US Army Corps
of Engineers

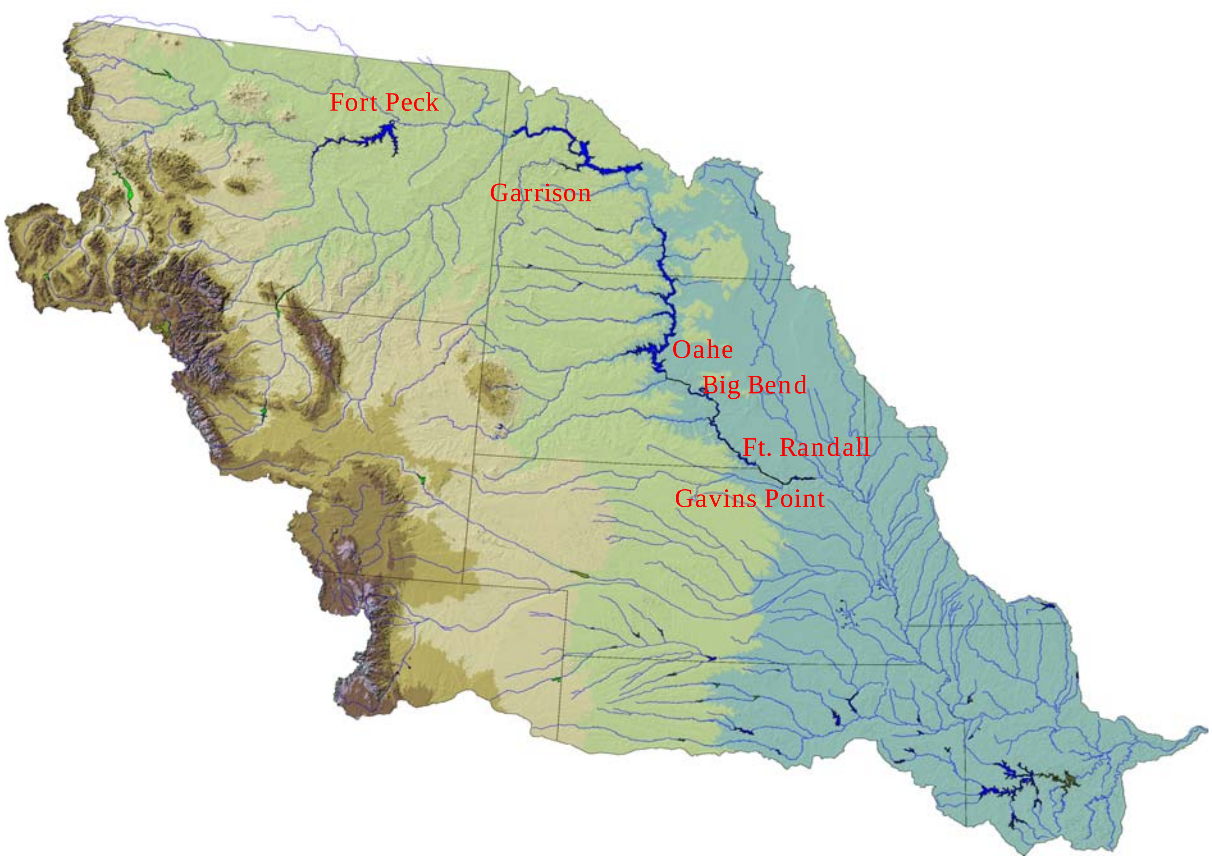
Northwestern Division
Missouri River Basin
Water Management Division

Final

AOP

2008-2009

Missouri River Mainstem System
2008-2009 Annual Operating Plan



Annual Operating Plan Process
56 Years Serving the Missouri River Basin

December 2008

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

REPLY TO
ATTENTION OF

DEC 30 2008

Division Commander

Dear Stakeholders and Concerned Citizens:

This Annual Operating Plan (AOP) presents the Corps of Engineers' regulation of the Missouri River Mainstem Reservoir System (System) through December 2009. The AOP is based on water management guidelines designed to meet the reservoir regulation objectives of the existing Missouri River Master Water Control Manual (Master Manual) updated in March 2006.

The AOP information provides a framework for the development of detailed monthly, weekly, and daily regulation schedules for the System's six individual dams during the upcoming year to serve its Congressionally-authorized project purposes. System water management 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.

A draft of this AOP was made available to the public in September 2008. A report presenting Draft AOP meeting comments and including copies of all the comment letters received is available upon request.

Runoff into the Missouri River basin returned to near normal this year, but water stored in the System is still below normal levels due to previous drought years. At these storage levels, water conservation measures remain an important consideration. With more normal runoff this past year, System storage has improved to the point that the AOP indicates the implementation of a bimodal spring pulse (March and May) from Gavins Point Dam in 2009 under all runoff scenarios, downstream flow conditions permitting. These pulses are consistent with those outlined in the 2003 Amended Biological Opinion and the 2006 Master Manual.

We realize that the benefits provided by the 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 revised 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 System. Thank you for your interest in the regulation of the System.

Sincerely,

// signed //

William E. Rapp, P.E.
Brigadier General, US Army
Division Commander

MISSOURI RIVER MAINSTEM RESERVOIR SYSTEM

Annual Operating Plan
2008 - 2009

TABLES

PLATES

ABBREVIATIONS

AOP	-	annual operating plan
ac.ft.	-	acre-feet
ACHP	-	Advisory Council on Historic Preservation
AF	-	acre-feet
B	-	Billion
BiOp	-	Biological Opinion
BOR	-	Bureau of Reclamation
cfs	-	cubic feet per second
COE	-	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)
GIS	-	Geographic Information System
GWh	-	gigawatt hour
ISP	-	initial starting point
KAF	-	1,000 acre-feet
Kcfs	-	1,000 cubic feet per second
kW	-	kilowatt
kWh	-	kilowatt hour
M	-	million
MAF	-	million acre-feet
MRBA	-	Missouri River Basin Association
MRNRC	-	Missouri River Natural Resources Committee
msl	-	mean sea level
MW	-	megawatt
MWh	-	megawatt hour
NEPA	-	National Environmental Policy Act
plover	-	piping plover
pp	-	powerplant
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
tern	-	interior least tern

T&E	-	Threatened and Endangered
THPO	-	Tribal Historic Preservation Officers
tw	-	tailwater
USFWS	-	United States Fish and Wildlife Service
USGS	-	United States Geological Survey
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.

This page is intentionally left blank.

MISSOURI RIVER MAINSTEM RESERVOIR SYSTEM

Annual Operating Plan
2008 – 2009

I. FOREWORD

This Annual Operating Plan (AOP) presents pertinent information and plans for regulating the Missouri River Mainstem Reservoir System (System) through December 2009 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 dams 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 is directed by the Reservoir Control Center in the Missouri River Basin Water Management Division, Northwestern Division, U. S. Army Corps of Engineers (Corps). 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**.

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 during periods of extended drought to maintain minimum river or reservoir levels to keep intakes operational, and adjustments in reservoir releases or reservoir levels 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 recently revised "System Description and Regulation" report dated November 2007 or the "Summary of Actual Calendar Year 2007 Regulation," dated April 2008. Both reports are currently available at the "Reports and Publications" link on our web site 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 Calendar Year 2008 Regulation" will be available at the same site in April of 2009.

II. PURPOSE AND SCOPE

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 meeting is conducted to take public input on a draft of the AOP, which typically is published in early October 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 (THPO's), State Historic Preservation Officers (SHPO's), 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 AOP's 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 August 27, 2008, was sent to the Tribes offering consultation on the 2008-2009 AOP. Meeting times and locations of the six 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 AOP's. 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/treaty.

The 2008 spring public meetings were held at the following locations and dates: April 15 at Jefferson City and Kansas City, Missouri; April 16 at Nebraska City, Nebraska and Fort Peck, Montana; April 17 at Bismarck, North Dakota and Pierre, South Dakota. The attendees were given an update regarding the outlook for 2008 runoff and projected System regulation for the remainder of 2008. Six fall public meetings on the Draft 2008-2009 AOP were held: October 14 in Nebraska City, Nebraska; October 15 in Kansas City and Jefferson City, Missouri; October 16 in Fort Peck, Montana and Bismarck, North Dakota; and October 17 in Pierre, South Dakota.

In the spring of 2009, 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 2008-2009 AOP.

III. MAINSTEM MASTER MANUAL AND ESA CONSULTATIONS

The Missouri River Mainstem Reservoir System Master Water Control Manual (Master Manual) presents the water control plan and operational objectives for the integrated regulation of the System. First published in 1960 and subsequently revised during the 1970's, the Master Manual was revised in March 2004 to include more stringent drought conservation measures. The 2003 Amendment to the 2000 Biological Opinion (2003 Amended BiOp) presented the USFWS' opinion that the regulation of the System would jeopardize the continued existence of the endangered pallid sturgeon. The USFWS provided a Reasonable and Prudent Alternative (RPA) to avoid jeopardy to the 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.

IV. FUTURE RUNOFF: AUGUST 2008 - DECEMBER 2009

Runoff into the six System reservoirs is typically low and relatively stable during the August-to-February period. The August 1 calendar year runoff forecast is used as input to the Basic reservoir regulation simulation in the AOP studies for the period August 2008 to February 2009. The August 1 runoff forecast for 2008 was 26.3 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 1 runoff forecast, respectively.

Simulations for the March 1, 2009 to February 28, 2010 time period use five statistically derived inflow scenarios based on an analysis of historic water supply. The report that presents the details of the calculations used to develop these inflow scenarios was updated in July 2008 to include 9 additional years of inflow data, which now extends from 1898 to 2006. Using statistically derived inflow scenarios provides a good range of simulation for dry, average, and wet conditions, and eliminates the need to forecast future precipitation, which is very difficult.

The five statistically derived inflows are identified as the Upper Decile, Upper Quartile, Median, Lower Quartile and Lower Decile runoff conditions. Upper Decile runoff (34.3 MAF) has a 1 in 10 chance of being exceeded, Upper Quartile (30.3 MAF) has a 1 in 4 chance of being exceeded, and Median (24.4 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 (16.2 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.

The Upper Decile and Upper Quartile simulations extend from the end of the Upper Basic simulation through February 2010. 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 2010.

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 2008 through February 2010. The natural water supply for calendar year (CY) 2007 totaled 21.1 MAF.

