6,200
Median	51,100	33,500	5,000	2,300
Lower Quartile	45,100	27,500	11,000	-2,100
Lower Decile	42,900	25,300	13,200	-4,200

1/ Net usable storage above 17.6 MAF System minimum pool level established for power, recreation, irrigation diversions, and other purposes.

2/ System base of Annual Flood Control and Multiple Use Zone containing 56.1 MAF.

I. Summary of Water Use by Functions. Anticipated water use in CY 2013, under the regulation plan with the Basic forecast of water supply is shown in ***Table VII***. Under the reservoir regulation simulations in this AOP, estimated water use in CY 2014 also is shown in ***Table VII.*** Actual water use data for CY 2012 are included for information and comparison.

TABLE VII
MISSOURI RIVER MAINSTEM SYSTEM
WATER USE FOR CALENDAR YEARS 2012, 2013, AND 2014 ABOVE SIOUX CITY, IOWA
in Million Acre-Feet (MAF)

		CY 2012 Actual	CY 2013 Basic Simulation	Simulations for Calendar Year 2014 Upper Decile	Upper Quartile	Median	Lower Quartile	Lower Decile
Upstream Depletions	(1)							
Irrigation, Tributary Reservoir Evaporation & Other Uses		2.6	2.7					
Tributary Reservoir Storage Change		-0.2	-0.2					
Total Upstream Depletions		2.4	2.5	2.9	2.8	2.7	3.0	2.8
System Reservoir Evaporation	(2)	3.0	2.5	1.2	1.2	1.7	1.9	1.8
Sioux City Flows								
Navigation Season								
Unregulated Flood Inflows Between Gavins Point & Sioux City	(3)	0.0	0.0					
Navigation Service Requirement	(4)	16.7	12.9	16.5	16.5	14.5	13.0	12.2
Supplementary Releases								
T&E Species	(5)	1.0	0.6	0.3	0.3	0.3	0.2	0.2
Flood Evacuation	(6)	0.0	0.0	3.9	0.4	0.0	0.0	0.0
Non-navigation Season								
Flows		3.9	3.2	3.1	3.1	3.1	3.2	3.3
Flood Evacuation Releases	(7)	0.9	0.0	0.4	0.1	0.0	0.0	0.0
System Storage Change	(8)	-8.4	0.4	6.2	6.2	2.3	-2.0	-4.2
Total		19.5	22.7	34.5	30.6	24.6	19.3	16.1
Project Releases								
Fort Peck		7.2	5.6	6.6	6.6	5.3	5.3	5.4
Garrison		16.5	13.4	17.2	15.5	13.9	13.4	12.9
Oahe		19.8	13.4	17.7	15.3	14.6	14.4	14.4
Big Bend		18.3	12.9	17.7	15.2	14.5	14.3	14.2
Fort Randall		19.7	13.8	19.0	16.3	15.2	14.6	14.4
Gavins Point		21.3	15.1	21.1	18.2	16.6	15.7	15.5

(1) Tributary uses above the 1949 level of development including agricultural depletions and tributary storage effects.
(2) Net evaporation is shown for 2014.
(3) Incremental inflows to reach which exceed those usable in support of navigation at the target level, even if Gavins Point releases were held to as low as 6,000 cfs.
(4) Estimated requirement for downstream water supply and water quality is approximately 6.0 MAF.
(5) Increased releases required for endangered species regulation.
(6) Includes flood control releases for flood control storage evacuation and releases used to extend the navigation season beyond the normal December 1 closing date at the mouth of the Missouri River.
(7) Releases for flood control storage evacuation in excess of a 17,000 cfs Gavins Point release.
(8) Area capacity tables and system storage adjusted on August 1, 2013 as discussed in Chapter IV.

VIII. TENTATIVE PROJECTION OF REGULATION THROUGH FEBRUARY 2020

The 5-year extensions to the AOP (March 2015 to February 2020) have been prepared to serve as a guide for the Western Area Power Administration's marketing activities and to provide data to allow basin interests to conduct long-term planning. Three runoff conditions are modeled in the extension studies: Median, Lower Quartile, and Lower Decile.

The full 16.3 MAF of flood control capacity or more would be available at the start of each runoff season. The navigation service level and season length criteria described in ***Plate 3*** were applied to the extensions. The March 15 and July 1 System storage checks shown in ***Plate 3*** were used to determine the flow support for navigation and other downstream uses and the navigation season length. A steady release – flow-to-target (SR-FTT) regulation with cycling in May was modeled during the T&E bird species' nesting season. The Gavins Point releases to meet navigation target flows, as shown in ***Plate 3*** and as computed by the March 15 and July 1 System storage checks, were used prior to and following the nesting season. The September 1 System storage check was used to determine the winter System release. Navigation service support and season length, March 1 reservoir unbalancing, end of year System storage, and the winter release rate for the extensions are shown on ***Table VIII***. The March and May spring pulses are currently on hold pending their review as discussed in Chapter III and were not included in the extension studies. The criteria considered as each year of the extensions was modeled are listed, along with the results, in ***Tables IX through XI*** for the Median, Lower Quartile, and Lower Decile extension studies, respectively.

A. Median Runoff. Studies 9 through 13 present the results of simulating Median runoff (24.6 MAF) from March 2015 through February 2020. The March 1, 2015 System storage would be 51.4 MAF and would increase to 53.4 MAF by March 1, 2020, 2.7 MAF below the desired March 1 storage of 56.1 MAF, the base of the annual flood control and multiple use pool. The navigation service level would range from full service to 2,400 cfs below full service for the study period of 2015 to 2019. There would be full navigation seasons for the study period of 2015 through 2019. Winter releases would range from 12,500 cfs in the winter of 2015-2016 to 14,500 cfs in winter 2019-2020. For the entire study period, the carryover multiple use storage in Fort Peck, Garrison, and Oahe was balanced on March 1 each year.

TABLE VIII
NAVIGATION SERVICE SUPPORT, SPRING PULSES, UNBALANCING
AOP EXTENSION STUDIES

	2015	2016	2017	2018	2019
MEDIAN					
Annual Runoff Volume (MAF)	24.6	24.6	24.6	24.6	24.6
Spring Pulse					
March (kcfs)	N/A	N/A	N/A	N/A	N/A
May (kcfs)	N/A	N/A	N/A	N/A	N/A
Flow Level Below Full Service					
Spring (kcfs)	Full-2.4	Full-1.3	Full-0.7	Full-0.3	Full-0.2
Summer/Fall (kcfs)	Full-0.3	Full	Full	Full	Full
Season Length	8 months	8 months	8 months	8 months	8 months
Reservoir Unbalancing (ft)					
Fort Peck	0	0	0	0	0
Garrison	0	0	0	0	0
Oahe	0	0	0	0	0
Dec 31 Storage (MAF)	52.1	52.8	53.1	53.3	53.3
Winter Release (kcfs)	12.5	13.7	14.2	14.5	14.5
Special Information					
LOWER QUARTILE					
Annual Runoff Volume (MAF)	19.9	20.2	21.8	22.8	24.4
Spring Pulse					
March (kcfs)	N/A	N/A	N/A	N/A	N/A
May (kcfs)	N/A	N/A	N/A	N/A	N/A
Flow Level Below Full Service					
Spring (kcfs)	Full-6.0	Full-6.0	Full-6.0	Full-6.0	Full-6.0
Summer/Fall (kcfs)	Full-6.0	Full-6.0	Full-6.0	Full-6.0	Full-5.2
Season Length	8 mnths-21days	8 mnths-26days	8 mnths-23days	8 mnths-15days	8 mnths-1day
Reservoir Unbalancing (ft)					
Fort Peck	0	0	0	0	0
Garrison	0	0	0	0	0
Oahe	0	0	0	0	0
Dec 31 Storage (MAF)	44.0	43.6	44.3	45.6	47.4
Winter Release (kcfs)	12.5	12.5	12.5	12.5	12.5
LOWER DECILE					
Annual Runoff Volume (MAF)	17.1	17.5	18.5	19.3	19.5
Spring Pulse					
March (kcfs)	N/A	N/A	N/A	N/A	N/A
May (kcfs)	N/A	N/A	N/A	N/A	N/A
Flow Level Below Full Service					
Spring (kcfs)	Full-6.0	Full-6.0	Full-6.0	Full-6.0	Full-6.0
Summer/Fall (kcfs)	Full-6.0	Full-6.0	Full-6.0	Full-6.0	Full-6.0
Season Length	8 mnths-30days	8 mnths-30days	8 mnths-37days	8 mnths-43 days	8 mnths-46days
Reservoir Unbalancing (ft)					
Fort Peck	0	0	0	0	0
Garrison	0	0	0	0	0
Oahe	0	0	0	0	0
Dec 31 Storage (MAF)	39.8	37.2	35.8	35.3	35.1
Winter Release (kcfs)	12.5	12.5	12.5	12.5	12.5

* Limited by Downstream Flood-Control Limits.

N/A – The March and May Spring Pulses are currently on hold. See Chapter III for more information.

Table IX

Median Extension Studies - Criteria Considered in the Modeling Process

Study Number			9	10	11	12	13
	Units	Criteria	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020
March 1 Storage	MAF	40	51.4	52.4	53.0	53.2	53.3
- March Spring Pulse?	N/A		N/A	N/A	N/A	N/A	N/A
March 15 Storage	MAF	31/49/54.5	52.3	53.3	53.9	54.2	54.3
- Service Level	N/A or kcfs	No Sea/Min/Full Thresholds	Full - 2.4	Full - 1.3	Full - 0.7	Full - 0.3	Full - 0.2
- 3rd Period March GP Q	kcfs		24.3	25.4	26.0	26.4	26.5
- April Gavins Point Q	kcfs		24.3	25.4	26.0	26.4	26.5
May 1 Storage	MAF	40	53.3	54.3	54.8	55.0	55.1
- May Spring Pulse?	N/A		N/A	N/A	N/A	N/A	N/A
- Pulse Magnitude*	kcfs		N/A	N/A	N/A	N/A	N/A
- Gavins Point Cycling Qs	kcfs		25.6/29.2	26.7/30.3	27.3/30.9	27.7/31.3	27.8/31.4
- May Gavins Point Q	kcfs		26.3	27.4	28.0	28.4	28.5
- June Gavins Point Q	kcfs		29.2	30.3	30.9	31.3	31.4
July 1 Storage	MAF	50.5/57	56.7	57.5	57.9	58.1	58.1
- Service Level	N/A	Min/Full Thresholds	Full - 0.3	Full	Full	Full	Full
- July Gavins Point Q	kcfs		31.3	31.6	31.6	31.6	31.6
- Aug Gavins Point Q	kcfs		32.9	33.2	33.2	33.2	33.2
- Sept Gavins Point Q	kcfs		32.3	32.6	32.6	32.6	32.6
July 1 Storage	MAF	36.5/41&46.8/51.5	56.7	57.5	57.9	58.1	58.1
- Season Length Shortening	days	61/31&31/0 Thresholds	0	0	0	0	0
- Oct Gavins Point Q	kcfs		31.7	32.0	32.0	32.0	32.0
- Nov Gavins Point Q	kcfs		27.4	27.7	27.7	27.7	27.7
September 1 Storage	MAF	55/58	55.2	56.0	56.3	56.5	56.5
- Winter Gavins Point Q	kcfs	12/17 Thresholds	12.5	13.7	14.2	14.5	14.5
End-of-Year Reservoir Storage (12/31)	MAF		52.1	52.8	53.1	53.3	53.3
- Percent Full	N/A		90%	91%	92%	92%	92%
Balance/Unbalance	N/A	Bal <2227/1827/1600 ft msl	Balanced	Balanced	Balanced	Balanced	Balanced
Fort Peck Rise 3/31-5/31	N/A		Yes	Yes	Yes	Yes	Yes
Garrison Rise 3/31-5/31	N/A		Yes	Yes	Yes	Yes	Yes
Oahe Rise 3/31-5/31	N/A		Yes	Yes	Yes	Yes	Yes
Favored Reservoir - Fish Spawn	N/A		FP/OA	GA	FP/OA	GA	FP/OA
* Pulse magnitudes are the calculated magnitude per technical criteria and simulated magnitude due to the downstream flow limits							
N/A - The March and May Spring Pulses are currently on hold. See Chapter III for more information.							

Table X							
Lower Quartile Extension Studies - Criteria Considered in the Modeling Process							
Study Number			***14***	***15***	***16***	***17***	***18***
	Units	*Criteria*	***2015-2016***	***2016-2017***	***2017-2018***	***2018-2019***	***2019-2020***
March 1 Storage	*MAF*	*40*	45.1	44.1	43.7	44.5	45.8
- March Spring Pulse?	*N/A*		N/A	N/A	N/A	N/A	N/A
March 15 Storage	*MAF*	*31/49/54.5*	45.7	44.9	44.6	45.5	46.9
- Service Level	*N/A or kcfs*	*No Sea/Min/Full Thresholds*	Min Service	Min Service	Min Service	Min Service	Min Service
- 3rd Period March GP Q	*kcfs*		23.8	23.8	23.8	23.8	23.8
- April Gavins Point Q	*kcfs*		23.8	23.8	23.8	23.8	23.8
May 1 Storage	*MAF*	*40*	46.1	45.4	45.4	46.4	48.1
- May Spring Pulse?	*N/A*		N/A	N/A	N/A	N/A	N/A
*- Pulse Magnitude**	*kcfs*		N/A	N/A	N/A	N/A	N/A
- Gavins Point Cycling Qs	*kcfs*		25.3/28.3	25.3/28.3	25.3/28.3	25.3/28.3	25.3/28.3
- May Gavins Point Q	*kcfs*		25.9	25.9	25.9	25.9	25.9
- June Gavins Point Q	*kcfs*		28.3	28.3	28.3	28.3	28.3
July 1 Storage	*MAF*	*50.5/57*	48.2	47.4	47.9	49.2	51.4
- Service Level	*N/A*	*Min/Full Thresholds*	Min Service	Min Service	Min Service	Min Service	Full - 5.2
- July Gavins Point Q	*kcfs*		28.3	28.3	28.3	28.3	29.1
- Aug Gavins Point Q	*kcfs*		28.0	28.0	28.0	28.0	28.8
- Sept Gavins Point Q	*kcfs*		27.5	27.5	27.5	27.5	28.3
July 1 Storage	*MAF*	*36.5/41&46.8/51.5*	48.2	47.4	47.9	49.2	51.4
- Season Length Shortening	*days*	*61/31&31/0 Thresholds*	21	26	23	15	1
- Oct Gavins Point Q	*kcfs*		27.1	26.1	27.0	27.1	27.9
- Nov Gavins Point Q	*kcfs*		10.7	9.1	10.0	14.0	22.3
September 1 Storage	*MAF*	*55/58*	46.4	45.7	46.3	47.8	50.0
- Winter Gavins Point Q	*kcfs*	*12/17 Thresholds*	12.5	12.5	12.5	12.5	12.5
End-of-Year Reservoir Storage (12/31)	*MAF*		44.0	43.6	44.3	45.6	47.4
- Percent Full	*N/A*		67%	66%	69%	72%	77%
Balance/Unbalance	*N/A*	*Bal <2227/1827/1600 ft msl*	Balance	Balance	Balance	Balance	Balance
Fort Peck Rise 3/31-5/31	*N/A*		Yes	Yes	Yes	Yes	Yes
Garrison Rise 3/31-5/31	*N/A*		Yes	Yes	Yes	Yes	Yes
Oahe Rise 3/31-5/31	*N/A*		Yes	Yes	Yes	Yes	Yes
Favored Reservoir - Fish Spawn	*N/A*		FP/OA	GA	FP/OA	GA	FP/OA
** Pulse magnitudes are the calculated magnitude per technical criteria and simulated magnitude due to the downstream flow limits*							
N/A - The March and May Spring Pulses are currently on hold. See Chapter III for more information.							

Table XI							
Lower Decile Extension Studies - Criteria Considered in the Modeling Process							
Study Number			**19**	**20**	**21**	**22**	**23**
	Units	**Criteria**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**
March 1 Storage	*MAF*	*40*	42.8	39.8	37.2	35.9	35.5
- March Spring Pulse?	*N/A*		N/A	N/A	N/A	N/A	N/A
March 15 Storage	*MAF*	*31/49/54.5*	43.5	40.5	38.0	36.8	36.4
- Service Level	*N/A or kcfs*	*No Sea/Min/Full Thresholds*	Min Service	Min Service	Min Service	Min Service	Min Service
- 3rd Period March GP Q	*kcfs*		23.8	23.8	23.8	23.8	23.8
- April Gavins Point Q	*kcfs*		23.8	23.8	23.8	23.8	23.8
May 1 Storage	*MAF*	*40*	43.7	40.8	38.5	37.3	36.9
- May Spring Pulse?	*N/A*		N/A	N/A	N/A	N/A	N/A
- Pulse Magnitude	*kcfs*		N/A	N/A	N/A	N/A	N/A
- Gavins Point Cycling Qs	*kcfs*		25.3/28.3	25.3/28.3	25.3/28.3	25.3/28.3	25.3/28.3
- May Gavins Point Q	*kcfs*		25.9	25.9	25.9	25.9	25.9
- June Gavins Point Q	*kcfs*		28.3	28.3	28.3	28.3	28.3
July 1 Storage	*MAF*	*50.5/57*	45.0	42.0	40.0	39.1	38.7
- Service Level	*N/A*	*Min/Full Thresholds*	Min Service	Min Service	Min Service	Min Service	Min Service
- July Gavins Point Q	*kcfs*		28.3	28.3	28.3	28.3	28.3
- Aug Gavins Point Q	*kcfs*		28.0	28.0	28.0	28.0	28.0
- Sept Gavins Point Q	*kcfs*		27.5	27.5	27.5	27.5	27.5
July 1 Storage	*MAF*	*36.5/41&46.8/51.5*	45.0	42.0	40.0	39.1	38.7
- Season Length Shortening	*days*	*61/31&31/0 Thresholds*	30	30	37	43	46
- Oct Gavins Point Q	*kcfs*		23.9	23.9	19.8	16.3	14.6
- Nov Gavins Point Q	*kcfs*		9.0	9.0	9.0	9.0	9.0
September 1 Storage	*MAF*	*55/58*	42.2	39.3	37.4	36.6	36.2
- Winter Gavins Point Q	*kcfs*	*12/17 Thresholds*	12.5	12.5	12.5	12.5	12.5
End-of-Year Reservoir Storage (12/31)	*MAF*		39.8	37.2	35.8	35.3	35.1
- Percent Full	*N/A*		56%	49%	45%	44%	44%
Balance/Unbalance	*N/A*	*Bal <2227/1827/1600 ft msl*	Balance	Balance	Balance	Balance	Balance
Fort Peck Rise 3/31-5/31	*N/A*		Yes	Yes	Yes	Yes	Yes
Garrison Rise 3/31-5/31	*N/A*		No	Yes	No	Yes	No
Oahe Rise 3/31-5/31	*N/A*		Yes	No	Yes	No	Yes
Favored Reservoir - Fish Spawn	*N/A*		FP/OA	GA	FP/OA	GA	FP/OA
** Pulse magnitudes are the calculated magnitude per technical criteria and simulated magnitude due to the downstream flow limits*							
N/A - The March and May Spring Pulses are currently on hold. See Chapter III for more information.							

B. Lower Quartile Runoff. Studies 14 through 18 show the results of Lower Quartile runoff extensions. System storage on March 1, 2015 would be 45.1 MAF and increase to 47.8 MAF by March 1, 2020. Navigation service levels would range between 5,200 cfs below full service to minimum service for the simulation period 2015 to 2019. The navigation season is shortened 21 days in 2015, 26 days in 2016, 23 days in 2017, 15 days in 2018, and 1 day in 2019. A 12,500-cfs average winter release is shown for the entire study period. Under Lower Quartile runoff, the carryover multiple use storage in the upper three reservoirs would be balanced each March 1.

C. Lower Decile Runoff. Studies 19 through 23 show the results of Lower Decile runoff extensions. System storage would be 42.8 MAF on March 1, 2015 and gradually decrease to 35.3 MAF on March 1, 2020. Navigation service levels would be at minimum navigation service levels throughout the season for all extension years. The navigation season would be shortened 30 days in 2015 and 2016, 37 days in 2017, 43 days in 2018, and 46 days in 2019. The intrasystem storage is balanced each March 1 for the entire study period.

Plate 14 presents System storage, Gavins Point releases, and System peaking capability for Median, Lower Quartile, and Lower Decile runoff for the period 2015 through February 2020. Peak power, or peaking capability, is the amount of power available when all powerplants are operating at maximum.

Plate 15 presents reservoir pool elevations for Fort Peck, Garrison, Oahe, and Fort Randall for Median, Lower Quartile, and Lower Decile runoff for the period 2015 through February 2020.

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USACE Mainstem Project
USACE Tributary Project
USBR SECTION 7 PROJECT
☆ State Capitol
-------- District Boundary

Missouri River Basin

U.S. ARMY ENGINEERS, NORTHWESTERN DIVISION
CORPS OF ENGINEERS, OMAHA, NEBRASKA
AUGUST 2011

PLATE 1. Missouri River Basin Map.

Summary of Engineering Data -- Missouri River Mainstem System

Item No.	Subject	Fort Peck Dam - Fort Peck Lake	Garrison Dam - Lake Sakakawea	Oahe Dam - Lake Oahe
1	Location of Dam	Near Glasgow, Montana	Near Garrison, ND	Near Pierre, SD
2	River Mile - 1960 Mileage	Mile 1771.5	Mile 1389.9	Mile 1072.3
3	Total & incremental drainage areas in square miles	57,500	181,400 (2) 123,900	243,490 (1) 62,090
4	Approximate length of full reservoir (in valley miles)	134, ending near Zortman, MT	178, ending near Trenton, ND	231, ending near Bismarck, ND
5	Shoreline in miles (3)	1520 (elevation 2234)	1340 (elevation 1837.5)	2250 (elevation 1607.5)
6	Average total & incremental inflow in cfs	10,200	25,600 15,400	28,900 3,300
7	Max. discharge of record near damsite in cfs	137,000 (June 1953)	348,000 (April 1952)	440,000 (April 1952)
8	Construction started - calendar yr.	1933	1946	1948
9	In operation (4) calendar yr.	1940	1955	1962
	Dam and Embankment			
10	Top of dam, elevation in feet msl	2280.5	1875	1660
11	Length of dam in feet	21,026 (excluding spillway)	11,300 (including spillway)	9,300 (excluding spillway)
12	Damming height in feet (5)	220	180	200
13	Maximum height in feet (5)	250.5	210	245
14	Max. base width, total & w/o berms in feet	3500, 2700	3400, 2050	3500, 1500
15	Abutment formations (under dam & embankment)	Bearpaw shale and glacial fill	Fort Union clay shale	Pierre shale
16	Type of fill	Hydraulic & rolled earth fill	Rolled earth filled	Rolled earth fill & shale berms
17	Fill quantity, cubic yards	125,628,000	66,500,000	55,000,000 & 37,000,000
18	Volume of concrete, cubic yards	1,200,000	1,500,000	1,045,000
19	Date of closure	24 June 1937	15 April 1953	3 August 1958
	Spillway Data			
20	Location	Right bank - remote	Left bank - adjacent	Right bank - remote
21	Crest elevation in feet msl	2225	1825	1596.5
22	Width (including piers) in feet	820 gated	1336 gated	456 gated
23	No., size and type of gates	16 - 40' x 25' vertical lift gates	28 - 40' x 29' Tainter	8 - 50' x 23.5' Tainter
24	Design discharge capacity, cfs	275,000 at elev 2253.3	827,000 at elev 1858.5	304,000 at elev 1644.4
25	Discharge capacity at maximum operating pool in cfs	230,000	660,000	80,000
	Reservoir Data (6)			
26	Max. operating pool elev. & area	2250 msl 241,000 acres	1854 msl 380,000 acres	1620 msl 374,000 acres
27	Max. normal op. pool elev. & area	2246 msl 234,000 acres	1850 msl 364,000 acres	1617 msl 360,000 acres
28	Base flood control elev & area	2234 msl 210,000 acres	1837.5 msl 307,000 acres	1607.5 msl 312,000 acres
29	Min. operating pool elev. & area	2160 msl 89,000 acres	1775 msl 128,000 acres	1540 msl 117,000 acres
	Storage allocation & capacity			
30	Exclusive flood control	2250-2246 971,000 a.f.	1854-1850 1,495,000 a.f.	1620-1617 1,107,000 a.f.
31	Flood control & multiple use	2246-2234 2,704,000 a.f.	1850-1837.5 4,211,000 a.f.	1617-1607.5 3,208,000 a.f.
32	Carryover multiple use	2234-2160 10,700,000 a.f.	1837.5-1775 12,951,000 a.f.	1607.5-1540 13,353,000 a.f.
33	Permanent	2160-2030 4,088,000 a.f.	1775-1673 4,794,000 a.f.	1540-1415 5,315,000 a.f.
34	Gross	2250-2030 18,463,000 a.f.	1854-1673 23,451,000 a.f.	1620-1415 22,983,000 a.f.
35	Reservoir filling initiated	November 1937	December 1953	August 1958
36	Initially reached min. operating pool	27 May 1942	7 August 1955	3 April 1962
37	Estimated annual sediment inflow	15,600 a.f. 1180 yrs.	21,600 a.f. 1080 yrs.	17,800 a.f. 1560 yrs.
	Outlet Works Data			
38	Location	Right bank	Right Bank	Right Bank
39	Number and size of conduits	2 - 24' 8" diameter (nos. 3 & 4)	1 - 26' dia. and 2 - 22' dia.	6 - 19.75' dia. upstream, 18.25' dia. downstream
40	Length of conduits in feet (8)	No. 3 - 6,615, No. 4 - 7,240	1529	3496 to 3659
41	No., size, and type of service gates	1 - 28' dia. cylindrical gate 6 ports, 7.6' x 8.5' high (net opening) in each control shaft	1 - 18' x 24.5' Tainter gate per conduit for fine regulation	1 - 13' x 22' per conduit, vertical lift, 4 cable suspension and 2 hydraulic suspension (fine regulation)
42	Entrance invert elevation (msl)	2095	1672	1425
43	Avg. discharge capacity per conduit & total	Elev. 2250 22,500 cfs - 45,000 cfs	Elev. 1854 30,400 cfs - 98,000 cfs	Elev. 1620 18,500 cfs - 111,000 cfs
44	Present tailwater elevation (ft msl)	2032-2036 5,000 - 35,000 cfs	1670-1680 15,000- 60,000 cfs	1423-1428 20,000-55,000 cfs
	Power Facilities and Data			
45	Avg. gross head available in feet (14)	194	161	174
46	Number and size of conduits	No. 1-24'8" dia., No. 2-22'4" dia.	5 - 29' dia., 25' penstocks	7 - 24' dia., imbedded penstocks
47	Length of conduits in feet (8)	No. 1 - 5,653, No. 2 - 6,355	1829	From 3,280 to 4,005
48	Surge tanks	PH#1: 3-40' dia., PH#2: 2-65' dia.	65' dia. - 2 per penstock	70' dia., 2 per penstock
49	No., type and speed of turbines	5 Francis, PH#1-2: 128.5 rpm, 1-164 rpm , PH#2-2: 128.6 rpm	5 Francis, 90 rpm	7 Francis, 100 rpm
50	Discharge cap. at rated head in cfs	PH#1, units 1&3 170', 2-140' 8,800 cfs, PH#2-4&5 170'-7,200 cfs	150' 41,000 cfs	185' 54,000 cfs
51	Generator nameplate rating in kW	1&3: 43,500; 2: 18,250; 4&5: 40,000	3 - 121,600, 2 - 109,250	112,290
52	Plant capacity in kW	185,250	583,300	786,030
53	Dependable capacity in kW (9)	181,000	388,000	534,000
54	Avg. annual energy, million kWh (12)	1,048	2,259	2,641
55	Initial generation, first and last unit	July 1943 - June 1961	January 1956 - October 1960	April 1962 - June 1963
56	Estimated cost September 1999 completed project (13)	$158,428,000	$305,274,000	$346,521,000

Summary of Engineering Data -- Missouri River Mainstem System

Big Bend Dam - Lake Sharpe	Fort Randall Dam - Lake Francis Case	Gavins Point Dam - Lewis & Clark Lake	Total	Item No.	Remarks
21 miles upstream Chamberlain, SD	Near Lake Andes, SD	Near Yankton, SD		1	(1) Includes 4,280 square miles of non-contributing areas.
Mile 987.4	Mile 880.0	Mile 811.1		2	
249,330 (1) 5,840	263,480 (1) 14,150	279,480 (1) 16,000		3	(2) Includes 1,350 square miles of non-contributing areas.
80, ending near Pierre, SD	107, ending at Big Bend Dam	25, ending near Niobrara, NE	755 miles	4	
200 (elevation 1420)	540 (elevation 1350)	90 (elevation 1204.5)	5,940 miles	5	(3) With pool at base of flood control.
28,900	30,000 1,100	32,000 2,000		6	
440,000 (April 1952)	447,000 (April 1952)	480,000 (April 1952)		7	(4) Storage first available for regulation of flows.
1959	1946	1952		8	(5) Damming height is height from low water to maximum operating pool. Maximum height is from average streambed to top of dam.
1964	1953	1955		9	
1440	1395	1234		10	
10,570 (including spillway)	10,700 (including spillway)	8,700 (including spillway)	71,596	11	(6) Based on latest available storage data.
78	140	45	863 feet	12	
95	165	74		13	(7) River regulation is attained by flows over low-crested spillway and through turbines.
1200, 700	4300, 1250	850, 450		14	
Pierre shale & Niobrara chalk	Niobrara chalk	Niobrara chalk & Carlile shale		15	(8) Length from upstream face of outlet or to spiral case.
Rolled earth, shale, chalk fill	Rolled earth fill & chalk berms	Rolled earth & chalk fill		16	
17,000,000	28,000,000 & 22,000,000	7,000,000	358,128,000 cu. yds	17	(9) Based on 8th year (1961) of drought drawdown (From study 8-83-1985).
540,000	961,000	308,000	5,554,000 cu. yds.	18	
24 July 1963	20 July 1952	31 July 1955		19	
Left bank - adjacent	Left bank - adjacent	Right bank - adjacent		20	(10) Affected by level of Lake Francis case. Applicable to pool at elevation 1350.
1385	1346	1180		21	
376 gated	1000 gated	664 gated		22	(11) Spillway crest.
8 - 40' x 38' Tainter	21 - 40' x 29' Tainter	14 - 40' x 30' Tainter		23	(12) 1967-2012 Average
390,000 at elev 1433.6	633,000 at elev 1379.8	584,000 at elev 1221.4		24	(13) Source: Annual Report on Civil Works Activities of the Corps of Engineers. Extract Report Fiscal Year 1999.
270,000	508,000	345,000		25	
1423 msl 61,000 acres	1375 msl 102,000 acres	1210 msl 30,000 acres	1,188,000 acres	26	(14) Based on Study 8-83-1985
1422 msl 60,000 acres	1365 msl 95,000 acres	1208 msl 27,000 acres	1,140,000 acres	27	
1420 msl 57,000 acres	1350 msl 77,000 acres	1204.5 msl 23,000 acres	986,000 acres	28	
1415 msl 51,000 acres	1320 msl 38,000 acres	1204.5 msl 23,000 acres	446,000 acres	29	
1423-1422 60,000 a.f.	1375-1365 986,000 a.f.	1210-1208 54,000 a.f.	4,673,000 a.f.	30	
1422-1420 117,000 a.f.	1365-1350 1,306,000 a.f.	1208-1204.5 79,000 a.f.	11,625,000 a.f.	31	
	1350-1320 1,532,000 a.f.		38,536,000 a.f.	32	
1420-1345 1,621,000 a.f.	1320-1240 1,469,000 a.f.	1204.5-1160 295,000 a.f.	17,582,000 a.f.	33	
1423-1345 1,798,000 a.f.	1375-1240 5,293,000 a.f.	1210-1160 428,000 a.f.	72,416,000 a.f.	34	
November 1963	January 1953	August 1955		35	
25 March 1964	24 November 1953	22 December 1955		36	
5,300 a.f. 340 yrs.	15,800 a.f. 340 yrs.	2,600 a.f. 160 yrs.	78,700 a.f.	37	
	Left Bank			38	
None (7)	4 - 22' diameter	None (7)		39	
	1013			40	
	2 - 11' x 23' per conduit, vertical lift, cable suspension			41	
1385 (11)	1229	1180 (11)		42	
	Elev 1375			43	
	32,000 cfs - 128,000 cfs				
1351-1355(10) 25,000-100,000 cfs	1228-1239 5,000-60,000 cfs	1155-1163 15,000-60,000 cfs		44	
70	117	48	764 feet	45	
None: direct intake	8 - 28' dia., 22' penstocks	None: direct intake		46	
	1,074		55,083	47	
None	59' dia, 2 per alternate penstock	None		48	
8 Fixed blade, 81.8 rpm	8 Francis, 85.7 rpm	3 Kaplan, 75 rpm	36 units	49	
67' 103,000 cfs	112' 44,500 cfs	48' 36,000 cfs		50	
3 - 67,276, 5 - 58,500	40,000	44,100		51	
494,320	320,000	132,300	2,501,200 kw	52	
497,000	293,000	74,000	1,967,000 kw	53	Corps of Engineers, U.S. Army
986	1,733	726	9,367 million kWh	54	Compiled by
October 1964 - July 1966	March 1954 - January 1956	September 1956 - January 1957	July 1943 - July 1966	55	Northwestern Division
				56	Missouri River Region
$107,498,000	$199,066,000	$49,617,000	$1,166,404,000		August 2013

Plate 2

Plate 3
Summary of Master Manual Technical Criteria

NAVIGATION TARGET FLOWS

Location	Minimum Service (kcfs)	Full Service (kcfs)
Sioux City	25	31
Omaha	25	31
Nebraska City	31	37
Kansas City	35	41

RELATION OF SYSTEM STORAGE TO NAVIGATION SERVICE LEVEL

Date	System Storage (MAF)	Navigation Service Level
March 15	54.5 or more	35,000 cfs (full-service)
March 15	49.0 to 31	29,000 cfs (minimum-service)
March 15	31.0 or less	No navigation service
July 1	57.0 or more	35,000 cfs (full-service)
July 1	50.5 or less	29,000 cfs (minimum-service)

RELATION OF SYSTEM STORAGE TO NAVIGATION SEASON LENGTH

Date	System Storage (MAF)	Final Day of Navigation Support at Mouth of the Missouri River
July 1	51.5 or more	November 30 (8-month season)
July 1	46.8 through 41.0	October 31 (7-month season)
July 1	36.5 or less	September 30 (6-month season)

RELATION OF SYSTEM WINTER RELEASE TO SYSTEM STORAGE

September 1 System Storage (MAF)	Average Winter Release for Gavins Point
58.0 or more	17,000 cfs
55.0 or less	12,000 cfs

GAVINS POINT RELEASES NEEDED TO MEET TARGET FLOWS

1950 to 1996 Data (kcfs)

Median, Upper Quartile, Upper Decile Runoff

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Full Service	26.7	28.0	27.9	31.6	33.2	32.6	32.0	31.1
Minimum Service	20.7	22.0	21.9	25.6	27.2	26.6	26.0	25.1

Lower Quartile, Lower Decile Runoff

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Full Service	29.8	31.3	31.2	34.3	34.0	33.5	33.1	31.2
Minimum Service	23.8	25.3	25.2	28.3	28.0	27.5	27.1	25.2

RESERVOIR UNBALANCING SCHEDULE

	Fort Peck		Garrison		Oahe	
Year	*March 1*	*Rest of Year*	*March 1*	*Rest of Year*	*March 1*	*Rest of Year*
1	High	Float	Low	Hold Peak	Raise & hold during spawn	Float
2	Raise & hold during spawn	Float	High	Float	Low	Hold peak
3	Low	Hold peak	Raise & hold during spawn	Float	High	Float

Notes: **Float year:** Normal regulation, then unbalance 1 foot during low pool years or 3 feet when System storage is near 57.0 MAF on March 1.

Low year: Begin low, then hold peak the remainder of the year.

High year: Begin high, raise and hold pool during spawn, then float.

MRNRC RECOMMENDED RESERVOIR ELEVATION GUIDELINES FOR UNBALANCING

	Fort Peck	Garrison	Oahe
Implement unbalancing if March 1 pool is above this level.	2234 feet msl	1837.5 feet msl	1607.5 feet msl
Implement unbalancing if March 1 pool level is in this range **and** the pool is expected to raise more than 3 feet after March 1.	2227-2234 feet msl	1827-1837.5 feet msl	1600-1607.5 feet msl
Scheduling Criteria	Avoid pool level decline during spawn period which ranges from April 15 – May 30	Schedule after spawn period of April 20 – May 20	Schedule after spawn period of April 8 – May 15

Plate 3 (cont'd)
Summary of Master Manual Technical Criteria

TECHNICAL CRITERIA FOR SPRING PULSES FROM GAVINS POINT DAM

Criteria Applicable to Both the March and May Spring Pulses

Flood Control Constraints	No change from current levels

Criteria Applicable to the March Spring Pulse

Drought Preclude	40.0 MAF or below measured on March 1.
Drought Proration of Pulse Magnitude*	None, 5 kcfs added to navigation releases, but no greater than 35 kcfs.
Initiation of Pulse	Extend the stepped System release increases that precede the beginning of the navigation season.
Rate of Rise before Peak	Approximately 5 kcfs for 1 day.
Duration of Peak	Two days.
Rate of Fall after Peak	Drop over 5 days to navigation target release.

Criteria Applicable to Time Period Between the Bimodal Pulses

Release	Existing Master Manual Criteria

Criteria Applicable to the May Spring Pulse

Drought Preclude	40.0 MAF or below measured on May 1.
Proration of Pulse Magnitude Based On System Storage*	Prorated from 16 kcfs based on a May 1 System Storage check; 100% at 54.5 MAF; straight line interpolation to 75% at 40.0 MAF.
Proration of Pulse Magnitude Based On Projected Runoff*	After the proration of the spring pulse magnitude for System Storage, the resultant magnitude would be further adjusted either up or down based on the May CY runoff forecast; 100% for Median; straight-line interpolation to 125% at Upper Quartile runoff; 125% for runoff above Upper Quartile; straight-line interpolation to 75% at Lower Quartile runoff; 75% for runoff below Lower Quartile.
Initiation of Pulse	Between May 1 to May 19, depending on Missouri River water temperature immediately below Gavins Point Dam. If possible, pulse will be initiated after the second daily occurrence of a 16 degree Celsius water temperature; however, the decision will be informed by the potential for 'take' of Threatened and Endangered bird species.
Rate of Rise before Peak	Approximately 6 kcfs per day.
Duration of Peak	Two days.
Rate of Fall after Peak	Approximately 30% drop over 2 days followed by a proportional reduction in releases back to the existing Master Manual criteria over an 8-day period.

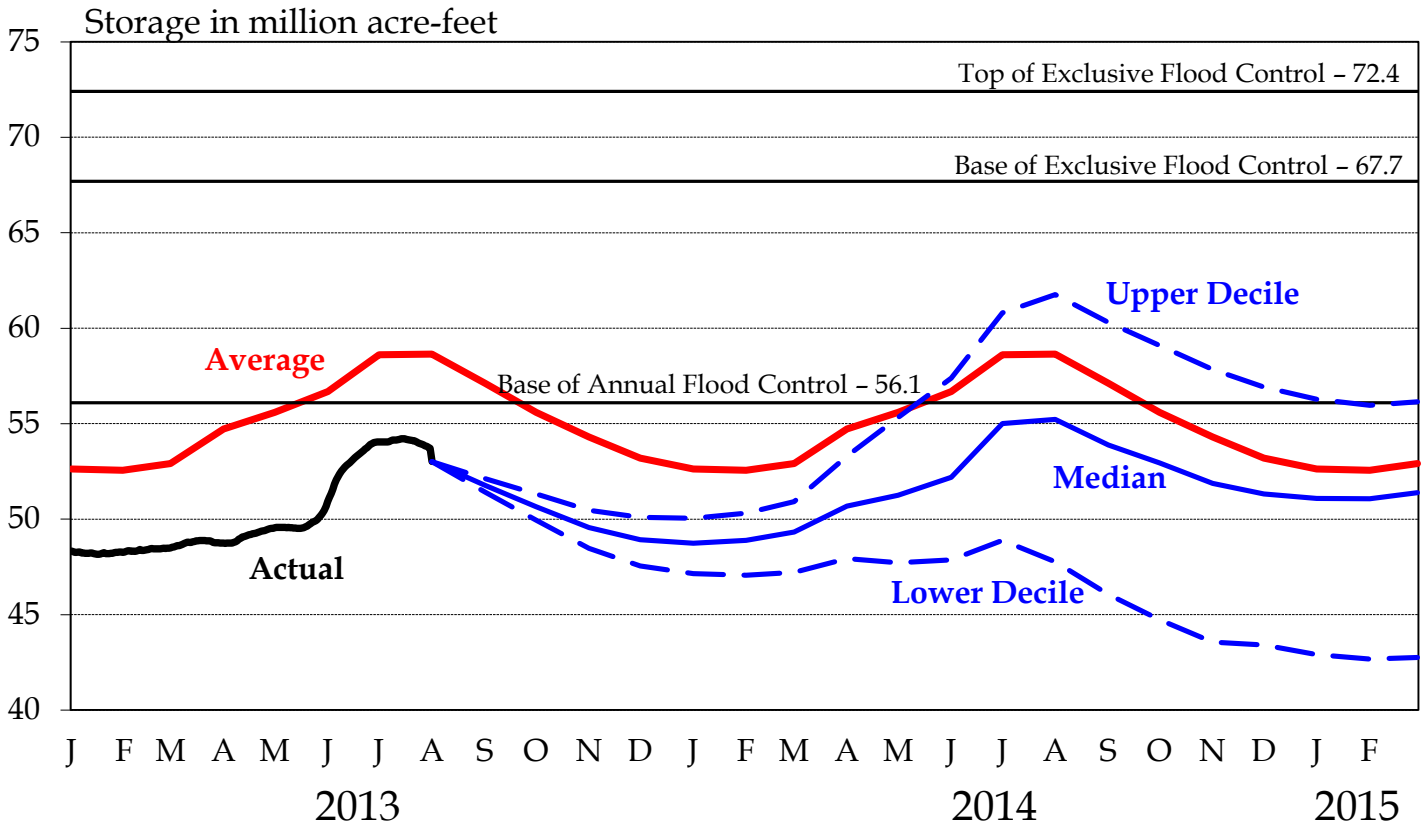
Spring Pulse Downstream Flow Limits

Omaha	41,000 cfs
Nebraska City	47,000 cfs
Kansas City	71,000 cfs

* Spring pulse magnitudes will be determined by taking the difference between pre-pulse Gavins Point releases and the peak pulse Missouri River flows measured just downstream of the mouth of the James River.