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

	Natural 1/	Post-1949 Depletions	Net 2/
August 2007 through February 2008 (Basic Runoff Scenario)			
Basic	6,900	700	7,600
120% Basic	8,200	800	9,000
80% Basic	5,500	600	6,100
Runoff Year March 2008 through February 2009 (Statistical Analysis of Past Records)			
Upper Decile	34,300	-2,400	31,900
Upper Quartile	30,300	-2,600	27,700
Median	24,400	-2,400	22,000
Lower Quartile	19,300	-2,500	16,800
Lower Decile	16,200	-2,500	13,700

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.

V. ANNUAL OPERATING PLAN FOR 2008-2009

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 will 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 recently revised "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 2008-2009 AOP includes 13 years of regulation at Fort Peck (1940) by itself, plus 55 years of System experience as Fort Randall (1953), Garrison (1955), Gavins Point (1955), Oahe (1962), and Big Bend (1964) have been brought progressively into System regulation. This regulation experience includes lessons learned during the six consecutive years of drought from 1987 through 1992, the high runoff period that followed, and the current nine-year drought that began in 2000. Runoff during the period 1993 to 1999 was greater than the Upper Quartile level in five of those seven years, including the record 49.0 MAF of runoff in 1997. 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. 2008-2009 AOP Simulations. AOP simulations for the five runoff scenarios are shown in the final section of this AOP as studies 4 through 8. Due to the ongoing drought, service to all authorized project purposes except flood control will be reduced in the coming year and all water conservation measures available under the Master Manual will be utilized. In summary, the studies provide the following: minimum service flow support during the first part of the navigation season under all runoff scenarios; slightly above minimum to full service flow support after the July 1 System storage check for Median runoff and above; a full length navigation season for Upper Decile and Upper Quartile runoff; a shortened navigation season for Median runoff or below; low winter releases for all but the Upper Decile runoff scenario; low releases in the spring and fall before and after the navigation season; March and May spring pulses from Gavins Point dam; a steady release-flow to target regulation during the tern and plover nesting season; 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. Numerous other water conservations measures will be implemented if conditions allow 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 ***Plates 4 and 5*** for the System storage and the Fort Peck, Garrison and Oahe pool elevations.

Under all runoff scenarios modeled for the AOP, the March 1 and May 1 System storage is above the spring pulse precludes of 40.0 MAF. The peak magnitude of the March pulse is 5,000 cfs over navigation flows. The peak magnitude of the May pulse would be 16,000 cfs under the Upper Decile and Upper Quartile runoff scenarios, 13,900 for Median runoff, 9,800 cfs for Lower Quartile runoff and 9,700 cfs for Lower Decile runoff. The actual peak magnitude of the May pulse will be determined based on the actual System storage and the May 1 runoff forecast. The Master Manual technical criteria includes safeguards to minimize the risk of flooding associated with the spring pulses. Both spring pulses may be reduced or eliminated due to the downstream flow limits, shown on Plate 3, which are well below the channel capacity of the Missouri River. These flow limits are identical to the most restrictive flood control constraints presented in the previous Master Manual and provide a very similar level of flood protection. An additional safeguard is the incorporation of observed and anticipated precipitation into the daily river forecast to provide greater assurance that flows will remain below the downstream flow limits during the duration of the spring pulses. As in 2006, primary consideration will be given to withdrawing the water needed for the May spring pulse from Fort Randall reservoir in 2009, rather than from one or more of the upper three reservoirs. This would avoid further declines at Fort Peck, Garrison and Oahe reservoirs, which are already drawn down substantially due to the ongoing drought. If using Fort Randall in this manner is not feasible, the Corps would then give consideration to distributing the upstream storage reductions due to the May pulse equally among the upper three reservoirs. The Corps will also avoid cycling releases on the declining limb of the May spring pulse if the anticipated level of take of the two protected bird species is not excessive. Prior to implementing the May pulse, the Corps will coordinate with the affected Tribes and States to evaluate the options and determine the best course of action to minimize adverse impacts, including those associated with water quality due to low reservoir levels, water intakes, historic and cultural sites and reservoir fisheries.

It is possible that the 2009 spring pulses from the System could be reduced or eliminated as they travel downstream if there are significant releases being made from downstream Corps tributary reservoir projects. If the releases at these downstream Corps tributary reservoirs can be reduced without undue increased risk to other areas, it will be possible to reduce or eliminate the increase in flows on the Missouri River due to the spring pulses. This type of regulation was actually implemented in conjunction with the March 2008 spring pulse, which eliminated the pulse as it passed by Kansas City, MO. However, it should be noted that the conditions that would allow for such a regulation are experienced very infrequently, because significant releases from the tributary reservoirs are fairly rare during the spring of the year. This is especially true for the May pulse, which would require more of an adjustment because of the higher magnitude of that pulse.

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. Minimum service navigation flows are provided for all runoff conditions at the start of the navigation season due to low System storage, however a higher service level is provided for Median runoff and above based on the July 1 System storage check. Application of the July 1 System storage check (***see Plate 3***) also indicated that a full length navigation season would be provided for Upper Decile and Upper Quartile runoff. The lower runoff scenarios show a navigation season shortening ranging from 5 days for Median runoff to 30 days for Lower Quartile and Lower Decile runoff. None of the simulations reach the desired 57.0 MAF System storage level on March 1, 2010.

For modeling purposes in this AOP, the SR-FTT regulation scenario is shown during the 2009 tern and plover nesting season. The monthly average May release used in the simulations was determined by adding the May spring pulse hydrograph to the minimum service release, followed by cycling between the May and June minimum service releases for the remainder of the month to reflect an every third day peaking cycle from Gavins Point. The June release was modeled as a steady release due to the presence of chicks along the river at that time. The long-term average releases (see ***Plate 3***) were used for July and August to indicate flowing to target and to reflect an increase in navigation service level for Median runoff and above. Although these modeled Gavins Point releases represent our best estimate of required releases during 2009, actual releases will be based on hydrologic conditions and the availability of habitat at that time. 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 all the AOP studies for navigation support during the spring and fall months. Based on the September 1 storage check, Gavins Point winter releases were modeled at 12,500 cfs during the 2008-2009 winter season for all runoff scenarios. Prior to 2004, higher winter releases were required for downstream powerplants and water supply intakes, but completed and on-going modification of intakes now permit lower winter releases as a conservation measure when System storage is low. Based on the September 1, 2009 storage check, higher winter releases would be provided only for the Upper Decile runoff scenario during the winter of 2009-2010. Non-winter, non-navigation Gavins

Point releases were modeled at 9,000 cfs as a further water conservation measure as described in the Master Manual, provided downstream tributary flows are adequate to serve water supply requirements. 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 to meet the Missouri River target flows presented in the Master Manual.

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, Fort Peck and Oahe were scheduled to be favored during the 2009 forage fish spawn if runoff is not sufficient to keep all three reservoirs rising. However, in response to a request from the Missouri River Association of States and Tribes (MoRAST), emphasis will be given to Garrison from April 20 to May 20, 2009 while also attempting to maintain rising water levels in Fort Peck and Oahe. The Median, Upper Quartile, and Upper Decile simulations show that it is possible to provide steady-to-rising pool level 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 a steady-to-rising pool level at Garrison.

Two modified reservoir regulation plans shown in previous AOPs, the Fort Peck "mini-test" and unbalancing the upper three reservoirs, will not be implemented in 2009 due to low System storage. Both of these plans may be implemented when System storage recovers to more normal levels.

Actual System regulation from January 1 through July 31, 2008 and the regulating plans for each project through CY 2009 using the five runoff scenarios described on Page 4 are presented on ***Plates 6 through 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 2007 through July 2008. ***Plate 13*** presents past and simulated gross average monthly power generation and gross peaking capability for the System.

C. Regulation Plan for the Balance of the 2008 Navigation Season and Fall of 2008. The regulation of the System for the period of August though November 2008 is presented in the following paragraphs.

Fort Peck Dam. Releases averaged 7,000 cfs during August and the first half of September. In mid-September they were gradually reduced to 4,000 cfs. The releases were held near that level until late November then raised to 6,000 cfs in December. The Fort Peck pool remained essentially steady through the period and ended November at 2210 ft msl. It will slowly decline through the winter as higher releases for hydropower are initiated. The record low pool elevation of 2196.2 feet msl was set in March 2007. The previous record low pool elevation was 2208.7 feet msl set in April 1991.

Garrison Dam. Releases averaged 13,900 cfs during August. They continued at 14,000 cfs until mid-September when irrigation ceased and were then reduced to 11,000 cfs. Releases were held at 10,500 to 11,000 cfs during October and November as a water conservation measure then raised to 14,000 cfs in December. The Garrison pool level slowly raised to 1826 feet msl by the end of November and will slowly decline through the winter as higher releases for hydropower are initiated. The record low pool elevation of 1805.8 feet msl was set in May 2005. The previous record low pool elevation was 1815.0 feet msl set in May 1991.

Oahe Dam. Releases averaged 18,500 cfs in August, and were reduced in early September to initiate an early fall drawdown of the Fort Randall pool, as the navigation season closed early in 2008. Low releases continued in September, October, and November to complete the annual fall draw of Fort Randall. Releases were increased in December for winter power production. The Oahe pool ended November at elevation 1593.5 feet msl. The record low Oahe pool elevation of 1570.2 feet msl was set in August 2006. The previous record low pool elevation was 1580.7 feet msl set in November 1989.

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

Fort Randall Dam. Releases averaged 21,900 cfs in August and were scheduled in September to back up the releases from Gavins Point Dam. After the navigation season ended in late-October, releases were gradually reduced to as low as 7,000 cfs in November. The majority of the Fort Randall fall pool draw down occurred in September and October with the remaining drawdown accomplished in November.

Gavins Point Dam. Releases were scheduled to support downstream minimum service flows in reaches with commercial navigation throughout the 2008 navigation season, which was shortened 30 days in accordance with the technical criteria for the July 1 System storage check presented in the Master Manual. The last day of flow support for the commercial navigation season will range from October 22 at Sioux City to October 31 at the mouth near St. Louis. Releases will be reduced by 3,000 cfs per day in mid-October until they reached 10,000 cfs. The 10,000 cfs release was maintained for a few days to allow sufficient travel time for the release changes to reach the critical downstream locations and then the releases were stepped down to the fall non-navigation season rate of 9,000 cfs. This 9,000 cfs minimum spring-fall release represents a reasonable long-term goal for water intake owners to strive for as they make improvements to their facilities. 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 2008-2009. The September 1 System storage check is used to determine the amount of the winter System release. A winter System release of 12,000 cfs is scheduled if System storage is less than 55 MAF on September 1; 17,000 cfs is scheduled when System storage is above 58 MAF; and the release is prorated for System storages between 55 and 58 MAF. During the winter of 2008-2009, we will strive to average a 12,000 cfs System release. If mild weather conditions prevail, System releases may be set lower than 12,000 cfs, but only if downstream water supply intakes can remain operable at those levels. Conversely, 12,000 cfs 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 12,000 cfs at times to ensure downstream water supply intakes are operable. However, we believe that this minimum winter flow represents a reasonable long-term goal for water intake operability and for owners to strive for as they make improvements to their facilities. It may be necessary at times to increase Gavins Point releases to provide adequate downstream flows due to the forecast of excessive river ice formation or if ice jams or blockages form which temporarily restrict flows. Based on past experiences, these events are expected to occur infrequently and be of short duration. Given these infrequent temporary release increases above the 12,000 cfs level, the winter System release will likely average around 12,500 cfs. It is anticipated that this year's winter release will be adequate to serve all downstream water intakes except for very short periods during significant river ice formation or ice jamming.