System Storage

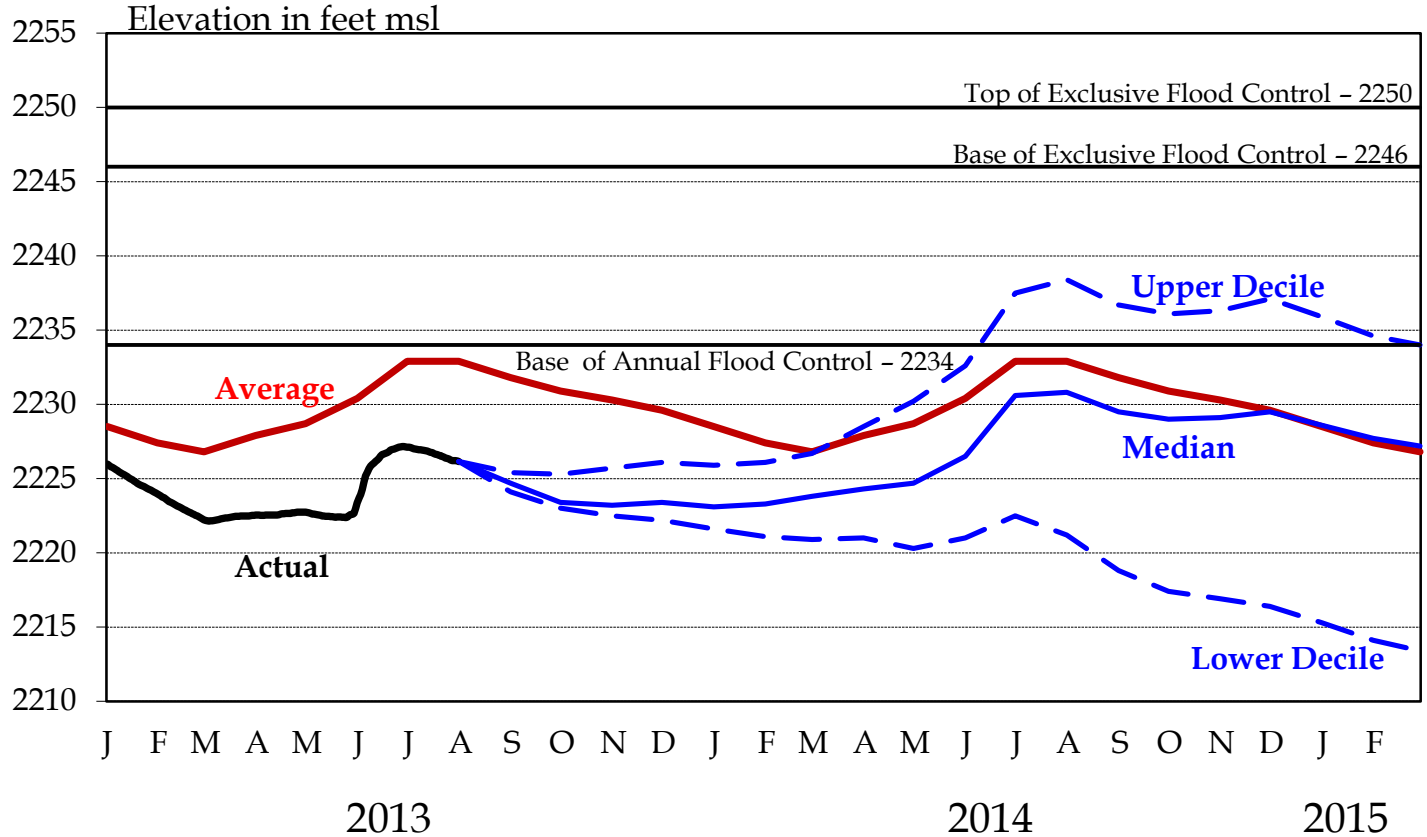
2013-2014 AOP



Average 1967-2012

Fort Peck

2013-2014 AOP

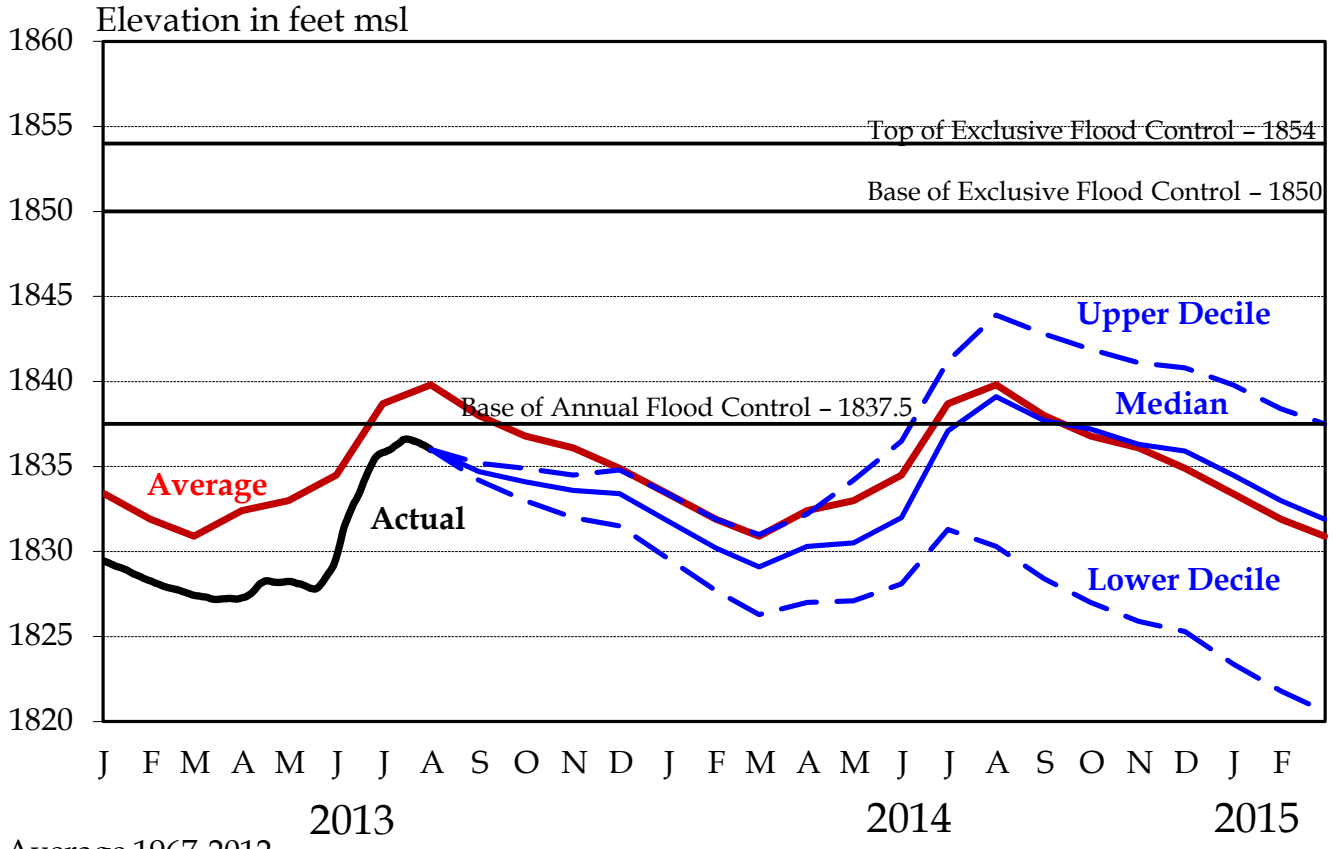


Average 1967-2012

Plate 4

Garrison

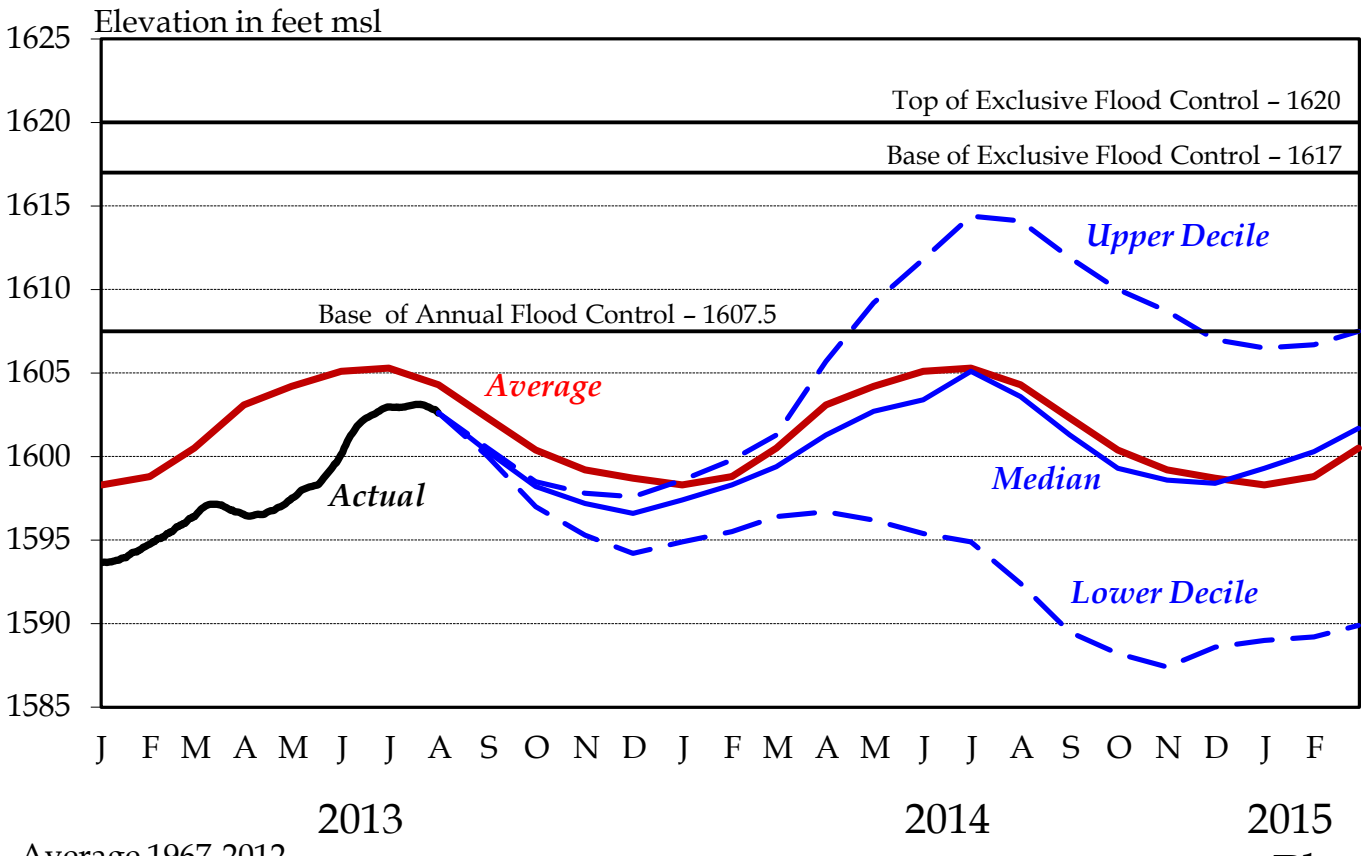
2013-2014 AOP



Average 1967-2012

Oahe

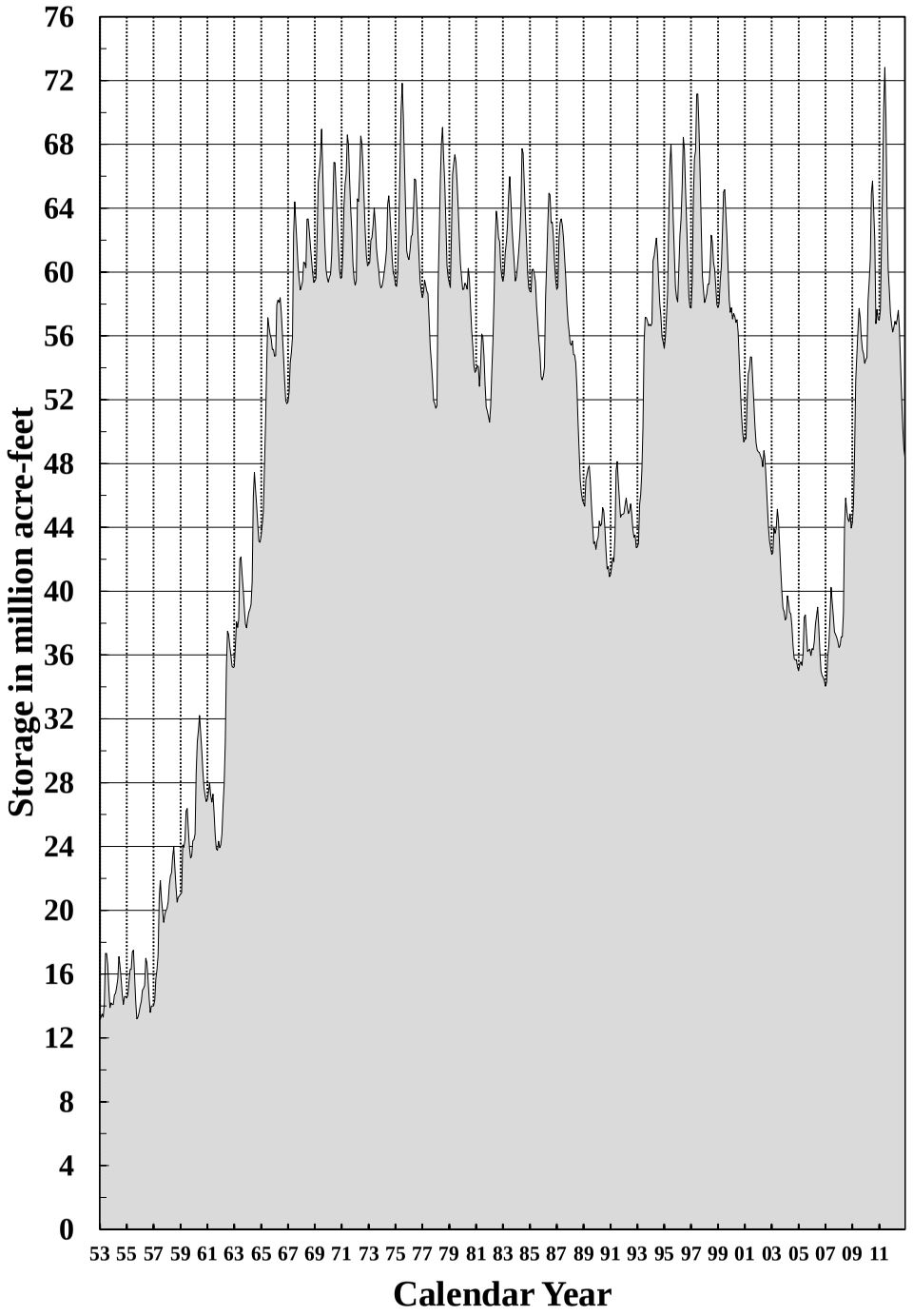
2013-2014 AOP



Average 1967-2012

Plate 5

System Storage



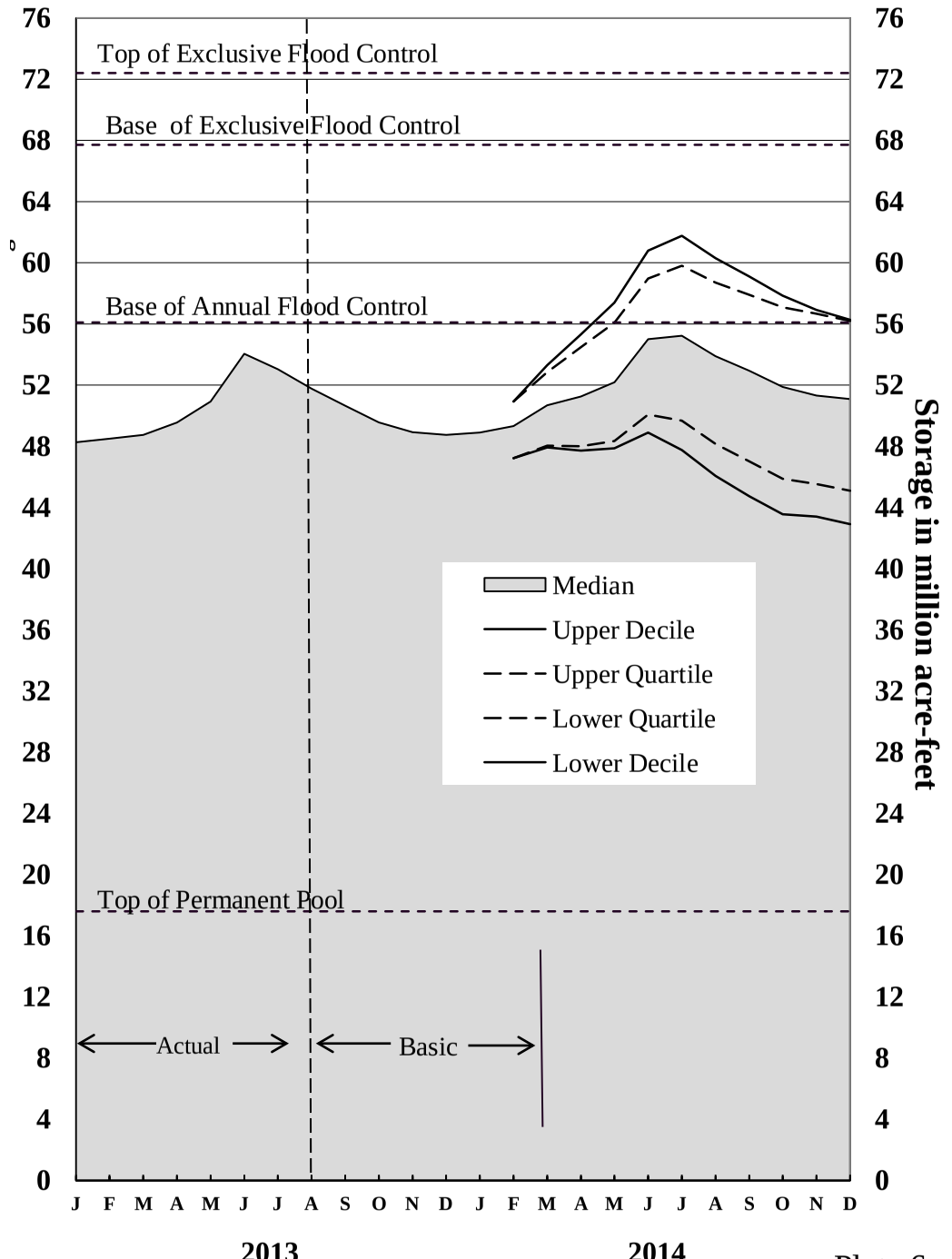


Plate 6

Gavins Point Releases

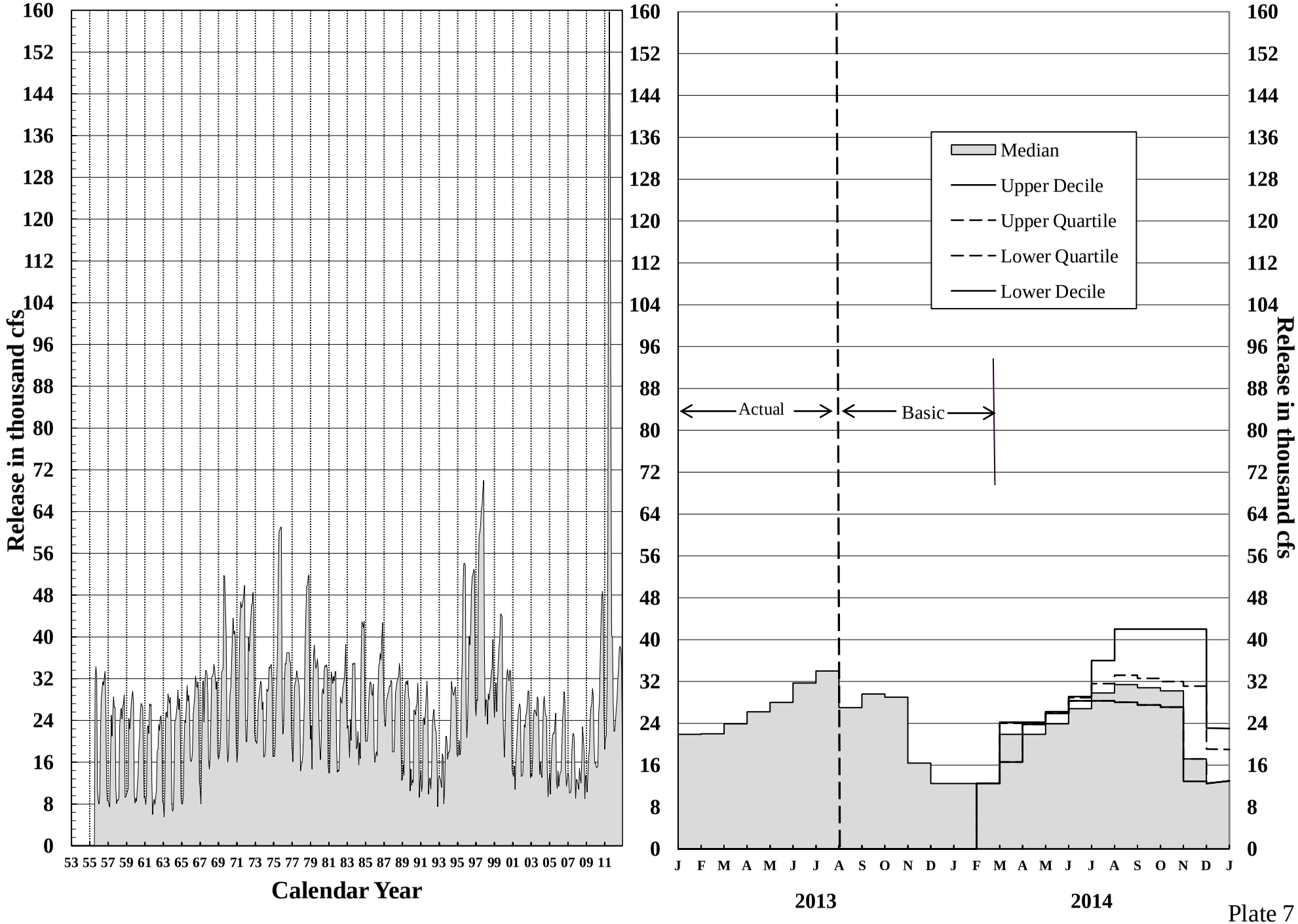
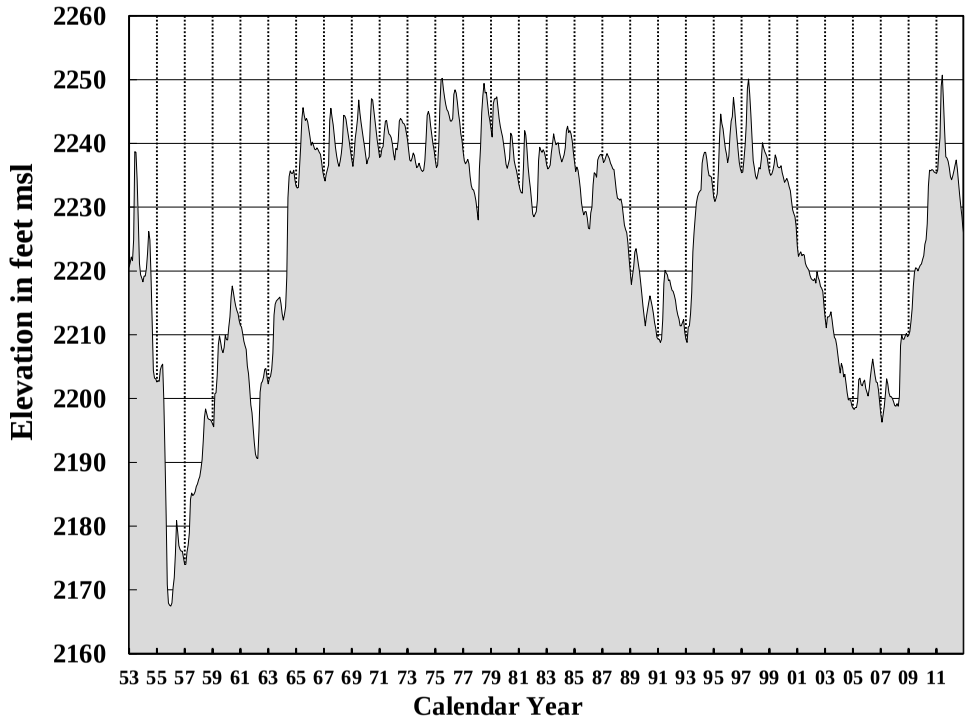
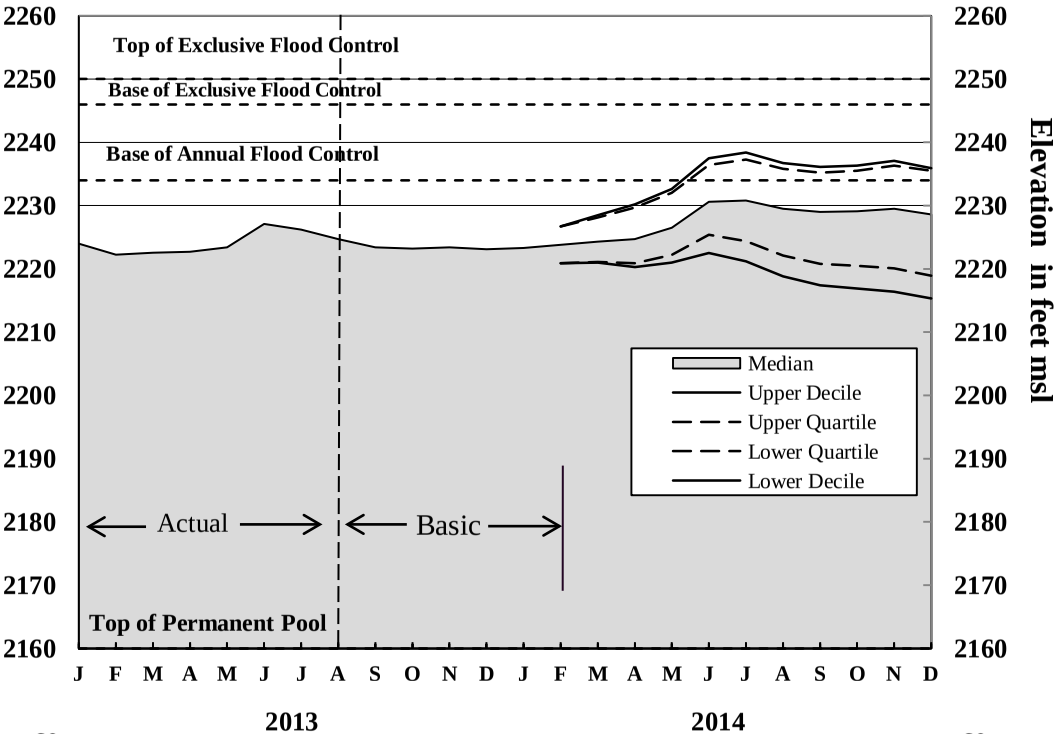
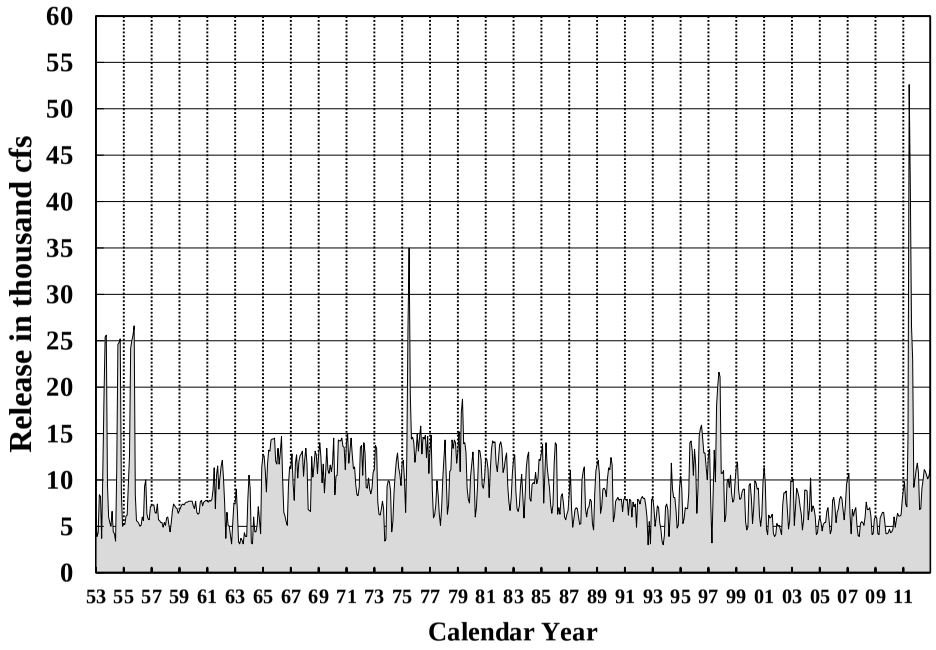


Plate 7

Fort Peck
Elevations and Releases







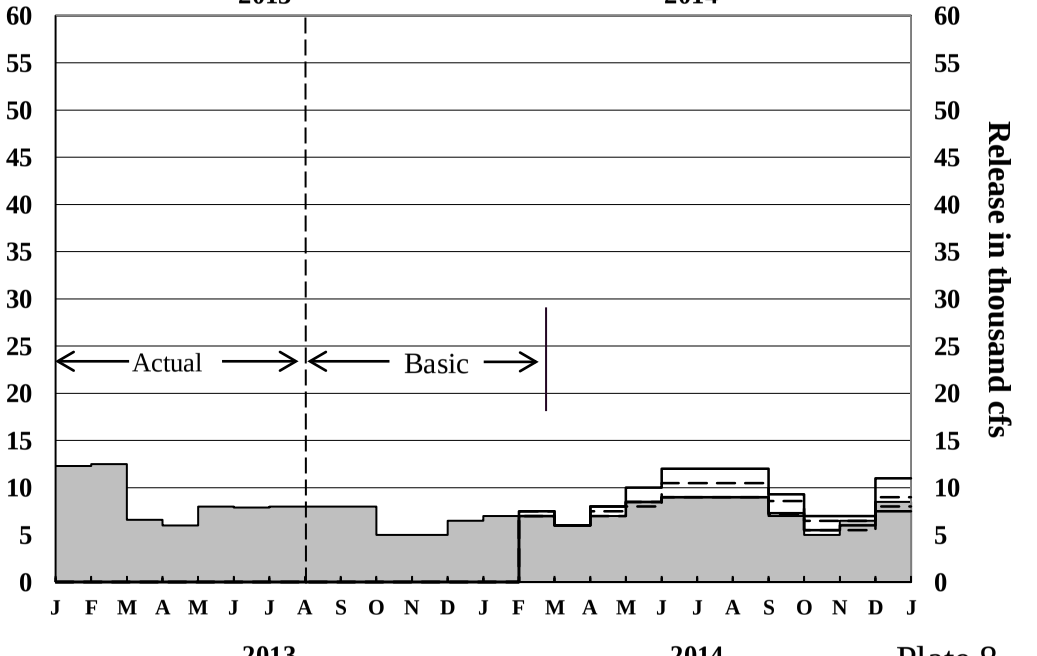
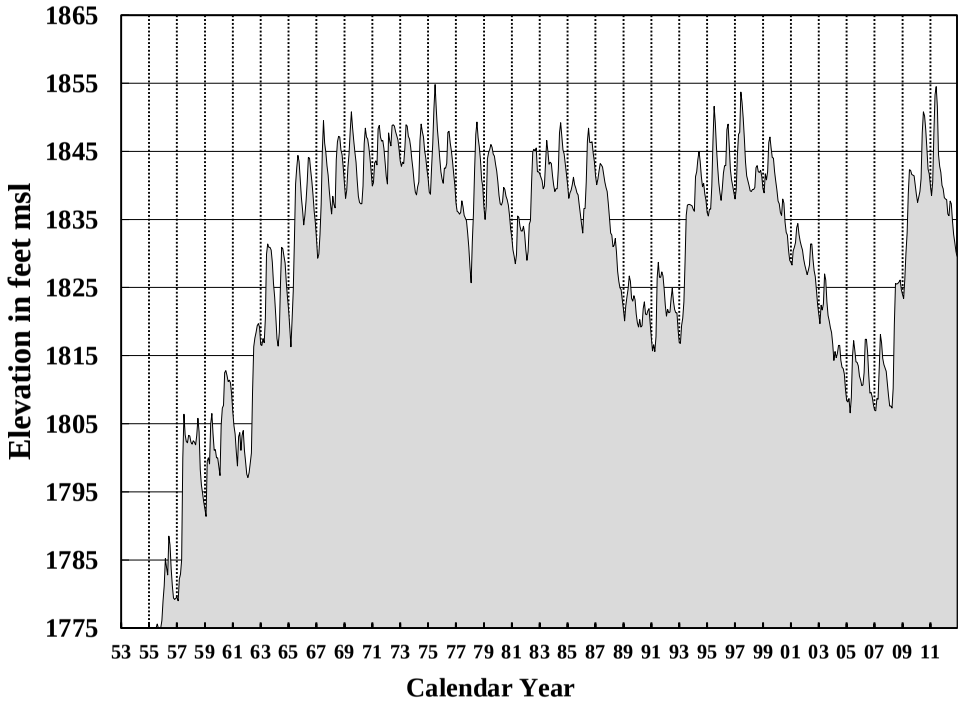
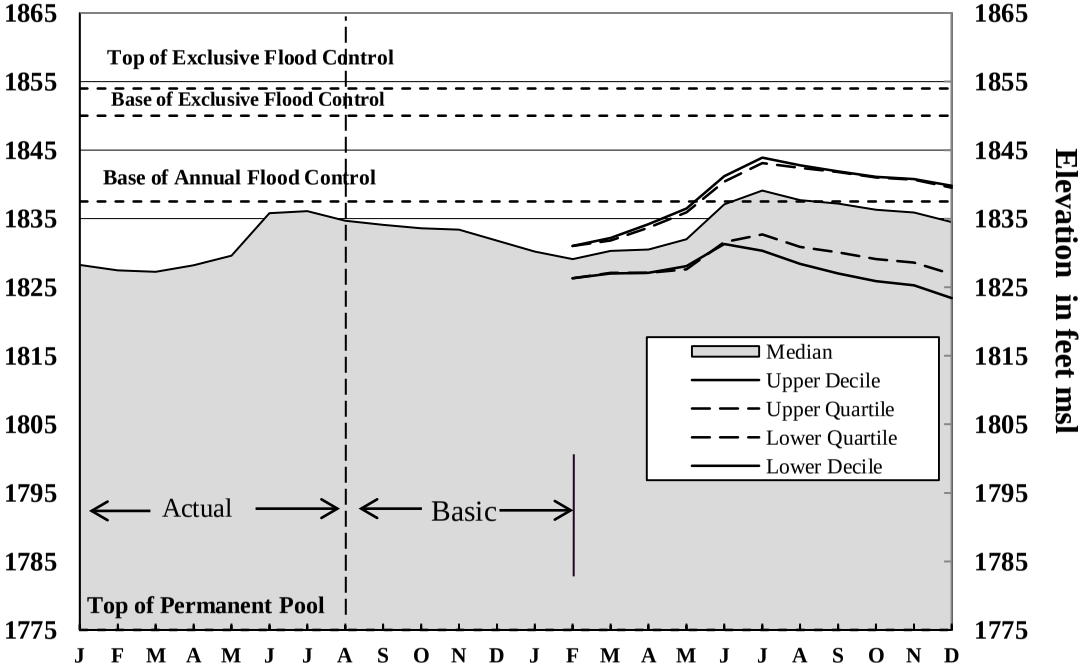
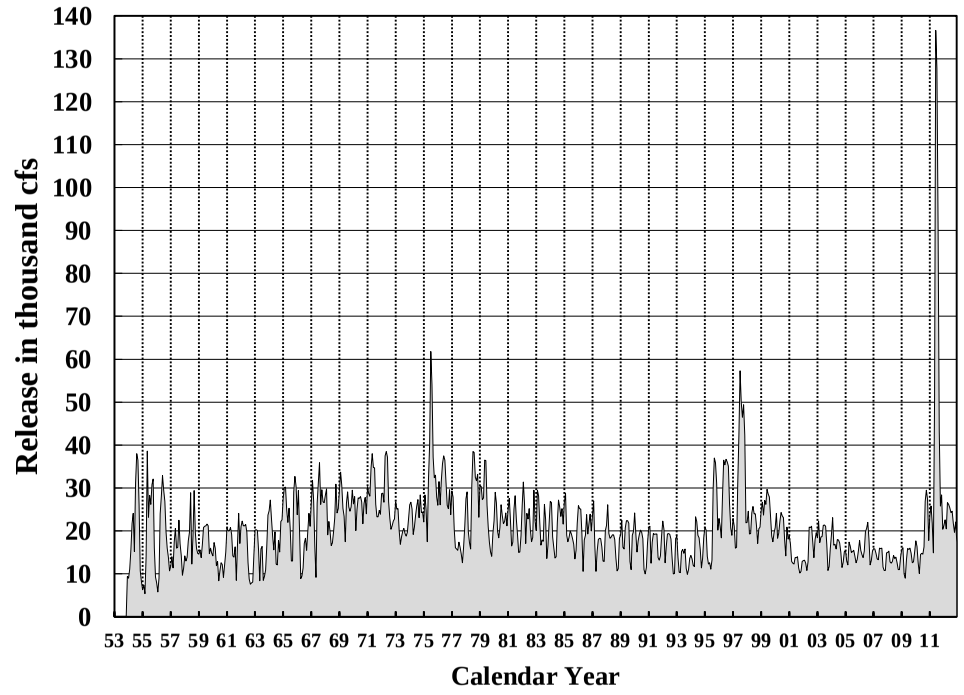


Plate 8

Garrison
Elevations and Releases







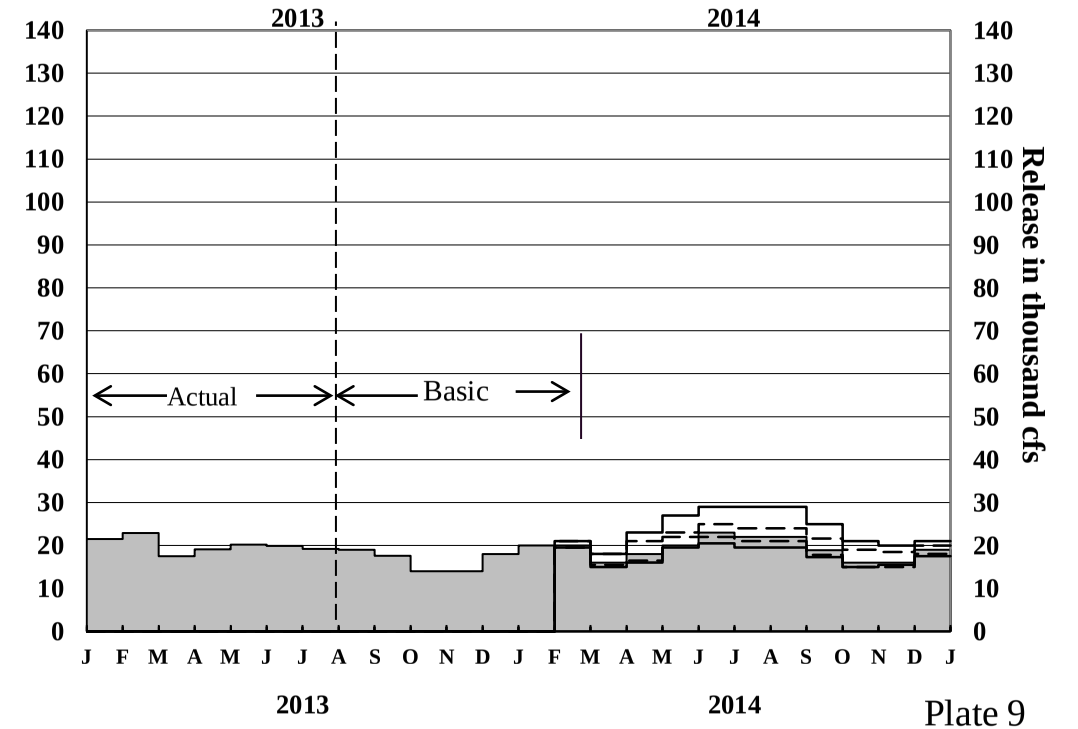
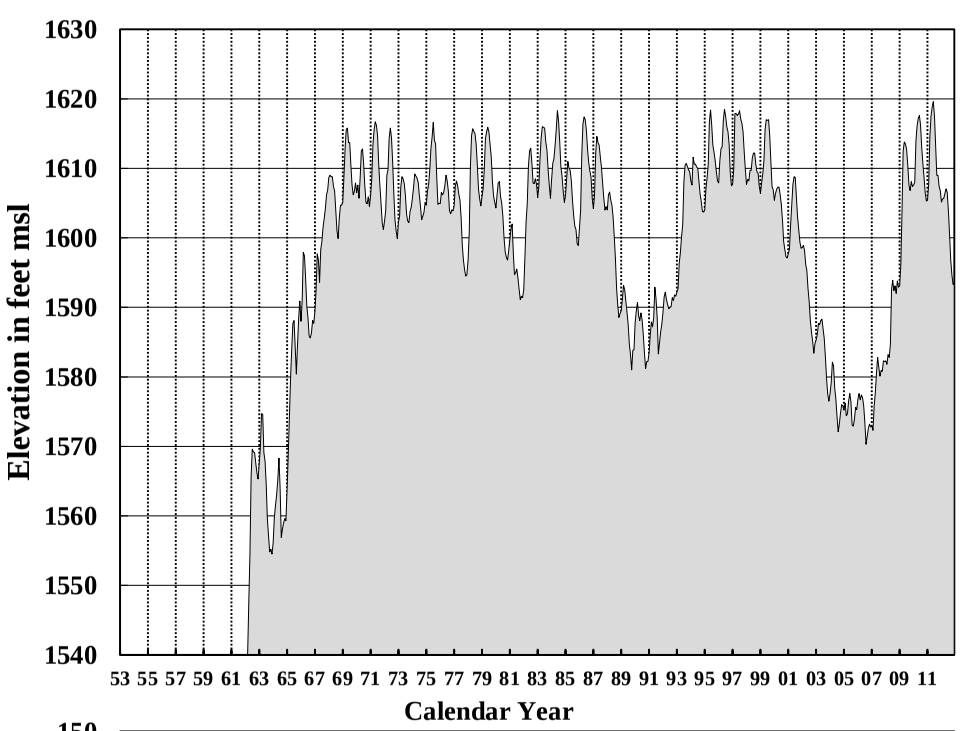
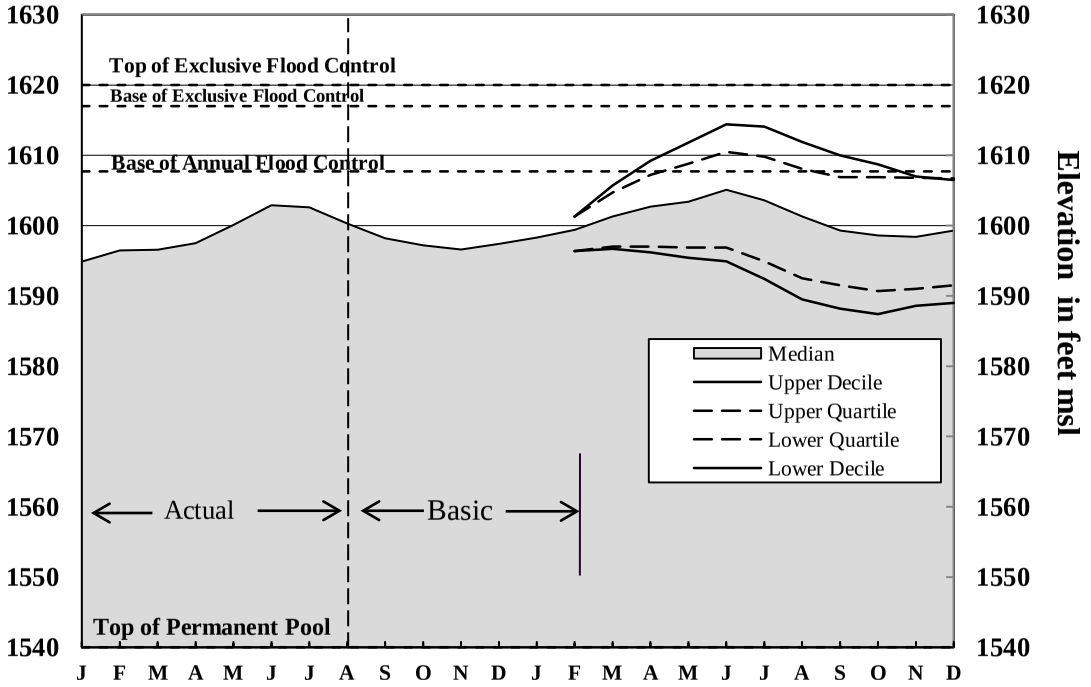


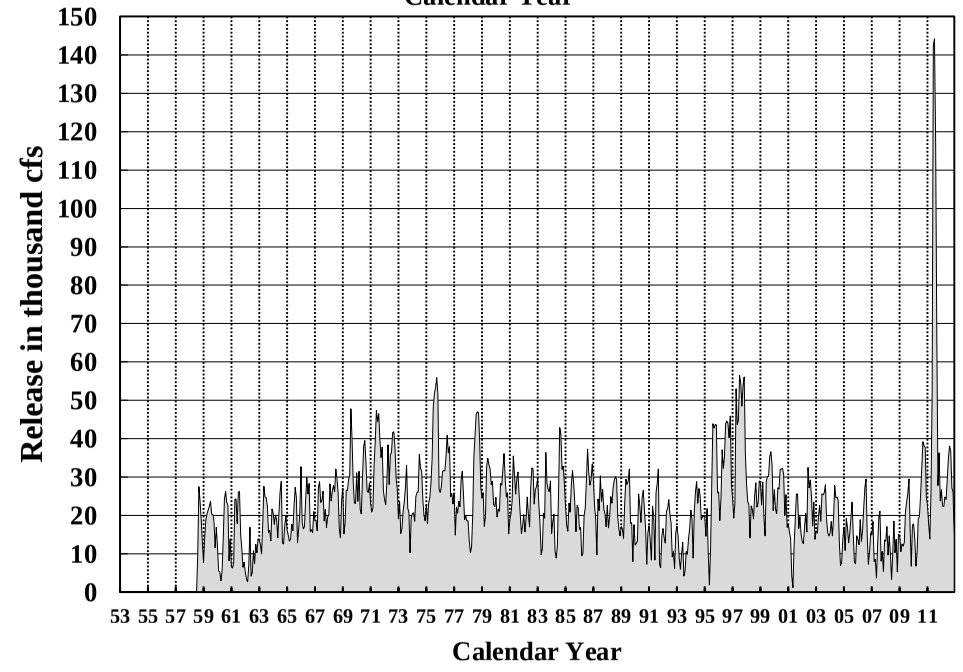
Plate 9

Oahe

Elevations and Releases







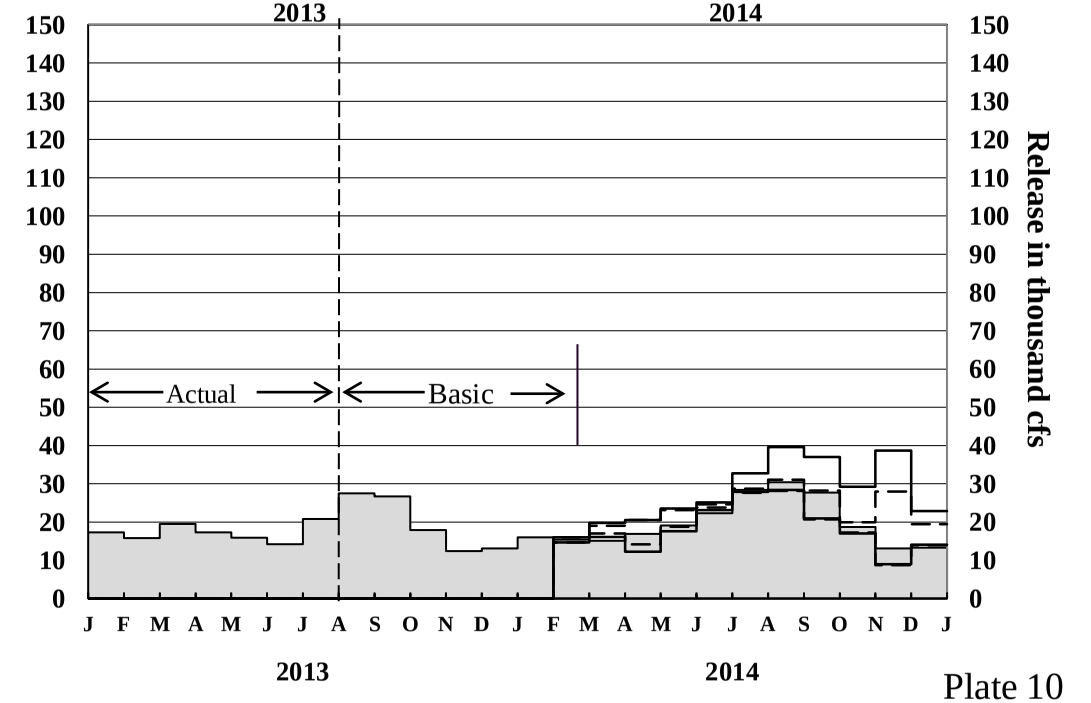
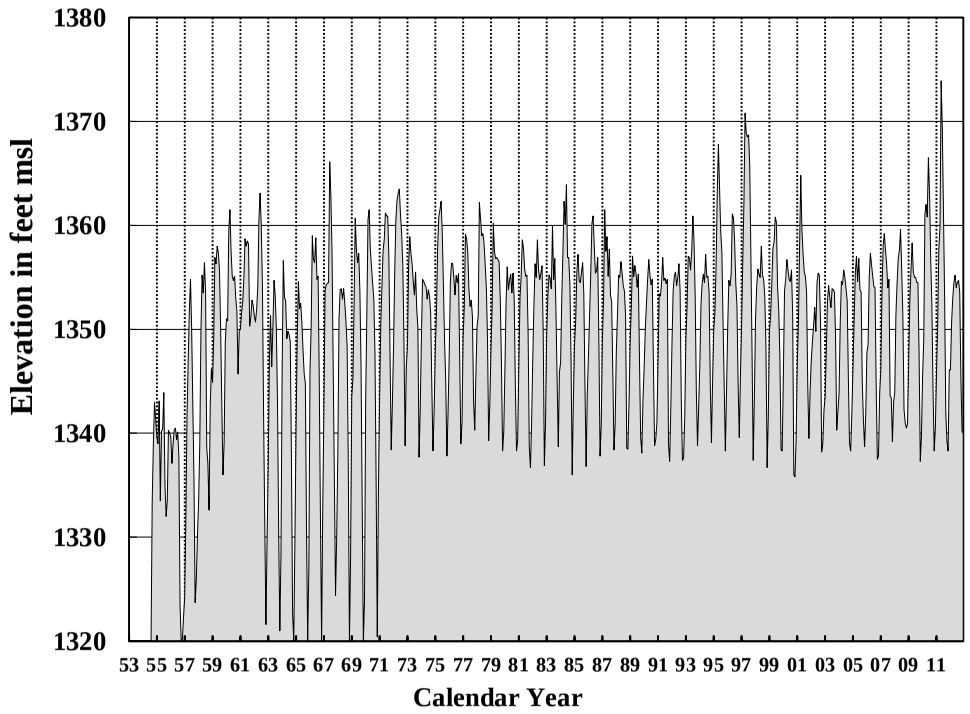
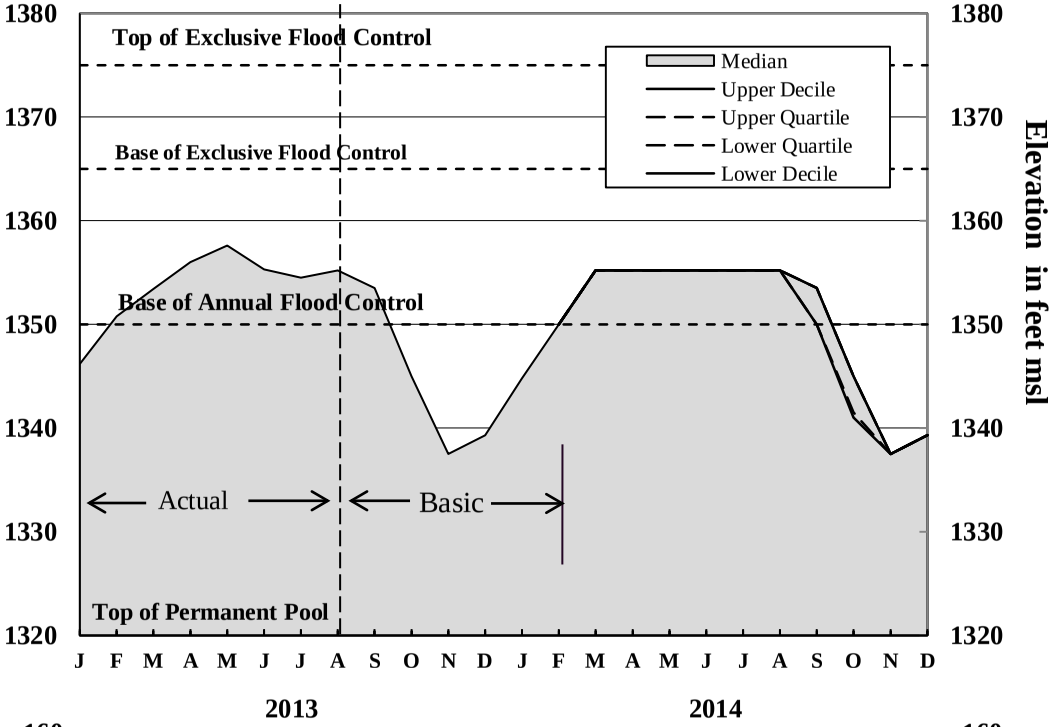
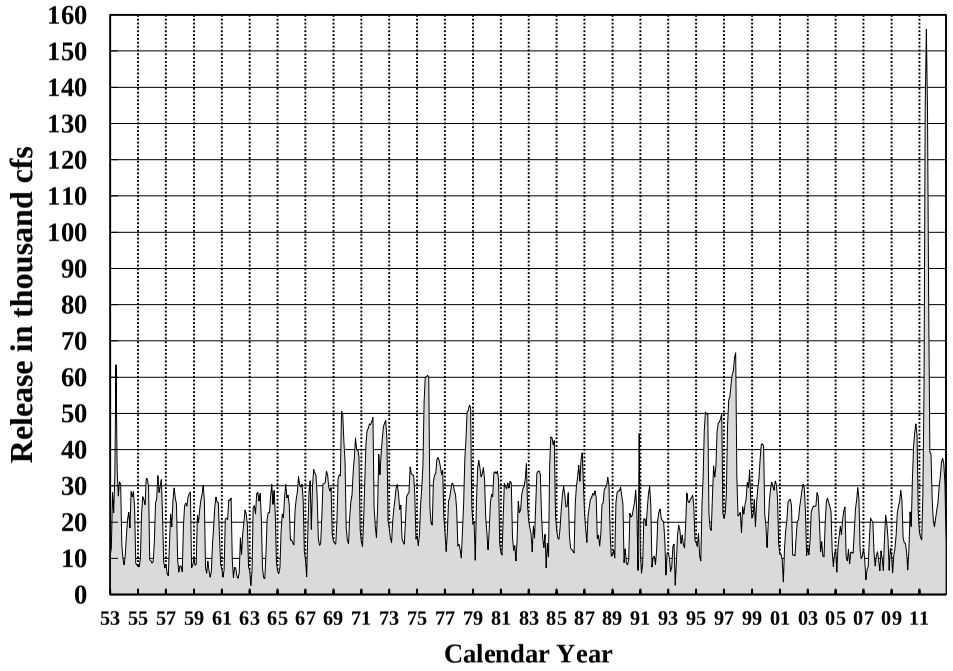


Plate 10

Fort Randall
Elevations and Releases







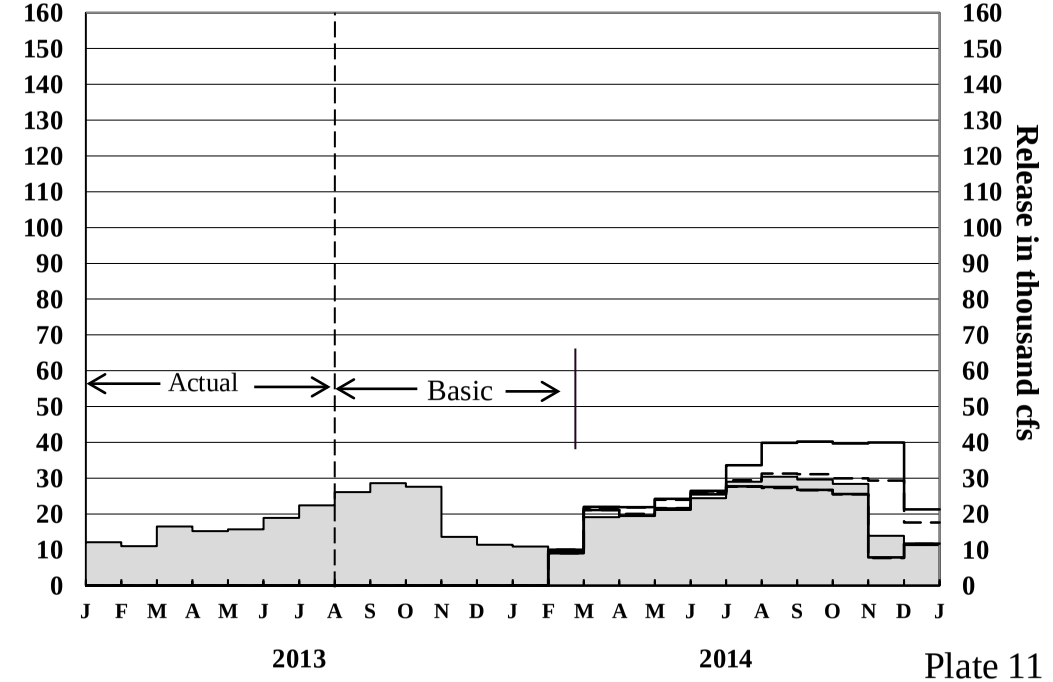
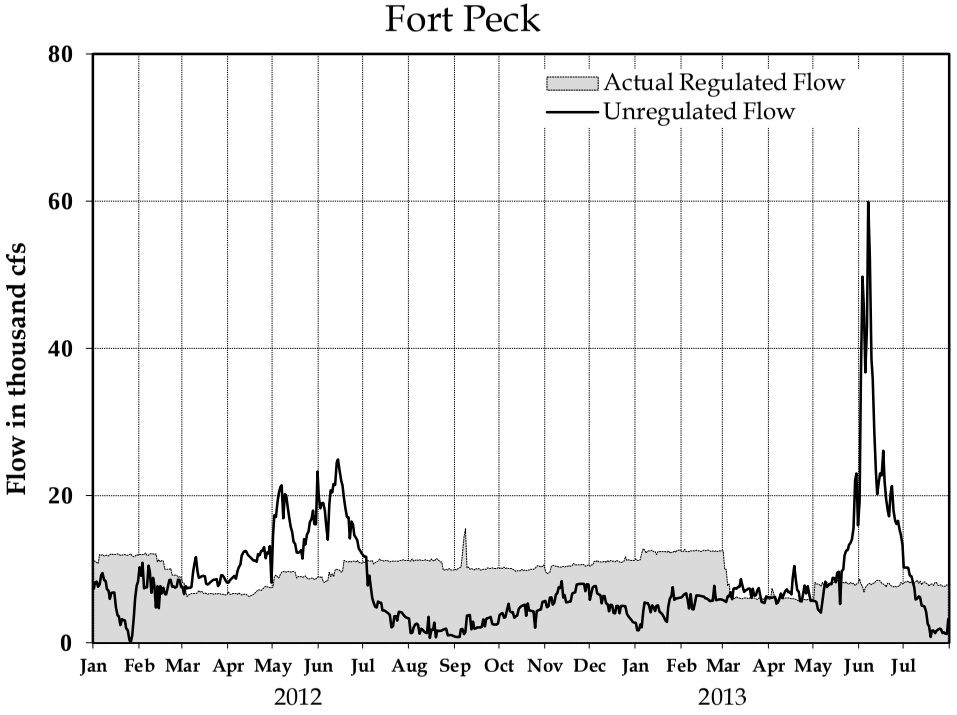
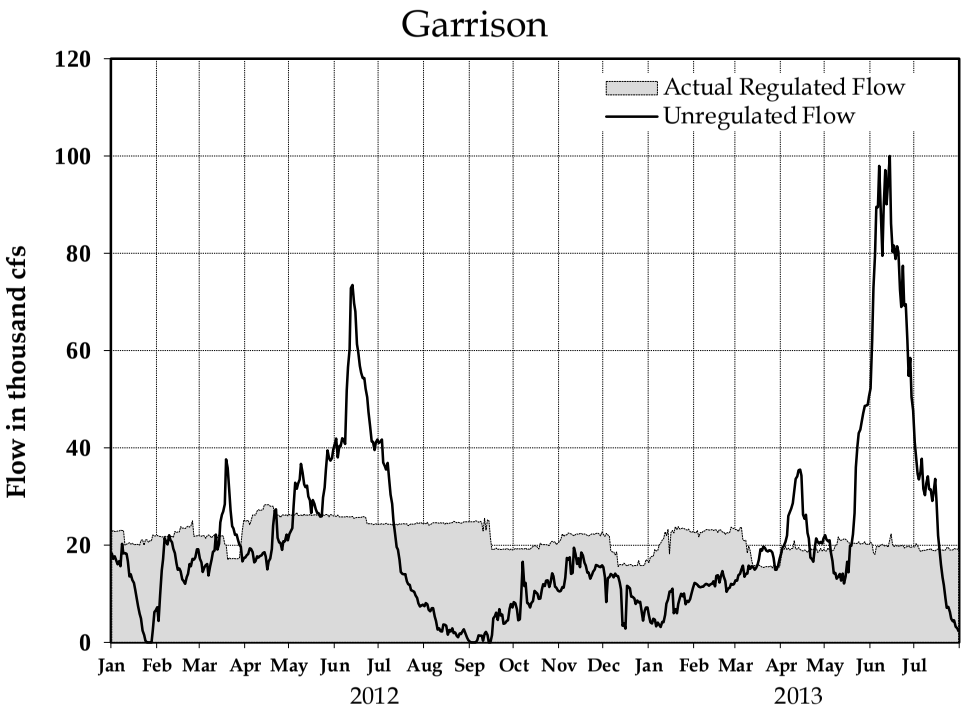
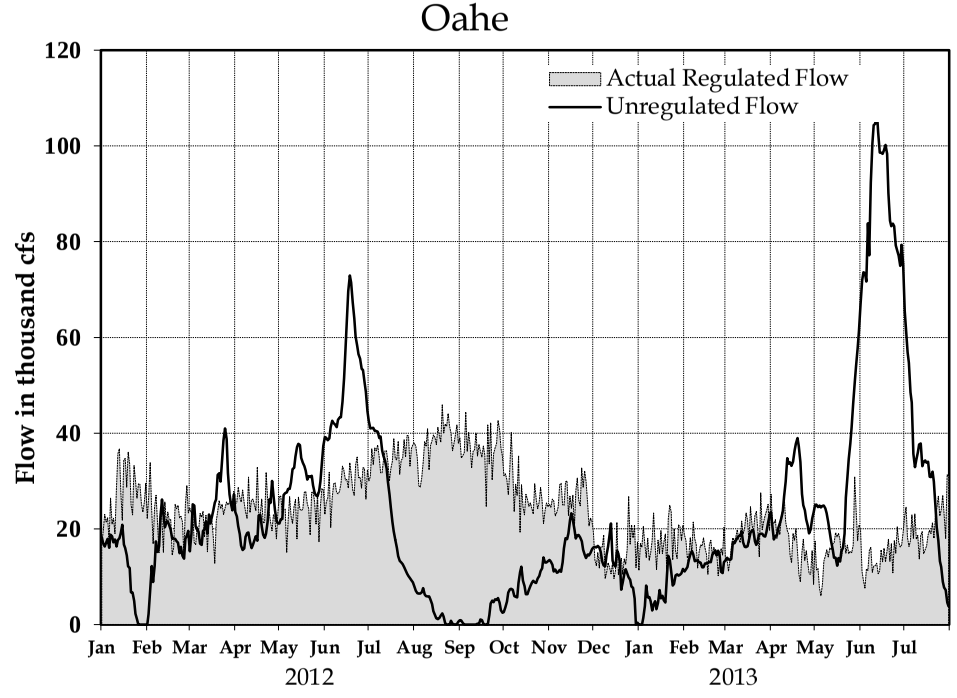


Plate 11

Reservoir Release and Unregulated Flow







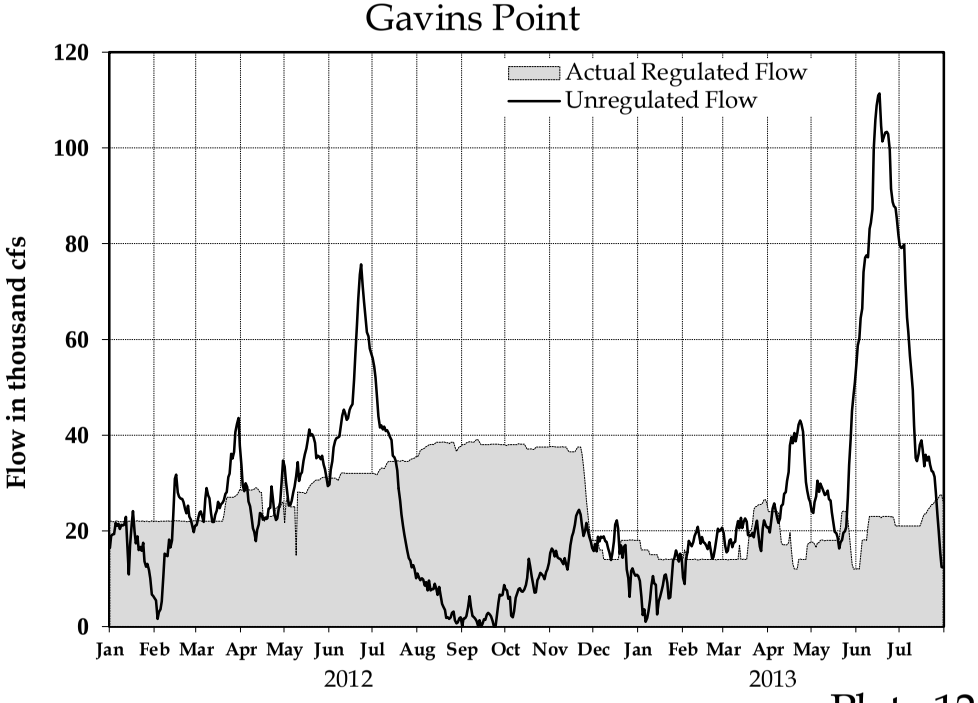


Plate 12

System Gross Capability and Average Monthly Generation

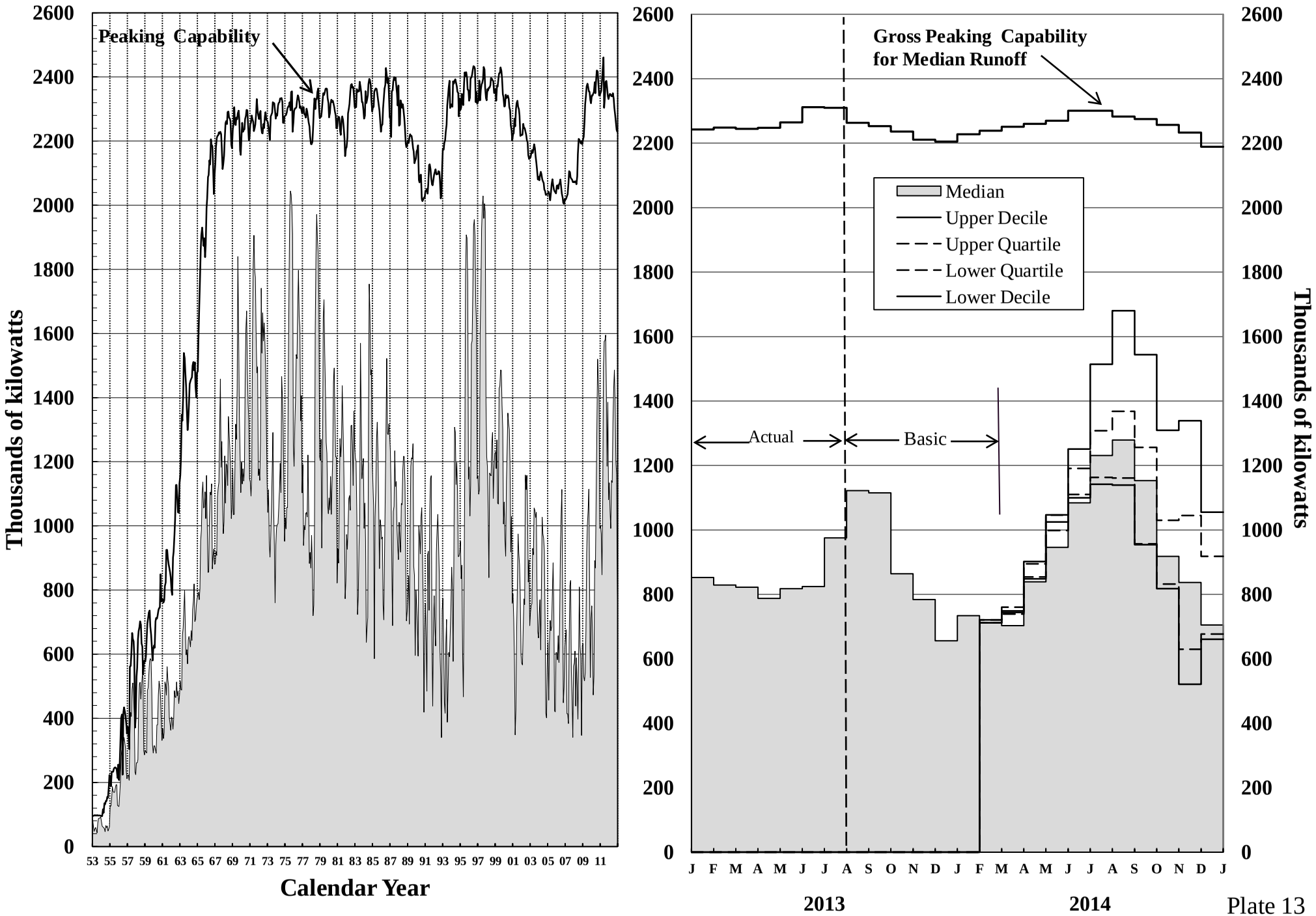


Plate 13

Tentative Five Year Extensions of 2013-2014 AOP

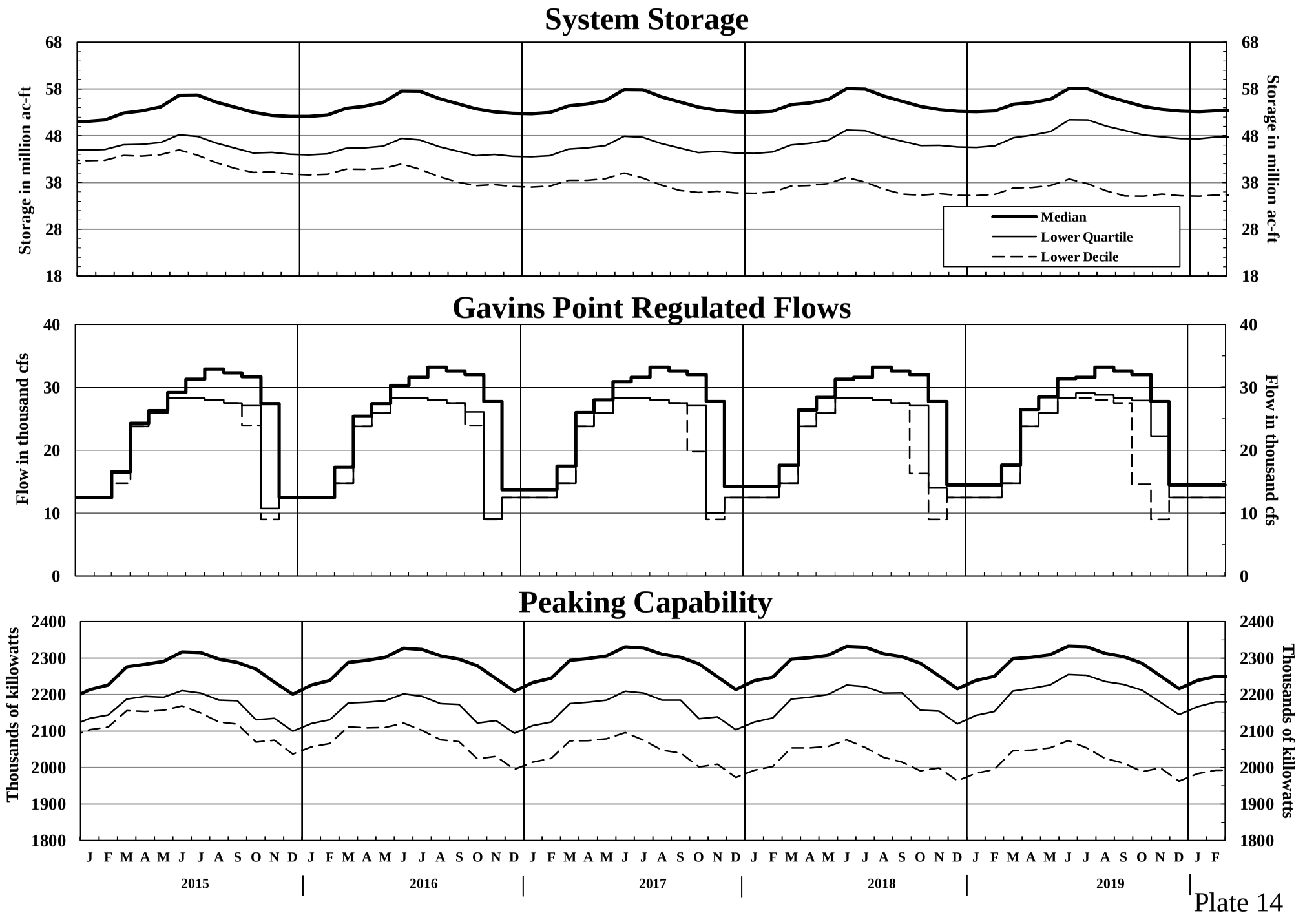


Plate 14

Tentative Five Year Extensions of 2013-2014 AOP

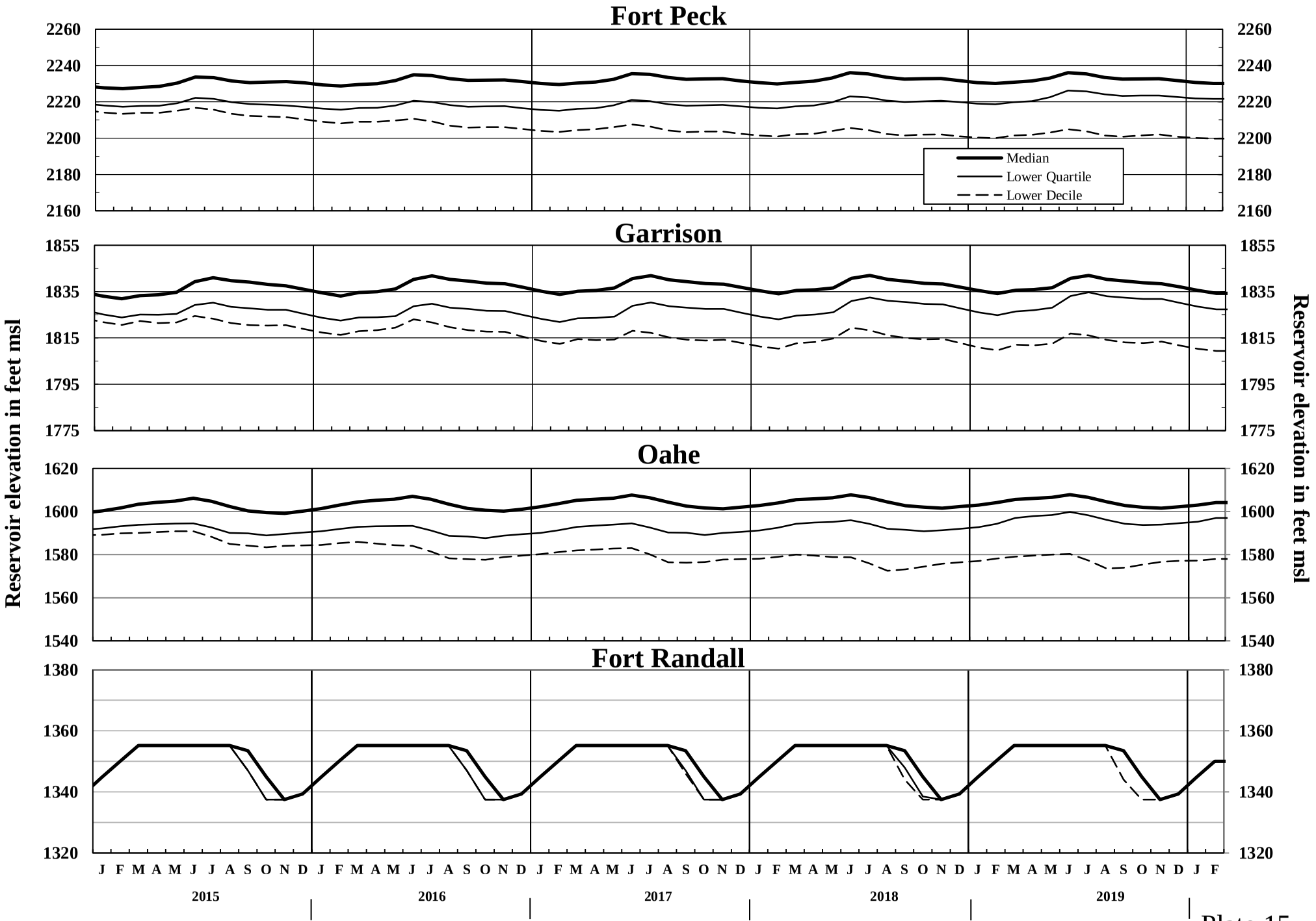
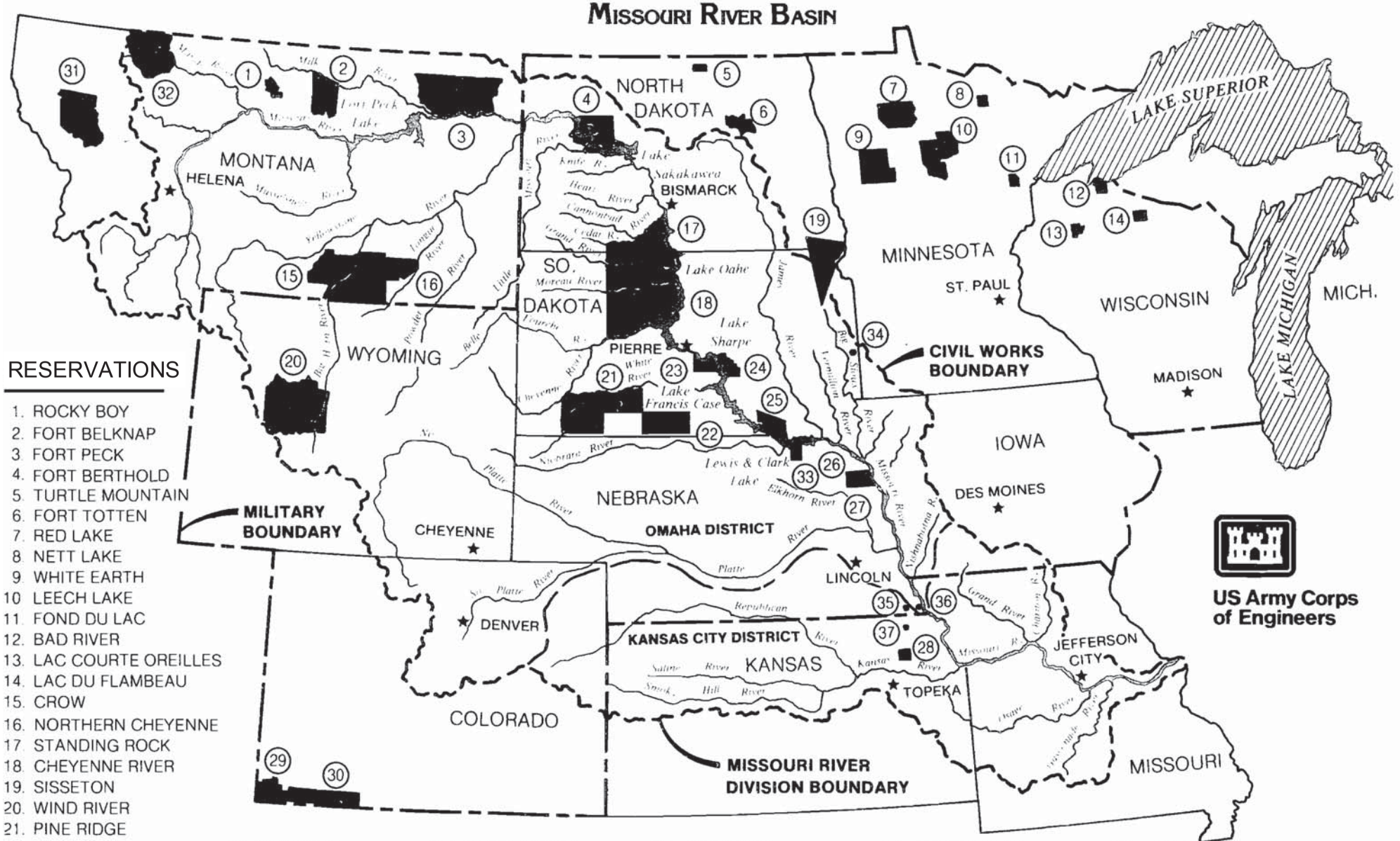


Plate 15

AMERICAN INDIAN RESERVATIONS

MISSOURI RIVER BASIN



RESERVATIONS

1. ROCKY BOY
2. FORT BELKNAP
3. FORT PECK
4. FORT BERTHOLD
5. TURTLE MOUNTAIN
6. FORT TOTTEN
7. RED LAKE
8. NETT LAKE
9. WHITE EARTH
10. LEECH LAKE
11. FOND DU LAC
12. BAD RIVER
13. LAC COURTE OREILLES
14. LAC DU FLAMBEAU
15. CROW
16. NORTHERN CHEYENNE
17. STANDING ROCK
18. CHEYENNE RIVER
19. SISSETON
20. WIND RIVER
21. PINE RIDGE
22. ROSEBUD
23. LOWER BRULE
24. CROW CREEK
25. YANKTON
26. WINNEBAGO
27. OMAHA
28. POTAWATOMI
29. UTE MOUNTAIN
30. SOUTHERN UTE
31. FLATHEAD
32. BLACKFEET
33. SANTEE
34. FLANDREAU
35. IOWA
36. SAC AND FOX
37. KICKAPOO

For illustrative purposes. No legal boundaries are implied.