Fort Peck Dam. Releases are expected to average 6,000 cfs to serve winter power loads and help balance System storage from December through February. Average winter release rates are about 11,000 cfs. The Basic simulation shows that the Fort Peck pool level will rise slightly to near 2211.4 feet msl during the winter period, ending February about 22.6 feet below the base of the annual flood control storage zone. Carryover multiple purpose storage in the three large upper reservoirs will slightly out of balance on March 1, 2009 due to minimum release requirements below the dam throughout the year. Fort Peck will end February 2009 about 3.6 feet low, Garrison about 1.8 feet high, and Oahe about 0.6 feet high. The pool level is expected to rise during March to near elevation 2213 feet msl.

Garrison Dam. Releases will be scheduled at a very low rate, 15,000 cfs, this winter to help balance System storage. This low release rate is normally sufficient to prevent ice induced flooding at the time of freeze-in, but temporary reductions in the releases may be scheduled to prevent exceedence of a 13-foot stage at the Bismarck gage. Flood stage is 16 feet. Average winter release rates for Garrison are 20,400 cfs in December, 23,000 cfs in January and 24,200 cfs in February. The Garrison pool level is expected to decline about two feet from near elevation 1825.8 feet msl to near elevation 1823.7 feet msl by March 1, 13.8 feet below the base of the annual flood control storage zone. The Median simulation indicates the pool level will rise to elevation 1825.6 feet msl by March 31.

Oahe Dam. Releases for the winter season will provide backup for the Fort Randall and Gavins Point releases plus fill 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 15,000 cfs. Daily 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 problems develop downstream of Oahe Dam. This potential reduction has been coordinated with the Western Area Power Administration. The Oahe pool level is expected to decline about one-half foot from elevation 1592.5 feet msl at the end of November to elevation 1592.0 feet msl by the beginning of March, 15.5 feet below the base of the annual flood control storage zone. The pool is expected to rise to elevation 1593 feet msl by the end of March.

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

Fort Randall Dam. Releases will average near 10,500 cfs during the winter season. The Fort Randall pool level is expected to rise from its fall drawdown elevation of 1337.5 feet msl 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 remains quite low, 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 1355.2 feet msl could be reached by the end of the winter period on March 31 if runoff conditions permit. The Fort Randall pool level above the White River delta near Chamberlain, South Dakota will likely 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 Dam. 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 be substantially below the base of the annual flood control zone by March 1, 2009, the beginning of next year's runoff season.

E. Regulation During the 2009 Navigation Season. The Upper Decile, Upper Quartile, Median, Lower Quartile, and Lower Decile runoff scenarios modeled for this year's AOP follow the technical criteria presented in the current Master Manual for downstream flow support. All five runoff scenarios studied for this year's AOP provide gradually increasing Gavins Point releases to provide Missouri River navigation season flow support at the mouth of the Missouri near St. Louis by April 1, 2009, 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 2009 navigation season there is no commercial navigation scheduled to use the upper reaches of the navigation channel, we will consider eliminating navigation flow support for targets in those reaches to conserve water in the System, as has been done since 2003.

Navigation flow support for the 2009 season will be determined by actual System storage on March 15 and July 1. All runoff scenarios modeled indicate minimum service flow support at the start of the 2009 navigation season, but following the July 1 System storage check a higher service level is provided for the Median runoff scenario and above. If the July 1 System storage check indicates an increase in service level, any increase may be delayed until the end of the T&E bird species' nesting season, depending on the potential for 'take' of those species. The normal 8-month navigation season is shortened as a water conservation measure for all but the Upper Quartile and Upper Decile runoff scenarios as shown in ***Table II***.

TABLE II
NAVIGATION SERVICE SUPPORT
FOR THE 2009 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.*	34.3	47.5	57.2	-6,000	0	0
U.Q.*	30.3	47.4	55.2	-6,000	-1,700	0
Med *	24.4	45.5	50.7	-6,000	-5,800	5
L.Q.*	19.3	43.6	45.7	-6,000	-6,000	30
L.D.*	16.2	43.5	44.5	-6,000	-6,000	30

*Includes both March and May Spring Pulses

As previously stated, the planned regulation for the 2009 nesting season will be SR-FTT. The initial steady release, which is estimated to be 25,000 to 28,000 cfs, will be based on hydrologic conditions and the availability of habitat at that time. Model runs included in this AOP have a Gavins Point release peaking cycle of 2 days down and 1 day up following the May pulse 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. 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 2 days of low releases and 1 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.

As discussed previously, System storage will be above the storage precludes for both spring pulses under all runoff scenarios modeled. Both spring pulses may be reduced or eliminated due to the downstream flow limits. It also possible that the spring pulses could be reduced or eliminated as they travel downstream if there are significant releases being made from downstream Corps tributary reservoir projects. If the releases at these downstream Corps tributary reservoirs can be reduced without undue increased risk to other areas, it will be possible to reduce or eliminate the increase in flows on the Missouri River due to the spring pulses. However, it should be noted that the conditions that would allow for such a regulation are experienced very infrequently, because significant releases from the tributary reservoirs are fairly rare during the spring of the year. This is especially true for the May pulse, which would require more of an adjustment because of the higher magnitude of that pulse.

Gavins Point releases may be quite variable during the 2009 navigation season but are expected to range from 18,000 to 35,000 cfs. 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 Kansas Reservoir System have not been included since they are based on downstream hydrologic conditions but this storage will be utilized to the extent possible to provided basin water conservation. Simulated storages and releases for the System and individual reservoirs within the System are shown on ***Plates 6 through 11.*** Ample storage space exists in the System to control flood inflows under all scenarios simulated for this AOP.

F. Regulation Activities for T&E Species and Fish Propagation Enhancement. 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 System reservoirs. The studies show that inflows are sufficient to maintain steady to rising pools at Fort Peck and Garrison from April through June for Lower Quartile and Lower Decile runoff scenarios, however, the Oahe pool level may fall during this period. As part of the overall plan to rotate emphasis among the upper three reservoirs during low runoff years, Fort Peck and Oahe were scheduled to be favored during the 2009 forage fish spawn, however, in response to a request from MoRAST, emphasis will be given to Garrison from April 20 to May 20, 2009. 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 to supply downstream irrigation. These adjustments may be restricted when the terns and plovers begin nesting in May. If the drought continues, 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.

As discussed in the previous section, the 2008-2009 AOP does not include provisions for unbalancing the Fort Peck, Garrison, and Oahe reservoirs for the benefit of the endangered species and reservoir fishery on March 1, 2009 for any of the runoff scenarios. The criteria for unbalancing are based on recommendations provided by the MRNRC and the USFWS. Under all simulations, System storage will be below the minimum levels under which unbalancing is recommended by either the MRNRC or the USFWS.

Fort Peck Dam. The repetitive daily pattern of releases from Fort Peck Dam 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 habitat, and thus were not expected to be impacted by the potential range of releases from Fort Peck during the summer. Releases during the 2009 nesting season will not be restricted by the repetitive daily pattern unless habitat conditions or nesting patterns change. This regulation should result in habitat conditions for nesting terns and plovers that are similar to those that were available in 2008.

If flood 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 should 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, but appears possible under all the runoff scenarios. The Fort Peck "mini-test" would not be run under any runoff scenario. The Fort Peck pool level must be at elevation 2229 feet msl to allow releases required for the "mini-test" via the spillway.

Garrison Dam. Daily average releases from Garrison will be much less than full powerplant capacity during the tern and plover nesting season under all runoff scenarios. Hourly peaking will be restricted during the nesting season to limit peak stages below the project for nesting birds.

Although the Garrison pool level during the summer of 2009 will be considerably higher than in the past several years, steps will again be taken to conserve the volume of cold-water habitat. In 2005 plywood was attached to the lower 50 feet of the trash racks on two of the penstocks to allow water to be drawn from a higher, and therefore warmer, region of the reservoir. In 2007 plywood was installed on one additional trash rack. During 2009, releases from Garrison during the summer months will be made through the three hydropower units with modified intakes, to the extent reasonably possible. In addition, the manner in which the other hydropower units are operated will be adjusted to run them at or near full capacity when in use, which also has the effect of drawing water off the upper, warmer, portion of the reservoir. In combination, these two efforts are expected to save several hundred thousand acre-feet of coldwater habitat for the benefit of the coldwater fishery.

If runoff is not sufficient to keep all the pool levels rising during the fish spawn in 2000, the Corps will, to the extent reasonably possible while serving other Congressionally authorized project purposes, set releases to result in a steady to rising pool at Garrison from April 20 to May 20. Adjustments to Garrison's releases, however, may be restricted when the terns and plovers begin nesting in May. 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 with all runoff simulations.

Oahe Dam. Releases in the spring and summer will back up those from Gavins Point Dam. The pool level should be steady to rising in the spring during the fish spawn under median and above runoff scenarios, but it will be dependent on the timing and distribution of runoff as well as the need to adjust releases from Garrison to prevent that reservoir from declining.

Fort Randall Dam. Primary consideration will be being given to staging or storing extra water in Fort Randall reservoir for the May spring pulse from Gavins Point. This will reduce the risk of impacts at the upper three reservoirs including those associated with water quality due to lower reservoir levels, water intake access problems and historic and cultural site exposure.

To the extent reasonably possible, Fort Randall will be regulated to provide for a pool elevation near 1355 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 during the 2009 nesting season will be restricted 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.

Gavins Point Dam. March and May spring pulses from Gavins Point Dam for the benefit of the endangered pallid sturgeon would be implemented under all runoff scenarios in 2009. Details related to the spring pulses, including the specific technical criteria for the 2009 pulses, are presented in Plate 3. Details of the spring pulses included in the AOP simulations are provided in Chapter V, Section B, entitled "**2008-2009 AOP Simulations**".