VALUES IN 1000 AF EXCEPT AS INDICATED

	31JUL13	2013							2014	
	INI-SUM	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--										
NAT INFLOW	2127	300	270	310	155	72	83	265	312	360
DEPLETION	-586	14	-68	-48	-43	-20	-23	-135	-156	-108
EVAPORATION	374	77	96	83	38	18	20	43		
MOD INFLOW	2339	209	242	275	160	75	85	357	468	468
RELEASE	2791	492	475	307	149	69	79	400	430	389
STOR CHANGE	-452	-283	-233	-32	11	5	6	-43	38	79
STORAGE	13211.	12928	12696	12663	12674	12680	12686	12643	12680	12759
ELEV FTMSL	2226.2	2224.7	2223.4	2223.2	2223.3	2223.3	2223.4	2223.1	2223.3	2223.8
DISCH KCFS	8.000	8.0	8.0	5.0	5.0	5.0	5.0	6.5	7.0	7.0
POWER										
AVE POWER MW		106	105	66	66	66	66	86	92	92
PEAK POW MW		155	154	154	154	154	154	154	154	154
ENERGY GWH	445.4	78.9	75.8	49.0	23.7	11.1	12.7	63.7	68.5	62.0
--GARRISON--										
NAT INFLOW	2417	500	360	420	160	75	85	200	261	356
DEPLETION	-585	123	-150	-33	-130	-60	-69	-121	-91	-54
CHAN STOR	10		0	30		0	0	-15	-5	
EVAPORATION	447	92	115	100	45	21	24	51		
REG INFLOW	5356	777	870	691	393	184	210	654	777	799
RELEASE	7357	1168	1048	861	417	194	222	1107	1230	1111
STOR CHANGE	-2002	-391	-177	-170	-23	-11	-12	-453	-452	-312
STORAGE	17306.	16915	16737	16568	16544	16534	16521	16069	15616	15304
ELEV FTMSL	1836.1	1834.7	1834.1	1833.6	1833.5	1833.4	1833.4	1831.8	1830.2	1829.1
DISCH KCFS	19.200	19.0	17.6	14.0	14.0	14.0	14.0	18.0	20.0	20.0
POWER										
AVE POWER MW		233	215	171	170	170	170	217	238	236
PEAK POW MW		458	456	454	453	453	453	447	441	437
ENERGY GWH	1075.0	173.4	154.7	126.9	61.3	28.6	32.7	161.4	177.3	158.8
--OAHE--										
NAT INFLOW	369	70	90	52	27	13	14	1	12	90
DEPLETION	203	122	30	-11	1	0	1	13	18	29
CHAN STOR	-4	1	6	16				-18	-9	0
EVAPORATION	419	88	108	92	41	19	22	48		
REG INFLOW	7100	1029	1006	847	401	187	214	1029	1215	1172
RELEASE	7993	1691	1591	1099	500	269	197	807	987	853
STOR CHANGE	-893	-662	-586	-251	-99	-82	17	222	228	319
STORAGE	17201.	16539	15953	15702	15603	15521	15538	15761	15989	16308
ELEV FTMSL	1602.6	1600.3	1598.2	1597.2	1596.8	1596.5	1596.6	1597.4	1598.3	1599.4
DISCH KCFS	20.800	27.5	26.7	17.9	16.8	19.4	12.4	13.1	16.0	15.4
POWER										
AVE POWER MW		343	329	219	205	236	152	160	197	190
PEAK POW MW		670	659	654	652	651	651	655	659	665
ENERGY GWH	1190.9	255.1	237.1	162.8	73.9	39.6	29.1	119.4	146.5	127.3
--BIG BEND--										
EVAPORATION	97	20	25	22	10	5	5	11		
REG INFLOW	7896	1671	1566	1077	490	264	192	795	987	853
RELEASE	7901	1676	1566	1077	490	264	192	795	987	853
STORAGE	1626.	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.1	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	19.800	27.3	26.3	17.5	16.5	19.0	12.1	12.9	16.0	15.4
POWER										
AVE POWER MW		128	125	86	83	96	61	65	79	74
PEAK POW MW		509	517	538	538	538	538	538	538	529
ENERGY GWH	463.4	95.0	89.8	64.0	29.9	16.1	11.7	48.6	58.7	49.5
--FORT RANDALL--										
NAT INFLOW	155	30	30	4	3	1	1	12	25	49
DEPLETION	34	15	7	1	1	0	1	3	3	3
EVAPORATION	107	25	31	24	9	4	4	9		
REG INFLOW	7915	1666	1558	1055	483	261	189	795	1009	899
RELEASE	8281	1607	1702	1694	796	372	215	698	669	527
STOR CHANGE	-365	59	-144	-639	-313	-111	-26	97	340	372
STORAGE	3366.	3425	3281	2642	2329	2218	2192	2289	2629	3001
ELEV FTMSL	1354.5	1355.2	1353.5	1345.0	1340.0	1338.0	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	22.400	26.1	28.6	27.6	26.7	26.8	13.6	11.4	10.9	9.5
POWER										
AVE POWER MW		220	239	221	202	196	99	84	83	76
PEAK POW MW		356	350	319	296	287	285	293	319	339
ENERGY GWH	800.1	163.6	172.3	164.5	72.8	33.0	19.0	62.3	61.6	51.0
--GAVINS POINT--										
NAT INFLOW	680	90	90	96	47	22	25	80	100	130
DEPLETION	28	10	-5	2	5	2	3	10	1	
CHAN STOR	24	-7	-5	2	1	0	25	4	1	3
EVAPORATION	32	6	8	7	3	2	2	4		
REG INFLOW	8925	1674	1784	1783	836	390	260	769	769	659
RELEASE	8923	1660	1761	1783	836	390	260	769	769	694
STOR CHANGE	2	14	23							-35
STORAGE	325.	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1205.9	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	23.200	27.0	29.6	29.0	28.1	28.1	16.4	12.5	12.5	12.5
POWER										
AVE POWER MW		92	102	101	98	98	58	44	44	44
PEAK POW MW		115	117	117	117	117	117	117	117	114
ENERGY GWH	376.2	68.8	73.3	75.3	35.4	16.5	11.1	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--										
NAT INFLOW	564	140	94	78	35	16	19	50	40	92
DEPLETION	127	37	25	11	6	3	3	13	14	15
REGULATED FLOW AT SIOUX CITY										
KAF	9360	1763	1830	1850	865	404	276	806	795	771
KCFS		28.7	30.8	30.1	29.1	29.1	17.4	13.1	12.9	13.9
--TOTAL--										
NAT INFLOW	6312	1130	934	960	427	199	227	608	750	1077
DEPLETION	-779	321	-161	-78	-159	-74	-85	-217	-211	-115
CHAN STOR	30	-6	2	48	1	0	25	-29	-13	3
EVAPORATION	1476	308	383	328	146	68	77	167		
STORAGE	53035.	51767	50650	49558	49133	48935	48920	48744	48897	49320
SYSTEM POWER										
AVE POWER MW		1122	1115	864	825	862	606	656	734	712
PEAK POW MW		2263	2253	2236	2211	2200	2198	2205	2228	2239
ENERGY GWH	4351.0	834.8	803.0	642.5	297.0	144.9	116.3	488.4	545.8	478.2
DAILY GWH		26.9	26.8	20.7	19.8	20.7	14.5	15.8	17.6	17.1

VALUES IN 1000 AF EXCEPT AS INDICATED

	31JUL13	2013						2014		
	INI-SUM	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--										
NAT INFLOW	2552	360	324	372	186	87	99	318	374	432
DEPLETION	-615	-49	-115	-74	-22	-10	-12	-107	-135	-91
EVAPORATION	259	58	73	64	15	7	8	34		
MOD INFLOW	2908	351	366	382	193	90	103	391	509	523
RELEASE	2804	492	385	307	149	76	87	430	461	417
STOR CHANGE	104	-141	-18	75	44	14	16	-39	48	106
STORAGE	13211.	13070	13052	13126	13170	13184	13200	13160	13208	13315
ELEV FTMSL	2226.2	2225.4	2225.3	2225.7	2225.9	2226.0	2226.1	2225.9	2226.1	2226.7
DISCH KCFS	8.000	8.0	6.5	5.0	5.0	5.5	5.5	7.0	7.5	7.5
POWER										
AVE POWER MW		106	86	66	67	73	73	93	100	100
PEAK POW MW		156	156	156	156	156	156	156	156	157
ENERGY GWH	451.1	79.0	61.8	49.5	24.0	12.3	14.1	69.3	74.2	67.1
--GARRISON--										
NAT INFLOW	2900	600	432	504	192	90	102	240	313	427
DEPLETION	-559	98	-131	-6	-125	-58	-66	-119	-96	-56
CHAN STOR	5		15	15		-5		-15	-5	
EVAPORATION	308	69	87	76	18	8	10	39		
REG INFLOW	5961	924	876	756	447	211	246	735	865	900
RELEASE	7437	1168	980	861	417	194	222	1138	1291	1166
STOR CHANGE	-1476	-244	-104	-105	31	16	24	-403	-426	-267
STORAGE	17306.	17062	16959	16854	16885	16901	16925	16523	16097	15830
ELEV FTMSL	1836.1	1835.2	1834.9	1834.5	1834.6	1834.7	1834.8	1833.4	1831.9	1831.0
DISCH KCFS	19.200	19.0	16.5	14.0	14.0	14.0	14.0	18.5	21.0	21.0
POWER										
AVE POWER MW		233	202	171	171	171	172	225	253	251
PEAK POW MW		460	459	457	458	458	458	453	448	444
ENERGY GWH	1094.0	173.6	145.3	127.6	61.7	28.8	32.9	167.5	188.1	168.6
--OAHE--										
NAT INFLOW	442	84	108	62	33	15	17	1	14	108
DEPLETION	203	122	30	-11	1	0	1	13	18	29
CHAN STOR	-8	1	11	11				-20	-11	
EVAPORATION	289	67	82	70	17	8	9	37		
REG INFLOW	7379	1064	986	874	431	201	230	1069	1276	1245
RELEASE	7751	1654	1551	1065	477	258	185	783	962	816
STOR CHANGE	-372	-589	-565	-191	-45	-57	45	286	315	429
STORAGE	17201.	16612	16047	15856	15811	15754	15799	16085	16400	16829
ELEV FTMSL	1602.6	1600.5	1598.5	1597.8	1597.6	1597.4	1597.6	1598.6	1599.8	1601.3
DISCH KCFS	20.800	26.9	26.1	17.3	16.0	18.6	11.7	12.7	15.6	14.7
POWER										
AVE POWER MW		336	322	213	196	228	143	157	193	183
PEAK POW MW		671	660	657	656	655	656	661	667	675
ENERGY GWH	1159.6	249.7	231.6	158.3	70.7	38.2	27.5	116.6	143.9	123.1
--BIG BEND--										
EVAPORATION	66	15	19	16	4	2	2	9		
REG INFLOW	7685	1639	1533	1049	473	256	183	774	962	816
RELEASE	7690	1644	1533	1049	473	256	183	774	962	816
STORAGE	1626.	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.1	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	19.800	26.7	25.8	17.1	15.9	18.5	11.5	12.6	15.6	14.7
POWER										
AVE POWER MW		125	122	84	80	93	58	64	77	71
PEAK POW MW		509	517	538	538	538	538	538	538	529
ENERGY GWH	451.0	93.2	87.9	62.4	28.8	15.6	11.2	47.3	57.2	47.4
--FORT RANDALL--										
NAT INFLOW	186	36	36	5	3	1	2	14	30	59
DEPLETION	34	15	7	1	1	0	1	3	3	3
EVAPORATION	74	19	24	18	4	2	2	7		
REG INFLOW	7768	1646	1538	1035	471	256	183	778	989	872
RELEASE	8134	1587	1682	1674	784	367	209	682	649	500
STOR CHANGE	-365	59	-144	-639	-313	-111	-26	97	340	372
STORAGE	3366.	3425	3281	2642	2329	2218	2192	2289	2629	3001
ELEV FTMSL	1354.5	1355.2	1353.5	1345.0	1340.0	1338.0	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	22.400	25.8	28.3	27.2	26.4	26.4	13.2	11.1	10.5	9.0
POWER										
AVE POWER MW		217	237	218	199	194	96	82	80	72
PEAK POW MW		356	350	319	296	287	285	293	319	339
ENERGY GWH	786.2	161.6	170.3	162.5	71.8	32.5	18.5	60.8	59.8	48.4
--GAVINS POINT--										
NAT INFLOW	816	108	108	115	57	26	30	96	120	156
DEPLETION	28	10	-5	2	5	2	3	10	1	
CHAN STOR	24	-7	-5	2	2	0	25	4	1	3
EVAPORATION	21	5	6	5	1	1	1	3		
REG INFLOW	8925	1674	1784	1783	836	390	260	769	769	659
RELEASE	8923	1660	1761	1783	836	390	260	769	769	694
STOR CHANGE	2	14	23							-35
STORAGE	325.	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1205.9	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	23.200	27.0	29.6	29.0	28.1	28.1	16.4	12.5	12.5	12.5
POWER										
AVE POWER MW		92	102	101	98	98	58	44	44	44
PEAK POW MW		115	117	117	117	117	117	117	117	114
ENERGY GWH	376.2	68.8	73.3	75.3	35.4	16.5	11.1	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--										
NAT INFLOW	677	168	113	94	42	20	22	60	48	110
DEPLETION	127	37	25	11	6	3	3	13	14	15
REGULATED FLOW AT SIOUX CITY										
KAF	9473	1791	1849	1866	872	407	279	816	803	789
KCFS		29.1	31.1	30.3	29.3	29.3	17.6	13.3	13.1	14.2
--TOTAL--										
NAT INFLOW	7573	1356	1121	1152	512	239	273	729	899	1292
DEPLETION	-782	233	-189	-77	-134	-62	-71	-187	-195	-100
CHAN STOR	21	-6	22	27	1	-5	25	-31	-15	3
EVAPORATION	1017	232	290	250	59	27	31	128		
STORAGE	53035.	52129	51321	50462	50178	50040	50099	50040	50316	50922
SYSTEM POWER										
AVE POWER MW		1110	1070	854	812	857	601	665	748	721
PEAK POW MW		2267	2259	2244	2221	2212	2211	2219	2245	2258
ENERGY GWH	4318.2	825.9	770.2	635.5	292.4	144.0	115.3	494.4	556.3	484.2
DAILY GWH		26.6	25.7	20.5	19.5	20.6	14.4	15.9	17.9	17.3

VALUES IN 1000 AF EXCEPT AS INDICATED

	31JUL13	2013							2014	
	INI-SUM	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--										
NAT INFLOW	1702	240	216	248	124	58	66	212	250	288
DEPLETION	-373	48	-65	-46	-28	-13	-15	-93	-96	-65
EVAPORATION	464	96	119	103	46	22	25	54		
MOD INFLOW	1611	96	162	191	106	49	56	251	346	353
RELEASE	2583	492	358	277	134	62	71	369	430	389
STOR CHANGE	-972	-396	-196	-86	-28	-13	-15	-117	-84	-36
STORAGE	13211.	12815	12619	12533	12505	12492	12477	12359	12275	12239
ELEV FTMSL	2226.2	2224.1	2223.0	2222.5	2222.4	2222.3	2222.2	2221.6	2221.1	2220.9
DISCH KCFS	8.000	8.0	6.0	4.5	4.5	4.5	4.5	6.0	7.0	7.0
POWER										
AVE POWER MW		106	79	59	59	59	59	79	91	91
PEAK POW MW		154	153	153	153	153	153	152	151	151
ENERGY GWH	410.4	78.9	57.2	44.1	21.3	9.9	11.3	58.4	68.0	61.3
--GARRISON--										
NAT INFLOW	1934	400	288	336	128	60	68	160	209	285
DEPLETION	-328	166	-91	5	-115	-54	-61	-88	-57	-33
CHAN STOR	10		20	15				-15	-10	
EVAPORATION	555	115	143	123	55	26	29	63		
REG INFLOW	4300	611	615	500	322	150	172	538	686	707
RELEASE	7061	1168	953	799	387	180	214	1076	1199	1083
STOR CHANGE	-2761	-558	-339	-300	-65	-30	-43	-538	-513	-376
STORAGE	17306.	16748	16410	16110	16045	16014	15972	15434	14921	14545
ELEV FTMSL	1836.1	1834.2	1833.0	1832.0	1831.8	1831.6	1831.5	1829.6	1827.7	1826.3
DISCH KCFS	19.200	19.0	16.0	13.0	13.0	13.0	13.5	17.5	19.5	19.5
POWER										
AVE POWER MW		233	195	157	156	156	162	208	229	226
PEAK POW MW		456	452	448	447	447	446	439	432	427
ENERGY GWH	1021.1	173.0	140.1	116.9	56.3	26.3	31.1	154.9	170.3	152.2
--OAHE--										
NAT INFLOW	296	56	72	42	22	10	11	1	10	72
DEPLETION	203	122	30	-11	1	0	1	13	18	29
CHAN STOR	-3	1	13	13		0	-2	-18	-9	
EVAPORATION	517	111	134	113	50	23	27	58		
REG INFLOW	6634	992	874	752	357	167	196	988	1182	1126
RELEASE	8347	1728	1687	1200	517	278	207	831	1012	889
STOR CHANGE	-1713	-736	-813	-447	-160	-111	-11	157	170	237
STORAGE	17201.	16465	15652	15205	15045	14934	14923	15081	15251	15488
ELEV FTMSL	1602.6	1600.0	1597.0	1595.3	1594.7	1594.3	1594.2	1594.9	1595.5	1596.4
DISCH KCFS	20.800	28.1	28.3	19.5	17.4	20.0	13.0	13.5	16.5	16.0
POWER										
AVE POWER MW		350	348	237	210	240	157	163	199	194
PEAK POW MW		668	653	645	642	640	640	643	646	650
ENERGY GWH	1232.8	260.5	250.2	176.3	75.5	40.4	30.1	121.2	148.0	130.6
--BIG BEND--										
EVAPORATION	121	24	31	27	12	6	7	14		
REG INFLOW	8226	1704	1656	1173	505	272	200	816	1012	889
RELEASE	8231	1709	1656	1173	505	272	200	816	1012	889
STORAGE	1626.	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.1	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	19.800	27.8	27.8	19.1	17.0	19.6	12.6	13.3	16.5	16.0
POWER										
AVE POWER MW		130	132	94	85	98	64	67	81	77
PEAK POW MW		509	517	538	538	538	538	538	538	529
ENERGY GWH	482.6	96.8	94.9	69.6	30.7	16.5	12.2	49.9	60.2	51.6
--FORT RANDALL--										
NAT INFLOW	124	24	24	3	2	1	1	10	20	39
DEPLETION	34	15	7	1	1	0	1	3	3	3
EVAPORATION	134	31	39	31	12	5	5	12		
REG INFLOW	8187	1686	1633	1144	494	268	196	812	1029	925
RELEASE	8553	1628	1777	1783	807	379	222	715	689	553
STOR CHANGE	-366	59	-144	-639	-314	-111	-26	97	340	372
STORAGE	3366.	3425	3281	2642	2328	2217	2191	2288	2628	3000
ELEV FTMSL	1354.5	1355.2	1353.5	1345.0	1340.0	1338.0	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	22.400	26.5	29.9	29.0	27.1	27.3	14.0	11.6	11.2	10.0
POWER										
AVE POWER MW		223	250	232	205	200	102	86	85	80
PEAK POW MW		356	350	319	296	287	285	293	319	339
ENERGY GWH	826.1	165.7	179.8	172.9	73.9	33.5	19.6	63.7	63.5	53.5
--GAVINS POINT--										
NAT INFLOW	544	72	72	77	38	18	20	64	80	104
DEPLETION	28	10	-5	2	5	2	3	10	1	
CHAN STOR	23	-8	-6	2	3	0	25	4	1	2
EVAPORATION	40	8	10	9	4	2	2	5		
REG INFLOW	9052	1674	1838	1851	839	392	262	769	769	659
RELEASE	9050	1660	1815	1851	839	392	262	769	769	694
STOR CHANGE	2	14	23							-35
STORAGE	325.	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1205.9	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	23.200	27.0	30.5	30.1	28.2	28.2	16.5	12.5	12.5	12.5
POWER										
AVE POWER MW		92	104	104	99	99	58	44	44	44
PEAK POW MW		115	117	117	117	117	117	117	117	114
ENERGY GWH	380.0	68.8	74.8	77.3	35.5	16.6	11.2	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--										
NAT INFLOW	451	112	75	62	28	13	15	40	32	74
DEPLETION	127	37	25	11	6	3	3	13	14	15
REGULATED FLOW AT SIOUX CITY										
KAF	9374	1735	1865	1902	861	402	274	796	787	753
KCFS		28.2	31.3	30.9	28.9	28.9	17.2	12.9	12.8	13.6
--TOTAL--										
NAT INFLOW	5051	904	747	768	341	159	182	487	601	862
DEPLETION	-309	398	-99	-38	-130	-61	-69	-142	-117	-51
CHAN STOR	30	-7	26	30	3	0	23	-29	-19	2
EVAPORATION	1831	385	476	406	180	83	95	205		
STORAGE	53035.	51414	49945	48473	47906	47640	47546	47145	47058	47220
SYSTEM POWER										
AVE POWER MW		1134	1107	883	815	853	603	647	730	712
PEAK POW MW		2259	2243	2220	2193	2181	2178	2182	2203	2211
ENERGY GWH	4353.0	843.7	797.1	657.0	293.2	143.2	115.7	481.2	543.0	478.8
DAILY GWH		27.2	26.6	21.2	19.5	20.5	14.5	15.5	17.5	17.1

TIME OF STUDY: 14:49:40 STUDY NO 4

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB14		2014										2015				
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	9450	341	159	205	825	1400	2355	1205	440	385	480	288	134	153	350	310	420
DEPLETION	592	-5	-2	-3	-6	303	590	265	-7	-114	-69	-21	-10	-11	-106	-127	-86
EVAPORATION	316							21	67	83	72	17	8	9	38		
MOD INFLOW	8542	346	161	208	831	1097	1765	919	380	416	477	291	136	155	418	437	506
RELEASE	7071	179	83	107	476	615	714	738	738	552	430	208	97	111	676	707	639
STOR CHANGE	1471	168	78	100	355	482	1051	181	-357	-136	46	82	38	44	-258	-270	-133
STORAGE	13315.	13482	13560	13661	14016	14498	15549	15730	15372	15236	15283	15365	15403	15447	15189	14919	14786
ELEV FTMSL	2226.7	2227.6	2228.0	2228.5	2230.2	2232.6	2237.5	2238.4	2236.7	2236.1	2236.3	2236.7	2236.9	2237.1	2235.9	2234.6	2234.0
DISCH KCFS	7.500	6.0	6.0	6.0	8.0	10.0	12.0	12.0	12.0	9.3	7.0	7.0	7.0	7.0	11.0	11.5	11.5
POWER																	
AVE POWER MW		80	80	80	107	135	160	162	161	127	96	96	96	96	149	154	153
PEAK POW MW		157	158	158	159	161	165	165	164	164	164	164	164	164	163	162	
ENERGY GWH	1153.5	28.8	13.5	17.4	77.4	100.3	114.9	120.3	120.1	91.7	71.5	34.6	16.2	18.5	110.8	114.6	103.1
--GARRISON--																	
NAT INFLOW	14000	530	247	318	1355	1840	3460	2715	835	570	645	248	116	132	260	315	415
DEPLETION	1108	20	9	12	-141	75	963	735	96	-135	-21	-124	-58	-66	-115	-88	-56
CHAN STOR	-41	15			-20	-20	-20			26	22				-39	-5	0
EVAPORATION	365							24	78	97	84	20	9	11	43		
REG INFLOW	19557	703	321	413	1952	2360	3191	2694	1399	1187	1035	559	261	298	969	1105	1110
RELEASE	17646	536	250	321	1369	1660	1726	1783	1783	1490	1291	625	278	317	1291	1537	1388
STOR CHANGE	1911	168	71	91	583	700	1465	910	-384	-304	-256	-65	-17	-19	-322	-432	-279
STORAGE	15830.	15998	16069	16160	16743	17443	18908	19819	19435	19131	18875	18810	18793	18774	18452	18020	17741
ELEV FTMSL	1831.0	1831.6	1831.8	1832.2	1834.2	1836.5	1841.2	1843.9	1842.8	1841.9	1841.1	1840.9	1840.8	1840.8	1839.8	1838.4	1837.5
DISCH KCFS	21.000	18.0	18.0	18.0	23.0	27.0	29.0	29.0	29.0	25.0	21.0	21.0	20.0	20.0	21.0	25.0	25.0
POWER																	
AVE POWER MW		215	216	216	277	330	362	368	369	318	266	266	253	253	265	313	311
PEAK POW MW		446	447	449	456	465	482	499	496	484	481	480	480	480	476	471	468
ENERGY GWH	2666.2	77.5	36.2	46.7	199.8	245.2	260.3	273.7	274.9	228.9	197.8	95.6	42.5	48.6	197.2	232.7	208.7
--OAHE--																	
NAT INFLOW	3900	569	265	341	510	390	710	310	125	185	145	118	55	63	15	10	90
DEPLETION	721	25	12	15	50	74	154	186	125	30	-12	1	0	1	13	19	29
CHAN STOR	-16	13			-20	-16	-8			15	16		4	0	-4	-16	
EVAPORATION	367							26	80	98	83	19	9	10	42		
REG INFLOW	20442	1092	504	648	1808	1961	2274	1881	1703	1562	1381	722	327	369	1248	1512	1449
RELEASE	18606	391	285	288	726	1082	1376	2013	2435	2199	1795	887	448	614	1407	1463	1196
STOR CHANGE	1835	701	219	360	1083	878	898	-132	-732	-636	-415	-165	-122	-245	-160	49	253
STORAGE	16829.	17530	17749	18109	19191	20070	20968	20836	20104	19468	19053	18888	18766	18522	18362	18411	18664
ELEV FTMSL	1601.3	1603.7	1604.5	1605.7	1609.2	1611.8	1614.4	1614.1	1611.9	1610.0	1608.7	1608.2	1607.8	1607.0	1606.5	1606.7	1607.5
DISCH KCFS	14.699	13.2	20.5	16.1	12.2	17.6	23.1	32.7	39.6	37.0	29.2	29.8	32.3	38.7	22.9	23.8	21.5
POWER																	
AVE POWER MW		166	260	206	158	231	307	436	523	483	380	386	417	496	294	306	278
PEAK POW MW		688	692	698	717	731	744	742	731	721	714	712	709	705	703	703	708
ENERGY GWH	2935.4	59.7	43.7	44.5	113.7	171.9	221.1	324.3	389.0	348.0	282.5	138.9	70.0	95.3	218.9	227.3	186.5
--BIG BEND--																	
EVAPORATION	71							5	15	19	16	4	2	2	9		
REG INFLOW	18536	391	285	288	726	1082	1376	2008	2420	2180	1779	883	447	612	1399	1463	1196
RELEASE	18536	391	285	288	726	1082	1376	2008	2420	2180	1779	883	447	612	1399	1463	1196
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	14.699	13.2	20.5	16.1	12.2	17.6	23.1	32.7	39.4	36.6	28.9	29.7	32.2	38.6	22.7	23.8	21.5
POWER																	
AVE POWER MW		62	96	75	57	82	108	153	184	173	141	148	160	191	114	117	103
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	1073.8	22.4	16.1	16.3	41.1	61.3	77.9	113.7	137.0	124.9	105.1	53.3	26.9	36.7	84.8	86.7	69.4
--FORT RANDALL--																	
NAT INFLOW	1500	150	70	90	440	230	155	80	70	100	40				15		60
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	80							6	19	24	18	4	2	2	7		
REG INFLOW	19876	540	354	377	1162	1303	1519	2064	2456	2250	1800	879	445	609	1406	1460	1253
RELEASE	19876	260	210	377	1162	1303	1519	2064	2456	2394	2439	1192	556	635	1309	1120	881
STOR CHANGE	0	280	144	0				0	0	-144	-639	-313	-111	-26	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	3281	2642	2329	2218	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.0	1340.0	1338.0	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.010	8.7	15.1	21.1	19.5	21.2	25.5	33.6	39.9	40.2	39.7	40.1	40.0	40.0	21.3	18.2	15.9
POWER																	
AVE POWER MW		72	128	179	165	179	215	282	328	327	310	289	277	273	156	138	126
PEAK POW MW		350	356	356	356	356	356	356	356	350	319	296	288	285	293	319	339
ENERGY GWH	1919.5	26.1	21.4	38.6	119.1	133.4	155.1	209.9	243.9	235.1	230.4	104.2	46.6	52.4	115.8	102.7	84.9
--GAVINS POINT--																	
NAT INFLOW	2250	111	52	67	280	330	245	205	165	130	150	65	30	35	90	105	190
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-15	1	-12	-12	3	-3	-8	-15	-12	-1	1	-1	0	0	35	6	4
EVAPORATION	23							1	5	6	5	1	1	1	3		
REG INFLOW	21974	372	250	432	1440	1611	1732	2214	2595	2522	2583	1250	583	666	1420	1230	1076
RELEASE	21974	372	250	432	1440	1611	1732	2214	2583	2499	2583	1250	583	666	1420	1230	1111
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	12.5	18.0	24.2	24.2	26.2	29.1	36.0	42.0	42.0	42.0	42.0	42.0	42.0	23.1	20.0	20.0
POWER																	
AVE POWER MW		44	62	83	83	89	99	114	114	115	116	116	116	116	78	70	69
PEAK POW MW		114	114	114	114	114	114	114	115	116	116	116	116	116	78	78	76
ENERGY GWH	820.8	15.8	10.5	17.9	59.7	66.6	71.1	84.8	84.9	83.1	86.5	41.8	19.5	22.3	57.7	52.0	46.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	3400	189	88	113	470	890	550	290	225	165	85	50	23	27	60	35	140
DEPLETION	276	7	3	4	23	36	32	39	38	25	11	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	25098	553	334	541	1887	2465	2250	2465	2770	2639	2657	1293	603	690	1466	1250	1236
KCFS		18.6	24.1	30.3	31.7	40.1	37.8	40.1	45.0	44.4	43.2	43.5	43.5	43.5	23.8	20.3	22.3
--TOTAL--																	
NAT INFLOW	34500	1890	882	1133	3880	5080	7475	4805	1860	1535	1545	768	358	409	790	775	1315
DEPLETION	2891	48	23	29	-65	516	1775	1282	277	-192	-88	-131	-61	-70	-181	-177	-95
CHAN STOR	-70	29	-12	-12	-37	-39	-36	-15	-12	41	39	-1	4	-1	-7	-15	4
EVAPORATION	1222							83	262	326	279	65	30	34	141		
STORAGE	50922.	52239	52751	53303	55323	57383	60798	61758	60297	59100	57836	57374	57164	56918	56275	55962	56140
SYSTEM POWER																	
AVE POWER MW		640	842	840	848	1047	1251	1514	1680	1544	1309	1301	1320	1426	1055	1097	1040
PEAK POW MW		2274	2277	2284	2312	2336	2370	2386	2371	2353	2332	2307	2296	2289	2252	2272	2282
ENERGY GWH	10569.2	230.3	141.4	181.4	610.7	778.8	900.4	1126.7	1249.7	1111.7	973.9	468.5	221.7	273.8	785.2	816.0	699.1
DAILY GWH		15.4	20.2	20.2	20.4	25.1	30.0	36.3	40.3	37.1	31.4	31.2	31.7	34.2	25.3	26.3	25.0
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB14		2014										2015				
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	8650	310	144	186	755	1285	2155	1105	405	350	440	263	123	140	320	285	385
DEPLETION	541	-5	-2	-3	-6	303	590	261	1	-109	-91	-30	-14	-16	-116	-136	-87
EVAPORATION	313							21	66	82	72	17	8	9	38		
MOD INFLOW	7796	315	147	189	761	982	1565	823	338	377	459	275	128	147	398	421	472
RELEASE	6333	179	83	107	446	523	625	646	646	511	400	193	90	103	553	646	583
STOR CHANGE	1463	136	63	82	315	459	940	178	-307	-134	60	81	38	43	-155	-225	-111
STORAGE	13315.	13451	13514	13596	13911	14370	15310	15488	15180	15046	15106	15187	15225	15269	15114	14889	14778
ELEV FTMSL	2226.7	2227.4	2227.7	2228.1	2229.7	2232.0	2236.4	2237.3	2235.8	2235.2	2235.5	2235.9	2236.1	2236.3	2235.5	2234.5	2234.0
DISCH KCFS	7.500	6.0	6.0	6.0	7.5	8.5	10.5	10.5	10.5	8.6	6.5	6.5	6.5	6.5	9.0	10.5	10.5
POWER																	
AVE POWER MW		80	80	80	101	115	142	143	143	117	89	89	89	89	123	142	142
PEAK POW MW		157	158	158	159	161	164	165	164	163	163	164	164	164	163	163	162
ENERGY GWH	1040.6	28.8	13.5	17.4	72.5	85.3	102.2	106.5	106.4	84.6	66.2	32.1	15.0	17.1	91.8	105.9	95.3
--GARRISON--																	
NAT INFLOW	12750	482	225	289	1230	1675	3200	2475	760	520	555	215	100	115	235	295	380
DEPLETION	1077	20	9	12	-141	132	915	726	107	-135	-37	-129	-60	-69	-122	-92	-60
CHAN STOR	-30	15			-15	-10	-20			19	20		0	0	-24	-15	
EVAPORATION	364							24	77	96	84	20	9	11	43		
REG INFLOW	17612	655	298	384	1802	2056	2890	2371	1222	1088	928	518	242	276	843	1018	1023
RELEASE	15707	536	250	321	1250	1414	1488	1476	1476	1285	1168	565	264	294	1230	1414	1277
STOR CHANGE	1905	120	49	62	552	641	1402	895	-254	-197	-240	-48	-22	-17	-387	-396	-254
STORAGE	15830.	15949	15998	16060	16613	17254	18656	19551	19297	19100	18860	18812	18790	18772	18385	17989	17735
ELEV FTMSL	1831.0	1831.4	1831.6	1831.8	1833.7	1835.9	1840.4	1843.1	1842.4	1841.8	1841.0	1840.9	1840.8	1840.7	1839.5	1838.3	1837.5
DISCH KCFS	21.000	18.0	18.0	18.0	21.0	23.0	25.0	24.0	24.0	21.6	19.0	19.0	19.0	18.5	20.0	23.0	23.0
POWER																	
AVE POWER MW		215	215	216	253	280	311	304	305	274	241	240	240	234	252	288	286
PEAK POW MW		446	446	447	454	462	479	498	490	483	481	480	480	480	476	471	468
ENERGY GWH	2370.4	77.4	36.2	46.6	182.1	208.6	223.9	226.1	227.3	197.4	179.0	86.5	40.4	44.9	187.8	214.0	192.1
--OAHE--																	
NAT INFLOW	3200	457	213	274	430	310	640	250	95	150	120	95	44	51	-10		80
DEPLETION	721	25	12	15	50	74	154	186	125	30	-12	1	0	1	13	19	29
CHAN STOR	-8	13			-12	-8	-8	4		9	10			2	-6	-12	0
EVAPORATION	350							24	75	92	80	19	9	10	42		
REG INFLOW	17828	981	452	581	1617	1642	1966	1519	1371	1323	1231	640	299	336	1159	1383	1328
RELEASE	15999	423	299	303	845	1155	1414	1764	1910	1679	1224	569	301	445	1190	1359	1121
STOR CHANGE	1829	558	153	278	773	487	552	-244	-539	-356	6	72	-2	-109	-31	25	208
STORAGE	16829.	17387	17539	17817	18590	19077	19629	19385	18846	18490	18496	18568	18566	18457	18426	18450	18658
ELEV FTMSL	1601.3	1603.2	1603.8	1604.7	1607.2	1608.8	1610.5	1609.8	1608.1	1606.9	1606.9	1607.2	1607.2	1606.8	1606.7	1606.8	1607.5
DISCH KCFS	14.699	14.2	21.5	17.0	14.2	18.8	23.8	28.7	31.1	28.2	19.9	19.1	21.7	28.0	19.4	22.1	20.2
POWER																	
AVE POWER MW		179	272	215	182	243	310	375	403	363	257	246	279	360	249	284	260
PEAK POW MW		685	688	693	707	715	724	720	711	705	705	706	706	704	704	704	708
ENERGY GWH	2499.6	64.4	45.7	46.5	131.3	181.1	223.2	278.7	299.7	261.7	190.9	88.7	46.9	69.2	185.4	211.4	174.9
--BIG BEND--																	
EVAPORATION	71							5	15	19	16	4	2	2	9		
REG INFLOW	15929	423	299	303	845	1155	1414	1759	1895	1660	1208	565	299	443	1182	1359	1121
RELEASE	15929	423	299	303	845	1155	1414	1759	1895	1660	1208	565	299	443	1182	1359	1121
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	14.699	14.2	21.5	17.0	14.2	18.8	23.8	28.6	30.8	27.9	19.6	19.0	21.5	27.9	19.2	22.1	20.2
POWER																	
AVE POWER MW		67	101	79	66	88	111	134	144	132	96	95	108	139	97	108	97
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	922.3	24.3	16.9	17.1	47.9	65.4	80.1	99.6	107.3	95.2	71.7	34.3	18.1	26.8	71.8	80.6	65.0
--FORT RANDALL--																	
NAT INFLOW	1200	123	58	74	350	185	140	75	65	75	10	-3	-1	-1	5	-5	50
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	80							6	19	24	18	4	2	2	7		
REG INFLOW	16969	545	356	376	1191	1331	1542	1810	1927	1704	1199	557	296	439	1178	1351	1168
RELEASE	16968	265	212	376	1191	1331	1542	1810	1927	1848	1838	870	407	465	1081	1011	796
STOR CHANGE	0	280	144					0	0	-144	-639	-313	-111	-26	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	3281	2642	2329	2218	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.0	1340.0	1338.0	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.010	8.9	15.3	21.1	20.0	21.6	25.9	29.4	31.3	31.1	29.9	29.3	29.3	29.3	17.6	16.4	14.3
POWER																	
AVE POWER MW		74	129	178	169	183	219	248	264	260	239	221	214	212	129	125	114
PEAK POW MW		350	356	356	356	356	356	356	356	350	319	296	287	285	293	319	339
ENERGY GWH	1669.5	26.6	21.7	38.5	122.0	136.2	157.4	184.4	196.1	186.9	178.1	79.5	36.0	40.7	95.9	92.8	76.7
--GAVINS POINT--																	
NAT INFLOW	2000	106	50	64	240	290	210	180	145	115	135	60	28	32	85	95	165
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-11	0	-12	-11	2	-3	-8	-7	-4	1	2	1	0	0	22	2	4
EVAPORATION	23							1	5	6	5	1	1	1	3		
REG INFLOW	18820	372	250	429	1428	1599	1720	1943	2053	1963	1968	925	432	493	1174	1107	965
RELEASE	18820	372	250	429	1428	1599	1720	1943	2041	1940	1968	925	432	493	1174	1107	1000
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	12.5	18.0	24.0	24.0	26.0	28.9	31.6	33.2	32.6	32.0	31.1	31.1	31.1	19.1	18.0	18.0
POWER																	
AVE POWER MW		44	62	82	82	89	98	105	109	109	108	106	106	106	67	64	63
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	774.1	15.8	10.5	17.8	59.2	66.1	70.7	77.8	80.9	78.3	80.6	38.3	17.9	20.4	50.2	47.3	42.4
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	2800	165	77	99	390	730	435	240	180	135	70	43	20	23	50	30	115
DEPLETION	276	7	3	4	23	36	32	39	38	25	11	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	21344	529	323	523	1795	2293	2123	2144	2183	2050	2027	961	449	513	1210	1122	1100
KCFS		17.8	23.3	29.3	30.2	37.3	35.7	34.9	35.5	34.4	33.0	32.3	32.3	32.3	19.7	18.2	19.8
--TOTAL--																	
NAT INFLOW	30600	1643	766	985	3395	4475	6780	4325	1650	1345	1330	673	314	359	685	700	1175
DEPLETION	2809	48	23	29	-65	573	1727	1269	296	-187	-126	-145	-68	-77	-198	-190	-100
CHAN STOR	-49	28	-12	-11	-26	-21	-36	-3	-4	29	33	1	0	1	-8	-25	4
EVAPORATION	1200							81	256	319	275	65	30	34	141		
STORAGE	50922.	52016	52424	52846	54486	56074	58968	59796	58708	57900	57087	56879	56782	56672	56197	55940	56119
SYSTEM POWER																	
AVE POWER MW		659	860	851	854	998	1191	1308	1368	1256	1030	998	1037	1141	918	1011	962
PEAK POW MW		2271	2272	2278	2299	2317	2346	2362	2345	2336	2323	2301	2292	2288	2252	2272	2282
ENERGY GWH	9276.5	237.3	144.5	183.9	614.9	742.8	857.5	973.2	1017.7	904.1	766.6	359.4	174.3	219.1	682.8	752.0	646.5
DAILY GWH		15.8	20.6	20.4	20.5	24.0	28.6	31.4	32.8	30.1	24.7	24.0	24.9	27.4	22.0	24.3	23.1
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB14		2014										2015				
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	7200	227	106	136	560	1145	1830	840	365	290	385	205	96	109	295	260	350
DEPLETION	496	4	2	3	50	296	475	229	-6	-126	-43	-33	-15	-17	-108	-132	-83
EVAPORATION	425							26	81	102	89	40	19	22	47		
MOD INFLOW	6279	223	104	134	510	849	1355	585	290	314	339	197	92	105	356	392	433
RELEASE	5630	179	83	107	417	523	536	553	553	416	307	149	69	103	523	584	528
STOR CHANGE	649	45	21	27	93	326	819	32	-264	-102	32	48	23	2	-166	-192	-95
STORAGE	12759.	12804	12825	12851	12945	13271	14091	14122	13858	13757	13788	13837	13859	13861	13695	13503	13408
ELEV FTMSL	2223.8	2224.0	2224.1	2224.3	2224.7	2226.5	2230.6	2230.8	2229.5	2229.0	2229.1	2229.4	2229.5	2229.5	2228.6	2227.7	2227.2
DISCH KCFS	7.000	6.0	6.0	6.0	7.0	8.5	9.0	9.0	9.0	7.0	5.0	5.0	5.0	6.5	8.5	9.5	9.5
POWER																	
AVE POWER MW		79	79	79	93	113	121	121	121	94	67	67	67	87	114	127	127
PEAK POW MW		154	155	155	155	157	160	160	159	159	159	159	159	159	158	158	157
ENERGY GWH	911.4	28.5	13.3	17.1	66.7	83.9	86.8	90.3	90.1	67.7	50.0	24.2	11.3	16.8	84.9	94.5	85.2
--GARRISON--																	
NAT INFLOW	10900	479	223	287	780	1300	3120	2100	580	480	445	180	84	96	180	255	310
DEPLETION	1078	28	13	17	46	167	785	646	105	-155	-51	-132	-61	-70	-120	-85	-55
CHAN STOR	-26	10			-10	-15	-5			20	20		0	-15	-20	-10	
EVAPORATION	495							30	96	120	104	46	22	25	53		
REG INFLOW	14931	640	294	378	1140	1640	2865	1977	932	951	720	414	193	230	750	914	893
RELEASE	14160	476	222	286	1071	1230	1369	1353	1353	1122	984	476	222	254	1168	1353	1222
STOR CHANGE	771	164	72	92	69	411	1497	624	-420	-171	-264	-62	-29	-24	-419	-439	-329
STORAGE	15304.	15468	15540	15632	15701	16111	17608	18233	17812	17642	17377	17315	17286	17262	16843	16405	16075
ELEV FTMSL	1829.1	1829.7	1830.0	1830.3	1830.5	1832.0	1837.1	1839.1	1837.7	1837.2	1836.3	1836.1	1836.0	1835.9	1834.5	1833.0	1831.9
DISCH KCFS	20.000	16.0	16.0	16.0	18.0	20.0	23.0	22.0	22.0	18.9	16.0	16.0	16.0	16.0	19.0	22.0	22.0
POWER																	
AVE POWER MW		189	190	190	214	239	280	274	274	234	198	198	197	197	233	267	264
PEAK POW MW		440	441	442	443	448	467	474	469	467	464	463	463	462	457	452	447
ENERGY GWH	2089.5	68.1	31.9	41.1	154.0	177.6	201.5	203.8	204.2	168.7	147.5	71.1	33.2	37.9	173.1	198.3	177.6
--OAHE--																	
NAT INFLOW	2300	259	121	155	405	220	625	170	70	95	45	45	21	24	-15	-10	70
DEPLETION	721	25	12	15	50	74	154	186	125	30	-12	1	0	1	13	19	29
CHAN STOR	-8	17	0	0	-8	-8	-12	4		13	12		0	0	-13	-13	
EVAPORATION	456							29	89	110	94	42	20	22	49		
REG INFLOW	15274	728	331	426	1418	1367	1827	1312	1208	1091	959	478	223	255	1078	1311	1263
RELEASE	14636	430	270	270	1008	1171	1326	1744	1871	1646	1152	533	284	207	818	1037	867
STOR CHANGE	638	298	61	156	410	196	501	-432	-663	-556	-193	-56	-61	47	260	274	396
STORAGE	16308.	16606	16667	16823	17233	17429	17930	17498	16835	16279	16086	16030	15969	16017	16277	16550	16946
ELEV FTMSL	1599.4	1600.5	1600.7	1601.3	1602.7	1603.4	1605.1	1603.6	1601.3	1599.3	1598.6	1598.4	1598.2	1598.4	1599.3	1600.3	1601.7
DISCH KCFS	15.352	14.4	19.5	15.1	16.9	19.1	22.3	28.4	30.4	27.7	18.7	17.9	20.5	13.1	13.3	16.9	15.6
POWER																	
AVE POWER MW		180	242	189	213	240	283	359	381	343	231	221	251	161	164	209	195
PEAK POW MW		671	672	675	683	686	695	687	675	665	661	660	659	660	665	670	677
ENERGY GWH	2212.6	64.6	40.7	40.8	153.1	178.8	203.5	267.3	283.6	246.8	172.0	79.4	42.2	30.9	122.3	155.7	131.0
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	14533	430	270	270	1008	1171	1326	1738	1852	1622	1130	523	280	202	807	1037	867
RELEASE	14533	430	270	270	1008	1171	1326	1738	1852	1622	1130	523	280	202	807	1037	867
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.352	14.4	19.5	15.1	16.9	19.1	22.3	28.3	30.1	27.3	18.4	17.6	20.1	12.7	13.1	16.9	15.6
POWER																	
AVE POWER MW		68	91	71	79	89	104	132	141	129	90	89	101	64	66	83	75
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	839.8	24.6	15.3	15.3	57.1	66.4	75.1	98.4	104.9	93.0	67.1	31.9	17.0	12.4	49.3	61.7	50.3
--FORT RANDALL--																	
NAT INFLOW	900	121	56	73	160	165	135	70	60	35		-5	-2	-3		-10	45
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	115							8	25	31	24	9	4	4	9		
REG INFLOW	15238	549	326	342	1164	1327	1449	1782	1872	1618	1105	508	273	195	794	1024	909
RELEASE	15237	269	182	342	1164	1327	1449	1782	1872	1762	1744	821	384	221	698	684	537
STOR CHANGE	0	280	144	0	0			0	0	-144	-639	-313	-111	-26	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	3281	2642	2329	2218	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.0	1340.0	1338.0	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.483	9.0	13.1	19.1	19.6	21.6	24.4	29.0	30.4	29.6	28.4	27.6	27.7	13.9	11.3	11.1	9.7
POWER																	
AVE POWER MW		75	111	162	166	183	206	244	256	248	227	209	203	102	84	85	77
PEAK POW MW		350	356	356	356	356	356	356	356	350	319	296	287	285	293	319	339
ENERGY GWH	1509.4	27.0	18.6	35.0	119.3	135.9	148.1	181.6	190.6	178.3	169.2	75.1	34.0	19.6	62.2	63.1	51.9
--GAVINS POINT--																	
NAT INFLOW	1500	102	47	61	145	165	175	100	90	95	120	58	27	31	80	85	120
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-2	1	-8	-12	-1	-4	-5	-9	-3	2	2	1	0	25	5	0	3
EVAPORATION	34							2	6	8	7	3	2	2	4		
REG INFLOW	16588	372	222	391	1303	1470	1595	1832	1943	1856	1857	872	407	273	769	769	659
RELEASE	16588	372	222	391	1303	1470	1595	1832	1931	1833	1857	872	407	273	769	769	694
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	12.5	16.0	21.9	21.9	23.9	26.8	29.8	31.4	30.8	30.2	29.3	29.3	17.2	12.5	12.5	12.5
POWER																	
AVE POWER MW		44	56	75	75	82	91	100	105	105	104	102	102	61	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	689.0	15.8	9.3	16.3	54.2	61.0	65.8	74.7	77.9	75.4	77.5	36.7	17.1	11.7	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1800	162	76	97	280	345	190	165	130	110	60	30	14	16	25	25	75
DEPLETION	276	7	3	4	23	36	32	39	38	25	11	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	18112	527	294	484	1560	1779	1753	1958	2023	1918	1906	895	418	286	780	779	754
KCFS		17.7	21.2	27.1	26.2	28.9	29.5	31.8	32.9	32.2	31.0	30.1	30.1	18.0	12.7	12.7	13.6
--TOTAL--																	
NAT INFLOW	24600	1350	630	810	2330	3340	6075	3445	1295	1105	1055	513	239	273	565	605	970
DEPLETION	2765	65	30	39	178	601	1482	1157	287	-224	-92	-151	-70	-80	-188	-179	-91
CHAN STOR	-35	28	-8	-12	-20	-28	-23	-5	-3	35	34	1	0	11	-28	-23	3
EVAPORATION	1629							101	318	395	340	151	70	80	173		
STORAGE	49320.	50107	50404	50679	51252	52185	55002	55226	53890	52941	51877	51494	51316	51315	51087	51070	51379
SYSTEM POWER																	
AVE POWER MW		635	769	766	839	946	1084	1231	1279	1153	918	885	922	673	705	815	782
PEAK POW MW		2247	2247	2251	2260	2270	2301	2301	2283	2275	2257	2233	2223	2221	2189	2214	2226
ENERGY GWH	8251.7	228.6	129.2	165.6	604.4	703.5	780.8	916.1	951.3	829.8	683.2	318.4	154.8	129.2	524.8	606.3	525.6
DAILY GWH		15.2	18.5	18.4	20.1	22.7	26.0	29.6	30.7	27.7	22.0	21.2	22.1	16.1	16.9	19.6	18.8
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB14		2014										2015				
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	5950	201	94	120	460	945	1510	645	290	240	320	168	78	89	240	240	310
DEPLETION	620	10	5	6	82	201	383	251	63	-68	-56	-6	-3	-3	-89	-95	-60
EVAPORATION	486							30	94	117	101	46	21	24	53		
MOD INFLOW	4844	191	89	115	378	744	1127	364	133	191	275	128	60	68	276	335	370
RELEASE	5497	179	83	107	417	492	536	553	553	425	338	164	76	87	492	523	472
STOR CHANGE	-653	13	6	8	-39	252	591	-190	-420	-234	-64	-36	-17	-19	-216	-188	-102
STORAGE	12239.	12252	12258	12265	12227	12479	13070	12881	12460	12227	12163	12127	12110	12091	11876	11688	11586
ELEV FTMSL	2220.9	2221.0	2221.0	2221.1	2220.9	2222.2	2225.4	2224.4	2222.1	2220.9	2220.5	2220.3	2220.2	2220.1	2218.9	2217.9	2217.3
DISCH KCFS	7.000	6.0	6.0	6.0	7.0	8.0	9.0	9.0	9.0	7.1	5.5	5.5	5.5	5.5	8.0	8.5	8.5
POWER																	
AVE POWER MW		78	78	78	91	104	119	119	118	93	72	72	72	71	103	109	109
PEAK POW MW		151	151	151	151	153	156	155	153	151	151	151	151	150	149	148	147
ENERGY GWH	867.1	28.2	13.1	16.9	65.7	77.7	85.4	88.6	88.0	67.2	53.3	25.8	12.0	13.7	77.0	81.4	73.2
--GARRISON--																	
NAT INFLOW	9150	404	189	242	640	1150	2600	1700	475	395	395	160	75	85	150	210	280
DEPLETION	1178	27	12	16	60	155	691	610	137	-121	-3	-117	-55	-62	-87	-53	-32
CHAN STOR	-16	10			-10	-10	-10			19	17				-26	-5	
EVAPORATION	571							35	111	138	119	54	25	28	61		
REG INFLOW	12882	566	259	334	986	1477	2434	1608	781	822	634	387	181	207	642	780	784
RELEASE	13559	461	215	277	982	1383	1309	1291	1291	1028	922	446	208	238	1107	1261	1139
STOR CHANGE	-676	105	44	57	4	93	1125	317	-510	-205	-289	-59	-28	-31	-465	-480	-354
STORAGE	14545.	14650	14695	14751	14756	14849	15974	16291	15780	15575	15286	15227	15200	15168	14703	14223	13869
ELEV FTMSL	1826.3	1826.7	1826.9	1827.1	1827.1	1827.5	1831.5	1832.6	1830.8	1830.1	1829.1	1828.8	1828.7	1828.6	1826.9	1825.1	1823.8
DISCH KCFS	19.500	15.5	15.5	15.5	16.5	22.5	22.0	21.0	21.0	17.3	15.0	15.0	15.0	15.0	18.0	20.5	20.5
POWER																	
AVE POWER MW		180	180	180	192	261	259	252	251	205	178	177	177	177	210	236	234
PEAK POW MW		429	429	430	430	431	446	450	444	441	437	436	436	436	429	423	418
ENERGY GWH	1924.4	64.8	30.3	39.0	138.3	194.4	186.7	187.3	186.9	147.9	132.2	63.7	29.7	33.9	156.4	175.8	157.1
--OAHE--																	
NAT INFLOW	1350	177	82	106	285	130	315	110	50	55	15	13	6	7	-35	-15	50
DEPLETION	721	25	12	15	50	74	154	186	125	30	-12	1	0	1	13	19	29
CHAN STOR	-4	18			-4	-27	2	4		17	11				-14	-12	
EVAPORATION	512							32	99	123	106	48	22	26	56		
REG INFLOW	13671	631	286	368	1212	1413	1472	1187	1117	947	854	410	191	219	989	1215	1160
RELEASE	14487	483	295	340	1220	1420	1464	1700	1727	1235	1065	507	98	138	852	1057	887
STOR CHANGE	-816	148	-9	28	-8	-7	8	-512	-610	-287	-212	-97	93	81	137	158	273
STORAGE	15488.	15636	15627	15655	15647	15640	15648	15135	14526	14238	14027	13930	14023	14104	14241	14399	14672
ELEV FTMSL	1596.4	1597.0	1596.9	1597.0	1597.0	1597.0	1597.0	1595.1	1592.7	1591.5	1590.7	1590.3	1590.6	1591.0	1591.5	1592.2	1593.2
DISCH KCFS	16.005	16.2	21.3	19.0	20.5	23.1	24.6	27.6	28.1	20.7	17.3	17.0	7.1	8.7	13.9	17.2	16.0
POWER																	
AVE POWER MW		198	259	232	250	281	300	334	336	246	205	200	84	103	164	204	190
PEAK POW MW		653	653	653	653	653	653	644	632	626	622	620	622	623	626	629	635
ENERGY GWH	2105.7	71.3	43.5	50.1	180.1	209.2	215.7	248.8	249.7	177.2	152.3	72.2	14.0	19.7	122.1	151.7	128.0
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	14359	483	295	340	1220	1420	1464	1692	1702	1204	1038	494	92	131	838	1057	887
RELEASE	14359	483	295	340	1220	1420	1464	1692	1702	1204	1038	494	92	131	838	1057	887
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	16.005	16.2	21.3	19.0	20.5	23.1	24.6	27.5	27.7	20.2	16.9	16.6	6.7	8.3	13.6	17.2	16.0
POWER																	
AVE POWER MW		77	100	89	96	108	115	129	130	97	84	84	34	42	69	85	77
PEAK POW MW		517	509	509	509	509	509	509	509	529	538	538	538	538	538	538	529
ENERGY GWH	830.4	27.7	16.7	19.2	69.1	80.4	82.9	95.8	96.4	69.8	62.8	30.1	5.7	8.0	51.2	62.9	51.5
--FORT RANDALL--																	
NAT INFLOW	450	77	36	46	80	65	110	35	25		-20	-8	-4	-4	-10	-20	40
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	139							10	32	38	28	10	4	5	12		
REG INFLOW	14590	559	331	385	1296	1476	1562	1699	1681	1159	989	475	85	121	813	1034	924
RELEASE	14589	278	187	385	1296	1476	1562	1699	1681	1583	1570	686	102	121	716	694	552
STOR CHANGE	1	281	144		0	0	0	0	0	-424	-581	-211	-17	0	97	340	372
STORAGE	3000.	3281	3425	3425	3425	3425	3425	3425	3425	3001	2420	2209	2192	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1350.0	1341.5	1337.8	1337.5	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.956	9.4	13.5	21.6	21.8	24.0	26.3	27.6	27.3	26.6	25.5	23.1	7.3	7.7	11.6	11.3	9.9
POWER																	
AVE POWER MW		78	114	183	184	203	222	233	230	220	199	171	54	56	86	86	79
PEAK POW MW		350	356	356	356	356	356	356	356	339	303	286	285	285	293	319	339
ENERGY GWH	1442.8	27.9	19.1	39.4	132.7	150.9	159.5	173.3	171.5	158.2	148.1	61.4	9.1	10.8	63.8	63.9	53.4
--GAVINS POINT--																	
NAT INFLOW	1300	92	43	55	125	140	150	85	70	80	105	50	23	27	75	75	105
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	1	-8	-16	0	-4	-4	-3	1	1	2	5	29	-1	-7	1	3
EVAPORATION	42							2	8	10	9	4	2	2	5		
REG INFLOW	15732	372	222	425	1416	1593	1684	1740	1734	1659	1666	732	150	143	769	769	659
RELEASE	15732	372	222	425	1416	1593	1684	1740	1722	1636	1666	732	150	143	769	769	694
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	12.5	16.0	23.8	23.8	25.9	28.3	28.3	28.0	27.5	27.1	24.6	10.8	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		44	56	82	82	88	96	96	96	96	95	86	38	32	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	658.4	15.8	9.3	17.6	58.7	65.8	69.3	71.6	71.3	68.8	70.6	31.1	6.5	6.2	33.1	33.0	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1100	121	56	73	145	185	115	100	80	65	35	23	11	12	10	20	50
DEPLETION	276	7	3	4	23	36	32	39	38	25	11	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	16556	486	275	493	1538	1742	1767	1801	1764	1676	1690	748	157	151	765	774	729
KCFS		16.3	19.8	27.6	25.8	28.3	29.7	29.3	28.7	28.2	27.5	25.1	11.3	9.5	12.4	12.6	13.1
--TOTAL--																	
NAT INFLOW	19300	1072	500	643	1735	2615	4800	2675	990	835	850	405	189	216	430	510	835
DEPLETION	2989	69	32	42	224	494	1296	1143	388	-132	-57	-110	-51	-58	-136	-110	-45
CHAN STOR	-21	29	-8	-16	-15	-41	-12	2	1	38	29	5	30	-1	-48	-16	3
EVAPORATION	1878							118	367	456	391	174	81	92	200		
STORAGE	47220.	47767	47952	48044	48002	48340	50065	49680	48152	47024	45879	45476	45508	45538	45092	44922	45075
SYSTEM POWER																	
AVE POWER MW		654	787	844	895	1046	1110	1163	1161	957	832	790	458	481	677	764	733
PEAK POW MW		2215	2213	2214	2214	2217	2235	2228	2208	2203	2168	2148	2148	2150	2114	2135	2144
ENERGY GWH	7828.7	235.6	132.1	182.3	644.6	778.4	799.5	865.5	863.8	689.1	619.2	284.2	76.9	92.3	503.5	568.8	492.8
DAILY GWH		15.7	18.9	20.3	21.5	25.1	26.6	27.9	27.9	23.0	20.0	18.9	11.0	11.5	16.2	18.3	17.6