Based on 2003 through 2007 nesting season results with the SR-FTT regulation and planned habitat development activities, it is anticipated that sufficient habitat will be available above the planned release rates to provide for successful nesting. All reasonable measures to minimize the loss of nesting T&E bird species will be used. These measures include, but are not limited to, such things as a relatively high initial SR during the peak of nest initiation, the use of the Kansas River basin reservoirs, moving nests to higher ground when possible, 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 inflows 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 the Gavins Point project, regulation to minimize '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 Dam and Gavins Point Dam 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. Planned habitat creation projects in Lewis and Clark Lake will reduce the inundation risk to T&E bird species by providing higher habitat for nesting. The pool will be increased to elevation 1207.5 feet msl 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 for the Operation and Management of the Missouri River Main Stem System (PA), wave action and fluctuation in the level of the System reservoir pools results in erosion along the banks of the reservoirs. With the recent drought conditions additional sites have become exposed as the pool levels have declined. 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 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. Pool levels at the upper three reservoirs improved significantly in 2008 and are currently 9 to 12 feet higher than one year ago, but will remain below normal in 2009 continuing to expose cultural sites along the shorelines. Actions to avoid, minimize or mitigate adverse impacts and expected results of the actions are covered under Chapter VI of this AOP. ***Plate 14*** shows the locations of the Tribal Reservations.

Fort Peck Dam. Depending on runoff in the Missouri River basin, System regulation during 2009 could result in a Fort Peck pool elevation variation from a high of 2233 feet msl to a low of 2206 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 10 to 25 known sites could be affected during this period.

Garrison Dam. 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 1842 and 1814 feet msl during 2009. Based on a review of existing information, approximately 25 to 50 known sites could be affected during this period.

Oahe Dam. At the Oahe reservoir, the System regulation under the Upper and Lower Decile runoff scenarios could result in pool elevations between 1608 and 1580 feet msl (see ***Plate 10*** and the studies included at the end of this report). Based on a review of existing information, approximately 125 to 175 known sites could be affected during this period.

Big Bend Dam. System regulation will be adjusted to maintain the Big Bend pool level in the normal 1420 to 1421 feet msl range during 2009. Short-term increases above 1421 due to local rainfall may also occur. Based on a review of existing information, approximately 50 to 75 known sites could be affected during this period.

Fort Randall Dam. 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 2009. 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 refill during the winter to elevation 1350 feet msl. Based on a review of existing information, approximately 25 to 50 known sites could be affected during this period.

Gavins Point Dam. System regulation will be adjusted to maintain the Gavins Point pool level in the normal 1206 to 1207.5 feet msl range during 2009. Short-term increases above 1207.5 feet msl may occur due to local rainfall. Based on a review of existing information, approximately 10 to 25 known sites could be affected during this period.

VI. SUMMARY OF RESULTS EXPECTED IN 2009

With regulation of the System in accordance with the 2008-2009 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 2008 -2009 AOP Studies

Decision Points	2009-2010 Runoff Condition				
	Upper Decile	Upper Quartile	Median	Lower Quartile	Lower Decile
March 1 System Storage	46.4 MAF	46.4 MAF	44.6 MAF	42.9 MAF	42.9 MAF
March Spring Pulse?	Yes	Yes	Yes	Yes	Yes
Pulse Magnitude	5 kcfs	5 kcfs	5 kcfs	5 kcfs	5 kcfs
March 23-31 GP Release	22.9 kcfs	22.9 kcfs	22.9 kcfs	26.0 kcfs	26.0 kcfs
March 15 System Storage	47.5 MAF	47.4 MAF	45.5 MAF	43.6 MAF	43.5 MAF
Spring Service Level	Minimum	Minimum	Minimum	Minimum	Minimum
May 1 System Storage	50.6 MAF	49.9 MAF	46.9 MAF	43.8 MAF	43.5 MAF
May Spring Pulse?	Yes	Yes	Yes	Yes	Yes
Pulse Magnitude	16.0 kcfs	16.0 kcfs	13.9 kcfs	9.8 kcfs	9.7 kcfs
May Cycling	22.0/25.0 kcfs	22.0/25.0 kcfs	22.0/25.0 kcfs	25.3/28.3 kcfs	25.3/28.3 kcfs
May GP Release	26.0 kcfs	26.0 kcfs	25.7 kcfs	27.9 kcfs	27.9 kcfs
Fish Spawn Rise (Apr-Jun)					
FTPK Pool Elev Change	+13.4 feet	+11.4 feet	+8.8 feet	+5.2 feet	+2.8 feet
GARR Pool Elev Change	+10.5 feet	+8.1 feet	+7.2 feet	+4.9 feet	+3.5 feet
OAHE Pool Elev Change	+11.0 feet	+8.9 feet	+4.2 feet	-1.5 feet	-2.4 feet
July 1 System Storage	57.2 MAF	55.2 MAF	50.7 MAF	45.7 MAF	44.5 MAF
Sum-Fall Service Level (kcfs)	Full Serv	Full Serv – 1.7	Full Serv – 5.8	Min Service	Min Service
Nav Season Shortening	0 Days	0 Days	5 Days	30 Days	30 Days
September 1 System Storage	57.9 MAF	55.4 MAF	50.0 MAF	44.1 MAF	42.2 MAF
Winter GP Release	16.8 kcfs	12.5 kcfs	12.5 kcfs	12.5 kcfs	12.5 kcfs
February 28 System Storage	56.2 MAF	54.0 MAF	48.3 MAF	41.9 MAF	39.2 MAF
End-Year Pool Balance	Balanced	Balanced	Balanced	Balanced	Balanced
Percent Pool	99%	95%	85%	74%	69%

A. <u>Flood Control</u>. All runoff scenarios studied will begin the March 1, 2009 runoff season substantially below the desired 57.0 MAF base of the annual flood control and multiple use zone. Therefore, the entire System flood control zone, plus an additional 10.6 to 14.1 MAF of the carryover multiple use zone, will be available to store runoff. The System will be available to significantly reduce peak discharges and store a significant volume of water for all floods that may originate above the System.

Remaining storage in the carryover multiple use zone will be adequate to provide support for all of the other multiple purposes of the System, though at reduced levels.

B. <u>Water Supply and Water Quality Control</u>. Problems at intakes located in the river reaches and Mainstem 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 current drought have contributed to both intake access and water quality problems for intakes on Garrison and Oahe reservoirs, including several Tribal intakes; however better runoff in 2008 eliminated concern over many of these intakes. Gains in the Oahe pool level required modification of the Standing Rock Sioux Tribe's temporary intake at Fort Yates to protect it from the risng water levels. The Bureau of Reclamation (BOR) installed the temporary intake after the primary intake failed in November 2003 leaving the community without water for several days. If the drought continues 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 2009 would be approximately 10 feet higher than the record lows set in the current 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.

Although below normal winter releases are being provided in the winter of 2008-2009 and in the winter of 2009-2010 for all but the Upper Decile runoff scenario, all water supply and water quality requirements on the Missouri River both below Gavins Point Dam and between System reservoirs should be met for all flow conditions studied. Due to the low reservoir levels and releases many intake operators have experienced, and will continue to experience, additional water treatment costs. It is possible with the low winter releases that ice formation or ice jams may temporarily reduce river stages to levels below which some intakes can draw water. Therefore, during severe cold spells, experience has shown that for brief periods it may be necessary to increase Gavins Point releases to help alleviate downstream water supply problems.

During the non-navigation periods in the spring and fall, System releases as low as 9,000 cfs are likely if enough downstream tributary flow exists to allow for continued operation of downstream water intakes. It has been possible to reduce System releases to 9,000 cfs in the spring and fall of each season since the fall of 2004. If a non-navigation year would occur in the future, summer releases (May thru 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 all 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 power plant'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 power plant 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 throughout the System and along the lower river reach to make necessary modifications to their intakes to allow efficient operation over the widest possible range of hydrologic conditions.

C. <u>Irrigation</u>. 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 drought conditions persist. Below Fort Peck, localized dredging may once again be required in the vicinity of irrigation intakes in order to maintain access the water if releases are low next summer. Tributary irrigation water usage is fully accounted for in the estimates of water supply.

D. <u>Navigation</u>. Service to navigation in 2009 for all runoff scenarios will be at minimum service flow support from the beginning of the navigation season through the July 1 storage check. Minimum service flow support will continue throughout the entire navigation season for Lower Quartile and Lower Decile runoff scenarios. Simulation of Median runoff resulted in only a slightly higher service level, 200 cfs above minimum service, for the second half of the 2009 navigation season. The service level would rise to 1,700 cfs below full service following the July 1 System storage check for Upper Quartile runoff, and to full service for Upper Decile runoff. Although the AOP simulations provide a comparison of typical flow support under varying runoff conditions, the actual rate of flow support for the 2009 navigation season will be based on actual System storage on March 15 and July 1, 2009.

While the Upper Decile and Upper Quartile simulations show no reduction in the normal 8-month navigation season length, the Median runoff simulation shows a 5- day shortening of the navigation season, and the Lower Quartile and Lower Decile simulations show 30 days of shortening. The anticipated service level and season length for all runoff conditions simulated are shown in ***Table II***.

E. Power. ***Tables IV and V*** give the estimated monthly System load requirements and hydropower supply of the Eastern Division, Pick-Sloan Missouri Basin Program (P-S MBP), from August 2008 through December 2009. 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.

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. Improved runoff resulted in higher pool levels and better recreation access at the upper three reservoirs during 2008, however access in 2009 may remain limited at several locations. Special regulation adjustments incorporating specific objectives for these purposes will be made to the extent reasonably possible. Conditions in the lower three reservoirs 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.

Boat ramps that were lowered and low water ramps that were constructed during the drought of the late 1980's to early 1990's and the further improvements made in 2003 through 2008 should provide adequate reservoir access in 2009 for all runoff conditions.

The effects of the simulated System regulation during 2009 on fish and wildlife are included in Chapter V, Section F, entitled, "Regulation Activities for T&E Species and Fish Propagation Enhancement."

G. Historic and Cultural Properties. As mentioned in Chapter V of this AOP, the regulation of the System during 2008 and 2009 will expose cultural sites due to erosion from the normal fluctuation of pool elevations. With the recent drought conditions additional sites have become exposed as the pool levels have declined. 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 PA 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.

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

	Estimated Committed Sales*	Expected C of E Capability					Expected Bureau Capability*					Expected Total System Capability				
2008			120%	Basic	80%			120%	Basic	80%			120%	Basic	80%	
Aug	2115		2185	2181	2177			211	211	210			2396	2392	2387	
Sep	1686		2176	2165	2156			211	212	210			2387	2377	2366	
Oct	1649		2141	2130	2118			211	211	210			2352	2341	2328	
Nov	1766		2151	2135	2120			209	209	208			2360	2344	2328	
Dec	1958		2172	2145	2124			205	205	205			2377	2350	2329	
2009																
Jan	2112		2188	2160	2139			200	201	202			2388	2361	2341	
Feb	1867		2192	2169	2144			196	198	199			2388	2367	2343	
		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	1774	2214	2210	2180	2148	2146	194	194	195	194	196	2408	2404	2375	2342	2342
Apr	1664	2244	2235	2190	2146	2140	194	190	194	190	198	2438	2425	2384	2336	2338
May	2416	2270	2254	2199	2145	2137	200	197	202	197	203	2470	2451	2401	2342	2340
Jun	2417	2322	2297	2237	2164	2149	213	213	213	213	211	2535	2510	2450	2377	2360
Jul	2444	2334	2305	2240	2158	2135	213	213	213	213	211	2547	2518	2453	2371	2346
Aug	4653	2324	2295	2227	2144	2118	209	210	210	210	208	2533	2505	2437	2354	2326
Sep	2444	2319	2289	2222	2127	2094	209	209	209	209	208	2528	2498	2431	2336	2302
Oct	2443	2305	2274	2201	2087	2052	208	208	210	208	209	2513	2482	2411	2295	2261
Nov	2376	2272	2239	2175	2091	2055	206	206	207	206	207	2478	2445	2382	2297	2262
Dec	2377	2238	2214	2147	2056	2019	202	202	203	202	205	2440	2416	2350	2258	2224

* Estimated sales, including system reserves. Power in addition to hydro production needed for these load requirements will be obtained other power systems by interchange or purchase

** Total output of Canyon Ferry and 1/2 of the output of Yellowtail powerpla

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

	Estimated Committed Sales*	Expected C of E Generation					Expected Bureau Generation *					Expected Total System Generation				
2008			120%	Basic	80%			120%	Basic	80%			120%	Basic	80%	
Aug	846		529	540	551			99	78	72			628	618	623	
Sep	725		540	538	567			87	68	62			627	606	629	
Oct	723		477	497	504			85	74	61			562	571	565	
Nov	791		263	273	281			87	78	60			350	351	341	
Dec	897		476	446	433			89	79	62			565	525	495	
2009																
Jan	913		462	462	457			87	78	61			549	540	518	
Feb	886		378	418	409			76	69	54			454	487	463	
		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	814	469	483	442	491	506	83	83	75	59	59	552	566	517	550	565
Apr	752	492	532	492	630	596	103	93	73	44	44	595	625	565	674	640
May	696	707	721	745	777	800	132	125	92	48	48	839	846	837	825	848
Jun	754	727	717	715	771	769	149	147	105	50	50	876	864	820	821	819
Jul	841	956	901	811	848	841	155	140	85	63	52	1111	1041	896	911	893
Aug	820	996	936	849	808	802	104	97	77	63	51	1100	1033	926	871	853
Sep	725	865	800	666	620	583	90	87	74	60	49	955	887	740	680	632
Oct	723	700	658	558	531	530	90	87	73	60	52	790	745	631	591	582
Nov	791	646	614	503	295	295	86	83	82	61	57	732	697	585	356	352
Dec	897	627	548	524	511	511	88	84	84	68	53	715	632	608	579	564
CY TOT		8025	7750	7185	7148	7099	1243	1189	966	690	631	9268	8939	8151	7838	7730

* Estimated sales including system reserves and losses. Power in addition to hydro production needed for these load requirements w obtained from other systems by interchange or purchas

** Total output Canyon Ferry and 1/2 output of Yellowtail powerpla

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 "Draft Five Year Plan, dated February 2005" (see https://www.nwo.usace.army.mil/CR/) 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 2008 and 2009. 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 https://www.nwo.usace.army.mil/CR/) 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 2008-2009 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. Training for the monitoring teams was held in June 2006, July 2007, March 2008, April 2008 and again in July 2008.

Secondly, mitigation or protection of sites that are being adversely impacted continues. During the reporting period for the 2007 Annual Report by the Corps on the implementation of the Programmatic Agreement twelve sites were either completed, started, or in the design phase. The annual report is available at https://www.nwo.usace.army.mil/CR/. In addition the Corps has awarded 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. The model is expected to be complete by December 2008.

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 2008-2009 on cultural sites are included in the Chapter V, section G., entitled, "Regulation Activities for Historic and Cultural Properties."

H. System Storage. If August 1, 2008 Basic runoff forecast verifies, System storage will decline to 44.1 MAF by the close of CY 2008. This would be 10.2 MAF higher than the all-time record low storage of 33.9 MAF set on February 9, 2007 and nearly 7.3 MAF higher than last year's storage of 36.8 MAF. This end-of-year storage is 8.6 MAF less than the 1967 to 2007 average. The record low storage during the 1988-1992 drought was 40.8 MAF in January 1991. 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, 2009 is presented in ***Table VI*** for the runoff scenarios simulated.

I. <u>Summary of Water Use by Functions</u>. Anticipated water use in CY 2008, under the regulation plan with the Basic forecast of water supply is shown in ***Table VII***. Actual water use data for CY 2007 are included for information and comparison**.** Under the reservoir regulation simulations in this AOP, estimated water use in CY 2009 also is shown in ***Table VII.***

TABLE VI
ANTICIPATED DECEMBER 31, 2009 SYSTEM STORAGE

Water Supply Condition	Total (12/31/09)	Carryover Storage Remaining 1/	Unfilled Carryover Storage 2/	Total Change CY 2009
	(Volumes in 1,000 Acre-Feet)			
Upper Decile	55,900	37,900	1,100	10,400
Upper Quartile	53,400	35,400	3,600	7,900
Median	47,900	29,900	9,100	3,800
Lower Quartile	41,900	23,900	15,100	-900
Lower Decile	39,400	21,400	17,600	-3,400

1/ Net usable storage above 18.0 MAF System minimum pool level established for power, recreation, irrigation diversions, and other purposes.

2/ System base of annual flood control zone containing 57.0 MAF.

TABLE VII
MISSOURI RIVER MAINSTEM SYSTEM
WATER USE FOR CALENDAR YEARS 2007, 2008, AND 2009 ABOVE SIOUX CITY, IOWA
in Million Acre-Feet (MAF)

	CY 2007 Actual	CY 2008 Basic Simulation	Simulations for Calendar Year 2009 Upper Decile	Upper Quartile	Median	Lower Quartile	Lower Decile
Upstream Depletions (1)							
Irrigation, Tributary Reservoir Evaporation & Other Uses	2.3	1.7					
Tributary Reservoir Storage Change	-0.1	0.6					
Total Upstream Depletions	2.2	2.3	2.5	2.5	2.5	2.5	2.4
System Reservoir Evaporation (2)	2.5	2.1	1.2	1.1	1.6	1.8	1.7
Sioux City Flows							
Navigation Season							
Unregulated Flood Inflows Between Gavins Point & Sioux City (3)	0.0	0.0					
Navigation Service Requirement (4)	9.8	10.7	16.2	15.0	12.8	11.9	11.5
Supplementary Releases							
T&E Species (5)	0.3	0.3	0.5	0.4	0.4	0.4	0.4
Flood Evacuation (6)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-navigation Season							
Flows	3.8	3.4	3.5	3.2	3.2	3.6	3.6
Flood Evacuation Releases (7)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
System Storage Change	2.5	7.3	10.4	8.1	3.9	-0.9	-3.4
Total	21.1	26.1	34.3	30.3	24.4	19.3	16.2
Project Releases							
Fort Peck	4.6	4.2	5.2	4.9	4.5	4.6	4.7
Garrison	10.2	9.5	14.0	13.5	12.5	12.3	11.8
Oahe	8.7	8.8	13.7	13.6	13.2	13.9	14.1
Big Bend	7.9	8.4	13.6	13.5	13.1	13.8	13.9
Fort Randall	8.9	9.4	15.2	14.7	13.9	14.0	14.1
Gavins Point	10.6	11.0	17.4	16.6	15.2	15.2	15.2

(1) Tributary uses above the 1949 level of development including agricultural depletions and tributary storage effects.
(2) Net evaporation is shown for 2008.
(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 in 2008 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 15,000 cfs Fort Randall release.

VII. TENTATIVE PROJECTION OF REGULATION THROUGH MARCH 2015

The 5-year extensions to the AOP (March 2010 to March 2015) 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 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, magnitudes of March and May spring pulses, March 1 reservoir unbalancing, end of year System storage, and the winter release rate for the extensions are shown on ***Table VII***. The criteria considered as each year of the extensions was modeled are listed, along with the results, in ***Tables VIII through X*** for the Median, Lower Quartile, and Lower Decile extension studies, respectively.

A. <u>Median Runoff</u>. Studies 9 through 13 present the results of simulating Median runoff (24.6 MAF) from March 2010 through February 2015. The March 1, 2010 System storage would be 48.3 MAF and would rise to 53.4 MAF by March 1, 2015, 3.6 MAF below the desired March 1 storage of 57.0 MAF, the base of the annual flood control and multiple use pool. The navigation service level would gradually increase from just above the minimum service in 2010 to full service after the July 1 storage check in 2012. There would be full navigation seasons for the study period of 2010 through 2014. The winter of 2013-2014 releases would be 13,500 cfs. March and May spring pulses would occur each year, with the magnitude of the May pulse increasing from 15,000 cfs in 2010 to 15,500 cfs in 2011. The May pulses in 2012, 2013, and 2014 would be limited in order to meet downstream flow limits during the pulse. Fort Peck, Garrison, and Oahe pools rise to the elevations described in ***Plate 3*** that permit unbalancing by March 1, 2011. The Fort Peck "mini-test" could be conducted in 2012 by unbalancing the upper three reservoirs beginning in 2011, as shown in ***Table*** V***III***. The Fort Peck release would average 12,800 cfs in June 2012. Fort Peck would not have to be favored again in 2013 to accommodate the full test, which would have a monthly average release of 18,200 cfs in June 2013.