INI-SUM 15MAR 22MAR 31MAR 30APR 31MAY 30JUN 31JUL 31AUG 30SEP 31OCT 15NOV 22NOV 30NOV 31DEC 31JAN 28FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB14		2014									2015					
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	5300	194	90	116	440	850	1180	595	260	230	310	145	68	77	220	230	295
DEPLETION	577	10	5	6	82	201	383	239	60	-68	-50	-23	-11	-12	-97	-88	-59
EVAPORATION	471							29	91	113	98	44	21	24	51		
MOD INFLOW	4252	184	86	110	358	649	797	327	109	185	262	124	58	66	266	318	354
RELEASE	5575	179	83	107	476	523	536	553	553	435	338	164	76	95	461	523	472
STOR CHANGE	-1323	5	2	3	-118	126	261	-227	-445	-251	-76	-40	-19	-29	-195	-205	-118
STORAGE	12239.	12244	12247	12250	12132	12258	12520	12293	11849	11598	11522	11482	11463	11434	11239	11035	10917
ELEV FTMSL	2220.9	2221.0	2221.0	2221.0	2220.3	2221.0	2222.5	2221.2	2218.8	2217.4	2216.9	2216.7	2216.6	2216.4	2215.3	2214.1	2213.4
DISCH KCFS	7.000	6.0	6.0	6.0	8.0	8.5	9.0	9.0	9.0	7.3	5.5	5.5	5.5	6.0	7.5	8.5	8.5
POWER																	
AVE POWER MW		78	78	78	104	110	117	118	117	94	71	70	70	77	95	107	107
PEAK POW MW		151	151	151	151	151	153	152	149	147	147	147	147	146	145	144	143
ENERGY GWH	868.9	28.2	13.1	16.9	74.9	82.2	84.6	87.4	86.7	67.7	52.5	25.3	11.8	14.7	71.0	79.9	71.9
--GARRISON--																	
NAT INFLOW	7400	382	178	229	580	1100	2165	935	325	215	385	150	70	80	140	195	270
DEPLETION	1048	27	12	16	60	155	591	537	105	-126		-108	-50	-57	-66	-32	-16
CHAN STOR	-16	10			-21	-5	-5			17	19			-5	-16	-11	
EVAPORATION	551							35	108	133	115	51	24	27	59		
REG INFLOW	11360	545	249	320	975	1462	2104	917	666	661	627	370	173	200	593	739	758
RELEASE	12845	446	208	268	952	1199	1220	1199	1199	1031	922	446	208	246	1076	1168	1055
STOR CHANGE	-1486	98	41	53	23	263	885	-282	-533	-371	-295	-77	-36	-46	-483	-429	-297
STORAGE	14545.	14643	14684	14737	14760	15024	15908	15626	15093	14722	14427	14351	14315	14269	13786	13357	13060
ELEV FTMSL	1826.3	1826.7	1826.9	1827.0	1827.1	1828.1	1831.3	1830.3	1828.4	1827.0	1825.9	1825.6	1825.5	1825.3	1823.4	1821.8	1820.6
DISCH KCFS	19.500	15.0	15.0	15.0	16.0	19.5	20.5	19.5	19.5	17.3	15.0	15.0	15.0	15.5	17.5	19.0	19.0
POWER																	
AVE POWER MW		174	174	175	186	227	242	232	230	202	174	173	173	178	200	214	212
PEAK POW MW		429	429	430	430	434	445	442	435	430	426	425	424	423	417	410	406
ENERGY GWH	1802.5	62.7	29.3	37.7	134.1	169.1	174.3	172.7	171.0	145.7	129.5	62.4	29.1	34.3	148.7	159.4	142.6
--OAHE--																	
NAT INFLOW	1150	169	79	102	200	110	305	105	40	45	5	8	4	4	-45	-20	40
DEPLETION	721	25	12	15	50	74	154	186	125	30	-12	1	0	1	13	19	29
CHAN STOR	2	20		0	-4	-16	-5	5		10	11			-2	-10	-7	
EVAPORATION	496							31	96	119	103	46	22	25	54		
REG INFLOW	12781	611	276	355	1098	1219	1366	1091	1018	938	848	406	190	222	954	1122	1066
RELEASE	14431	506	305	353	1220	1445	1494	1714	1747	1244	1043	279	107	142	867	1067	897
STOR CHANGE	-1651	105	-30	2	-122	-226	-128	-623	-729	-306	-195	127	83	80	87	55	169
STORAGE	15488.	15593	15564	15565	15443	15218	15090	14466	13738	13431	13236	13363	13446	13526	13613	13668	13838
ELEV FTMSL	1596.4	1596.8	1596.7	1596.7	1596.2	1595.4	1594.9	1592.4	1589.5	1588.2	1587.4	1587.9	1588.3	1588.6	1589.0	1589.2	1589.9
DISCH KCFS	16.005	17.0	22.0	19.8	20.5	23.5	25.1	27.9	28.4	20.9	17.0	9.4	7.7	9.0	14.1	17.4	16.1
POWER																	
AVE POWER MW		207	268	241	249	284	303	333	334	244	197	109	90	105	165	203	189
PEAK POW MW		652	652	652	649	645	643	631	616	610	605	608	610	612	614	615	618
ENERGY GWH	2073.1	74.5	45.0	52.0	179.4	211.6	217.9	247.7	248.5	175.4	146.4	39.3	15.1	20.1	122.5	150.8	127.1
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	14302	506	305	353	1220	1445	1494	1707	1722	1214	1016	267	101	136	853	1067	897
RELEASE	14302	506	305	353	1220	1445	1494	1707	1722	1213	1016	267	101	136	853	1067	897
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	16.005	17.0	22.0	19.8	20.5	23.5	25.1	27.8	28.0	20.4	16.5	9.0	7.3	8.5	13.9	17.4	16.1
POWER																	
AVE POWER MW		81	103	93	96	110	118	130	131	98	83	45	37	43	70	85	77
PEAK POW MW		517	509	509	509	509	509	509	509	529	538	538	538	538	538	538	529
ENERGY GWH	826.6	29.0	17.3	20.0	69.1	81.8	84.6	96.7	97.5	70.4	61.6	16.4	6.2	8.3	52.1	63.5	52.1
--FORT RANDALL--																	
NAT INFLOW	350	68	32	41	85	50	95	25	15	-5	-25	-10	-5	-5	-20	-25	35
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	138							10	32	38	28	10	4	5	12		
REG INFLOW	14433	572	336	393	1301	1486	1577	1704	1691	1164	962	245	92	124	818	1039	929
RELEASE	14432	291	192	393	1301	1486	1577	1704	1691	1588	1575	441	92	125	721	699	557
STOR CHANGE	1	281	144				0	0	0	-424	-613	-196	0	0	97	340	372
STORAGE	3000.	3281	3425	3425	3425	3425	3425	3425	3425	3001	2388	2192	2192	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1350.0	1341.0	1337.5	1337.5	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.956	9.8	13.9	22.0	21.9	24.2	26.5	27.7	27.5	26.7	25.6	14.8	6.6	7.9	11.7	11.4	10.0
POWER																	
AVE POWER MW		81	117	186	185	204	224	234	232	220	199	110	49	58	86	87	80
PEAK POW MW		350	356	356	356	356	356	356	356	339	300	285	285	285	293	319	339
ENERGY GWH	1429.3	29.2	19.7	40.2	133.1	151.9	161.0	173.8	172.5	158.6	148.2	39.6	8.2	11.1	64.2	64.4	53.8
--GAVINS POINT--																	
NAT INFLOW	1200	80	37	48	120	130	135	80	60	75	100	48	22	25	70	70	100
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	0	-8	-16	0	-4	-4	-2	0	2	2	20	15	-2	-7	1	2
EVAPORATION	42							2	8	10	9	4	2	2	5		
REG INFLOW	15475	372	222	425	1416	1593	1684	1740	1734	1659	1666	500	125	143	769	769	659
RELEASE	15475	372	222	425	1416	1593	1684	1740	1722	1636	1666	500	125	143	769	769	694
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	12.5	16.0	23.8	23.8	25.9	28.3	28.3	28.0	27.5	27.1	16.8	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		44	56	82	82	88	96	96	96	96	95	59	32	32	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	647.6	15.8	9.3	17.6	58.7	65.8	69.3	71.6	71.3	68.8	70.6	21.4	5.4	6.2	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	700	87	41	52	90	120	65	70	40	30	30	18	8	9	5	15	20
DEPLETION	276	7	3	4	23	36	32	39	38	25	11	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	15899	452	259	473	1483	1677	1717	1771	1724	1641	1685	511	130	149	760	769	699
KCFS		15.2	18.7	26.5	24.9	27.3	28.9	28.8	28.0	27.6	27.4	17.2	9.4	9.4	12.4	12.5	12.6
--TOTAL--																	
NAT INFLOW	16100	980	457	588	1515	2360	3945	1810	740	590	805	358	167	191	370	465	760
DEPLETION	2816	69	32	42	224	494	1196	1058	353	-137	-48	-117	-55	-62	-123	-82	-28
CHAN STOR	-16	31	-8	-16	-25	-25	-14	2	0	29	32	20	15	-10	-33	-17	2
EVAPORATION	1827							115	358	444	379	169	78	90	194		
STORAGE	47220.	47710	47868	47926	47709	47873	48891	47759	46064	44735	43556	43371	43399	43404	42910	42671	42762
SYSTEM POWER																	
AVE POWER MW		665	796	854	902	1025	1100	1142	1139	954	818	568	451	493	661	741	710
PEAK POW MW		2214	2212	2212	2210	2210	2221	2203	2180	2171	2133	2119	2121	2121	2085	2104	2111
ENERGY GWH	7648.1	239.3	133.7	184.4	649.4	762.4	791.8	849.8	847.6	686.6	608.7	204.3	75.7	94.6	491.5	551.0	477.1
DAILY GWH		16.0	19.1	20.5	21.6	24.6	26.4	27.4	27.3	22.9	19.6	13.6	10.8	11.8	15.9	17.8	17.0
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

	28FEB15	2015												2016			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB
--FORT PECK--																	
NAT INFLOW	7200	227	106	136	560	1145	1830	840	365	290	385	205	96	109	295	260	350
DEPLETION	511	-20	-9	-12	34	281	551	275	31	-88	-101	-29	-14	-15	-128	-141	-104
EVAPORATION	435							27	84	104	91	41	19	22	48		
MOD INFLOW	6254	247	115	148	526	864	1279	538	250	274	395	193	90	103	375	401	454
RELEASE	5948	179	83	107	417	492	595	615	615	467	338	164	76	87	523	615	575
STOR CHANGE	306	69	32	41	109	372	684	-77	-365	-193	57	29	14	16	-147	-214	-121
STORAGE	13408.	13477	13509	13550	13660	14032	14716	14639	14275	14081	14139	14168	14181	14197	14050	13836	13715
ELEV FTMSL	2227.2	2227.5	2227.7	2227.9	2228.5	2230.3	2233.7	2233.3	2231.5	2230.6	2230.9	2231.0	2231.1	2231.1	2230.4	2229.3	2228.7
DISCH KCFS	9.500	6.0	6.0	6.0	7.0	8.0	10.0	10.0	10.0	7.8	5.5	5.5	5.5	5.5	8.5	10.0	10.0
POWER																	
AVE POWER MW		80	80	80	94	107	135	136	135	106	74	74	74	74	115	134	134
PEAK POW MW		157	158	158	158	160	162	162	160	160	160	160	160	160	160	159	158
ENERGY GWH	969.5	28.9	13.5	17.3	67.5	80.0	97.3	101.0	100.6	76.3	55.3	26.8	12.5	14.3	85.3	99.8	93.1
--GARRISON--																	
NAT INFLOW	10900	479	223	287	780	1300	3120	2100	580	480	445	180	84	96	180	255	310
DEPLETION	1105	0	0	0	14	106	878	708	111	-146	-40	-131	-61	-70	-119	-85	-61
CHAN STOR	-5	36			-10	-10	-20			21	23				-30	-15	
EVAPORATION	509							31	99	123	106	48	22	25	54		
REG INFLOW	15228	693	307	394	1172	1676	2817	1976	985	991	740	427	199	228	738	940	946
RELEASE	14857	476	222	286	1071	1353	1428	1414	1414	1192	1045	506	236	278	1199	1414	1323
STOR CHANGE	371	217	84	109	101	323	1389	562	-429	-201	-305	-79	-37	-50	-461	-474	-377
STORAGE	16075.	16292	16377	16485	16586	16910	18298	18860	18431	18230	17925	17846	17809	17759	17298	16823	16447
ELEV FTMSL	1831.9	1832.6	1832.9	1833.3	1833.6	1834.7	1839.3	1841.0	1839.7	1839.1	1838.1	1837.8	1837.7	1837.5	1836.0	1834.4	1833.1
DISCH KCFS	22.000	16.0	16.0	16.0	18.0	22.0	24.0	23.0	23.0	20.0	17.0	17.0	17.0	17.5	19.5	23.0	23.0
POWER																	
AVE POWER MW		193	193	194	218	267	297	290	290	251	213	212	212	218	241	281	279
PEAK POW MW		450	451	453	454	458	475	481	476	474	470	469	469	468	463	457	452
ENERGY GWH	2220.2	69.4	32.5	41.8	157.1	198.8	213.5	215.6	215.9	181.1	158.3	76.3	35.6	41.8	179.4	209.2	193.9
--OAHE--																	
NAT INFLOW	2300	259	121	155	405	220	625	170	70	95	45	45	21	24	-15	-10	70
DEPLETION	734	25	12	15	51	75	157	190	128	31	-12	1	0	1	13	19	29
CHAN STOR	-4	25	0	0	-8	-16	-8	4		12	13			-2	-9	-15	
EVAPORATION	463							29	91	111	96	43	20	23	50		
REG INFLOW	15957	736	331	426	1417	1481	1888	1369	1266	1157	1020	507	237	276	1112	1370	1364
RELEASE	15574	413	280	316	1150	1319	1469	1835	1964	1736	1244	578	305	220	816	1037	891
STOR CHANGE	382	322	52	110	267	162	419	-466	-698	-579	-224	-71	-68	56	296	333	473
STORAGE	16946.	17269	17320	17430	17697	17859	18278	17812	17114	16535	16311	16239	16171	16227	16523	16856	17329
ELEV FTMSL	1601.7	1602.8	1603.0	1603.4	1604.3	1604.8	1606.2	1604.7	1602.3	1600.3	1599.5	1599.2	1598.9	1599.1	1600.2	1601.4	1603.0
DISCH KCFS	15.602	13.9	20.1	17.7	19.3	21.5	24.7	29.8	31.9	29.2	20.2	19.4	22.0	13.9	13.3	16.9	15.5
POWER																	
AVE POWER MW		175	254	224	245	273	315	380	402	363	251	240	271	172	165	210	195
PEAK POW MW		683	684	686	691	694	701	693	680	670	665	664	663	664	669	676	684
ENERGY GWH	2369.4	62.9	42.6	48.4	176.3	202.9	226.8	282.7	299.1	261.4	186.5	86.4	45.5	32.9	122.6	156.5	135.6
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	15471	413	280	316	1150	1319	1469	1829	1944	1711	1223	568	300	215	805	1037	891
RELEASE	15471	413	280	316	1150	1319	1469	1829	1944	1711	1223	568	300	215	805	1037	891
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.602	13.9	20.1	17.7	19.3	21.5	24.7	29.7	31.6	28.8	19.9	19.1	21.6	13.5	13.1	16.9	15.5
POWER																	
AVE POWER MW		66	94	83	90	100	116	139	148	136	98	96	109	68	66	83	74
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	893.4	23.7	15.8	17.9	65.2	74.7	83.2	103.5	110.1	98.1	72.6	34.6	18.2	13.1	49.2	61.7	51.8
--FORT RANDALL--																	
NAT INFLOW	900	121	56	73	160	165	135	70	60	35		-5	-2	-3		-10	45
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	115							8	25	31	24	9	4	4	9		
REG INFLOW	16176	533	335	388	1306	1475	1592	1873	1964	1707	1197	553	294	208	793	1024	933
RELEASE	16176	253	191	388	1306	1475	1592	1873	1964	1851	1836	866	405	234	696	684	561
STOR CHANGE	0	280	144		0	0	0	0	0	-144	-639	-313	-111	-26	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	3281	2642	2329	2218	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.0	1340.0	1338.0	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.660	8.5	13.8	21.7	21.9	24.0	26.8	30.5	31.9	31.1	29.9	29.1	29.2	14.8	11.3	11.1	9.8
POWER																	
AVE POWER MW		71	116	184	186	203	226	256	269	260	239	220	213	108	83	85	78
PEAK POW MW		350	356	356	356	356	356	356	356	350	319	296	287	285	293	319	339
ENERGY GWH	1602.3	25.4	19.6	39.7	133.7	150.8	162.5	190.7	199.8	187.2	178.0	79.1	35.8	20.7	62.1	63.1	54.3
--GAVINS POINT--																	
NAT INFLOW	1500	102	47	61	145	165	175	100	90	95	120	58	27	31	80	85	120
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-2	2	-10	-15	0	-4	-5	-7	-3	2	2	1	0	27	6	0	3
EVAPORATION	34							2	6	8	7	3	2	2	4		
REG INFLOW	17527	357	229	434	1446	1617	1738	1925	2035	1945	1949	916	428	287	769	769	684
RELEASE	17527	357	229	434	1446	1617	1738	1925	2023	1922	1949	916	428	287	769	769	719
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	12.0	16.5	24.3	24.3	26.3	29.2	31.3	32.9	32.3	31.7	30.8	30.8	18.1	12.5	12.5	12.5
POWER																	
AVE POWER MW		42	57	83	83	90	99	104	108	108	108	106	106	64	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	721.2	15.1	9.6	18.0	59.9	66.8	71.3	77.3	80.4	77.9	80.1	38.0	17.7	12.3	33.0	33.0	30.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1800	162	76	97	280	345	190	165	130	110	60	30	14	16	25	25	75
DEPLETION	278	7	3	4	23	36	32	40	38	25	12	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	19049	512	301	527	1703	1926	1896	2050	2115	2007	1997	940	439	300	780	779	779
KCFS		17.2	21.7	29.5	28.6	31.3	31.9	33.3	34.4	33.7	32.5	31.6	31.6	18.9	12.7	12.7	13.5
--TOTAL--																	
NAT INFLOW	24600	1350	630	810	2330	3340	6075	3445	1295	1105	1055	513	239	273	565	605	970
DEPLETION	2822	14	6	8	131	526	1654	1270	333	-176	-138	-147	-68	-78	-207	-188	-118
CHAN STOR	-10	63	-10	-15	-19	-30	-34	-3	-3	35	38	1	0	25	-32	-30	3
EVAPORATION	1659							103	324	403	346	154	71	81	176		
STORAGE	51379.	52267	52579	52839	53316	54174	56666	56684	55204	54111	52999	52565	52363	52359	52143	52128	52439
SYSTEM POWER																	
AVE POWER MW		626	796	848	916	1040	1187	1305	1352	1225	982	948	985	704	715	838	804
PEAK POW MW		2273	2273	2276	2283	2291	2317	2315	2297	2288	2270	2245	2234	2232	2201	2226	2239
ENERGY GWH	8776.1	225.4	133.6	183.2	659.6	774.0	854.5	970.8	1005.9	882.0	730.8	341.2	165.4	135.2	531.6	623.4	559.4
DAILY GWH		15.0	19.1	20.4	22.0	25.0	28.5	31.3	32.4	29.4	23.6	22.7	23.6	16.9	17.1	20.1	19.3
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB

TIME OF STUDY: 14:52:41 STUDY NO 10

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB16		2016											2017			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	7200	227	106	136	560	1145	1830	840	365	290	385	205	96	109	295	260	350
DEPLETION	509	-26	-12	-16	13	284	573	282	29	-97	-102	-29	-14	-15	-128	-141	-92
EVAPORATION	441							27	85	106	92	42	19	22	48		
MOD INFLOW	6250	254	118	152	547	861	1257	531	251	281	395	192	90	103	375	401	442
RELEASE	6097	179	83	107	446	523	595	615	615	476	369	179	83	103	553	615	555
STOR CHANGE	153	75	35	45	101	338	662	-84	-364	-195	26	14	6	-1	-178	-214	-113
STORAGE	13715.	13790	13825	13870	13970	14309	14971	14887	14523	14328	14354	14368	14374	14374	14195	13981	13868
ELEV FTMSL	2228.7	2229.1	2229.3	2229.5	2230.0	2231.7	2234.9	2234.5	2232.7	2231.8	2231.9	2232.0	2232.0	2232.0	2231.1	2230.1	2229.5
DISCH KCFS	10.000	6.0	6.0	6.0	7.5	8.5	10.0	10.0	10.0	8.0	6.0	6.0	6.0	6.5	9.0	10.0	10.0
POWER																	
AVE POWER MW		81	81	81	101	115	136	136	136	109	81	81	81	88	122	134	134
PEAK POW MW		159	159	159	159	161	163	163	161	161	161	161	161	161	160	159	159
ENERGY GWH	997.3	29.0	13.6	17.4	72.7	85.3	97.6	101.3	101.0	78.1	60.5	29.3	13.7	16.9	90.5	100.1	90.1
--GARRISON--																	
NAT INFLOW	10900	479	223	287	780	1300	3120	2100	580	480	445	180	84	96	180	255	310
DEPLETION	1087	1	0	1	17	64	890	725	116	-149	-45	-135	-63	-72	-120	-86	-57
CHAN STOR	0	40			-15	-10	-15			20	20			-5	-25	-10	0
EVAPORATION	515							32	100	124	107	48	22	26	55		
REG INFLOW	15395	697	306	394	1194	1749	2810	1958	979	1001	771	445	208	241	774	946	922
RELEASE	15211	476	222	286	1071	1414	1488	1476	1476	1218	1045	506	236	259	1230	1476	1333
STOR CHANGE	184	221	84	108	123	334	1322	483	-497	-218	-274	-60	-28	-18	-456	-530	-411
STORAGE	16447.	16668	16752	16860	16983	17318	18640	19123	18626	18408	18134	18074	18045	18027	17571	17042	16631
ELEV FTMSL	1833.1	1833.9	1834.2	1834.6	1835.0	1836.1	1840.3	1841.8	1840.3	1839.6	1838.7	1838.6	1838.5	1838.4	1836.9	1835.2	1833.8
DISCH KCFS	23.000	16.0	16.0	16.0	18.0	23.0	25.0	24.0	24.0	20.5	17.0	17.0	17.0	16.3	20.0	24.0	24.0
POWER																	
AVE POWER MW		194	195	195	220	282	311	303	303	258	214	213	213	204	249	295	292
PEAK POW MW		455	456	457	459	463	479	484	478	476	473	472	472	471	466	460	455
ENERGY GWH	2285.0	69.9	32.7	42.2	158.4	209.6	224.0	225.8	225.8	185.8	159.0	76.7	35.7	39.2	185.0	219.3	196.1
--OAHE--																	
NAT INFLOW	2300	259	121	155	405	220	625	170	70	95	45	45	21	24	-15	-10	70
DEPLETION	747	25	12	15	51	76	160	195	131	31	-13	1	0	1	13	19	30
CHAN STOR	-4	29	0	0	-8	-20	-8	4		15	15			3	-16	-17	
EVAPORATION	470							30	92	113	97	44	20	23	51		
REG INFLOW	16290	739	331	426	1417	1538	1945	1425	1323	1184	1021	506	236	262	1135	1430	1373
RELEASE	16100	413	307	334	1216	1387	1534	1852	1982	1754	1263	587	309	227	892	1111	933
STOR CHANGE	190	326	24	91	201	151	410	-427	-660	-570	-242	-81	-73	35	244	319	440
STORAGE	17329.	17655	17679	17771	17972	18123	18533	18106	17447	16877	16636	16555	16482	16517	16761	17079	17519
ELEV FTMSL	1603.0	1604.2	1604.2	1604.5	1605.2	1605.7	1607.1	1605.7	1603.4	1601.5	1600.6	1600.3	1600.1	1600.2	1601.1	1602.2	1603.7
DISCH KCFS	15.498	13.9	22.1	18.7	20.4	22.6	25.8	30.1	32.2	29.5	20.5	19.7	22.3	14.3	14.5	18.1	16.8
POWER																	
AVE POWER MW		176	280	238	260	288	330	385	408	369	256	245	276	178	181	226	212
PEAK POW MW		690	691	692	696	698	706	698	686	676	671	670	669	669	674	680	688
ENERGY GWH	2462.3	63.3	47.1	51.4	187.3	214.2	238.0	286.7	303.7	265.8	190.5	88.3	46.4	34.1	134.5	168.3	142.5
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	15996	413	307	334	1216	1387	1534	1845	1963	1729	1241	577	305	222	880	1111	933
RELEASE	15996	413	307	334	1216	1387	1534	1845	1963	1729	1241	577	305	222	880	1111	933
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.498	13.9	22.1	18.7	20.4	22.6	25.8	30.0	31.9	29.1	20.2	19.4	21.9	14.0	14.3	18.1	16.8
POWER																	
AVE POWER MW		66	104	88	96	106	121	140	149	138	99	97	110	70	72	89	81
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	923.8	23.7	17.4	18.9	68.9	78.6	86.9	104.5	111.1	99.1	73.7	35.1	18.5	13.5	53.7	66.1	54.2
--FORT RANDALL--																	
NAT INFLOW	900	121	56	73	160	165	135	70	60	35		-5	-2	-3		-10	45
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	115							8	25	31	24	9	4	4	9		
REG INFLOW	16702	532	363	406	1372	1543	1657	1889	1982	1725	1216	562	298	215	868	1098	975
RELEASE	16702	252	219	406	1372	1543	1657	1889	1982	1869	1855	875	409	241	771	758	603
STOR CHANGE	0	280	144		0			0	0	-144	-639	-312	-111	-26	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	3281	2642	2329	2218	2193	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.0	1340.0	1338.0	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.761	8.5	15.8	22.7	23.1	25.1	27.9	30.7	32.2	31.4	30.2	29.4	29.5	15.2	12.5	12.3	10.9
POWER																	
AVE POWER MW		70	133	192	195	212	235	259	271	262	242	222	216	111	92	94	87
PEAK POW MW		350	356	356	356	356	356	356	356	350	319	296	287	285	293	319	339
ENERGY GWH	1653.1	25.4	22.3	41.5	140.3	157.6	169.0	192.4	201.7	188.9	179.7	79.9	36.2	21.3	68.7	69.8	58.3
--GAVINS POINT--																	
NAT INFLOW	1500	102	47	61	145	165	175	100	90	95	120	58	27	31	80	85	120
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-3	2	-14	-13	-1	-4	-5	-6	-3	2	2	1	0	26	5	0	3
EVAPORATION	34							2	6	8	7	3	2	2	4		
REG INFLOW	18051	357	252	454	1511	1685	1803	1943	2053	1963	1968	925	432	293	842	842	726
RELEASE	18051	357	252	454	1511	1685	1803	1943	2041	1940	1968	925	432	293	842	842	761
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	12.0	18.2	25.4	25.4	27.4	30.3	31.6	33.2	32.6	32.0	31.1	31.1	18.5	13.7	13.7	13.7
POWER																	
AVE POWER MW		42	63	87	87	93	102	105	109	109	108	106	106	65	49	49	48
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	740.7	15.1	10.6	18.8	62.5	69.5	73.2	77.8	80.9	78.3	80.6	38.3	17.9	12.5	36.2	36.2	32.4
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1800	162	76	97	280	345	190	165	130	110	60	30	14	16	25	25	75
DEPLETION	280	7	3	4	24	37	32	40	38	25	12	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	19571	512	325	547	1767	1993	1961	2068	2133	2025	2016	949	443	306	853	852	821
KCFS		17.2	23.4	30.6	29.7	32.4	33.0	33.6	34.7	34.0	32.8	31.9	31.9	19.3	13.9	13.9	14.8
--TOTAL--																	
NAT INFLOW	24600	1350	630	810	2330	3340	6075	3445	1295	1105	1055	513	239	273	565	605	970
DEPLETION	2817	8	4	5	114	489	1691	1299	339	-188	-145	-151	-70	-80	-208	-189	-101
CHAN STOR	-7	72	-14	-13	-24	-34	-28	-2	-3	36	37	1	0	25	-36	-27	3
EVAPORATION	1677							105	328	407	350	156	72	82	178		
STORAGE	52439.	53341	53629	53873	54298	55122	57517	57489	55981	54877	53749	53308	53103	53093	52799	52714	52967
SYSTEM POWER																	
AVE POWER MW		629	855	881	958	1095	1234	1329	1376	1245	1000	965	1002	716	764	887	854
PEAK POW MW		2286	2285	2288	2294	2302	2327	2324	2306	2297	2279	2254	2244	2242	2209	2233	2245
ENERGY GWH	9062.1	226.4	143.7	190.3	690.1	814.8	888.7	988.5	1024.1	896.1	744.0	347.6	168.4	137.6	568.7	659.7	573.6
DAILY GWH		15.1	20.5	21.1	23.0	26.3	29.6	31.9	33.0	29.9	24.0	23.2	24.1	17.2	18.3	21.3	20.5
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