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

	2010	2011	2012	2013	2014
MEDIAN					
Spring Pulse					
March (kcfs)	5.0	5.0	5.0	5.0	5.0
May (kcfs)	15.0	15.5	14.7*	14.1*	13.7*
Flow Level Below Full Service					
Spring (kcfs)	Full-5.8	Full-3.2	Full-1.7	Full-1.1	Full-0.7
Summer/Fall (kcfs)	Full-2.5	Full-0.7	Full	Full	Full
Season Length	8 months	8 months	8 months	8 months	8 months
Reservoir Unbalancing (ft)					
Fort Peck	0	+4.2	0	-4.2	+4.2
Garrison	0	-3.0	+3.0	0	-3.0
Oahe	0	0	-3.0	+3.0	0
Dec 31 Storage (MAF)	50.4	51.7	52.3	52.7	53.4
Winter Release (kcfs)	12.5	12.5	12.8	13.5	12.7
Special Information			Peck Mini-T	Peck Full-T	
LOWER QUARTILE					
Spring Pulse					
March (kcfs)	5.0	5.0	5.0	5.0	5.0
May (kcfs)	9.6	9.6	9.7	9.9	10.4
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-30 days	8 mnths-30 days	8 mnths-30days	8 mnths-29 days	8 mnths-12 days
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)	41.1	41.3	42.1	43.9	46.4
Winter Release (kcfs)	12.5	12.5	12.5	12.5	12.5
LOWER DECILE					
Spring Pulse					
March (kcfs)	0	0	0	0	0
May (kcfs)	9.0	0	0	0	0
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-30 days	8 mnths-41 days	8 mnths-56 days	8 mnths-55 days	8 mnths-55 days
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)	36.3	34.2	33.9	34.0	34.1
Winter Release (kcfs)	12.5	12.5	12.5	12.5	12.5

*Limited by Downstream Flood-Control Limits

Table IX

Median Extension Studies - Criteria Considered in the Modeling Process

Study Number	**Units**	**Criteria**	**9** **2010-2011**	**10** **2011-2012**	**11** **2012-2013**	**12** **2013-2014**	**13** **2014-2015**
March 1 Storage	*MAF*	*40*	48.3	50.5	52.0	52.6	53.0
- March Spring Pulse?	*N/A*		Yes	Yes	Yes	Yes	Yes
March 15 Storage	*MAF*	*31/49/54.5*	49.2	51.6	52.9	53.5	53.9
- Service Level	*N/A or kcfs*	*No Sea/Min/Full Thresholds*	Full -5.8	Full -3.2	Full -1.7	Full -1.1	Full -0.7
- 3rd Period March GP Q	*kcfs*		23.1	26.4	28.8	28.9	28.9
- April Gavins Point Q	*kcfs*		20.9	23.5	25.0	25.6	26.0
May 1 Storage	*MAF*	*40*	50.7	52.8	54.0	54.5	54.7
- May Spring Pulse?	*N/A*		Yes	Yes	Yes	Yes	Yes
- Pulse Magnitude	*kcfs*		15.0	15.5	14.7	14.1	13.7
- Gavins Point Cycling Qs	*kcfs*		22.2/25.2	24.8/27.8	26.3/29.3	26.9/29.9	27.3/30.3
- May Gavins Point Q	*kcfs*		26.0	28.6	30.1	30.6	30.9
- June Gavins Point Q	*kcfs*		25.2	27.8	29.3	29.9	30.3
July 1 Storage	*MAF*	*50.5/57*	54.3	56.2	57.1	57.5	58.2
- Service Level	*N/A*	*Min/Full Thresholds*	Full -2.5	Full -0.7	Full	Full	Full
- July Gavins Point Q	*kcfs*		29.1	30.9	31.6	31.6	31.6
- Aug Gavins Point Q	*kcfs*		30.7	32.5	33.0	33.2	33.2
- Sept Gavins Point Q	*kcfs*		30.1	31.9	32.4	32.6	32.6
July 1 Storage	*MAF*	*36.5/41&46.8/51.5*	54.3	56.2	57.0	57.5	58.2
- Season Length Shortening	*days*	*61/31&31/0 Thresholds*	0	0	0	0	0
- Oct Gavins Point Q	*kcfs*		29.5	31.3	32.0	32.0	32.0
- Nov Gavins Point Q	*kcfs*		28.6	30.4	31.1	31.1	31.1
September 1 Storage	*MAF*	*55/58*	53.1	54.7	55.5	55.9	55.4
- Winter Gavins Point Q	*kcfs*	*12/17 Thresholds*	12.5	12.5	12.8	13.5	12.7
End-of-Year Reservoir Storage	*MAF*		50.5	52.0	52.6	53.0	53.7
- Percent Full	*N/A*		83%	87%	88%	89%	90%
Balance/Unbalance	*N/A*	*Bal <2227/1827/1600 ft msl*	Balance	4.2 P -3.0 G	3.0 G -3.0 O	-4.2 P 3.0 O	4.2 P -3.0 G
Peck Rise 3/31-6/30	*N/A*		Yes	Yes	Yes	Yes	Yes
Garr Rise 3/31-6/30	*N/A*		Yes	Yes	Yes	Yes	Yes
Oahe Rise 3/31-6/30	*N/A*		Yes	Yes	Yes	Yes	Yes
Special Information	*N/A*				Peck Mini T	Peck Full T	

Table X

Lower Quartile Extension Studies - Criteria Considered in the Modeling Process

Study Number	Units	Criteria	14 2010-2011	15 2011-2012	16 2012-2013	17 2013-2014	18 2014-2015
March 1 Storage	MAF	40	41.9	41.3	41.5	42.4	44.2
- March Spring Pulse?	N/A		Yes	Yes	Yes	Yes	Yes
March 15 Storage	MAF	31/49/54.5	42.7	41.2	42.4	43.4	45.3
- 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		26.0	26.0	26.0	26.0	26.0
- April Gavins Point Q	kcfs		23.8	23.8	23.8	23.8	23.8
May 1 Storage	MAF	40	42.7	42.8	43.2	43.4	45.3
- May Spring Pulse?	N/A		Yes	Yes	Yes	Yes	Yes
- Pulse Magnitude	kcfs		9.6	9.6	9.7	9.9	10.4
- 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		27.9	27.9	27.9	27.9	27.9
- June Gavins Point Q	kcfs		28.3	28.3	28.3	28.3	28.3
July 1 Storage	MAF	50.5/57	44.9	44.8	45.4	47.0	49.7
- 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	44.9	44.8	45.4	47.0	49.7
- Season Length Shortening	days	61/31&31/0 Thresholds	30	30	30	29	12
- Oct Gavins Point Q	kcfs		23.9	23.9	23.9	24.5	27.1
- Nov Gavins Point Q	kcfs		9.0	9.0	9.0	9.0	22.2
September 1 Storage	MAF	55/58	43.2	43.3	48.6	45.7	44.0
- Winter Gavins Point Q	kcfs	12/17 Thresholds	12.5	12.5	12.5	12.5	12.5
End-of-Year Reservoir Storage	MAF		41.3	41.5	42.4	44.2	46.4
- Percent Full	N/A		58%	58%	61%	66%	72%
Balance/Unbalance	N/A	Bal <2227/1827/1600 ft msl	Balance	Balance	Balance	Balance	Balance
Peck Rise 3/31-6/30	N/A		Yes	Yes	Yes	Yes	Yes
Garr Rise 3/31-6/30	N/A		No	Yes	Yes	Yes	Yes
Oahe Rise 3/31-6/30	N/A		Yes	Yes	Yes	Yes	Yes
Special Information	N/A						

Table XI

Lower Decile Extension Studies - Criteria Considered in the Modeling Process

Study Number	Units	Criteria	19 2010-2011	20 2011-2012	21 2012-2013	22 2013-2014	23 2014-2015
March 1 Storage	MAF	40	39.2	37.3	34.2	33.9	34.0
- March Spring Pulse?	N/A		No	No	No	No	No
March 15 Storage	MAF	31/49/54.5	39.8	37.9	35.0	34.8	34.9
- 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	40.2	39.3	35.4	35.4	35.4
- May Spring Pulse?	N/A		Yes	No	No	No	No
- Pulse Magnitude	kcfs		9.6	9.6	9.7	9.9	10.4
- 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		27.8	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	41.0	39.3	37.1	37.3	37.3
- 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	26.9	27.2	27.2
July 1 Storage	MAF	36.5/41&46.8/51.5	41.0	39.3	37.1	37.3	37.3
- Season Length Shortening	days	61/31&31/0 Thresholds	30	41	56	55	55
- Oct Gavins Point Q	kcfs		23.9	17.5	9.3	9.6	9.6
- Nov Gavins Point Q	kcfs		9.0	9.0	9.0	9.0	9.0
September 1 Storage	MAF	55/58	38.8	36.0	35.1	35.1	35.3
- Winter Gavins Point Q	kcfs	12/17 Thresholds	12.5	12.5	12.5	12.5	12.5
End-of-Year Reservoir Storage	MAF		37.3	34.2	33.9	34.0	34.2
- Percent Full	N/A		47%	39%	38%	39%	39%
Balance/Unbalance	N/A	Bal <2227/1827/1600 ft msl	Balance	Balance	Balance	Balance	Balance
Peck Rise 3/31-6/30	N/A		Yes	Yes	Yes	Yes	Yes
Garr Rise 3/31-6/30	N/A		Yes	Yes	No	Yes	No
Oahe Rise 3/31-6/30	N/A		No	No	Yes	No	Yes
Special Information	N/A						

B. <u>Lower Quartile Runoff</u>. Studies 14 through 18 show the results of Lower Quartile runoff extensions. System storage on March 1, 2010 is 41.9 MAF and rises to 46.8 MAF by March 1, 2015, with navigation service levels remaining at minimum service during the simulation period. The navigation season is shortened 30 days in 2010, 2011 and 2012, 29 days in 2013, and 12 days in 2014 as System storage increases. A 12,500-cfs average winter release is shown for the entire study period. Spring pulses would occur every March and May from 2010 through 2014. The magnitude of these three May pulses are about 75 percent of those in the early years of the Median runs because of the reduction in the magnitude made for the runoff forecasts at and below Lower Quartile. Since the upper three reservoirs do not refill enough to meet the unbalancing criteria in ***Plate 3*** under Lower Quartile runoff, the carryover multiple use storage is balanced each March 1.

C. <u>Lower Decile Runoff</u>. Studies 19 through 23 show the results of Lower Decile runoff extensions. System storage is 39.2 MAF on March 1, 2010 and gradually decreasing to 34.2 MAF on March 1, 2015. All extension years have minimum navigation service levels for both navigation seasons. The navigation season is shortened 30 days in 2010, 41 days in 2011, 56 days in 2012, and 55 days in 2013 and 2014. There are no March spring pulses and only a May spring pulse in 2010, and no intrasystem unbalancing for the entire study period due to low System storage.

Plate 14 presents System storage, Gavins Point releases, and System peaking capability for Median, Lower Quartile, and Lower Decile runoff for the period 2010 through February 2015. 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 2010 through February 2015.

This page intentionally left blank.

MISSOURI RIVER BASIN

PLATE 1

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 246,000 acres	1854 msl 380,000 acres	1620 msl 374,000 acres
27	Max. normal op. pool elev. & area	2246 msl 240,000 acres	1850 msl 364,000 acres	1617 msl 360,000 acres
28	Base flood control elev & area	2234 msl 212,000 acres	1837.5 msl 307,000 acres	1607.5 msl 312,000 acres
29	Min. operating pool elev. & area	2160 msl 90,000 acres	1775 msl 128,000 acres	1540 msl 117,000 acres
	Storage allocation & capacity			
30	Exclusive flood control	2250-2246 975,000 a.f.	1854-1850 1,489,000 a.f.	1620-1617 1,102,000 a.f.
31	Flood control & multiple use	2246-2234 2,717,000 a.f.	1850-1837.5 4,222,000 a.f.	1617-1607.5 3,201,000 a.f.
32	Carryover multiple use	2234-2160 10,785,000 a.f.	1837.5-1775 13,130,000 a.f.	1607.5-1540 13,461,000 a.f.
33	Permanent	2160-2030 4,211,000 a.f.	1775-1673 4,980,000 a.f.	1540-1415 5,373,000 a.f.
34	Gross	2250-2030 18,688,000 a.f.	1854-1673 23,821,000 a.f.	1620-1415 23,137,000 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	17,700 a.f. 1030 yrs.	25,900 a.f. 920 yrs.	19,800 a.f. 1170 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)	1,075	2,293	2,677
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.
21 miles upstream Chamberlain, SD	Near Lake Andes, SD	Near Yankton, SD		1
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
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
28,900	30,000 1,100	32,000 2,000		6
440,000 (April 1952)	447,000 (April 1952)	480,000 (April 1952)		7
1959	1946	1952		8
1964	1953	1955		9
1440	1395	1234		10
10,570 (including spillway)	10,700 (including spillway)	8,700 (including spillway)	71,596	11
78	140	45	863 feet	12
95	165	74		13
1200, 700	4300, 1250	850, 450		14
Pierre shale & Niobrara chalk	Niobrara chalk	Niobrara chalk & Carlile shale		15
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
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
1385	1346	1180		21
376 gated	1000 gated	664 gated		22
8 - 40' x 38' Tainter	21 - 40' x 29' Tainter	14 - 40' x 30' Tainter		23
390,000 at elev 1433.6	620,000 at elev 1379.3	584,000 at elev 1221.4		24
270,000	508,000	345,000		25
1423 msl 61,000 acres	1375 msl 102,000 acres	1210 msl 31,000 acres	1,194,000 acres	26
1422 msl 60,000 acres	1365 msl 95,000 acres	1208 msl 28,000 acres	1,147,000 acres	27
1420 msl 57,000 acres	1350 msl 77,000 acres	1204.5 msl 24,000 acres	989,000 acres	28
1415 msl 51,000 acres	1320 msl 38,000 acres	1204.5 msl 24,000 acres	450,000 acres	29
1423-1422 60,000 a.f.	1375-1365 985,000 a.f.	1210-1208 59,000 a.f.	4,670,000 a.f.	30
1422-1420 117,000 a.f.	1365-1350 1,309,000 a.f.	1208-1204.5 90,000 a.f.	11,656,000 a.f.	31
	1350-1320 1,607,000 a.f.		38,983,000 a.f.	32
1420-1345 1,621,000 a.f.	1320-1240 1,517,000 a.f.	1204.5-1160 321,000 a.f.	18,023,000 a.f.	33
1423-1345 1,798,000 a.f.	1375-1240 5,418,000 a.f.	1210-1160 470,000 a.f.	73,332,000 a.f.	34
November 1963	January 1953	August 1955		35
25 March 1964	24 November 1953	22 December 1955		36
5,300 a.f. 430 yrs.	18,400 a.f. 250 yrs.	2,600 a.f. 180 yrs.	89,700 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 32,000 cfs - 128,000 cfs			43
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
988	1,757	734	9,524 million kWh	54
October 1964 - July 1966	March 1954 - January 1956	September 1956 - January 1957	July 1943 - July 1966	55
$107,498,000	$199,066,000	$49,617,000	$1,166,404,000	56

Remarks

(1) Includes 4,280 square miles of non-contributing areas.
(2) Includes 1,350 square miles of non-contributing areas.
(3) With pool at base of flood control.
(4) Storage first available for regulation of flows.
(5) Damming height is height from low water to maximum operating pool. Maximum height is from average streambed to top of dam.
(6) Based on latest available storage data.
(7) River regulation is attained by flows over low-crested spillway and through turbines.
(8) Length from upstream face of outlet or to spiral case.
(9) Based on 8th year (1961) of drought drawdown (From study 8-83-1985).
(10) Affected by level of Lake Francis case. Applicable to pool at elevation 1350.
(11) Spillway crest.
(12) 1967-2006 Average
(13) Source: Annual Report on Civil Works Activities of the Corps of Engineers. Extract Report Fiscal Year 1999.
(14) Based on Study 8-83-1985

Corps of Engineers, U.S. Army
Compiled by
Northwestern Division
Missouri River Region
January 2008

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)

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

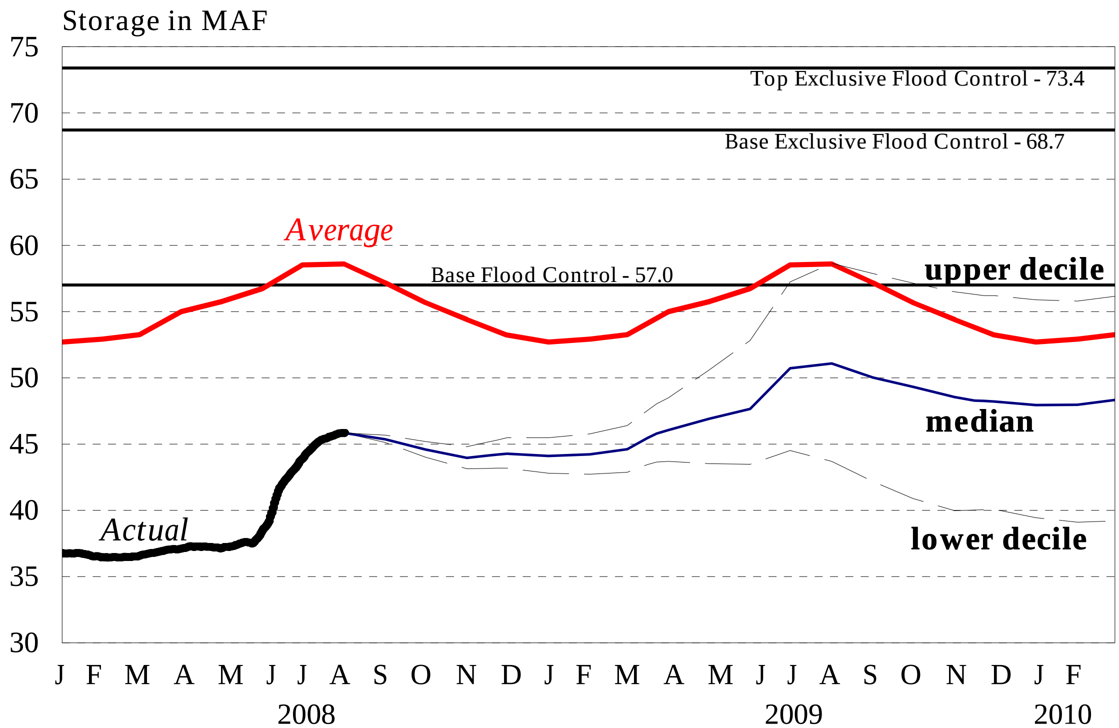
Drought Preclude	40.0 MAF or below measured on May 1.
Proration of Pulse Magnitude Based On System Storage*	Prorated from 16 kcfs based on a May 1 System Storage check; 100% at 54.5 MAF; straight line interpolation to 75% at 40.0 MAF.
Proration of Pulse Magnitude Based On Projected Runoff*	After the 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

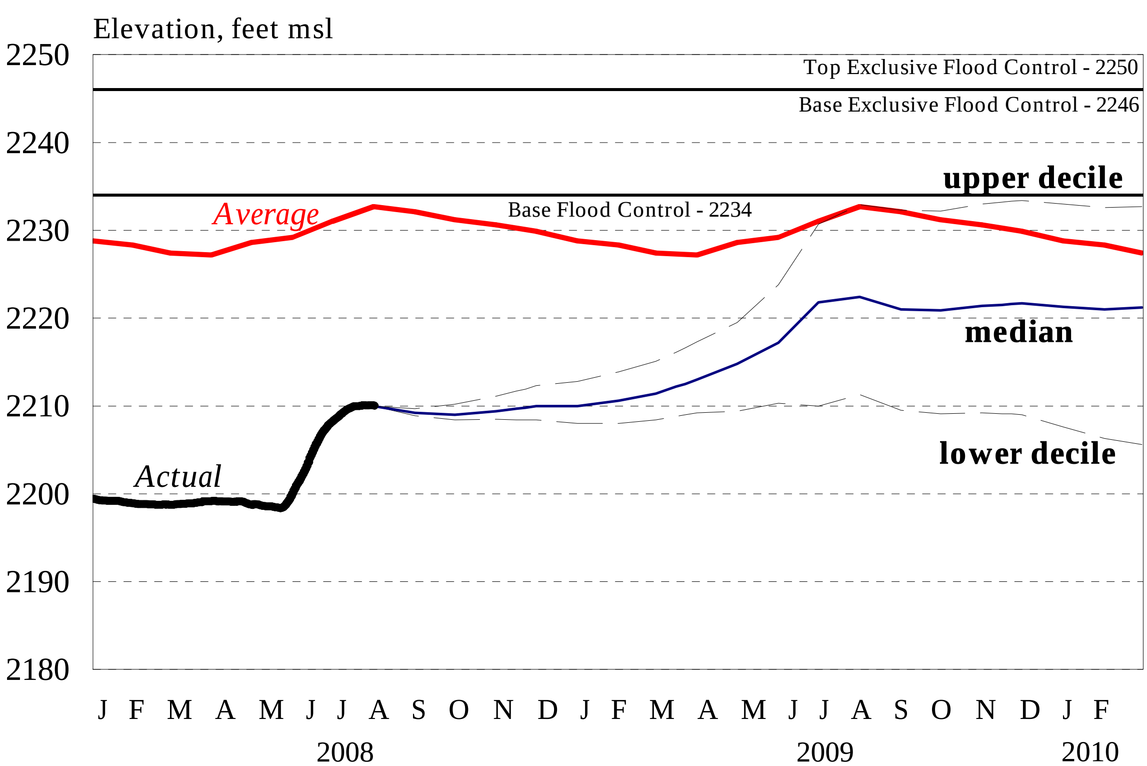
* Spring pulse magnitudes will be determined by taking the difference between pre-pulse Gavins Point releases and the peak pulse Missouri River flows measured just downstream of the mouth of the James River.