TIME OF STUDY: 14:52:41 STUDY NO 11

VALUES IN 1000 AF EXCEPT AS INDICATED

	28FEB17	2017												2018			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	7200	227	106	136	560	1145	1830	840	365	290	385	205	96	109	295	260	350
DEPLETION	521	-26	-12	-15	13	285	578	289	33	-97	-104	-30	-14	-16	-129	-142	-93
EVAPORATION	444							27	86	106	93	42	20	22	48		
MOD INFLOW	6235	253	118	152	547	860	1252	524	246	281	396	193	90	103	376	402	443
RELEASE	6154	179	83	107	417	553	595	615	615	474	369	179	83	100	615	615	555
STOR CHANGE	81	75	35	45	130	307	657	-91	-368	-194	27	14	7	3	-239	-213	-112
STORAGE	13868.	13943	13977	14022	14153	14459	15116	15025	14657	14463	14490	14504	14511	14513	14274	14061	13949
ELEV FTMSL	2229.5	2229.9	2230.1	2230.3	2230.9	2232.4	2235.5	2235.1	2233.4	2232.4	2232.6	2232.6	2232.7	2232.7	2231.5	2230.5	2229.9
DISCH KCFS	10.000	6.0	6.0	6.0	7.0	9.0	10.0	10.0	10.0	8.0	6.0	6.0	6.0	6.3	10.0	10.0	10.0
POWER																	
AVE POWER MW		81	81	81	94	122	136	136	136	108	82	82	82	86	135	135	134
PEAK POW MW		159	159	159	160	161	163	163	162	161	161	161	161	161	160	160	159
ENERGY GWH	1008.4	29.1	13.6	17.5	68.0	90.6	97.9	101.5	101.2	78.0	60.6	29.4	13.7	16.4	100.5	100.2	90.3
--GARRISON--																	
NAT INFLOW	10900	479	223	287	780	1300	3120	2100	580	480	445	180	84	96	180	255	310
DEPLETION	1102	1	0	1	16	65	899	741	122	-152	-49	-139	-65	-74	-121	-87	-57
CHAN STOR	0	40			-10	-20	-10			20	19			-3	-37		0
EVAPORATION	513							32	100	124	107	48	22	26	55		
REG INFLOW	15439	697	306	394	1171	1768	2806	1942	973	1002	775	449	210	241	824	957	922
RELEASE	15341	476	222	286	1071	1445	1547	1537	1537	1249	1045	506	236	262	1230	1414	1277
STOR CHANGE	98	221	84	108	99	323	1259	405	-564	-247	-270	-57	-26	-20	-405	-457	-355
STORAGE	16631.	16852	16936	17044	17144	17467	18726	19131	18567	18320	18050	17993	17967	17946	17541	17084	16729
ELEV FTMSL	1833.8	1834.5	1834.8	1835.2	1835.5	1836.6	1840.6	1841.9	1840.1	1839.3	1838.5	1838.3	1838.2	1838.2	1836.8	1835.3	1834.1
DISCH KCFS	24.000	16.0	16.0	16.0	18.0	23.5	26.0	25.0	25.0	21.0	17.0	17.0	17.0	16.5	20.0	23.0	23.0
POWER																	
AVE POWER MW		195	196	196	221	289	324	316	316	264	213	213	212	206	248	283	280
PEAK POW MW		457	458	460	461	465	480	484	478	475	472	471	471	471	466	460	456
ENERGY GWH	2306.9	70.2	32.9	42.4	159.0	214.8	233.4	235.2	235.1	190.2	158.7	76.5	35.7	39.6	184.8	210.3	188.3
--OAHE--																	
NAT INFLOW	2300	259	121	155	405	220	625	170	70	95	45	45	21	24	-15	-10	70
DEPLETION	760	25	12	15	52	77	163	199	134	32	-13	1	0	0	14	19	30
CHAN STOR	4	33	0	0	-8	-22	-10	4		16	17			2	-15	-13	0
EVAPORATION	476							30	93	114	98	44	21	23	51		
REG INFLOW	16410	743	331	426	1416	1566	1999	1482	1380	1214	1022	506	236	264	1135	1373	1317
RELEASE	16308	410	309	346	1251	1424	1570	1850	1982	1754	1263	587	309	227	923	1142	961
STOR CHANGE	102	332	22	80	165	142	429	-368	-602	-539	-241	-81	-73	37	211	231	356
STORAGE	17519.	17851	17874	17953	18118	18260	18689	18321	17719	17180	16939	16858	16785	16822	17033	17264	17621
ELEV FTMSL	1603.7	1604.8	1604.9	1605.2	1605.7	1606.2	1607.6	1606.4	1604.4	1602.5	1601.7	1601.4	1601.1	1601.3	1602.0	1602.8	1604.0
DISCH KCFS	16.802	13.8	22.2	19.4	21.0	23.2	26.4	30.1	32.2	29.5	20.5	19.7	22.3	14.3	15.0	18.6	17.3
POWER																	
AVE POWER MW		176	283	247	269	296	339	386	410	371	258	247	278	179	188	233	219
PEAK POW MW		694	694	695	698	701	708	702	691	681	677	676	674	675	679	683	690
ENERGY GWH	2504.2	63.2	47.6	53.4	193.4	220.4	244.1	287.5	305.0	267.3	191.6	88.9	46.7	34.3	140.1	173.7	147.1
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	16205	410	309	346	1251	1424	1570	1844	1963	1729	1241	577	305	222	912	1142	961
RELEASE	16205	410	309	346	1251	1424	1570	1844	1963	1729	1241	577	305	222	912	1142	961
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	16.802	13.8	22.2	19.4	21.0	23.2	26.4	30.0	31.9	29.1	20.2	19.4	21.9	14.0	14.8	18.6	17.3
POWER																	
AVE POWER MW		65	104	91	98	108	123	140	149	138	99	97	110	70	75	91	83
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	935.8	23.5	17.5	19.6	70.9	80.6	88.9	104.4	111.1	99.1	73.7	35.1	18.5	13.5	55.6	67.9	55.8
--FORT RANDALL--																	
NAT INFLOW	900	121	56	73	160	165	135	70	60	35		-5	-2	-3		-10	45
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	115							8	25	31	24	9	4	4	9		
REG INFLOW	16910	530	365	418	1407	1580	1693	1888	1982	1725	1216	562	298	215	900	1129	1003
RELEASE	16910	250	221	418	1407	1580	1693	1888	1982	1869	1855	875	409	241	803	789	631
STOR CHANGE	0	280	144	0	0			0	0	-144	-639	-312	-111	-26	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	3281	2642	2329	2218	2193	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.0	1340.0	1338.0	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	10.860	8.4	15.9	23.4	23.6	25.7	28.5	30.7	32.2	31.4	30.2	29.4	29.5	15.2	13.1	12.8	11.4
POWER																	
AVE POWER MW		70	134	198	200	217	240	258	271	262	242	222	216	111	96	98	91
PEAK POW MW		350	356	356	356	356	356	356	356	350	319	296	287	285	293	319	339
ENERGY GWH	1673.2	25.1	22.5	42.7	143.9	161.3	172.6	192.3	201.7	188.9	179.7	79.9	36.2	21.3	71.5	72.6	60.9
--GAVINS POINT--																	
NAT INFLOW	1500	102	47	61	145	165	175	100	90	95	120	58	27	31	80	85	120
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-2	5	-14	-14	0	-4	-5	-4	-3	2	2	1	0	26	4	0	3
EVAPORATION	34							2	6	8	7	3	2	2	4		
REG INFLOW	18260	357	254	465	1547	1722	1839	1943	2053	1963	1968	925	432	293	873	873	754
RELEASE	18260	357	254	465	1547	1722	1839	1943	2041	1940	1968	925	432	293	873	873	789
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	13.700	12.0	18.3	26.0	26.0	28.0	30.9	31.6	33.2	32.6	32.0	31.1	31.1	18.5	14.2	14.2	14.2
POWER																	
AVE POWER MW		42	63	89	89	95	103	105	109	109	108	106	106	65	50	50	50
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	748.8	15.1	10.6	19.2	63.9	70.9	74.2	77.8	80.9	78.3	80.6	38.3	17.9	12.5	37.5	37.5	33.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1800	162	76	97	280	345	190	165	130	110	60	30	14	16	25	25	75
DEPLETION	283	7	3	4	24	37	32	40	39	26	12	7	3	3	14	15	16
REGULATED FLOW AT SIOUX CITY																	
KAF	19777	512	326	558	1803	2030	1997	2068	2132	2024	2016	949	443	306	884	883	848
KCFS		17.2	23.5	31.2	30.3	33.0	33.6	33.6	34.7	34.0	32.8	31.9	31.9	19.3	14.4	14.4	15.3
--TOTAL--																	
NAT INFLOW	24600	1350	630	810	2330	3340	6075	3445	1295	1105	1055	513	239	273	565	605	970
DEPLETION	2860	9	4	5	114	492	1708	1326	353	-189	-151	-155	-72	-83	-209	-191	-101
CHAN STOR	3	78	-14	-14	-19	-46	-25	0	-3	38	38	1	0	26	-48	-12	3
EVAPORATION	1685							105	329	409	351	156	72	83	179		
STORAGE	52967.	53875	54160	54393	54788	55560	57905	57850	56327	55226	54104	53667	53464	53457	53121	53021	53248
SYSTEM POWER																	
AVE POWER MW		629	861	902	971	1127	1265	1342	1391	1253	1001	967	1004	717	793	890	857
PEAK POW MW		2292	2291	2294	2299	2306	2331	2328	2311	2302	2284	2259	2249	2247	2214	2238	2248
ENERGY GWH	9177.4	226.3	144.6	194.8	699.0	838.7	911.0	998.7	1035.0	901.8	744.9	348.0	168.6	137.7	590.0	662.1	576.0
DAILY GWH		15.1	20.7	21.6	23.3	27.1	30.4	32.2	33.4	30.1	24.0	23.2	24.1	17.2	19.0	21.4	20.6
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

	28FEB18	2018												2019			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	7200	227	106	136	560	1145	1830	840	365	290	385	205	96	109	295	260	350
DEPLETION	531	-26	-12	-15	13	286	582	296	37	-98	-106	-31	-14	-16	-130	-142	-93
EVAPORATION	445							27	86	107	93	42	20	22	48		
MOD INFLOW	6224	253	118	152	547	859	1248	517	242	281	398	193	90	103	377	402	443
RELEASE	6194	179	83	107	417	492	625	646	646	490	369	179	83	95	615	615	555
STOR CHANGE	29	75	35	45	130	367	623	-129	-403	-209	29	15	7	8	-238	-213	-112
STORAGE	13949.	14023	14058	14103	14233	14600	15224	15095	14691	14483	14512	14527	14534	14542	14303	14091	13978
ELEV FTMSL	2229.9	2230.3	2230.5	2230.7	2231.3	2233.1	2236.0	2235.4	2233.5	2232.5	2232.7	2232.7	2232.8	2232.8	2231.7	2230.6	2230.1
DISCH KCFS	10.000	6.0	6.0	6.0	7.0	8.0	10.5	10.5	10.5	8.2	6.0	6.0	6.0	6.0	10.0	10.0	10.0
POWER																	
AVE POWER MW		81	81	81	95	108	142	143	142	112	82	82	82	82	135	135	134
PEAK POW MW		159	160	160	160	162	164	163	162	161	161	161	161	161	161	160	159
ENERGY GWH	1014.1	29.1	13.6	17.5	68.1	80.7	102.3	106.1	105.7	80.6	60.7	29.4	13.7	15.7	100.6	100.2	90.3
--GARRISON--																	
NAT INFLOW	10900	479	223	287	780	1300	3120	2100	580	480	445	180	84	96	180	255	310
DEPLETION	1114	1	1	1	17	64	909	757	127	-155	-54	-143	-67	-76	-123	-88	-58
CHAN STOR	0	40			-10	-10	-25			22	22				-40		0
EVAPORATION	514							32	100	124	107	48	22	26	55		
REG INFLOW	15466	696	306	394	1170	1718	2811	1957	999	1023	783	453	211	242	823	958	923
RELEASE	15431	476	222	286	1071	1476	1547	1537	1537	1264	1076	521	243	254	1230	1414	1277
STOR CHANGE	35	220	84	108	98	242	1264	420	-539	-241	-293	-68	-32	-12	-406	-456	-354
STORAGE	16729.	16949	17033	17141	17240	17482	18746	19165	18627	18386	18092	18025	17993	17981	17575	17118	16764
ELEV FTMSL	1834.1	1834.9	1835.1	1835.5	1835.8	1836.6	1840.7	1842.0	1840.3	1839.5	1838.6	1838.4	1838.3	1838.3	1836.9	1835.4	1834.2
DISCH KCFS	23.000	16.0	16.0	16.0	18.0	24.0	26.0	25.0	25.0	21.2	17.5	17.5	17.5	16.0	20.0	23.0	23.0
POWER																	
AVE POWER MW		195	196	196	221	295	324	316	316	267	220	219	219	200	249	283	280
PEAK POW MW		458	459	461	462	465	480	485	478	476	472	471	471	471	466	461	456
ENERGY GWH	2322.2	70.4	32.9	42.4	159.3	219.6	233.5	235.2	235.2	192.6	163.5	78.8	36.7	38.4	184.9	210.4	188.5
--OAHE--																	
NAT INFLOW	2300	259	121	155	405	220	625	170	70	95	45	45	21	24	-15	-10	70
DEPLETION	777	26	12	15	52	79	166	204	137	33	-13	1	0	0	14	20	31
CHAN STOR	0	29	0	0	-8	-24	-8	4		15	16			6	-17	-13	0
EVAPORATION	477							30	93	115	99	44	21	24	51		
REG INFLOW	16477	738	331	426	1416	1593	1998	1477	1377	1226	1051	521	243	260	1132	1372	1316
RELEASE	16441	409	309	354	1275	1448	1594	1850	1982	1754	1263	587	309	227	942	1160	978
STOR CHANGE	36	329	22	71	141	144	404	-373	-605	-527	-212	-66	-66	34	190	211	339
STORAGE	17621.	17950	17972	18043	18184	18328	18733	18360	17754	17227	17016	16949	16883	16917	17107	17318	17657
ELEV FTMSL	1604.0	1605.1	1605.2	1605.5	1605.9	1606.4	1607.7	1606.5	1604.5	1602.7	1602.0	1601.7	1601.5	1601.6	1602.3	1603.0	1604.2
DISCH KCFS	17.302	13.8	22.2	19.8	21.4	23.6	26.8	30.1	32.2	29.5	20.5	19.7	22.3	14.3	15.3	18.9	17.6
POWER																	
AVE POWER MW		175	284	253	274	302	344	386	410	372	258	247	278	179	192	238	223
PEAK POW MW		695	696	697	699	702	709	702	692	682	679	677	676	677	680	684	690
ENERGY GWH	2527.2	63.2	47.6	54.7	197.3	224.5	248.0	287.5	305.3	267.5	191.9	89.0	46.8	34.4	143.2	176.7	149.7
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	16338	409	309	354	1275	1448	1594	1843	1963	1729	1241	577	305	222	931	1160	978
RELEASE	16338	409	309	354	1275	1448	1594	1843	1963	1729	1241	577	305	222	931	1160	978
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	17.302	13.8	22.2	19.8	21.4	23.6	26.8	30.0	31.9	29.1	20.2	19.4	21.9	14.0	15.1	18.9	17.6
POWER																	
AVE POWER MW		65	104	93	100	110	125	140	149	138	99	97	110	70	76	93	84
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	943.4	23.5	17.5	20.1	72.2	82.0	90.3	104.4	111.1	99.1	73.7	35.1	18.5	13.5	56.8	69.0	56.7
--FORT RANDALL--																	
NAT INFLOW	900	121	56	73	160	165	135	70	60	35		-5	-2	-3		-10	45
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	115							8	25	31	24	9	4	4	9		
REG INFLOW	17043	529	365	426	1431	1604	1717	1887	1982	1725	1216	562	298	215	919	1147	1020
RELEASE	17043	249	221	426	1431	1604	1717	1887	1982	1869	1855	875	409	241	822	807	648
STOR CHANGE	0	280	144				0	0	0	-144	-639	-312	-111	-26	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	3281	2642	2329	2218	2193	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.0	1340.0	1338.0	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	11.360	8.4	15.9	23.9	24.0	26.1	28.9	30.7	32.2	31.4	30.2	29.4	29.5	15.2	13.4	13.1	11.7
POWER																	
AVE POWER MW		70	134	202	203	220	243	258	271	262	242	222	216	111	98	100	93
PEAK POW MW		350	356	356	356	356	356	356	356	350	319	296	287	285	293	319	339
ENERGY GWH	1686.1	25.0	22.5	43.5	146.3	163.8	175.0	192.2	201.7	188.9	179.7	79.9	36.2	21.3	73.2	74.3	62.5
--GAVINS POINT--																	
NAT INFLOW	1500	102	47	61	145	165	175	100	90	95	120	58	27	31	80	85	120
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-2	6	-14	-15	0	-4	-5	-4	-3	2	2	1	0	26	3	0	3
EVAPORATION	34							2	6	8	7	3	2	2	4		
REG INFLOW	18393	357	254	472	1571	1746	1863	1943	2053	1963	1968	925	432	293	892	892	770
RELEASE	18393	357	254	472	1571	1746	1863	1943	2041	1940	1968	925	432	293	892	892	805
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	14.200	12.0	18.3	26.4	26.4	28.4	31.3	31.6	33.2	32.6	32.0	31.1	31.1	18.5	14.5	14.5	14.5
POWER																	
AVE POWER MW		42	63	90	90	97	104	105	109	109	108	106	106	65	51	51	51
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	753.9	15.1	10.6	19.5	64.9	71.9	74.8	77.8	80.9	78.3	80.6	38.3	17.9	12.5	38.3	38.3	34.3
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1800	162	76	97	280	345	190	165	130	110	60	30	14	16	25	25	75
DEPLETION	286	7	3	4	24	37	32	41	39	26	12	7	3	4	15	15	16
REGULATED FLOW AT SIOUX CITY																	
KAF	19907	512	326	565	1827	2054	2021	2067	2132	2024	2016	948	443	306	902	902	864
KCFS		17.2	23.5	31.6	30.7	33.4	34.0	33.6	34.7	34.0	32.8	31.9	31.9	19.3	14.7	14.7	15.6
--TOTAL--																	
NAT INFLOW	24600	1350	630	810	2330	3340	6075	3445	1295	1105	1055	513	239	273	565	605	970
DEPLETION	2902	10	5	6	115	494	1725	1355	365	-192	-158	-160	-74	-85	-211	-191	-101
CHAN STOR	-1	75	-14	-15	-18	-38	-38	0	-3	39	40	1	0	33	-53	-12	3
EVAPORATION	1688							105	330	410	352	157	73	83	179		
STORAGE	53248.	54151	54436	54660	55030	55783	58075	57993	56457	55360	54245	53813	53612	53615	53257	53139	53349
SYSTEM POWER																	
AVE POWER MW		629	862	915	983	1132	1283	1348	1398	1260	1008	974	1011	707	802	899	866
PEAK POW MW		2295	2294	2297	2301	2308	2332	2330	2312	2304	2286	2261	2251	2249	2216	2239	2250
ENERGY GWH	9247.0	226.3	144.8	197.7	708.0	842.4	923.8	1003.3	1039.7	907.0	750.0	350.5	169.8	135.8	596.9	668.9	582.1
DAILY GWH		15.1	20.7	22.0	23.6	27.2	30.8	32.4	33.5	30.2	24.2	23.4	24.3	17.0	19.3	21.6	20.8
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

TIME OF STUDY: 14:52:41 STUDY NO 13

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB19		2019										2020				
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB
--FORT PECK--																	
NAT INFLOW	7200	227	106	136	560	1145	1830	840	365	290	385	205	96	109	295	260	350
DEPLETION	540	-26	-12	-15	13	286	586	303	43	-97	-106	-31	-14	-16	-129	-141	-104
EVAPORATION	445							27	86	107	93	42	20	22	48		
MOD INFLOW	6215	253	118	152	547	859	1244	510	236	280	398	193	90	103	376	401	454
RELEASE	6211	179	83	107	417	523	625	646	646	486	369	179	83	95	584	615	575
STOR CHANGE	4	75	35	45	130	336	619	-136	-409	-206	29	15	7	8	-209	-214	-121
STORAGE	13978.	14053	14088	14132	14263	14599	15218	15082	14673	14467	14496	14511	14518	14526	14318	14104	13983
ELEV FTMSL	2230.1	2230.4	2230.6	2230.8	2231.5	2233.1	2236.0	2235.4	2233.4	2232.5	2232.6	2232.7	2232.7	2232.7	2231.7	2230.7	2230.1
DISCH KCFS	10.000	6.0	6.0	6.0	7.0	8.5	10.5	10.5	10.5	8.2	6.0	6.0	6.0	6.0	9.5	10.0	10.0
POWER																	
AVE POWER MW		81	81	81	95	115	142	143	142	111	82	82	82	82	129	135	134
PEAK POW MW		160	160	160	160	162	164	163	162	161	161	161	161	161	161	160	159
ENERGY GWH	1017.0	29.1	13.6	17.5	68.1	85.7	102.3	106.1	105.6	80.0	60.6	29.4	13.7	15.7	95.8	100.3	93.5
--GARRISON--																	
NAT INFLOW	10900	479	223	287	780	1300	3120	2100	580	480	445	180	84	96	180	255	310
DEPLETION	1127	1	1	1	18	65	919	773	133	-158	-59	-146	-68	-78	-124	-88	-64
CHAN STOR	0	40			-10	-15	-20			23	21				-35	-5	
EVAPORATION	515							32	100	124	107	48	22	26	55		
REG INFLOW	15469	696	306	394	1169	1743	2806	1941	993	1023	787	456	213	243	799	953	949
RELEASE	15463	476	222	286	1101	1476	1547	1537	1537	1257	1045	506	236	270	1230	1414	1323
STOR CHANGE	6	220	84	108	68	267	1259	404	-545	-234	-258	-50	-23	-27	-431	-461	-374
STORAGE	16764.	16985	17069	17177	17244	17511	18770	19174	18629	18395	18137	18087	18064	18037	17606	17144	16771
ELEV FTMSL	1834.2	1835.0	1835.3	1835.6	1835.9	1836.7	1840.7	1842.0	1840.3	1839.6	1838.8	1838.6	1838.5	1838.4	1837.0	1835.5	1834.3
DISCH KCFS	23.000	16.0	16.0	16.0	18.5	24.0	26.0	25.0	25.0	21.1	17.0	17.0	17.0	17.0	20.0	23.0	23.0
POWER																	
AVE POWER MW		196	196	197	227	295	324	316	316	266	214	213	213	213	249	283	281
PEAK POW MW		459	460	461	462	465	480	485	478	476	473	472	472	472	466	461	456
ENERGY GWH	2327.8	70.4	33.0	42.5	163.7	219.6	233.6	235.2	235.2	191.5	158.9	76.7	35.8	40.8	185.1	210.6	195.3
--OAHE--																	
NAT INFLOW	2300	259	121	155	405	220	625	170	70	95	45	45	21	24	-15	-10	70
DEPLETION	789	26	12	15	53	80	169	208	141	33	-14	1	0	0	14	20	31
CHAN STOR	0	29	0	0	-10	-22	-8	4		16	17				-13	-13	
EVAPORATION	477							30	94	115	99	44	21	24	51		
REG INFLOW	16497	738	331	426	1443	1594	1995	1473	1373	1220	1023	506	236	270	1137	1372	1362
RELEASE	16490	409	311	356	1281	1454	1600	1849	1982	1754	1263	587	309	227	942	1160	1007
STOR CHANGE	6	329	20	70	162	139	395	-377	-610	-534	-240	-81	-73	43	194	211	355
STORAGE	17657.	17987	18007	18077	18238	18378	18773	18396	17787	17253	17013	16932	16859	16902	17097	17308	17664
ELEV FTMSL	1604.2	1605.3	1605.3	1605.6	1606.1	1606.6	1607.8	1606.6	1604.6	1602.8	1601.9	1601.7	1601.4	1601.6	1602.2	1603.0	1604.2
DISCH KCFS	17.602	13.7	22.4	19.9	21.5	23.7	26.9	30.1	32.2	29.5	20.5	19.7	22.3	14.3	15.3	18.9	17.5
POWER																	
AVE POWER MW		175	285	255	275	303	346	387	411	372	258	247	278	179	192	237	222
PEAK POW MW		696	696	698	700	703	710	703	692	683	678	677	676	676	680	684	690
ENERGY GWH	2535.9	63.1	47.9	55.0	198.3	225.7	249.1	287.7	305.4	267.6	191.9	89.0	46.8	34.4	143.1	176.7	154.2
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	16387	409	311	356	1281	1454	1600	1843	1963	1729	1241	577	305	222	931	1160	1007
RELEASE	16387	409	311	356	1281	1454	1600	1843	1963	1729	1241	577	305	222	931	1160	1007
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	17.602	13.7	22.4	19.9	21.5	23.7	26.9	30.0	31.9	29.1	20.2	19.4	21.9	14.0	15.1	18.9	17.5
POWER																	
AVE POWER MW		65	105	93	101	111	126	140	149	138	99	97	110	70	76	93	84
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	946.3	23.4	17.6	20.2	72.6	82.4	90.6	104.4	111.1	99.1	73.7	35.1	18.5	13.5	56.8	69.0	58.4
--FORT RANDALL--																	
NAT INFLOW	900	121	56	73	160	165	135	70	60	35		-5	-2	-3		-10	45
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	115							8	25	31	24	9	4	4	9		
REG INFLOW	17092	528	366	428	1437	1610	1723	1887	1982	1725	1216	562	298	215	919	1147	1049
RELEASE	17092	249	222	428	1437	1610	1723	1887	1982	1869	1855	875	409	241	822	807	677
STOR CHANGE	0	280	144		0		0	0	0	-144	-639	-312	-111	-26	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	3281	2642	2329	2218	2193	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.0	1340.0	1338.0	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	11.660	8.4	16.0	24.0	24.1	26.2	29.0	30.7	32.2	31.4	30.2	29.4	29.5	15.2	13.4	13.1	11.8
POWER																	
AVE POWER MW		69	135	202	204	221	244	258	271	262	242	222	216	111	98	100	94
PEAK POW MW		350	356	356	356	356	356	356	356	350	319	296	287	285	293	319	339
ENERGY GWH	1690.9	25.0	22.7	43.7	146.9	164.4	175.6	192.2	201.7	188.9	179.7	79.9	36.2	21.3	73.2	74.3	65.3
--GAVINS POINT--																	
NAT INFLOW	1500	102	47	61	145	165	175	100	90	95	120	58	27	31	80	85	120
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-2	6	-15	-15	0	-4	-5	-3	-3	2	2	1	0	26	3	0	3
EVAPORATION	34							2	6	8	7	3	2	2	4		
REG INFLOW	18443	357	255	474	1577	1752	1868	1943	2053	1963	1968	925	432	293	892	892	799
RELEASE	18443	357	255	474	1577	1752	1868	1943	2041	1940	1968	925	432	293	892	892	834
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	14.500	12.0	18.4	26.5	26.5	28.5	31.4	31.6	33.2	32.6	32.0	31.1	31.1	18.5	14.5	14.5	14.5
POWER																	
AVE POWER MW		42	64	91	90	97	104	105	109	109	108	106	106	65	51	51	51
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	755.9	15.1	10.7	19.6	65.1	72.1	75.0	77.8	80.9	78.3	80.6	38.3	17.9	12.5	38.3	38.3	35.5
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1800	162	76	97	280	345	190	165	130	110	60	30	14	16	25	25	75
DEPLETION	291	8	4	5	25	37	33	41	40	26	12	7	3	4	15	16	16
REGULATED FLOW AT SIOUX CITY																	
KAF	19952	511	327	566	1832	2060	2025	2067	2131	2024	2016	948	443	306	902	901	893
KCFS		17.2	23.6	31.7	30.8	33.5	34.0	33.6	34.7	34.0	32.8	31.9	31.9	19.3	14.7	14.6	15.5
--TOTAL--																	
NAT INFLOW	24600	1350	630	810	2330	3340	6075	3445	1295	1105	1055	513	239	273	565	605	970
DEPLETION	2941	10	5	6	118	496	1743	1382	382	-194	-164	-163	-76	-87	-211	-189	-118
CHAN STOR	-1	75	-15	-15	-21	-41	-33	1	-3	40	41	1	0	27	-44	-17	3
EVAPORATION	1689							105	330	410	352	157	73	83	179		
STORAGE	53349.	54253	54536	54758	55118	55861	58134	58025	56474	55379	54271	53843	53642	53641	53292	53168	53366
SYSTEM POWER																	
AVE POWER MW		628	866	919	993	1142	1286	1349	1398	1258	1002	967	1005	720	796	899	865
PEAK POW MW		2297	2296	2298	2302	2309	2333	2331	2313	2304	2286	2262	2251	2249	2216	2239	2250
ENERGY GWH	9273.9	226.2	145.5	198.4	714.8	849.9	926.1	1003.4	1039.9	905.5	745.5	348.3	168.8	138.2	592.2	669.0	602.2
DAILY GWH		15.1	20.8	22.0	23.8	27.4	30.9	32.4	33.5	30.2	24.0	23.2	24.1	17.3	19.1	21.6	20.8

INI-SUM 15MAR 22MAR 31MAR 30APR 31MAY 30JUN 31JUL 31AUG 30SEP 31OCT 15NOV 22NOV 30NOV 31DEC 31JAN 29FEB

TIME OF STUDY: 14:52:49 STUDY NO 14

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB15		2015										2016				
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB
--FORT PECK--																	
NAT INFLOW	6100	206	96	123	472	969	1548	661	297	246	329	172	80	91	246	246	318
DEPLETION	432	-11	-5	-7	45	230	500	218	4	-112	-77	-16	-7	-8	-110	-122	-90
EVAPORATION	476							29	92	115	100	45	21	24	52		
MOD INFLOW	5192	217	101	130	427	739	1048	414	201	243	306	142	66	76	304	368	408
RELEASE	5466	179	83	107	417	492	506	523	523	431	369	179	83	103	461	523	489
STOR CHANGE	-274	38	18	23	10	247	542	-109	-321	-187	-62	-36	-17	-27	-157	-155	-81
STORAGE	11586.	11624	11642	11665	11675	11922	12465	12356	12034	11847	11785	11748	11731	11704	11547	11393	11312
ELEV FTMSL	2217.3	2217.5	2217.6	2217.7	2217.8	2219.2	2222.2	2221.6	2219.8	2218.8	2218.4	2218.2	2218.1	2218.0	2217.1	2216.2	2215.7
DISCH KCFS	8.500	6.0	6.0	6.0	7.0	8.0	8.5	8.5	8.5	7.2	6.0	6.0	6.0	6.5	7.5	8.5	8.5
POWER																	
AVE POWER MW		77	77	77	90	103	110	111	110	94	77	77	77	84	96	108	108
PEAK POW MW		148	148	148	148	149	153	152	150	149	149	148	148	148	147	146	146
ENERGY GWH	852.3	27.7	12.9	16.7	64.7	76.6	79.5	82.6	82.2	67.4	57.6	27.8	13.0	16.1	71.5	80.7	75.2
--GARRISON--																	
NAT INFLOW	9365	414	193	248	655	1177	2661	1740	486	403	404	164	77	87	154	215	287
DEPLETION	1121	15	7	9	34	138	803	667	110	-143	-28	-128	-60	-68	-107	-74	-54
CHAN STOR	0	26			-10	-10	-5			13	13			-5	-10	-10	
EVAPORATION	556							34	108	134	116	52	24	28	60		
REG INFLOW	13153	604	270	347	1027	1520	2359	1562	791	856	698	418	195	226	652	801	830
RELEASE	13486	417	194	250	1071	1414	1309	1291	1291	1036	861	417	194	222	1138	1230	1150
STOR CHANGE	-332	188	75	97	-44	106	1049	270	-500	-180	-163	1	1	3	-486	-429	-320
STORAGE	13869.	14056	14132	14228	14184	14290	15340	15610	15110	14930	14766	14768	14768	14772	14286	13857	13537
ELEV FTMSL	1823.8	1824.5	1824.8	1825.1	1825.0	1825.4	1829.2	1830.2	1828.4	1827.8	1827.2	1827.2	1827.2	1827.2	1825.4	1823.7	1822.5
DISCH KCFS	20.500	14.0	14.0	14.0	18.0	23.0	22.0	21.0	21.0	17.4	14.0	14.0	14.0	14.0	18.5	20.0	20.0
POWER																	
AVE POWER MW		160	161	161	206	263	256	248	247	204	164	163	163	163	214	228	226
PEAK POW MW		420	421	423	422	424	438	441	435	432	430	430	430	430	424	418	413
ENERGY GWH	1889.0	57.6	27.0	34.8	148.7	195.9	184.0	184.5	184.0	146.8	121.7	58.8	27.4	31.4	159.1	169.9	157.4
--OAHE--																	
NAT INFLOW	1445	189	88	113	305	139	337	118	54	58	15	14	6	7	-37	-16	54
DEPLETION	734	25	12	15	51	75	157	190	128	31	-12	1	0	1	13	19	29
CHAN STOR	3	30			-18	-23	5	5		17	16				-21	-7	
EVAPORATION	501							31	96	120	104	47	22	25	55		
REG INFLOW	13698	611	271	349	1307	1455	1494	1193	1121	960	800	382	178	204	1011	1188	1175
RELEASE	14041	457	297	333	1239	1381	1450	1695	1724	1011	1056	332	114	138	851	1057	906
STOR CHANGE	-343	154	-26	16	67	75	43	-502	-603	-51	-257	50	64	66	160	131	270
STORAGE	14672.	14826	14800	14816	14883	14958	15001	14499	13896	13845	13588	13638	13702	13768	13928	14059	14329
ELEV FTMSL	1593.2	1593.9	1593.8	1593.8	1594.1	1594.4	1594.5	1592.6	1590.1	1589.9	1588.9	1589.1	1589.3	1589.6	1590.3	1590.8	1591.9
DISCH KCFS	15.966	15.4	21.4	18.7	20.8	22.5	24.4	27.6	28.0	17.0	17.2	11.2	8.2	8.7	13.8	17.2	15.7
POWER																	
AVE POWER MW		184	256	224	250	269	293	329	330	200	201	130	96	102	163	202	186
PEAK POW MW		638	637	638	639	640	641	631	619	618	613	614	615	617	620	623	628
ENERGY GWH	2016.4	66.2	43.0	48.3	179.8	200.5	210.7	244.7	245.8	143.7	149.6	47.0	16.2	19.6	121.0	150.6	129.7
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13912	457	297	333	1239	1381	1450	1687	1699	980	1029	320	108	131	837	1057	906
RELEASE	13912	457	297	333	1209	1411	1450	1687	1699	980	1029	320	108	131	837	1057	906
STORAGE	1621.	1621	1621	1621	1651	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.5	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.966	15.4	21.4	18.7	20.3	22.9	24.4	27.4	27.6	16.5	16.7	10.7	7.8	8.3	13.6	17.2	15.7
POWER																	
AVE POWER MW		73	100	87	95	108	114	128	129	80	84	54	40	42	69	85	76
PEAK POW MW		517	509	509	515	509	509	509	509	538	538	538	538	538	538	538	529
ENERGY GWH	806.1	26.2	16.8	18.9	68.7	80.2	82.1	95.5	96.2	57.8	62.7	19.6	6.6	8.1	51.1	62.9	52.6
--FORT RANDALL--																	
NAT INFLOW	494	85	40	51	88	71	121	38	27		-22	-8	-4	-4	-11	-22	44
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	134							10	32	36	25	10	4	5	12		
REG INFLOW	14193	540	336	383	1293	1473	1559	1697	1680	937	981	302	100	121	811	1032	947
RELEASE	14193	260	192	383	1293	1473	1559	1697	1680	1582	1569	302	100	121	714	692	575
STOR CHANGE	0	280	144	0	0			0	0	-645	-588	0	0	0	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	2780	2192	2192	2192	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1347.0	1337.5	1337.5	1337.5	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.934	8.8	13.8	21.5	21.7	24.0	26.2	27.6	27.3	26.6	25.5	10.1	7.2	7.6	11.6	11.3	10.0
POWER																	
AVE POWER MW		73	117	182	184	202	221	233	230	217	193	74	53	56	86	86	80
PEAK POW MW		350	356	356	356	356	356	356	356	328	284	285	285	285	293	319	339
ENERGY GWH	1400.4	26.2	19.6	39.2	132.4	150.5	159.2	173.1	171.4	156.1	143.4	26.7	8.9	10.8	63.6	63.8	55.6
--GAVINS POINT--																	
NAT INFLOW	1326	94	44	56	128	143	153	87	71	81	106	51	24	27	77	77	107
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	2	-10	-15	-1	-4	-4	-3	1	1	2	28	5	-1	-7	1	2
EVAPORATION	42							2	8	10	9	4	2	2	5		
REG INFLOW	15361	357	226	425	1416	1593	1684	1740	1734	1659	1666	372	125	143	769	769	684
RELEASE	15361	357	226	425	1416	1593	1684	1740	1722	1636	1666	372	125	143	769	769	719
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	12.0	16.3	23.8	23.8	25.9	28.3	28.3	28.0	27.5	27.1	12.5	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		42	57	82	82	88	96	96	96	96	95	44	32	32	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	642.8	15.1	9.5	17.6	58.7	65.8	69.3	71.6	71.3	68.8	70.6	16.0	5.4	6.2	33.0	33.0	30.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1170	129	60	77	154	197	122	106	85	70	37	24	11	13	11	21	53
DEPLETION	278	7	3	4	23	36	32	40	38	25	12	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	16253	479	283	498	1547	1754	1774	1806	1769	1681	1691	389	133	152	766	775	757
KCFS		16.1	20.4	27.9	26.0	28.5	29.8	29.4	28.8	28.3	27.5	13.1	9.6	9.6	12.5	12.6	13.2
--TOTAL--																	
NAT INFLOW	19900	1117	521	670	1802	2696	4942	2750	1020	858	869	416	194	222	440	521	863
DEPLETION	2759	36	17	22	162	507	1528	1172	305	-197	-102	-130	-60	-69	-177	-158	-97
CHAN STOR	2	58	-10	-15	-29	-38	-5	2	1	31	31	29	6	-6	-40	-17	2
EVAPORATION	1838							115	359	446	381	170	79	91	197		
STORAGE	45075.	45736	45947	46082	46146	46544	48179	47838	46425	45384	44314	44329	44377	44419	44033	43921	44126
SYSTEM POWER																	
AVE POWER MW		608	767	812	907	1034	1090	1145	1144	890	814	544	461	479	671	754	720
PEAK POW MW		2188	2186	2188	2195	2193	2211	2204	2185	2183	2131	2133	2134	2135	2100	2121	2131
ENERGY GWH	7607.0	219.0	128.9	175.5	653.1	769.5	784.9	852.2	850.9	640.6	605.7	195.8	77.5	92.0	499.5	560.9	501.2
DAILY GWH		14.6	18.4	19.5	21.8	24.8	26.2	27.5	27.4	21.4	19.5	13.1	11.1	11.5	16.1	18.1	17.3

INI-SUM 15MAR 22MAR 31MAR 30APR 31MAY 30JUN 31JUL 31AUG 30SEP 31OCT 15NOV 22NOV 30NOV 31DEC 31JAN 29FEB

TIME OF STUDY: 14:52:49 STUDY NO 15

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB16		2016										2017			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	6174	209	97	125	477	981	1567	669	301	249	331	174	81	93	249	249	322
DEPLETION	500	-17	-8	-10	20	268	580	258	-8	-126	-108	-30	-14	-16	-102	-114	-72
EVAPORATION	471							29	90	113	98	45	21	24	51		
MOD INFLOW	5203	226	105	136	457	713	987	382	219	262	341	159	74	85	300	363	394
RELEASE	5310	149	69	89	446	492	506	523	523	406	307	149	69	95	492	523	472
STOR CHANGE	-107	77	36	46	11	221	481	-141	-304	-144	33	11	5	-10	-192	-160	-78
STORAGE	11312.	11389	11425	11471	11482	11703	12184	12044	11740	11596	11629	11640	11645	11634	11442	11283	11204
ELEV FTMSL	2215.7	2216.2	2216.4	2216.6	2216.7	2217.9	2220.6	2219.9	2218.2	2217.3	2217.5	2217.6	2217.6	2217.6	2216.5	2215.5	2215.1
DISCH KCFS	8.500	5.0	5.0	5.0	7.5	8.0	8.5	8.5	8.5	6.8	5.0	5.0	5.0	6.0	8.0	8.5	8.5
POWER																	
AVE POWER MW		64	64	64	96	102	110	110	110	88	64	64	64	77	102	108	108
PEAK POW MW		146	146	147	147	148	151	150	148	147	148	148	148	148	146	145	145
ENERGY GWH	823.9	23.0	10.7	13.8	69.0	76.2	79.0	82.0	81.6	63.1	47.8	23.1	10.8	14.8	76.1	80.4	72.4
--GARRISON--																	
NAT INFLOW	9470	418	195	251	662	1190	2691	1760	492	409	409	166	77	88	155	217	290
DEPLETION	1039	6	3	4	35	163	766	677	106	-146	-33	-137	-64	-73	-121	-87	-60
CHAN STOR	0	37	0	0	-26	-5	-5			17	19		0	-10	-21	-5	
EVAPORATION	553							34	107	133	116	52	24	28	60		
REG INFLOW	13188	598	262	336	1047	1514	2426	1572	802	845	653	399	186	218	688	821	822
RELEASE	13326	417	194	250	1012	1383	1279	1261	1261	1031	861	417	194	230	1138	1261	1139
STOR CHANGE	-138	181	67	86	35	130	1146	311	-459	-186	-208	-17	-8	-12	-450	-439	-316
STORAGE	13537.	13718	13785	13871	13907	14037	15183	15494	15035	14849	14641	14624	14616	14604	14154	13715	13398
ELEV FTMSL	1822.5	1823.2	1823.4	1823.8	1823.9	1824.4	1828.7	1829.8	1828.1	1827.5	1826.7	1826.6	1826.6	1826.6	1824.9	1823.2	1821.9
DISCH KCFS	20.000	14.0	14.0	14.0	17.0	22.5	21.5	20.5	20.5	17.3	14.0	14.0	14.0	14.5	18.5	20.5	20.5
POWER																	
AVE POWER MW		159	159	159	194	256	249	241	241	203	163	163	163	168	213	233	231
PEAK POW MW		416	417	418	418	420	436	440	434	431	428	428	428	428	422	416	411
ENERGY GWH	1858.6	57.1	26.7	34.4	139.4	190.4	179.0	179.6	179.3	145.9	121.4	58.6	27.3	32.3	158.5	173.5	155.1
--OAHE--																	
NAT INFLOW	1494	196	91	117	315	144	349	122	55	61	17	14	7	7	-39	-17	55
DEPLETION	747	25	12	15	51	76	160	195	131	31	-13	1	0	1	13	19	30
CHAN STOR	-2	28			-14	-25	5	5		15	16			-2	-19	-10	
EVAPORATION	495							31	95	118	103	47	22	25	55		
REG INFLOW	13576	615	274	352	1262	1426	1473	1161	1090	958	804	383	179	210	1012	1215	1164
RELEASE	13720	356	287	332	1204	1406	1444	1692	1721	1010	993	229	122	137	851	1058	878
STOR CHANGE	-143	259	-13	21	57	20	29	-530	-631	-52	-189	154	57	73	161	157	286
STORAGE	14329.	14587	14574	14595	14652	14673	14701	14171	13539	13487	13298	13452	13509	13582	13743	13900	14186
ELEV FTMSL	1591.9	1592.9	1592.9	1592.9	1593.2	1593.3	1593.4	1591.2	1588.7	1588.4	1587.7	1588.3	1588.5	1588.8	1589.5	1590.1	1591.3
DISCH KCFS	15.745	12.0	20.7	18.6	20.2	22.9	24.3	27.5	28.0	17.0	16.2	7.7	8.8	8.6	13.8	17.2	15.8
POWER																	
AVE POWER MW		143	246	222	241	273	290	326	327	198	188	90	102	101	162	202	186
PEAK POW MW		633	633	633	634	635	635	625	612	611	607	610	611	613	616	619	625
ENERGY GWH	1958.7	51.4	41.4	47.9	173.9	202.9	208.5	242.6	243.4	142.4	139.6	32.3	17.2	19.3	120.5	150.2	125.3
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13591	356	287	332	1204	1406	1444	1684	1696	979	966	217	116	130	837	1058	878
RELEASE	13591	356	287	332	1204	1406	1444	1684	1696	979	966	217	116	130	837	1058	878
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.745	12.0	20.7	18.6	20.2	22.9	24.3	27.4	27.6	16.5	15.7	7.3	8.4	8.2	13.6	17.2	15.8
POWER																	
AVE POWER MW		57	97	87	95	107	114	128	129	80	79	37	42	42	69	85	76
PEAK POW MW		517	509	509	509	509	509	509	509	538	538	538	538	538	538	538	529
ENERGY GWH	786.7	20.4	16.3	18.8	68.2	79.6	81.8	95.4	96.1	57.8	58.9	13.3	7.1	8.0	51.1	62.9	51.0
--FORT RANDALL--																	
NAT INFLOW	517	89	42	53	92	75	126	40	29		-24	-9	-4	-5	-11	-23	46
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	134							10	32	36	25	10	4	5	12		
REG INFLOW	13894	444	328	384	1292	1472	1558	1696	1679	936	916	199	107	120	811	1032	921
RELEASE	13894	164	184	384	1292	1472	1558	1696	1679	1581	1504	198	107	120	714	692	549
STOR CHANGE	0	280	144	0	0			0	0	-645	-588	0	0	0	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	2780	2192	2192	2192	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1347.0	1337.5	1337.5	1337.5	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.991	5.5	13.2	21.5	21.7	23.9	26.2	27.6	27.3	26.6	24.5	6.7	7.7	7.6	11.6	11.3	9.9
POWER																	
AVE POWER MW		46	112	182	184	202	221	233	230	217	185	49	57	55	86	86	79
PEAK POW MW		350	356	356	356	356	356	356	356	328	284	285	285	285	293	319	339
ENERGY GWH	1372.4	16.5	18.8	39.3	132.3	150.4	159.1	173.0	171.3	156.0	137.5	17.6	9.5	10.7	63.6	63.8	53.1
--GAVINS POINT--																	
NAT INFLOW	1338	95	44	57	129	144	154	88	72	82	108	52	24	27	77	77	108
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	9	-15	-16	0	-4	-4	-3	1	1	4	33	-2	0	-7	1	3
EVAPORATION	42							2	8	10	9	4	2	2	5		
REG INFLOW	15075	268	214	425	1416	1593	1684	1740	1734	1659	1605	274	125	143	769	769	659
RELEASE	15075	268	214	425	1416	1593	1684	1740	1722	1636	1605	274	125	143	769	769	694
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	9.0	15.4	23.8	23.8	25.9	28.3	28.3	28.0	27.5	26.1	9.2	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		32	54	82	82	88	96	96	96	96	92	33	32	32	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	630.8	11.4	9.0	17.6	58.7	65.8	69.3	71.6	71.3	68.8	68.1	11.8	5.4	6.2	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1207	133	62	80	159	203	126	110	88	71	39	25	11	13	11	22	55
DEPLETION	280	7	3	4	24	37	32	40	38	25	12	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	16002	393	272	501	1551	1759	1778	1810	1772	1682	1632	292	133	152	766	776	734
KCFS		13.2	19.6	28.0	26.1	28.6	29.9	29.4	28.8	28.3	26.5	9.8	9.6	9.6	12.5	12.6	13.2
--TOTAL--																	
NAT INFLOW	20200	1139	531	683	1834	2737	5013	2789	1037	872	880	421	196	225	442	525	876
DEPLETION	2760	22	10	13	139	572	1574	1227	292	-214	-139	-154	-72	-82	-183	-163	-84
CHAN STOR	-3	74	-15	-16	-41	-35	-5	2	1	34	39	34	-2	-13	-48	-14	3
EVAPORATION	1824							114	356	442	378	169	79	90	196		
STORAGE	44126.	44923	45157	45310	45414	45786	47442	47082	45699	44695	43743	43890	43944	43995	43611	43509	43737
SYSTEM POWER																	
AVE POWER MW		499	732	796	891	1029	1079	1135	1133	880	771	435	460	475	676	758	724
PEAK POW MW		2177	2175	2177	2179	2183	2202	2195	2175	2173	2122	2126	2127	2129	2094	2115	2125
ENERGY GWH	7431.1	179.8	122.9	171.9	641.4	765.4	776.8	844.3	842.9	633.9	573.4	156.7	77.3	91.3	502.9	563.8	486.5
DAILY GWH		12.0	17.6	19.1	21.4	24.7	25.9	27.2	27.2	21.1	18.5	10.4	11.0	11.4	16.2	18.2	17.4

INI-SUM 15MAR 22MAR 31MAR 30APR 31MAY 30JUN 31JUL 31AUG 30SEP 31OCT 15NOV 22NOV 30NOV 31DEC 31JAN 28FEB

TIME OF STUDY: 14:52:49 STUDY NO 16

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB17		2017									2018				
INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																
NAT INFLOW 6560	222	103	133	507	1042	1665	711	320	264	353	184	86	98	265	265	342
DEPLETION 528	-13	-6	-8	20	269	584	265	4	-126	-110	-31	-14	-16	-103	-114	-73
EVAPORATION 473							29	91	113	99	45	21	24	52		
MOD INFLOW 5559	235	109	141	487	773	1081	417	225	277	364	170	79	90	316	379	415
RELEASE 5339	149	69	89	417	492	536	553	553	415	307	149	69	84	461	523	472
STOR CHANGE 220	86	40	52	70	281	545	-136	-328	-138	57	21	10	6	-145	-144	-57
STORAGE 11204.	11290	11330	11382	11452	11734	12279	12143	11814	11676	11733	11754	11764	11770	11625	11482	11424
ELEV FTMSL 2215.1	2215.6	2215.8	2216.1	2216.5	2218.1	2221.1	2220.4	2218.6	2217.8	2218.1	2218.2	2218.3	2218.3	2217.5	2216.7	2216.4
DISCH KCFS 8.500	5.0	5.0	5.0	7.0	8.0	9.0	9.0	9.0	7.0	5.0	5.0	5.0	5.3	7.5	8.5	8.5
POWER																
AVE POWER MW	64	64	64	89	102	116	117	116	90	64	64	64	68	96	109	108
PEAK POW MW	145	146	146	147	148	152	151	149	148	148	148	149	149	148	147	146
ENERGY GWH 830.3	22.9	10.7	13.8	64.3	76.2	83.8	87.0	86.5	64.6	47.9	23.2	10.8	13.1	71.7	80.9	72.8
--GARRISON--																
NAT INFLOW 10016	442	206	265	701	1259	2846	1861	520	432	432	175	82	93	164	230	307
DEPLETION 1100	0	0	0	36	184	801	693	121	-149	-37	-141	-66	-75	-122	-87	-60
CHAN STOR 0	37	0	0	-21	-11	-11			21	20		0	-3	-23	-10	
EVAPORATION 558							34	108	134	117	53	25	28	60		
REG INFLOW 13696	628	276	354	1060	1556	2570	1687	845	882	680	412	192	221	664	829	839
RELEASE 13421	417	194	250	1012	1414	1309	1291	1291	1043	861	417	194	222	1107	1261	1139
STOR CHANGE 275	211	81	104	49	142	1261	396	-447	-161	-181	-5	-2	-1	-443	-431	-299
STORAGE 13398.	13610	13691	13795	13844	13986	15247	15643	15196	15036	14855	14850	14848	14847	14404	13973	13673
ELEV FTMSL 1821.9	1822.8	1823.1	1823.5	1823.7	1824.2	1828.9	1830.3	1828.7	1828.1	1827.5	1827.5	1827.5	1827.5	1825.8	1824.2	1823.0
DISCH KCFS 20.500	14.0	14.0	14.0	17.0	23.0	22.0	21.0	21.0	17.5	14.0	14.0	14.0	14.0	18.0	20.5	20.5
POWER																
AVE POWER MW	158	159	159	193	261	254	248	248	206	164	164	164	164	209	235	232
PEAK POW MW	414	415	417	417	420	437	442	436	434	431	431	431	431	425	419	415
ENERGY GWH 1877.2	56.9	26.7	34.4	139.1	194.3	183.1	184.4	184.3	148.1	122.0	58.9	27.5	31.4	155.3	174.6	156.2
--OAHE--																
NAT INFLOW 1767	231	108	139	373	170	412	144	65	72	21	17	8	9	-46	-20	65
DEPLETION 760	25	12	15	52	77	163	199	134	32	-13	1	0	0	14	19	30
CHAN STOR 1	30			-14	-28	5	5		16	17				-19	-12	
EVAPORATION 503							31	97	120	105	47	22	25	55		
REG INFLOW 13926	653	291	374	1319	1480	1563	1210	1126	979	807	385	180	205	973	1210	1174
RELEASE 13641	330	275	316	1175	1381	1404	1678	1710	1006	1056	284	117	137	850	1060	862
STOR CHANGE 285	323	16	58	143	99	158	-468	-584	-27	-249	102	62	68	122	150	312
STORAGE 14186.	14509	14524	14582	14725	14824	14983	14514	13930	13903	13654	13756	13818	13886	14009	14159	14470
ELEV FTMSL 1591.3	1592.6	1592.7	1592.9	1593.5	1593.9	1594.5	1592.6	1590.3	1590.2	1589.1	1589.6	1589.8	1590.1	1590.6	1591.2	1592.5
DISCH KCFS 15.803	11.1	19.8	17.7	19.8	22.5	23.6	27.3	27.8	16.9	17.2	9.5	8.4	8.6	13.8	17.2	15.5
POWER																
AVE POWER MW	132	236	211	236	269	283	326	328	199	201	112	99	102	163	203	184
PEAK POW MW	632	632	633	636	638	641	632	620	619	614	616	618	619	622	625	631
ENERGY GWH 1958.1	47.5	39.6	45.6	169.8	199.9	203.7	242.3	244.0	143.2	149.8	40.3	16.7	19.5	121.2	151.3	123.8
--BIG BEND--																
EVAPORATION 129							8	24	31	27	12	6	7	14		
REG INFLOW 13513	330	275	316	1175	1381	1404	1670	1685	975	1029	271	112	131	836	1060	862
RELEASE 13513	330	275	316	1175	1381	1404	1670	1685	975	1029	271	112	131	836	1060	862
STORAGE 1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL 1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS 15.803	11.1	19.8	17.7	19.8	22.5	23.6	27.2	27.4	16.4	16.7	9.1	8.0	8.2	13.6	17.2	15.5
POWER																
AVE POWER MW	53	93	83	92	105	110	127	128	80	84	46	41	42	69	85	74
PEAK POW MW	517	509	509	509	509	509	509	509	538	538	538	538	538	538	538	529
ENERGY GWH 782.6	18.9	15.6	17.9	66.6	78.2	79.5	94.6	95.4	57.5	62.7	16.6	6.8	8.0	51.1	63.0	50.0
--FORT RANDALL--																
NAT INFLOW 645	111	52	66	115	93	158	50	36		-29	-11	-5	-6	-14	-29	57
DEPLETION 80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION 134							10	32	36	25	10	4	5	12		
REG INFLOW 13944	439	326	381	1286	1465	1550	1692	1675	932	974	251	102	119	807	1028	916
RELEASE 13944	159	182	381	1286	1465	1550	1692	1675	1577	1562	251	102	119	710	688	544
STOR CHANGE 0	280	144				0	0	0	-645	-588	0	0	0	97	340	372
STORAGE 3001.	3281	3425	3425	3425	3425	3425	3425	3425	2780	2192	2192	2192	2192	2289	2629	3001
ELEV FTMSL 1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1347.0	1337.5	1337.5	1337.5	1337.5	1339.3	1344.8	1350.0
DISCH KCFS 9.879	5.4	13.1	21.4	21.6	23.8	26.1	27.5	27.2	26.5	25.4	8.4	7.3	7.5	11.5	11.2	9.8
POWER																
AVE POWER MW	45	111	181	183	201	220	232	230	216	192	62	54	55	85	85	78
PEAK POW MW	350	356	356	356	356	356	356	356	328	284	285	285	285	293	319	339
ENERGY GWH 1376.4	16.1	18.6	39.1	131.7	149.7	158.3	172.6	170.9	155.6	142.8	22.3	9.1	10.6	63.3	63.4	52.6
--GAVINS POINT--																
NAT INFLOW 1403	99	46	60	135	151	162	92	76	86	113	54	25	29	81	81	113
DEPLETION 114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR -1	9	-15	-16	0	-4	-4	-3	1	1	2	31	2	0	-7	1	3
EVAPORATION 42							2	8	10	9	4	2	2	5		
REG INFLOW 15190	268	214	425	1416	1593	1684	1740	1734	1659	1666	327	125	143	769	769	659
RELEASE 15190	268	214	425	1416	1593	1684	1740	1722	1636	1666	327	125	143	769	769	694
STOR CHANGE								12	23							-35
STORAGE 327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL 1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS 12.500	9.0	15.4	23.8	23.8	25.9	28.3	28.3	28.0	27.5	27.1	11.0	9.0	9.0	12.5	12.5	12.5
POWER																
AVE POWER MW	32	54	82	82	88	96	96	96	96	95	39	32	32	44	44	44
PEAK POW MW	114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH 635.6	11.4	9.0	17.6	58.7	65.8	69.3	71.6	71.3	68.8	70.6	14.1	5.4	6.2	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--																
NAT INFLOW 1409	155	72	93	186	237	147	128	102	83	45	29	14	15	13	26	64
DEPLETION 283	7	3	4	24	37	32	40	39	26	12	7	3	3	14	15	16
REGULATED FLOW AT SIOUX CITY																
KAF 16316	415	282	514	1578	1793	1799	1828	1785	1693	1699	350	135	155	768	780	742
KCFS	14.0	20.3	28.8	26.5	29.2	30.2	29.7	29.0	28.5	27.6	11.8	9.8	9.8	12.5	12.7	13.4
--TOTAL--																
NAT INFLOW 21800	1260	588	756	2017	2952	5390	2986	1119	937	935	448	209	239	463	553	948
DEPLETION 2865	21	10	12	141	595	1616	1254	323	-215	-145	-158	-74	-84	-184	-163	-84
CHAN STOR 0	76	-15	-16	-35	-42	-10	2	1	39	39	32	2	-3	-50	-22	3
EVAPORATION 1839							114	359	445	381	170	80	91	198		
STORAGE 43737.	44638	44919	45132	45395	45917	47882	47673	46326	45378	44417	44535	44604	44678	44310	44225	44517
SYSTEM POWER																
AVE POWER MW	483	715	779	875	1027	1080	1146	1146	886	801	487	454	463	666	761	722
PEAK POW MW	2173	2172	2175	2179	2185	2209	2204	2185	2185	2134	2136	2138	2139	2104	2125	2136
ENERGY GWH 7460.2	173.7	120.1	168.3	630.2	764.1	777.8	852.6	852.4	637.8	595.8	175.3	76.3	88.8	495.5	566.3	485.1
DAILY GWH	11.6	17.2	18.7	21.0	24.6	25.9	27.5	27.5	21.3	19.2	11.7	10.9	11.1	16.0	18.3	17.3

INI-SUM 15MAR 22MAR 31MAR 30APR 31MAY 30JUN 31JUL 31AUG 30SEP 31OCT 15NOV 22NOV 30NOV 31DEC 31JAN 28FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

29FEB18		2018									2019				
INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																
NAT INFLOW 6794	229	107	138	525	1079	1724	736	331	275	365	192	89	102	274	274	354
DEPLETION 530	-13	-6	-8	20	269	588	272	1	-127	-112	-31	-14	-17	-104	-115	-73
EVAPORATION 483							29	92	116	101	46	21	24	53		
MOD INFLOW 5781	242	113	145	505	810	1136	435	238	286	376	177	82	94	325	389	427
RELEASE 5394	149	69	89	417	492	536	553	553	416	307	149	69	79	461	553	500
STOR CHANGE 387	94	44	56	88	318	600	-119	-316	-130	68	28	13	15	-136	-164	-73
STORAGE 11424.	11518	11562	11618	11706	12025	12625	12506	12190	12061	12129	12157	12170	12185	12049	11884	11811
ELEV FTMSL 2216.4	2216.9	2217.1	2217.5	2218.0	2219.7	2223.0	2222.4	2220.7	2219.9	2220.3	2220.5	2220.5	2220.6	2219.9	2219.0	2218.6
DISCH KCFS 8.500	5.0	5.0	5.0	7.0	8.0	9.0	9.0	9.0	7.0	5.0	5.0	5.0	5.0	7.5	9.0	9.0
POWER																
AVE POWER MW	64	64	64	90	103	117	118	117	91	65	65	65	65	97	116	116
PEAK POW MW	147	147	148	148	150	153	153	151	150	151	151	151	151	150	149	149
ENERGY GWH 846.2	23.0	10.8	13.9	64.7	76.8	84.5	87.8	87.3	65.4	48.4	23.4	10.9	12.5	72.4	86.5	77.9
--GARRISON--																
NAT INFLOW 10343	457	213	274	723	1300	2939	1922	537	447	446	181	84	97	170	237	316
DEPLETION 1115	1	1	1	37	184	811	709	127	-152	-42	-145	-67	-77	-124	-88	-61
CHAN STOR -5	37	0	0	-21	-10	-10			20	20		0	0	-26	-16	
EVAPORATION 574							35	111	138	120	54	25	29	62		
REG INFLOW 14043	641	282	362	1082	1597	2653	1731	853	897	696	420	196	224	668	863	877
RELEASE 13579	417	194	250	952	1353	1309	1291	1291	1014	922	446	208	246	1168	1322	1194
STOR CHANGE 464	225	87	112	129	245	1344	440	-438	-117	-227	-26	-12	-22	-501	-459	-317
STORAGE 13673.	13898	13986	14098	14227	14472	15816	16256	15818	15701	15474	15448	15436	15414	14914	14455	14137
ELEV FTMSL 1823.0	1823.9	1824.2	1824.6	1825.1	1826.1	1830.9	1832.5	1831.0	1830.5	1829.7	1829.6	1829.6	1829.5	1827.7	1826.0	1824.8
DISCH KCFS 20.500	14.0	14.0	14.0	16.0	22.0	22.0	21.0	21.0	17.0	15.0	15.0	15.0	15.5	19.0	21.5	21.5
POWER																
AVE POWER MW	159	160	160	184	253	258	251	251	203	178	178	178	183	223	249	247
PEAK POW MW	418	419	421	423	426	444	450	444	443	440	439	439	439	432	426	422
ENERGY GWH 1923.4	57.3	26.9	34.6	132.2	188.0	185.5	186.9	186.9	146.3	132.7	64.0	29.9	35.2	165.9	185.3	165.8
--OAHE--																
NAT INFLOW 1949	255	119	153	412	188	455	159	72	79	22	18	8	10	-51	-22	72
DEPLETION 777	26	12	15	52	79	166	204	137	33	-13	1	0	0	14	20	31
CHAN STOR -4	30			-9	-27		4		18	10			-2	-16	-12	0
EVAPORATION 511							32	98	122	106	48	22	26	56		
REG INFLOW 14236	676	301	387	1303	1435	1598	1219	1128	957	861	416	194	227	1031	1268	1235
RELEASE 13758	313	267	305	1157	1364	1379	1669	1703	1077	1039	485	98	140	850	1062	851
STOR CHANGE 478	363	35	82	145	71	219	-450	-575	-120	-178	-69	96	88	181	206	384
STORAGE 14470.	14834	14869	14951	15096	15167	15386	14936	14361	14241	14063	13993	14089	14177	14358	14564	14948
ELEV FTMSL 1592.5	1593.9	1594.0	1594.3	1594.9	1595.2	1596.0	1594.3	1592.0	1591.5	1590.8	1590.5	1590.9	1591.3	1592.0	1592.8	1594.3
DISCH KCFS 15.514	10.5	19.2	17.1	19.5	22.2	23.2	27.1	27.7	18.1	16.9	16.3	7.1	8.8	13.8	17.3	15.3
POWER																
AVE POWER MW	126	230	206	234	267	280	327	330	215	200	192	84	104	164	206	184
PEAK POW MW	638	639	640	643	644	648	640	629	626	623	621	623	625	629	633	640
ENERGY GWH 1990.9	45.3	38.7	44.4	168.6	198.9	201.7	243.2	245.3	154.5	148.5	69.2	14.1	20.0	122.0	152.9	123.4
--BIG BEND--																
EVAPORATION 129							8	24	31	27	12	6	7	14		
REG INFLOW 13630	313	267	305	1157	1364	1379	1661	1678	1046	1012	473	93	133	836	1062	851
RELEASE 13630	313	267	305	1157	1364	1379	1661	1678	1046	1012	473	93	133	836	1062	851
STORAGE 1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL 1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS 15.514	10.5	19.2	17.1	19.5	22.2	23.2	27.0	27.3	17.6	16.5	15.9	6.7	8.4	13.6	17.3	15.3
POWER																
AVE POWER MW	50	90	80	91	104	109	126	128	85	83	80	34	43	69	85	73
PEAK POW MW	517	509	509	509	509	509	509	509	537	538	538	538	538	538	538	529
ENERGY GWH 789.8	17.9	15.1	17.3	65.6	77.3	78.1	94.1	95.0	61.4	61.6	28.8	5.7	8.2	51.0	63.2	49.4
--FORT RANDALL--																
NAT INFLOW 731	126	59	75	130	106	179	57	41	-1	-33	-12	-6	-6	-16	-33	65
DEPLETION 80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION 135							10	32	37	26	10	4	5	12		
REG INFLOW 14145	437	325	380	1283	1461	1546	1690	1673	1001	951	450	83	121	805	1026	913
RELEASE 14145	157	181	380	1283	1461	1546	1690	1673	1574	1558	503	83	121	708	686	541
STOR CHANGE 0	280	144			0		0	0	-573	-607	-53	0	0	97	340	372
STORAGE 3001.	3281	3425	3425	3425	3425	3425	3425	3425	2852	2245	2192	2192	2192	2289	2629	3001
ELEV FTMSL 1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1348.0	1338.5	1337.5	1337.5	1337.5	1339.3	1344.8	1350.0
DISCH KCFS 9.789	5.3	13.0	21.3	21.6	23.8	26.0	27.5	27.2	26.5	25.3	16.9	6.0	7.6	11.5	11.2	9.7
POWER																
AVE POWER MW	44	110	180	182	201	219	232	229	217	193	124	44	56	85	85	78
PEAK POW MW	350	356	356	356	356	356	356	356	332	289	285	285	285	293	319	339
ENERGY GWH 1395.8	15.8	18.5	38.9	131.4	149.3	157.9	172.4	170.7	156.0	143.7	44.5	7.4	10.7	63.1	63.2	52.3
--GAVINS POINT--																
NAT INFLOW 1440	102	47	61	138	155	166	94	78	89	117	56	26	30	83	83	116
DEPLETION 114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR -1	9	-15	-16	-1	-4	-4	-3	1	1	2	16	20	-3	-7	1	3
EVAPORATION 42							2	8	10	9	4	2	2	5		
REG INFLOW 15428	268	214	425	1416	1593	1684	1740	1734	1659	1666	565	125	143	769	769	659
RELEASE 15428	268	214	425	1416	1593	1684	1740	1722	1636	1666	565	125	143	769	769	694
STOR CHANGE								12	23							-35
STORAGE 327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL 1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS 12.500	9.0	15.4	23.8	23.8	25.9	28.3	28.3	28.0	27.5	27.1	19.0	9.0	9.0	12.5	12.5	12.5
POWER																
AVE POWER MW	32	54	82	82	88	96	96	96	96	95	67	32	32	44	44	44
PEAK POW MW	114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH 645.6	11.4	9.0	17.6	58.7	65.8	69.3	71.6	71.3	68.8	70.6	24.1	5.4	6.2	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--																
NAT INFLOW 1543	170	79	102	203	260	161	140	112	91	50	32	15	17	14	28	70
DEPLETION 286	7	3	4	24	37	32	41	39	26	12	7	3	4	15	15	16
REGULATED FLOW AT SIOUX CITY																
KAF 16685	430	289	523	1595	1816	1813	1839	1795	1701	1704	590	136	156	768	782	748
KCFS	14.5	20.8	29.3	26.8	29.5	30.5	29.9	29.2	28.6	27.7	19.8	9.8	9.8	12.5	12.7	13.5
--TOTAL--																
NAT INFLOW 22800	1339	624	803	2131	3088	5624	3108	1171	980	967	466	217	248	474	567	993
DEPLETION 2902	22	10	13	142	597	1633	1283	329	-218	-152	-162	-76	-86	-186	-164	-84
CHAN STOR -10	76	-15	-16	-31	-42	-15	2	1	40	32	16	21	-6	-50	-26	3
EVAPORATION 1874							116	365	454	390	174	81	93	201		
STORAGE 44517.	45479	45789	46040	46403	47037	49200	49071	47754	46837	45894	45773	45870	45950	45592	45515	45846
SYSTEM POWER																
AVE POWER MW	475	708	772	863	1016	1079	1151	1151	906	814	706	437	483	682	785	742
PEAK POW MW	2185	2185	2188	2193	2200	2226	2222	2204	2205	2157	2151	2153	2155	2120	2143	2154
ENERGY GWH 7591.8	170.8	118.9	166.8	621.2	756.1	777.0	856.0	856.5	652.3	605.6	254.2	73.4	92.8	507.6	584.2	498.4
DAILY GWH	11.4	17.0	18.5	20.7	24.4	25.9	27.6	27.6	21.7	19.5	16.9	10.5	11.6	16.4	18.8	17.8

INI-SUM 15MAR 22MAR 31MAR 30APR 31MAY 30JUN 31JUL 31AUG 30SEP 31OCT 15NOV 22NOV 30NOV 31DEC 31JAN 28FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB19		2019										2020			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB
--FORT PECK--																	
NAT INFLOW	7156	242	113	145	553	1137	1816	776	349	289	384	201	94	107	289	289	373
DEPLETION	539	-14	-6	-8	20	270	592	280	6	-126	-112	-31	-14	-17	-104	-114	-83
EVAPORATION	497							30	95	119	104	47	22	25	54		
MOD INFLOW	6120	255	119	153	533	867	1224	466	248	296	392	185	86	99	339	403	456
RELEASE	5572	149	69	89	417	492	536	553	553	448	369	179	83	103	461	553	518
STOR CHANGE	548	106	50	64	116	375	688	-88	-306	-152	23	7	3	-4	-122	-150	-62
STORAGE	11811.	11918	11967	12031	12147	12522	13211	13123	12817	12665	12689	12695	12698	12694	12571	12421	12359
ELEV FTMSL	2218.6	2219.1	2219.4	2219.8	2220.4	2222.5	2226.2	2225.7	2224.1	2223.2	2223.4	2223.4	2223.4	2223.4	2222.7	2221.9	2221.6
DISCH KCFS	9.000	5.0	5.0	5.0	7.0	8.0	9.0	9.0	9.0	7.5	6.0	6.0	6.0	6.5	7.5	9.0	9.0
POWER																	
AVE POWER MW		65	65	65	91	104	119	120	119	99	79	79	79	86	99	118	117
PEAK POW MW		149	150	150	151	153	156	156	154	154	154	154	154	154	153	152	152
ENERGY GWH	885.5	23.3	10.9	14.0	65.4	77.6	85.5	88.9	88.6	71.4	58.8	28.5	13.3	16.4	73.3	87.6	81.8
--GARRISON--																	
NAT INFLOW	10840	479	223	287	758	1362	3080	2014	563	468	468	190	88	101	178	249	332
DEPLETION	1130	1	1	1	38	184	821	725	132	-155	-46	-148	-69	-79	-124	-87	-66
CHAN STOR	0	42	0	0	-21	-10	-10			15	16			-5	-10	-15	
EVAPORATION	587							36	113	141	123	55	26	29	63		
REG INFLOW	14695	668	292	375	1116	1660	2784	1807	871	945	776	460	215	248	690	874	916
RELEASE	14026	446	208	268	952	1353	1369	1353	1353	1115	953	461	215	254	1168	1322	1237
STOR CHANGE	669	222	84	108	164	307	1416	454	-482	-170	-177	-1	0	-6	-479	-448	-321
STORAGE	14137.	14359	14443	14550	14714	15021	16436	16890	16408	16238	16061	16060	16060	16054	15575	15127	14806
ELEV FTMSL	1824.8	1825.6	1826.0	1826.4	1827.0	1828.1	1833.1	1834.7	1833.0	1832.4	1831.8	1831.8	1831.8	1831.8	1830.1	1828.5	1827.3
DISCH KCFS	21.500	15.0	15.0	15.0	16.0	22.0	23.0	22.0	22.0	18.7	15.5	15.5	15.5	16.0	19.0	21.5	21.5
POWER																	
AVE POWER MW		173	173	174	186	256	273	267	267	226	187	186	186	192	226	253	251
PEAK POW MW		425	426	427	430	434	452	458	452	450	447	447	447	447	441	435	431
ENERGY GWH	2014.3	62.1	29.1	37.5	133.8	190.4	196.5	198.5	198.4	162.6	138.8	67.0	31.3	36.9	168.5	188.3	174.6
--OAHE--																	
NAT INFLOW	2260	296	138	177	477	218	527	184	84	92	25	21	10	11	-59	-25	84
DEPLETION	789	26	12	15	53	80	169	208	141	33	-14	1	0	0	14	20	31
CHAN STOR	1	30		0	-4	-26	-4	4		15	15			-2	-14	-11	
EVAPORATION	532							34	104	128	110	49	23	26	58		
REG INFLOW	14966	746	334	430	1372	1464	1722	1299	1192	1061	897	432	202	236	1024	1266	1290
RELEASE	14276	283	253	288	1125	1337	1337	1705	1742	1552	1062	448	213	161	848	1065	857
STOR CHANGE	690	463	81	142	247	128	385	-406	-550	-491	-165	-16	-11	75	176	201	432
STORAGE	14948.	15411	15493	15635	15882	16009	16394	15989	15438	14947	14782	14766	14754	14829	15005	15206	15638
ELEV FTMSL	1594.3	1596.1	1596.4	1597.0	1597.9	1598.4	1599.8	1598.3	1596.2	1594.3	1593.7	1593.6	1593.6	1593.9	1594.6	1595.3	1597.0
DISCH KCFS	15.316	9.5	18.2	16.1	18.9	21.7	22.5	27.7	28.3	26.1	17.3	15.1	15.3	10.2	13.8	17.3	14.9
POWER																	
AVE POWER MW		115	221	196	231	267	277	341	345	314	207	181	184	122	166	209	181
PEAK POW MW		649	650	653	658	660	667	659	649	640	637	637	636	638	641	645	653
ENERGY GWH	2100.9	41.5	37.2	42.4	166.4	198.4	199.4	253.7	256.6	226.3	154.3	65.1	30.9	23.4	123.5	155.5	126.2
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	14147	283	253	288	1125	1337	1337	1697	1717	1521	1035	436	207	155	834	1065	857
RELEASE	14147	283	253	288	1125	1337	1337	1697	1717	1521	1035	436	207	155	834	1065	857
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.316	9.5	18.2	16.1	18.9	21.7	22.5	27.6	27.9	25.6	16.8	14.7	14.9	9.7	13.6	17.3	14.9
POWER																	
AVE POWER MW		45	85	75	88	102	105	129	131	121	83	74	75	49	68	85	72
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	817.0	16.2	14.3	16.3	63.7	75.7	75.7	96.1	97.3	87.2	61.5	26.6	12.6	9.5	50.9	63.4	49.8
--FORT RANDALL--																	
NAT INFLOW	880	151	71	91	157	127	215	68	49		-39	-15	-7	-8	-20	-39	78
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	144							10	32	39	31	12	5	5	12		
REG INFLOW	14802	433	323	378	1278	1455	1540	1737	1720	1475	964	409	195	142	799	1023	932
RELEASE	14802	153	179	378	1278	1455	1540	1737	1720	1619	1604	722	332	142	702	683	560
STOR CHANGE	0	280	144		0	0	0	0	0	-144	-639	-313	-137	0	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	3281	2642	2329	2192	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.0	1340.0	1337.5	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.734	5.1	12.9	21.2	21.5	23.7	25.9	28.3	28.0	27.2	26.1	24.3	23.9	8.9	11.4	11.1	9.7
POWER																	
AVE POWER MW		43	109	179	182	200	218	238	236	228	209	184	175	65	84	85	78
PEAK POW MW		350	356	356	356	356	356	356	356	350	319	296	285	285	293	319	339
ENERGY GWH	1469.3	15.4	18.3	38.7	130.8	148.7	157.3	177.1	175.4	164.0	155.8	66.2	29.4	12.6	62.6	63.0	54.2
--GAVINS POINT--																	
NAT INFLOW	1494	106	49	63	144	161	172	98	80	92	121	58	27	31	86	86	121
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	9	-15	-16	-1	-4	-4	-5	1	1	2	3	1	28	-5	1	3
EVAPORATION	42							2	8	10	9	4	2	2	5		
REG INFLOW	16139	268	214	425	1416	1593	1684	1789	1783	1707	1716	774	355	195	769	769	684
RELEASE	16139	268	214	425	1416	1593	1684	1789	1771	1684	1716	774	355	195	769	769	719
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	9.0	15.4	23.8	23.8	25.9	28.3	29.1	28.8	28.3	27.9	26.0	25.6	12.3	12.5	12.5	12.5
POWER																	
AVE POWER MW		32	54	82	82	88	96	99	98	98	98	91	90	44	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	675.0	11.4	9.0	17.6	58.7	65.8	69.3	73.5	73.2	70.7	72.7	32.8	15.1	8.4	33.0	33.0	30.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1770	195	91	117	233	298	185	161	129	105	57	36	17	19	16	32	80
DEPLETION	291	8	4	5	25	37	33	41	40	26	12	7	3	4	15	16	16
REGULATED FLOW AT SIOUX CITY																	
KAF	17618	455	301	537	1624	1854	1836	1909	1860	1763	1761	803	369	211	770	785	783
KCFS		15.3	21.7	30.1	27.3	30.1	30.9	31.1	30.2	29.6	28.6	27.0	26.6	13.3	12.5	12.8	13.6
--TOTAL--																	
NAT INFLOW	24400	1467	684	880	2322	3303	5995	3301	1254	1046	1016	491	229	262	490	592	1068
DEPLETION	2943	22	10	13	145	599	1651	1311	344	-220	-157	-165	-77	-88	-186	-161	-99
CHAN STOR	-1	80	-15	-16	-26	-41	-19	0	1	31	32	3	1	21	-29	-26	3
EVAPORATION	1931							120	377	468	403	180	83	95	206		
STORAGE	45846.	46917	47276	47589	48116	48926	51415	51375	50049	49115	48156	47833	47687	47752	47424	47366	47753
SYSTEM POWER																	
AVE POWER MW		472	707	771	859	1017	1089	1193	1196	1087	863	795	789	558	688	794	743
PEAK POW MW		2205	2206	2210	2217	2226	2255	2253	2236	2228	2212	2189	2177	2179	2145	2167	2180
ENERGY GWH	7962.1	170.0	118.8	166.6	618.8	756.7	783.8	887.8	889.5	782.3	641.9	286.2	132.6	107.2	511.8	590.9	517.2
DAILY GWH		11.3	17.0	18.5	20.6	24.4	26.1	28.6	28.7	26.1	20.7	19.1	18.9	13.4	16.5	19.1	17.8

INI-SUM 15MAR 22MAR 31MAR 30APR 31MAY 30JUN 31JUL 31AUG 30SEP 31OCT 15NOV 22NOV 30NOV 31DEC 31JAN 29FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB15		2015									2016					
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB
--FORT PECK--																	
NAT INFLOW	5518	202	94	121	458	885	1228	619	271	240	323	151	70	81	229	239	307
DEPLETION	418	-13	-6	-8	53	194	424	209	24	-105	-58	-19	-9	-10	-90	-98	-71
EVAPORATION	447							28	87	107	93	42	20	22	48		
MOD INFLOW	4653	215	100	129	405	691	804	382	160	238	288	127	59	68	271	337	378
RELEASE	5520	164	76	98	417	492	536	553	553	433	338	164	76	87	461	553	518
STOR CHANGE	-867	51	24	31	-12	199	268	-171	-393	-195	-51	-36	-17	-19	-190	-216	-140
STORAGE	10917.	10968	10992	11022	11011	11210	11478	11307	10914	10719	10668	10632	10615	10596	10406	10189	10050
ELEV FTMSL	2213.4	2213.7	2213.8	2214.0	2214.0	2215.1	2216.7	2215.7	2213.4	2212.2	2211.9	2211.7	2211.6	2211.5	2210.3	2209.0	2208.1
DISCH KCFS	8.500	5.5	5.5	5.5	7.0	8.0	9.0	9.0	9.0	7.3	5.5	5.5	5.5	5.5	7.5	9.0	9.0
POWER																	
AVE POWER MW		69	69	69	88	101	114	115	114	91	69	69	69	69	93	111	110
PEAK POW MW		143	143	144	144	145	147	146	143	142	141	141	141	141	139	138	137
ENERGY GWH	837.6	25.0	11.7	15.0	63.6	75.2	82.4	85.2	84.6	65.7	51.2	24.7	11.5	13.2	69.3	82.6	76.8
--GARRISON--																	
NAT INFLOW	7937	410	191	246	622	1180	2322	1003	349	230	413	161	75	86	150	209	290
DEPLETION	1236	23	11	14	47	129	824	664	111	-141	-19	-121	-56	-65	-90	-56	-39
CHAN STOR	-5	32			-16	-11	-11			18	19				-21	-16	
EVAPORATION	512							32	99	123	107	48	23	26	55		
REG INFLOW	11703	582	257	330	976	1532	2023	861	693	699	682	397	185	212	624	802	847
RELEASE	12752	357	167	214	1190	1476	1309	1168	1168	925	738	357	167	209	1045	1168	1093
STOR CHANGE	-1049	225	90	116	-214	57	714	-308	-476	-226	-55	40	19	2	-421	-366	-246
STORAGE	13060.	13285	13375	13491	13276	13333	14047	13739	13263	13038	12982	13022	13041	13044	12623	12257	12011
ELEV FTMSL	1820.6	1821.5	1821.8	1822.3	1821.4	1821.7	1824.5	1823.3	1821.4	1820.5	1820.3	1820.4	1820.5	1820.5	1818.8	1817.3	1816.3
DISCH KCFS	19.000	12.0	12.0	12.0	20.0	24.0	22.0	19.0	19.0	15.5	12.0	12.0	12.0	13.2	17.0	19.0	19.0
POWER																	
AVE POWER MW		134	135	135	224	268	248	216	214	174	134	134	134	147	188	208	206
PEAK POW MW		409	411	412	409	410	420	416	409	406	405	406	406	406	400	394	390
ENERGY GWH	1721.0	48.4	22.7	29.3	161.4	199.3	178.8	160.7	159.1	125.1	99.6	48.2	22.5	28.3	139.9	154.4	143.2
--OAHE--																	
NAT INFLOW	1213	179	83	107	211	116	322	111	42	47	5	8	4	4	-47	-21	42
DEPLETION	734	25	12	15	51	75	157	190	128	31	-12	1	0	1	13	19	29
CHAN STOR	0	33			-38	-19	9	14		17	18			-6	-19	-10	
EVAPORATION	469							30	91	112	97	44	20	23	51		
REG INFLOW	12762	544	238	307	1312	1498	1484	1074	991	846	676	320	149	184	915	1118	1106
RELEASE	13844	385	300	348	1209	1437	1482	1711	1744	1020	862	232	124	139	867	1067	916
STOR CHANGE	-1082	159	-62	-42	104	61	1	-637	-753	-174	-187	89	25	45	48	51	190
STORAGE	13838.	13996	13935	13893	13996	14057	14058	13421	12668	12494	12307	12396	12421	12466	12514	12565	12756
ELEV FTMSL	1589.9	1590.5	1590.3	1590.1	1590.5	1590.8	1590.8	1588.2	1585.0	1584.2	1583.4	1583.8	1583.9	1584.1	1584.3	1584.5	1585.3
DISCH KCFS	16.146	13.0	21.6	19.5	20.3	23.4	24.9	27.8	28.4	17.1	14.0	7.8	8.9	8.8	14.1	17.4	15.9
POWER																	
AVE POWER MW		152	254	229	239	275	293	324	325	195	159	88	101	100	160	197	182
PEAK POW MW		621	620	619	621	623	623	609	592	589	584	586	587	588	589	590	595
ENERGY GWH	1936.7	54.9	42.7	49.5	171.8	204.5	211.0	241.4	241.9	140.5	118.3	31.8	17.0	19.1	119.3	146.7	126.4
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13715	385	300	348	1209	1437	1482	1703	1719	989	835	220	118	133	853	1067	916
RELEASE	13715	385	300	348	1209	1437	1482	1703	1719	989	835	220	118	133	853	1067	916
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	16.146	13.0	21.6	19.5	20.3	23.4	24.9	27.7	28.0	16.6	13.6	7.4	8.5	8.4	13.9	17.4	15.9
POWER																	
AVE POWER MW		61	101	91	95	109	117	130	131	81	69	37	43	42	70	85	76
PEAK POW MW		517	509	509	509	509	509	509	509	538	538	538	538	538	538	538	529
ENERGY GWH	793.4	22.1	17.0	19.7	68.5	81.4	84.0	96.4	97.4	58.4	51.0	13.5	7.3	8.1	52.1	63.5	53.2
--FORT RANDALL--																	
NAT INFLOW	380	74	34	44	92	54	103	27	16	-5	-27	-11	-5	-6	-22	-27	38
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	134							10	32	36	25	10	4	5	12		
REG INFLOW	13880	457	334	392	1297	1482	1573	1702	1689	941	781	199	108	121	816	1037	951
RELEASE	13880	177	190	392	1297	1482	1573	1702	1689	1586	1370	199	108	121	719	697	579
STOR CHANGE	0	280	144	0			0	0	0	-645	-588	0	0	0	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	2780	2192	2192	2192	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1347.0	1337.5	1337.5	1337.5	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	10.024	6.0	13.7	21.9	21.8	24.1	26.4	27.7	27.5	26.7	22.3	6.7	7.8	7.6	11.7	11.3	10.1
POWER																	
AVE POWER MW		50	115	186	184	204	223	233	232	217	169	49	57	56	86	86	80
PEAK POW MW		350	356	356	356	356	356	356	356	328	284	285	285	285	293	319	339
ENERGY GWH	1372.1	17.9	19.4	40.1	132.7	151.5	160.6	173.6	172.3	156.4	125.4	17.7	9.6	10.8	64.1	64.2	56.0
--GAVINS POINT--																	
NAT INFLOW	1236	82	38	49	124	134	139	82	62	77	103	49	23	26	72	72	103
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	8	-15	-16	0	-4	-4	-2	0	2	8	29	-2	0	-7	1	2
EVAPORATION	42							2	8	10	9	4	2	2	5		
REG INFLOW	14959	268	214	425	1416	1593	1684	1740	1734	1659	1470	268	125	143	769	769	684
RELEASE	14959	268	214	425	1416	1593	1684	1740	1722	1636	1470	268	125	143	769	769	719
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	9.0	15.4	23.8	23.8	25.9	28.3	28.3	28.0	27.5	23.9	9.0	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		32	54	82	82	88	96	96	96	96	84	32	32	32	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	626.0	11.4	9.0	17.6	58.7	65.8	69.3	71.6	71.3	68.8	62.5	11.6	5.4	6.2	33.0	33.0	30.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	816	102	47	61	105	140	76	82	46	35	35	21	10	11	6	17	23
DEPLETION	278	7	3	4	23	36	32	40	38	25	12	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	15497	362	258	482	1498	1697	1728	1782	1730	1646	1493	282	131	150	761	771	727
KCFS		12.2	18.6	27.0	25.2	27.6	29.0	29.0	28.1	27.7	24.3	9.5	9.5	9.5	12.4	12.5	12.6
--TOTAL--																	
NAT INFLOW	17100	1048	489	628	1612	2509	4190	1924	786	624	852	379	177	202	388	489	803
DEPLETION	2860	43	20	26	183	462	1473	1160	326	-188	-74	-126	-59	-67	-140	-116	-63
CHAN STOR	-8	73	-15	-16	-53	-34	-6	12	0	37	44	30	-2	-6	-48	-25	2
EVAPORATION	1733							109	340	420	358	160	75	85	185		
STORAGE	42762.	43478	43674	43779	43657	43973	44956	43841	42231	41014	40133	40226	40253	40281	39814	39623	39765
SYSTEM POWER																	
AVE POWER MW		499	729	793	912	1045	1092	1114	1111	854	683	410	437	446	642	732	699
PEAK POW MW		2156	2154	2155	2154	2157	2169	2150	2125	2119	2070	2073	2074	2075	2037	2057	2066
ENERGY GWH	7286.9	179.6	122.4	171.2	656.8	777.7	786.1	829.0	826.4	614.8	508.1	147.5	73.3	85.7	477.7	544.5	486.2
DAILY GWH		12.0	17.5	19.0	21.9	25.1	26.2	26.7	26.7	20.5	16.4	9.8	10.5	10.7	15.4	17.6	16.8