System Storage
2008-2009 Draft AOP



Average: 1967-2007

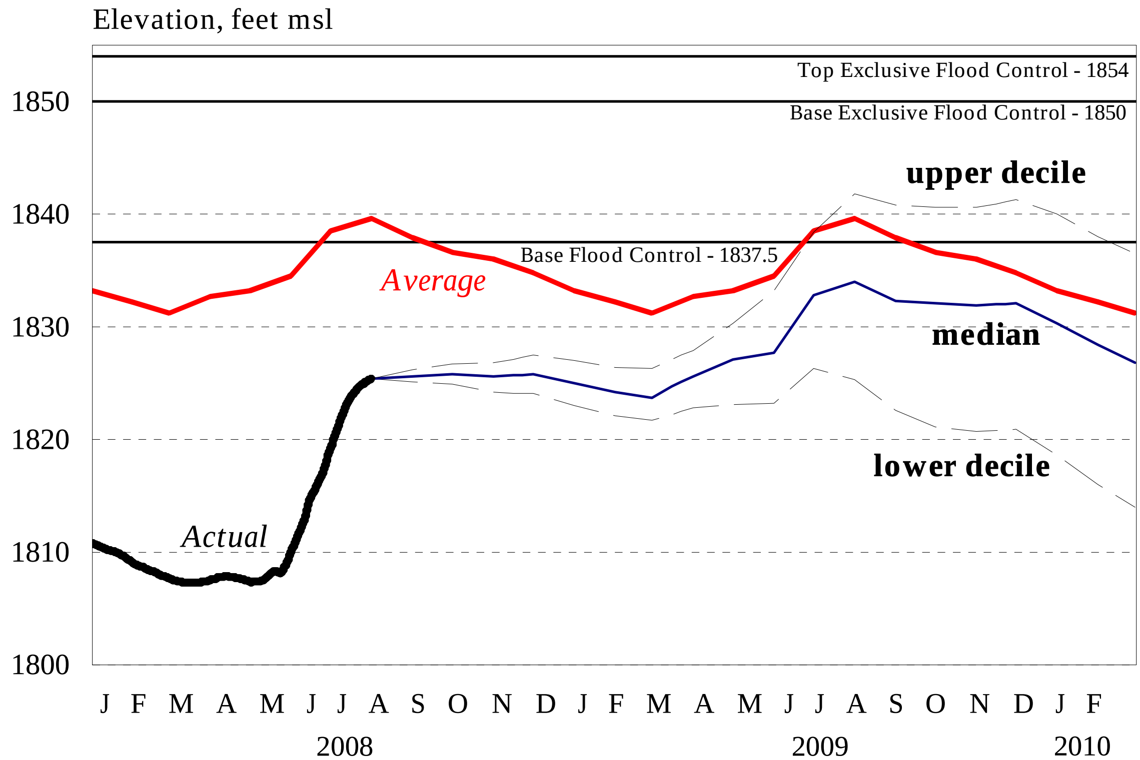
Fort Peck
2008-2009 Draft AOP



Average: 1967-2007

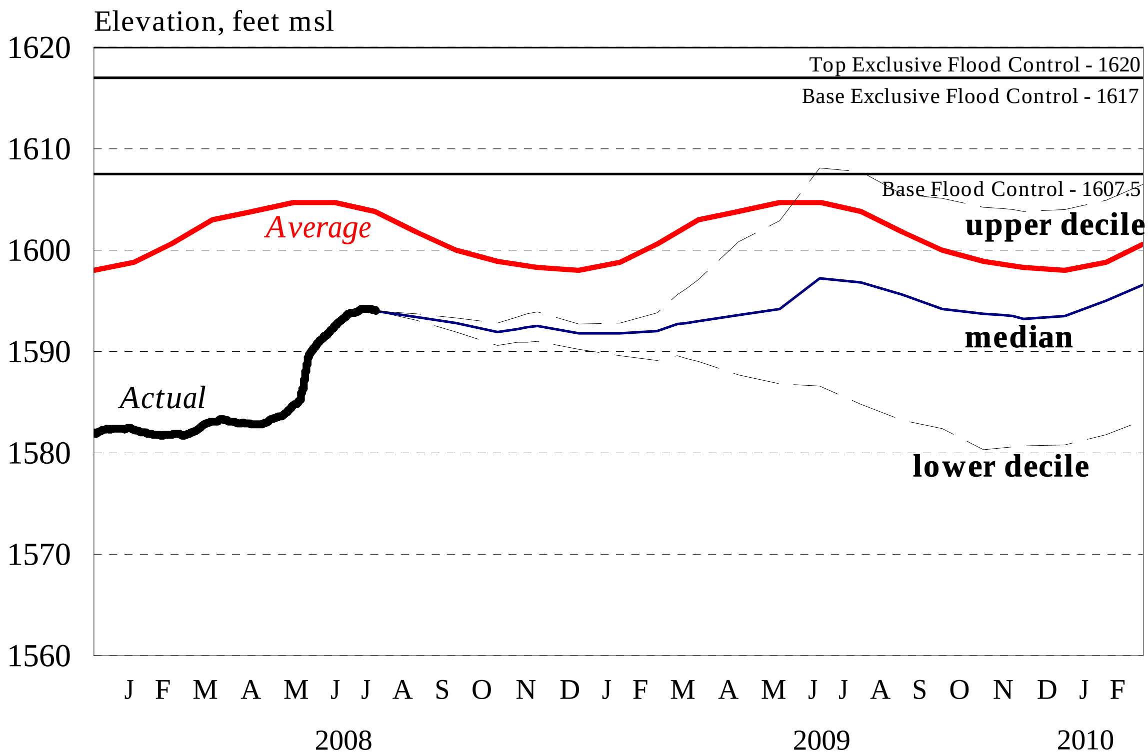
Plate 4

Garrison
2008-2009 Draft AOP



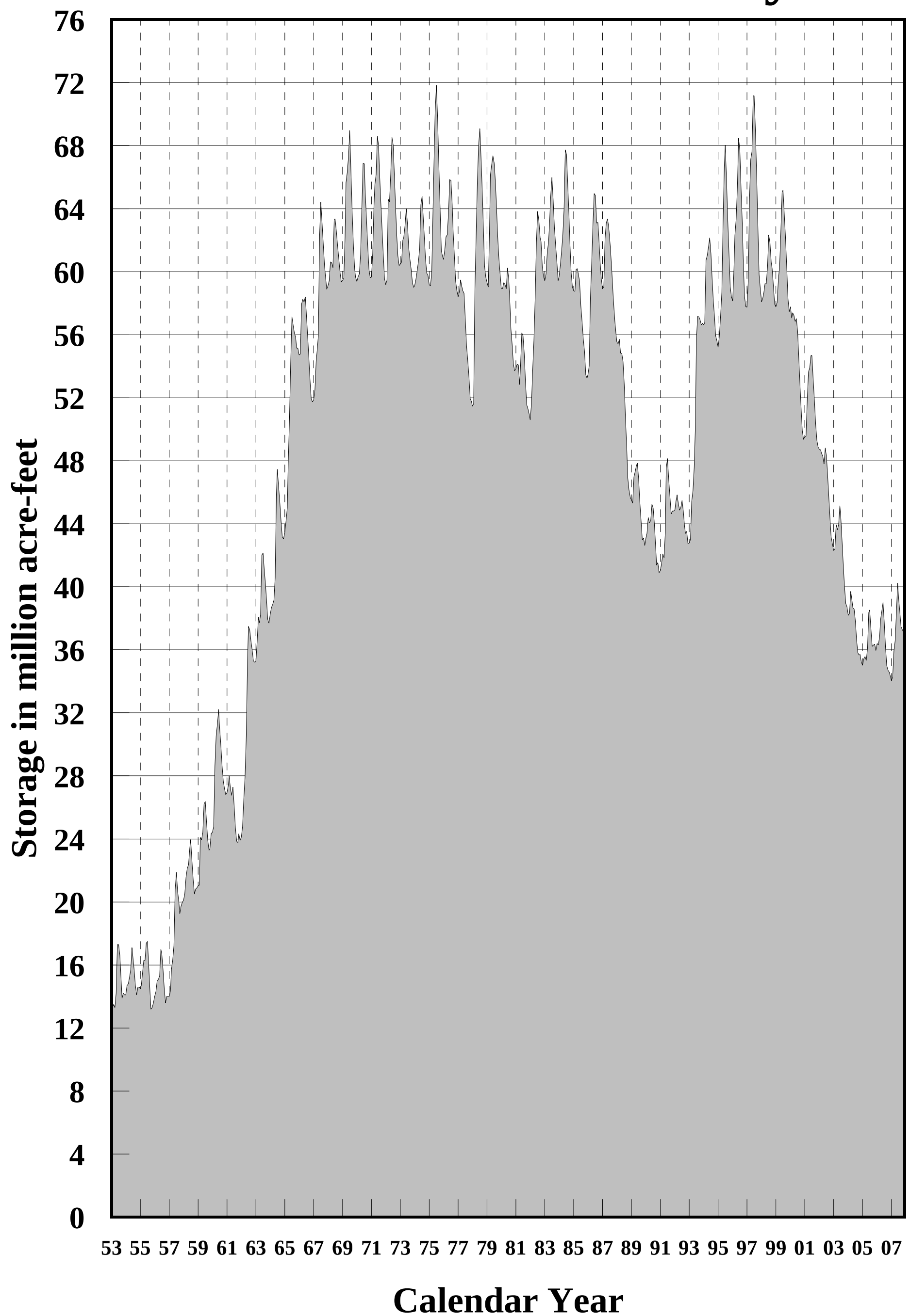
Average: 1967-2007

Oahe
2008-2009 Draft AOP



Average: 1967-2007

System Storage