TIME OF STUDY: 14:52:58 STUDY NO 20

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB16		2016									2017					
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	5601	205	95	123	465	898	1247	629	275	243	328	153	71	82	232	243	312
DEPLETION	578	-11	-5	-7	45	300	559	272	23	-114	-99	-35	-16	-18	-118	-126	-72
EVAPORATION	418							26	81	100	87	39	18	21	45		
MOD INFLOW	4605	216	101	129	420	598	688	331	171	257	340	148	69	79	305	369	384
RELEASE	5338	149	69	89	417	492	536	553	553	419	307	149	69	79	461	523	472
STOR CHANGE	-733	67	31	40	3	106	152	-222	-382	-162	32	-1	0	0	-157	-154	-88
STORAGE	10050.	10117	10148	10188	10192	10298	10450	10228	9846	9684	9716	9715	9715	9715	9558	9404	9316
ELEV FTMSL	2208.1	2208.6	2208.7	2209.0	2209.0	2209.7	2210.6	2209.2	2206.9	2205.8	2206.0	2206.0	2206.0	2206.0	2206.0	2205.0	2204.0	2203.4
DISCH KCFS	9.000	5.0	5.0	5.0	7.0	8.0	9.0	9.0	9.0	7.0	5.0	5.0	5.0	5.0	7.5	8.5	8.5
POWER																	
AVE POWER MW		61	62	62	86	99	111	111	110	86	61	61	61	61	91	102	102
PEAK POW MW		137	138	138	138	139	140	138	136	134	135	135	135	135	133	132	132
ENERGY GWH	788.2	22.1	10.3	13.3	62.0	73.3	80.1	82.7	81.9	61.6	45.2	21.9	10.2	11.7	67.5	76.0	68.4
--GARRISON--																	
NAT INFLOW	8154	422	197	253	639	1212	2386	1030	358	236	424	166	77	88	154	215	298
DEPLETION	1071	15	7	9	33	202	773	649	98	-161	-36	-135	-63	-72	-113	-79	-55
CHAN STOR	5	43	0	0	-22	-11	-11			21	22		0	0	-27	-11	
EVAPORATION	499							31	97	120	104	47	22	25	53		
REG INFLOW	11928	599	259	333	1001	1491	2138	903	717	717	686	403	188	215	648	806	825
RELEASE	12816	387	180	232	893	1230	1250	1230	1230	1009	861	417	194	227	1138	1230	1111
STOR CHANGE	-888	212	79	101	108	261	888	-327	-513	-292	-175	-14	-7	-12	-490	-424	-286
STORAGE	12011.	12223	12302	12403	12511	12773	13661	13335	12821	12530	12354	12340	12334	12322	11832	11408	11122
ELEV FTMSL	1816.3	1817.2	1817.5	1817.9	1818.4	1819.4	1823.0	1821.7	1819.6	1818.4	1817.7	1817.7	1817.6	1817.6	1815.5	1813.7	1812.4
DISCH KCFS	19.000	13.0	13.0	13.0	15.0	20.0	21.0	20.0	20.0	17.0	14.0	14.0	14.0	14.3	18.5	20.0	20.0
POWER																	
AVE POWER MW		141	142	142	164	220	234	225	222	187	154	153	153	156	200	213	211
PEAK POW MW		394	395	396	398	402	415	410	403	398	396	395	395	395	388	381	376
ENERGY GWH	1697.0	50.9	23.8	30.7	118.4	163.4	168.6	167.3	165.4	134.4	114.2	55.1	25.7	30.0	148.8	158.5	141.6
--OAHE--																	
NAT INFLOW	1239	182	85	109	215	118	329	113	44	49	5	8	4	4	-48	-22	43
DEPLETION	747	25	12	15	51	76	160	195	131	31	-13	1	0	1	13	19	30
CHAN STOR	-5	30	0	0	-10	-25	-5	5		16	16			-2	-22	-8	0
EVAPORATION	428							27	83	101	88	40	19	22	47		
REG INFLOW	12876	574	254	326	1047	1247	1414	1125	1060	941	806	383	179	207	1007	1181	1124
RELEASE	13792	382	299	346	1205	1434	1476	1709	1743	1020	862	232	124	139	866	1067	889
STOR CHANGE	-916	192	-45	-20	-158	-187	-63	-583	-683	-79	-56	152	55	68	141	114	235
STORAGE	12756.	12948	12903	12883	12725	12538	12475	11892	11209	11130	11074	11226	11281	11349	11490	11604	11839
ELEV FTMSL	1585.3	1586.2	1586.0	1585.9	1585.2	1584.4	1584.1	1581.5	1578.3	1577.9	1577.6	1578.3	1578.6	1578.9	1579.6	1580.2	1581.2
DISCH KCFS	15.919	12.8	21.5	19.4	20.2	23.3	24.8	27.8	28.3	17.1	14.0	7.8	8.9	8.8	14.1	17.4	16.0
POWER																	
AVE POWER MW		147	246	222	231	265	281	312	312	188	153	85	98	97	155	192	178
PEAK POW MW		599	598	597	594	590	588	574	557	555	554	558	559	561	565	567	573
ENERGY GWH	1865.5	53.0	41.4	48.0	166.6	197.2	202.3	231.8	232.2	135.0	114.1	30.8	16.5	18.6	115.6	142.8	119.6
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13664	382	299	346	1205	1434	1476	1701	1718	989	835	220	118	133	852	1067	889
RELEASE	13664	382	299	346	1205	1434	1476	1701	1718	989	835	220	118	133	852	1067	889
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.919	12.8	21.5	19.4	20.2	23.3	24.8	27.7	27.9	16.6	13.6	7.4	8.5	8.4	13.9	17.4	16.0
POWER																	
AVE POWER MW		61	101	91	95	109	116	129	131	81	69	37	43	42	70	85	77
PEAK POW MW		517	509	509	509	509	509	509	509	538	538	538	538	538	538	538	529
ENERGY GWH	790.5	21.9	16.9	19.6	68.3	81.2	83.6	96.3	97.3	58.4	51.0	13.5	7.3	8.1	52.0	63.5	51.6
--FORT RANDALL--																	
NAT INFLOW	393	76	35	46	95	56	107	28	17	-6	-28	-11	-5	-6	-22	-28	39
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	134							10	32	36	25	10	4	5	12		
REG INFLOW	13842	456	333	391	1296	1481	1571	1701	1689	940	780	199	108	121	815	1036	925
RELEASE	13842	176	189	391	1296	1481	1571	1701	1689	1585	1369	199	108	121	718	696	553
STOR CHANGE	0	280	144		0			0	0	-645	-588	0	0	0	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	2780	2192	2192	2192	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1347.0	1337.5	1337.5	1337.5	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	10.060	5.9	13.6	21.9	21.8	24.1	26.4	27.7	27.5	26.6	22.3	6.7	7.8	7.6	11.7	11.3	10.0
POWER																	
AVE POWER MW		49	115	185	184	203	223	233	232	217	168	49	57	56	86	86	80
PEAK POW MW		350	356	356	356	356	356	356	356	328	284	285	285	285	293	319	339
ENERGY GWH	1368.5	17.7	19.4	40.0	132.6	151.4	160.4	173.5	172.3	156.3	125.3	17.6	9.6	10.7	64.0	64.1	53.4
--GAVINS POINT--																	
NAT INFLOW	1249	83	39	50	125	135	141	83	62	78	104	50	23	26	73	73	104
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	8	-15	-16	0	-4	-4	-2	0	2	8	29	-2	0	-7	1	3
EVAPORATION	42							2	8	10	9	4	2	2	5		
REG INFLOW	14934	268	214	425	1416	1593	1684	1740	1734	1659	1470	268	125	143	769	769	659
RELEASE	14934	268	214	425	1416	1593	1684	1740	1722	1636	1470	268	125	143	769	769	694
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	9.0	15.4	23.8	23.8	25.9	28.3	28.3	28.0	27.5	23.9	9.0	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		32	54	82	82	88	96	96	96	96	84	32	32	32	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	624.9	11.4	9.0	17.6	58.7	65.8	69.3	71.6	71.3	68.8	62.5	11.6	5.4	6.2	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	864	107	50	64	111	148	80	86	49	38	37	22	10	11	6	19	25
DEPLETION	280	7	3	4	24	37	32	40	38	25	12	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	15518	368	260	485	1503	1704	1732	1786	1733	1649	1495	283	132	151	761	773	704
KCFS		12.4	18.8	27.2	25.3	27.7	29.1	29.0	28.2	27.7	24.3	9.5	9.5	9.5	12.4	12.6	12.7
--TOTAL--																	
NAT INFLOW	17500	1075	502	645	1650	2567	4290	1969	805	638	870	387	180	206	395	500	821
DEPLETION	2870	37	17	22	162	643	1560	1213	315	-217	-133	-156	-73	-83	-191	-167	-79
CHAN STOR	-1	81	-15	-16	-31	-40	-20	3	0	39	45	30	-2	-1	-57	-18	3
EVAPORATION	1649							105	324	399	340	152	71	81	177		
STORAGE	39765.	40516	40726	40848	40801	40982	41960	40827	39261	38107	37319	37457	37505	37560	37152	37028	37227
SYSTEM POWER																	
AVE POWER MW		492	719	784	843	984	1062	1107	1103	853	689	418	444	444	647	723	691
PEAK POW MW		2112	2110	2111	2109	2110	2122	2102	2076	2071	2024	2028	2029	2031	1995	2015	2025
ENERGY GWH	7134.5	177.0	120.9	169.2	606.7	732.4	764.3	823.2	820.4	614.5	512.3	150.4	74.7	85.3	481.0	538.0	464.2
DAILY GWH		11.8	17.3	18.8	20.2	23.6	25.5	26.6	26.5	20.5	16.5	10.0	10.7	10.7	15.5	17.4	16.6
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

	28FEB17	2017												2018			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	5800	212	99	127	482	930	1291	651	285	251	339	159	74	85	241	252	323
DEPLETION	521	-17	-8	-10	33	274	546	279	28	-114	-101	-35	-16	-19	-119	-126	-73
EVAPORATION	407							25	78	97	85	39	18	21	44		
MOD INFLOW	4872	229	107	138	449	656	745	347	179	268	355	155	72	83	316	378	396
RELEASE	5246	149	69	89	387	492	506	523	523	401	307	149	69	95	492	523	472
STOR CHANGE	-374	81	38	48	62	164	239	-176	-344	-134	48	6	3	-13	-176	-145	-76
STORAGE	9316.	9397	9435	9483	9545	9709	9948	9773	9429	9295	9342	9349	9352	9339	9163	9018	8942
ELEV FTMSL	2203.4	2204.0	2204.2	2204.5	2204.9	2206.0	2207.5	2206.4	2204.2	2203.3	2203.6	2203.7	2203.7	2203.6	2202.4	2201.5	2200.9
DISCH KCFS	8.500	5.0	5.0	5.0	6.5	8.0	8.5	8.5	8.5	6.7	5.0	5.0	5.0	6.0	8.0	8.5	8.5
POWER																	
AVE POWER MW		60	60	60	78	97	103	103	103	81	60	60	60	72	95	101	100
PEAK POW MW		132	133	133	133	135	136	135	132	132	132	132	132	132	131	129	129
ENERGY GWH	762.5	21.6	10.1	13.0	56.4	71.9	74.4	77.0	76.3	58.2	44.6	21.6	10.1	13.8	71.0	75.0	67.5
--GARRISON--																	
NAT INFLOW	8704	450	210	270	682	1294	2546	1100	382	253	453	177	82	94	165	229	318
DEPLETION	1050	4	2	3	28	205	819	663	104	-164	-47	-144	-67	-77	-125	-90	-65
CHAN STOR	0	39	0	0	-16	-16	-5			19	19		0	-11	-22	-6	
EVAPORATION	473							29	92	113	98	44	21	24	51		
REG INFLOW	12428	633	277	356	1024	1564	2227	930	709	724	728	424	198	231	709	836	855
RELEASE	12882	387	180	232	1131	1506	1309	1168	1168	955	799	387	180	209	1045	1168	1055
STOR CHANGE	-454	246	97	124	-106	58	918	-238	-459	-231	-71	38	18	22	-336	-332	-200
STORAGE	11122.	11368	11465	11589	11483	11541	12459	12221	11762	11531	11460	11497	11515	11537	11200	10868	10668
ELEV FTMSL	1812.4	1813.5	1813.9	1814.5	1814.0	1814.3	1818.1	1817.2	1815.2	1814.2	1813.9	1814.1	1814.2	1814.2	1812.8	1811.3	1810.4
DISCH KCFS	20.000	13.0	13.0	13.0	19.0	24.5	22.0	19.0	19.0	16.0	13.0	13.0	13.0	13.2	17.0	19.0	19.0
POWER																	
AVE POWER MW		138	138	139	202	259	237	207	205	172	139	139	139	141	180	199	197
PEAK POW MW		380	382	384	382	383	397	394	386	383	382	382	383	383	378	372	369
ENERGY GWH	1659.3	49.5	23.2	30.0	145.5	193.0	170.5	154.0	152.4	123.5	103.2	49.9	23.3	27.1	134.0	147.9	132.3
--OAHE--																	
NAT INFLOW	1301	192	89	115	226	124	345	119	45	52	6	9	4	5	-51	-23	45
DEPLETION	760	25	12	15	52	77	163	199	134	32	-13	1	0	0	14	19	30
CHAN STOR	6	36	0	0	-31	-28	13	15		16	16		0	-1	-20	-11	
EVAPORATION	417							27	81	99	86	39	18	21	46		
REG INFLOW	13011	589	258	332	1274	1526	1504	1077	999	892	748	355	166	191	914	1116	1070
RELEASE	13479	374	295	341	1194	1425	1465	1705	1740	949	672	241	124	139	866	1067	883
STOR CHANGE	-468	216	-37	-9	80	101	38	-628	-741	-57	76	114	42	52	48	49	188
STORAGE	11839.	12055	12018	12009	12089	12190	12228	11600	10859	10802	10878	10993	11035	11087	11135	11183	11371
ELEV FTMSL	1581.2	1582.2	1582.1	1582.0	1582.4	1582.8	1583.0	1580.1	1576.5	1576.3	1576.6	1577.2	1577.4	1577.7	1577.9	1578.1	1579.0
DISCH KCFS	16.002	12.6	21.2	19.1	20.1	23.2	24.6	27.7	28.3	15.9	10.9	8.1	8.9	8.8	14.1	17.4	15.9
POWER																	
AVE POWER MW		141	238	214	225	260	277	309	309	173	119	88	97	96	154	190	174
PEAK POW MW		578	577	577	579	581	582	567	548	547	549	552	553	554	556	557	562
ENERGY GWH	1802.8	50.7	39.9	46.3	161.8	193.4	199.2	229.6	229.7	124.3	88.3	31.8	16.3	18.5	114.6	141.2	117.3
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13350	374	295	341	1194	1425	1465	1697	1715	918	645	229	118	133	852	1067	883
RELEASE	13350	374	295	341	1194	1425	1465	1697	1715	918	645	229	118	133	852	1067	883
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	16.002	12.6	21.2	19.1	20.1	23.2	24.6	27.6	27.9	15.4	10.5	7.7	8.5	8.4	13.9	17.4	15.9
POWER																	
AVE POWER MW		59	99	90	94	108	115	129	131	76	53	39	43	42	70	85	76
PEAK POW MW		517	509	509	509	509	509	509	509	538	538	538	538	538	538	538	529
ENERGY GWH	772.1	21.4	16.7	19.3	67.6	80.7	83.0	96.1	97.1	54.4	39.5	14.0	7.2	8.2	52.0	63.5	51.2
--FORT RANDALL--																	
NAT INFLOW	424	82	38	49	103	61	115	30	18	-7	-30	-12	-6	-6	-24	-30	42
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	133							10	32	36	25	10	4	5	12		
REG INFLOW	13560	454	332	390	1293	1477	1568	1699	1687	868	588	206	107	121	813	1034	922
RELEASE	13560	174	188	390	1293	1477	1568	1699	1687	1583	1107	206	107	121	716	694	550
STOR CHANGE	0	280	144					0	0	-715	-518	0	0	0	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	2710	2192	2192	2192	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1346.0	1337.5	1337.5	1337.5	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.952	5.9	13.6	21.8	21.7	24.0	26.4	27.6	27.4	26.6	18.0	6.9	7.7	7.6	11.6	11.3	9.9
POWER																	
AVE POWER MW		49	115	185	184	203	222	233	231	216	136	51	57	56	86	86	79
PEAK POW MW		350	356	356	356	356	356	356	356	324	284	285	285	285	293	319	339
ENERGY GWH	1341.6	17.6	19.3	39.9	132.3	151.0	160.1	173.3	172.1	155.5	101.2	18.3	9.5	10.7	63.8	64.0	53.2
--GAVINS POINT--																	
NAT INFLOW	1279	85	40	51	128	139	144	85	64	80	106	50	23	27	75	75	107
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	8	-15	-16	0	-4	-4	-2	0	2	16	20	-1	0	-7	1	3
EVAPORATION	42							2	8	10	9	4	2	2	5		
REG INFLOW	14682	268	214	425	1416	1593	1684	1740	1734	1659	1217	268	125	143	769	769	659
RELEASE	14682	268	214	425	1416	1593	1684	1740	1722	1636	1217	268	125	143	769	769	694
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	9.0	15.4	23.8	23.8	25.9	28.3	28.3	28.0	27.5	19.8	9.0	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		32	54	82	82	88	96	96	96	96	70	32	32	32	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	614.4	11.4	9.0	17.6	58.7	65.8	69.3	71.6	71.3	68.8	52.0	11.6	5.4	6.2	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	992	123	58	74	128	170	92	99	57	42	43	25	12	13	7	21	28
DEPLETION	283	7	3	4	24	37	32	40	39	26	12	7	3	3	14	15	16
REGULATED FLOW AT SIOUX CITY																	
KAF	15391	384	268	495	1520	1726	1744	1799	1740	1652	1248	286	134	153	762	775	706
KCFS		12.9	19.3	27.7	25.5	28.1	29.3	29.3	28.3	27.8	20.3	9.6	9.6	9.6	12.4	12.6	12.7
--TOTAL--																	
NAT INFLOW	18500	1144	534	686	1749	2718	4533	2084	851	671	917	407	190	217	413	524	863
DEPLETION	2808	20	9	12	146	621	1596	1238	330	-218	-146	-166	-77	-88	-203	-178	-89
CHAN STOR	3	82	-15	-16	-47	-49	3	13	0	36	50	21	-2	-12	-50	-15	3
EVAPORATION	1601							102	314	386	330	148	69	79	172		
STORAGE	37227.	38049	38291	38454	38490	38813	40008	38966	37434	36321	35855	36013	36076	36137	35770	35682	35930
SYSTEM POWER																	
AVE POWER MW		478	704	769	864	1016	1051	1077	1074	812	576	409	428	439	630	705	671
PEAK POW MW		2073	2071	2073	2074	2079	2096	2075	2048	2040	2002	2006	2008	2009	1973	1993	2003
ENERGY GWH	6952.7	172.1	118.2	166.1	622.4	755.9	756.5	801.5	798.9	584.7	428.8	147.2	71.9	84.4	468.4	524.5	451.1
DAILY GWH		11.5	16.9	18.5	20.7	24.4	25.2	25.9	25.8	19.5	13.8	9.8	10.3	10.5	15.1	16.9	16.1
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB18		2018									2019					
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	5950	217	101	130	494	954	1325	668	292	258	348	163	76	87	247	258	331
DEPLETION	531	-17	-8	-10	33	275	550	286	32	-115	-103	-36	-17	-19	-120	-127	-73
EVAPORATION	400							25	77	96	84	38	18	20	44		
MOD INFLOW	5019	235	109	141	461	679	775	357	183	277	367	161	75	86	323	385	404
RELEASE	5153	149	69	89	417	461	506	523	523	402	307	149	69	92	461	492	444
STOR CHANGE	-135	86	40	52	44	218	269	-165	-340	-125	60	12	6	-6	-138	-107	-40
STORAGE	8942.	9028	9068	9120	9164	9382	9651	9486	9146	9021	9081	9093	9099	9093	8955	8848	8807
ELEV FTMSL	2200.9	2201.5	2201.8	2202.1	2202.4	2203.9	2205.6	2204.5	2202.3	2201.5	2201.9	2202.0	2202.0	2202.0	2201.0	2200.3	2200.0
DISCH KCFS	8.500	5.0	5.0	5.0	7.0	7.5	8.5	8.5	8.5	6.8	5.0	5.0	5.0	5.8	7.5	8.0	8.0
POWER																	
AVE POWER MW		59	59	60	83	90	102	102	102	80	59	59	60	69	89	94	94
PEAK POW MW		130	130	130	131	132	134	133	130	129	130	130	130	130	129	128	128
ENERGY GWH	742.3	21.3	10.0	12.9	60.0	66.7	73.6	76.2	75.6	57.8	44.2	21.4	10.0	13.2	66.1	70.2	63.2
--GARRISON--																	
NAT INFLOW	9150	473	221	284	717	1360	2677	1156	402	266	476	186	87	99	173	241	334
DEPLETION	1118	0	0	0	43	221	840	688	116	-161	-45	-148	-69	-79	-128	-92	-67
CHAN STOR	6	39	0	0	-22	-5	-11			19	19		0	-9	-19	-6	0
EVAPORATION	477							30	93	115	99	45	21	24	51		
REG INFLOW	12714	661	290	373	1069	1595	2332	961	716	733	748	438	204	237	692	819	845
RELEASE	12876	387	180	232	952	1230	1250	1230	1230	1011	861	417	194	225	1138	1230	1111
STOR CHANGE	-163	274	110	141	116	365	1082	-269	-514	-278	-112	21	10	12	-445	-410	-265
STORAGE	10668.	10942	11052	11193	11309	11674	12757	12488	11974	11696	11584	11605	11614	11626	11181	10771	10505
ELEV FTMSL	1810.4	1811.6	1812.1	1812.7	1813.2	1814.8	1819.4	1818.3	1816.1	1814.9	1814.4	1814.5	1814.6	1814.6	1812.7	1810.8	1809.6
DISCH KCFS	19.000	13.0	13.0	13.0	16.0	20.0	21.0	20.0	20.0	17.0	14.0	14.0	14.0	14.2	18.5	20.0	20.0
POWER																	
AVE POWER MW		136	136	137	169	212	228	220	217	183	150	150	150	152	196	209	206
PEAK POW MW		373	375	377	379	385	402	398	390	385	384	384	384	384	377	371	366
ENERGY GWH	1660.2	48.8	22.9	29.6	121.7	157.9	163.9	163.3	161.5	131.5	111.5	53.9	25.2	29.2	145.8	155.2	138.5
--OAHE--																	
NAT INFLOW	1350	199	93	119	235	129	358	123	47	52	6	9	4	5	-53	-23	47
DEPLETION	777	26	12	15	52	79	166	204	137	33	-13	1	0	0	14	20	31
CHAN STOR	-4	31	0	0	-16	-21	-5	5		17	16			-1	-23	-8	0
EVAPORATION	398							25	75	93	83	38	18	21	45		
REG INFLOW	13047	591	261	336	1120	1259	1436	1129	1064	953	813	387	180	208	1003	1179	1127
RELEASE	13215	367	292	338	1186	1420	1456	1701	1738	812	582	248	123	139	867	1068	879
STOR CHANGE	-168	224	-30	-2	-66	-161	-20	-572	-674	142	231	139	58	69	135	111	248
STORAGE	11371.	11595	11565	11563	11497	11336	11316	10744	10071	10212	10443	10583	10640	10709	10845	10955	11203
ELEV FTMSL	1579.0	1580.1	1580.0	1580.0	1579.6	1578.9	1578.8	1576.0	1572.5	1573.2	1574.4	1575.2	1575.4	1575.8	1576.5	1577.0	1578.2
DISCH KCFS	15.893	12.3	21.0	18.9	19.9	23.1	24.5	27.7	28.3	13.6	9.5	8.3	8.8	8.8	14.1	17.4	15.8
POWER																	
AVE POWER MW		137	232	209	220	254	268	300	300	145	101	90	95	95	153	188	173
PEAK POW MW		567	566	566	565	561	560	545	527	531	537	541	543	544	548	551	557
ENERGY GWH	1736.2	49.2	39.0	45.2	158.4	188.9	193.1	223.2	223.5	104.1	75.3	32.2	16.0	18.2	113.6	140.2	116.0
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13086	367	292	338	1186	1420	1456	1693	1713	781	555	235	117	133	853	1068	879
RELEASE	13086	367	292	338	1186	1420	1456	1693	1713	781	555	235	117	133	853	1068	879
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.893	12.3	21.0	18.9	19.9	23.1	24.5	27.5	27.9	13.1	9.0	7.9	8.4	8.4	13.9	17.4	15.8
POWER																	
AVE POWER MW		58	98	89	93	108	115	129	130	65	46	40	43	42	70	85	76
PEAK POW MW		517	509	509	509	509	509	509	509	538	538	538	538	538	538	538	529
ENERGY GWH	756.9	21.1	16.5	19.1	67.2	80.4	82.5	95.9	97.0	46.7	34.0	14.5	7.2	8.1	52.1	63.5	51.0
--FORT RANDALL--																	
NAT INFLOW	450	87	41	52	109	64	122	32	19	-6	-31	-13	-6	-7	-26	-32	45
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	131							10	32	35	24	10	4	5	12		
REG INFLOW	13324	453	332	389	1291	1475	1566	1697	1686	733	499	212	106	120	812	1033	921
RELEASE	13324	173	188	389	1291	1475	1566	1697	1686	1582	883	212	106	120	715	693	549
STOR CHANGE	0	280	144			0		0	0	-849	-384	0	0	0	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	2576	2192	2192	2192	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1344.0	1337.5	1337.5	1337.5	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.897	5.8	13.5	21.8	21.7	24.0	26.3	27.6	27.4	26.6	14.4	7.1	7.6	7.6	11.6	11.3	9.9
POWER																	
AVE POWER MW		48	114	184	183	203	222	233	231	214	108	52	56	56	86	86	79
PEAK POW MW		350	356	356	356	356	356	356	356	314	285	285	285	285	293	319	339
ENERGY GWH	1318.1	17.4	19.2	39.8	132.1	150.8	159.9	173.1	172.0	154.1	80.2	18.8	9.4	10.7	63.7	63.9	53.1
--GAVINS POINT--																	
NAT INFLOW	1300	87	40	52	130	141	146	87	65	81	108	52	24	27	76	76	108
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	8	-15	-16	0	-4	-4	-2	0	2	23	13	-1	0	-8	1	3
EVAPORATION	42							2	8	10	9	4	2	2	5		
REG INFLOW	14467	268	214	425	1416	1593	1684	1740	1734	1659	1002	268	125	143	769	769	659
RELEASE	14467	268	214	425	1416	1593	1684	1740	1722	1636	1002	268	125	143	769	769	694
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	9.0	15.4	23.8	23.8	25.9	28.3	28.3	28.0	27.5	16.3	9.0	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		32	54	82	82	88	96	96	96	96	58	32	32	32	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	605.3	11.4	9.0	17.6	58.7	65.8	69.3	71.6	71.3	68.8	42.9	11.6	5.4	6.2	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1100	137	64	82	141	189	102	110	63	55	39	28	13	15	8	24	31
DEPLETION	286	7	3	4	24	37	32	41	39	26	12	7	3	4	15	15	16
REGULATED FLOW AT SIOUX CITY																	
KAF	15281	397	274	503	1533	1745	1754	1809	1746	1665	1029	288	135	154	762	778	709
KCFS		13.4	19.7	28.2	25.8	28.4	29.5	29.4	28.4	28.0	16.7	9.7	9.7	9.7	12.4	12.6	12.8
--TOTAL--																	
NAT INFLOW	19300	1200	560	720	1826	2837	4730	2176	888	706	946	424	198	226	425	544	896
DEPLETION	2906	16	7	10	161	640	1624	1276	349	-215	-146	-170	-79	-91	-206	-180	-90
CHAN STOR	-1	78	-15	-16	-37	-31	-21	3	0	37	57	14	-1	-10	-50	-13	3
EVAPORATION	1577							100	309	380	325	147	69	78	170		
STORAGE	35930.	36794	37058	37249	37343	37765	39096	38090	36575	35489	35283	35456	35528	35603	35252	35186	35465
SYSTEM POWER																	
AVE POWER MW		470	694	760	831	955	1031	1080	1076	782	522	423	436	446	637	707	672
PEAK POW MW		2052	2051	2054	2054	2058	2076	2055	2028	2015	1991	1995	1997	1999	1964	1984	1995
ENERGY GWH	6819.0	169.1	116.7	164.2	598.1	710.4	742.3	803.3	800.9	562.9	388.2	152.4	73.2	85.6	474.3	526.0	451.4
DAILY GWH		11.3	16.7	18.2	19.9	22.9	24.7	25.9	25.8	18.8	12.5	10.2	10.5	10.7	15.3	17.0	16.1
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

TIME OF STUDY: 14:52:58 STUDY NO 23

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB19		2019									2020					
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB
--FORT PECK--																	
NAT INFLOW	6000	219	102	131	498	962	1336	674	294	260	352	164	77	87	249	260	334
DEPLETION	539	-17	-8	-10	33	276	554	294	36	-115	-104	-36	-17	-19	-121	-127	-80
EVAPORATION	370							25	76	95	83	24	11	13	44		
MOD INFLOW	5091	237	110	142	465	686	782	355	182	280	373	176	82	94	326	387	414
RELEASE	5124	134	62	80	417	492	506	523	523	388	277	134	62	83	492	492	460
STOR CHANGE	-33	103	48	62	48	194	276	-167	-341	-108	96	42	19	11	-166	-105	-46
STORAGE	8807.	8910	8958	9020	9068	9262	9539	9371	9030	8922	9019	9060	9080	9091	8925	8820	8774
ELEV FTMSL	2200.0	2200.7	2201.1	2201.5	2201.8	2203.1	2204.9	2203.8	2201.5	2200.8	2201.5	2201.7	2201.9	2202.0	2200.8	2200.1	2199.8
DISCH KCFS	8.000	4.5	4.5	4.5	7.0	8.0	8.5	8.5	8.5	6.5	4.5	4.5	4.5	5.2	8.0	8.0	8.0
POWER																	
AVE POWER MW		53	53	53	83	95	102	102	101	77	53	53	54	62	95	94	94
PEAK POW MW		129	129	129	130	131	133	132	130	129	129	130	130	130	129	128	128
ENERGY GWH	736.0	19.1	9.0	11.5	59.8	70.8	73.4	75.9	75.3	55.6	39.7	19.3	9.0	11.9	70.4	70.1	65.4
--GARRISON--																	
NAT INFLOW	9222	477	222	286	723	1371	2698	1165	405	268	480	187	87	100	174	243	336
DEPLETION	1129	-1	0	-1	44	221	850	704	121	-164	-50	-151	-70	-81	-129	-92	-72
CHAN STOR	0	39			-28	-11	-6			22	22			-8	-31		
EVAPORATION	433							29	90	111	97	28	13	15	50		
REG INFLOW	12784	651	285	367	1068	1631	2348	955	716	730	732	444	207	240	714	827	868
RELEASE	12825	372	174	223	1131	1476	1309	1168	1168	951	799	387	180	209	1076	1138	1064
STOR CHANGE	-41	279	112	144	-63	155	1039	-214	-452	-221	-67	58	27	31	-362	-311	-196
STORAGE	10505.	10784	10896	11040	10977	11132	12171	11958	11506	11285	11218	11275	11302	11333	10971	10660	10464
ELEV FTMSL	1809.6	1810.9	1811.4	1812.1	1811.8	1812.5	1816.9	1816.1	1814.1	1813.1	1812.8	1813.1	1813.2	1813.4	1811.7	1810.3	1809.4
DISCH KCFS	20.000	12.5	12.5	12.5	19.0	24.0	22.0	19.0	19.0	16.0	13.0	13.0	13.0	13.2	17.5	18.5	18.5
POWER																	
AVE POWER MW		130	131	131	199	250	234	205	203	170	138	138	138	140	184	192	190
PEAK POW MW		371	373	375	374	377	393	390	382	379	378	379	379	380	374	369	365
ENERGY GWH	1635.2	46.7	21.9	28.3	143.0	186.4	168.7	152.8	151.2	122.1	102.4	49.5	23.1	26.9	136.9	142.9	132.5
--OAHE--																	
NAT INFLOW	1381	203	95	122	240	132	366	126	48	55	6	9	4	5	-54	-24	48
DEPLETION	789	26	12	15	53	80	169	208	141	33	-14	1	0	0	14	20	31
CHAN STOR	9	39			-34	-26	10	15		16	16		0	-1	-23	-5	
EVAPORATION	376							26	77	95	84	24	11	13	45		
REG INFLOW	13051	589	256	330	1284	1502	1516	1076	998	895	752	371	173	200	940	1088	1081
RELEASE	13093	364	290	336	1181	1417	1451	1700	1737	811	475	241	118	134	868	1069	902
STOR CHANGE	-42	225	-34	-6	103	85	65	-624	-739	84	277	130	55	66	71	19	180
STORAGE	11203.	11429	11395	11389	11492	11577	11642	11018	10280	10364	10640	10770	10825	10891	10962	10982	11161
ELEV FTMSL	1578.2	1579.3	1579.2	1579.1	1579.6	1580.0	1580.3	1577.3	1573.6	1574.0	1575.4	1576.1	1576.4	1576.7	1577.1	1577.2	1578.0
DISCH KCFS	15.821	12.2	20.9	18.8	19.8	23.0	24.4	27.6	28.2	13.6	7.7	8.1	8.5	8.4	14.1	17.4	15.7
POWER																	
AVE POWER MW		135	230	207	219	254	270	303	303	145	83	88	92	92	154	189	171
PEAK POW MW		563	562	562	565	567	568	552	533	535	543	546	547	549	551	552	556
ENERGY GWH	1727.6	48.5	38.6	44.7	157.4	189.1	194.1	225.1	225.2	104.6	61.8	31.6	15.5	17.6	114.2	140.6	119.1
--BIG BEND--																	
EVAPORATION	120							8	24	31	27	8	4	4	14		
REG INFLOW	12973	364	290	336	1181	1417	1451	1692	1712	780	448	233	114	130	854	1069	902
RELEASE	12973	364	290	336	1181	1417	1451	1692	1712	780	448	233	114	130	854	1069	902
STORAGE	1621.	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	15.821	12.2	20.9	18.8	19.8	23.0	24.4	27.5	27.9	13.1	7.3	7.8	8.2	8.2	13.9	17.4	15.7
POWER																	
AVE POWER MW		58	98	88	93	108	114	129	130	65	37	40	42	41	70	85	75
PEAK POW MW		517	509	509	509	509	509	509	509	538	538	538	538	538	538	538	529
ENERGY GWH	750.0	20.9	16.4	19.0	66.9	80.3	82.2	95.8	97.0	46.6	27.5	14.3	7.0	8.0	52.2	63.6	52.3
--FORT RANDALL--																	
NAT INFLOW	465	90	42	54	113	66	126	33	20	-6	-32	-14	-6	-7	-27	-33	46
DEPLETION	80	1	1	1	4	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	124							10	32	35	24	6	3	3	12		
REG INFLOW	13232	452	331	389	1290	1474	1565	1697	1686	732	390	213	105	119	812	1033	945
RELEASE	13232	172	187	389	1290	1474	1565	1697	1686	1581	774	213	105	119	715	693	573
STOR CHANGE	0	280	144			0	0	0	0	-849	-384	0	0	0	97	340	372
STORAGE	3001.	3281	3425	3425	3425	3425	3425	3425	3425	2576	2192	2192	2192	2192	2289	2629	3001
ELEV FTMSL	1350.0	1353.5	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1344.0	1337.5	1337.5	1337.5	1337.5	1339.3	1344.8	1350.0
DISCH KCFS	9.879	5.8	13.5	21.8	21.7	24.0	26.3	27.6	27.4	26.6	12.6	7.2	7.5	7.5	11.6	11.3	10.0
POWER																	
AVE POWER MW		48	114	184	183	203	222	233	231	214	95	52	55	55	86	86	80
PEAK POW MW		350	356	356	356	356	356	356	356	314	285	285	285	285	293	319	339
ENERGY GWH	1310.0	17.4	19.2	39.8	132.0	150.7	159.8	173.1	172.0	154.0	70.4	18.9	9.3	10.5	63.7	63.9	55.4
--GAVINS POINT--																	
NAT INFLOW	1309	87	41	52	131	142	147	87	65	82	109	53	25	28	76	76	109
DEPLETION	114	0	0	0	5	19	24	39	10	-5	2	5	2	3	10	1	
CHAN STOR	-1	8	-15	-16	0	-4	-4	-2	0	2	26	10	-1	0	-8	1	2
EVAPORATION	39							2	8	10	9	3	1	1	5		
REG INFLOW	14387	268	214	425	1416	1593	1684	1740	1734	1659	898	268	125	143	769	769	684
RELEASE	14387	268	214	425	1416	1593	1684	1740	1722	1636	898	268	125	143	769	769	719
STOR CHANGE									12	23							-35
STORAGE	327.	327	327	327	327	327	327	327	339	362	362	362	362	362	362	362	327
ELEV FTMSL	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.0	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	12.500	9.0	15.4	23.8	23.8	25.9	28.3	28.3	28.0	27.5	14.6	9.0	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		32	54	82	82	88	96	96	96	96	52	32	32	32	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	602.0	11.4	9.0	17.6	58.7	65.8	69.3	71.6	71.3	68.8	38.5	11.6	5.4	6.2	33.0	33.0	30.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1123	140	65	84	144	193	104	112	64	49	48	28	13	15	8	24	32
DEPLETION	291	8	4	5	25	37	33	41	40	26	12	7	3	4	15	16	16
REGULATED FLOW AT SIOUX CITY																	
KAF	15219	400	275	505	1535	1749	1755	1811	1746	1659	934	289	135	154	762	777	735
KCFS		13.4	19.8	28.3	25.8	28.4	29.5	29.5	28.4	27.9	15.2	9.7	9.7	9.7	12.4	12.6	12.8
--TOTAL--																	
NAT INFLOW	19500	1216	567	729	1849	2866	4777	2197	896	708	963	427	199	228	426	546	905
DEPLETION	2942	16	7	10	164	642	1642	1304	363	-218	-153	-173	-81	-92	-208	-179	-102
CHAN STOR	6	86	-15	-16	-61	-41	0	13	0	40	63	10	-1	-9	-62	-5	2
EVAPORATION	1462							99	307	377	324	92	43	49	170		
STORAGE	35465.	36352	36622	36821	36910	37344	38724	37720	36201	35130	35052	35281	35382	35490	35131	35074	35349
SYSTEM POWER																	
AVE POWER MW		455	679	745	858	999	1038	1068	1064	766	457	403	413	422	632	691	654
PEAK POW MW		2044	2043	2046	2048	2054	2074	2054	2025	2012	1989	1995	1997	1999	1963	1983	1993
ENERGY GWH	6760.9	163.9	114.1	161.0	617.8	743.1	747.4	794.3	791.9	551.7	340.3	145.1	69.3	81.0	470.5	514.1	455.3
DAILY GWH		10.9	16.3	17.9	20.6	24.0	24.9	25.6	25.5	18.4	11.0	9.7	9.9	10.1	15.2	16.6	15.7
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB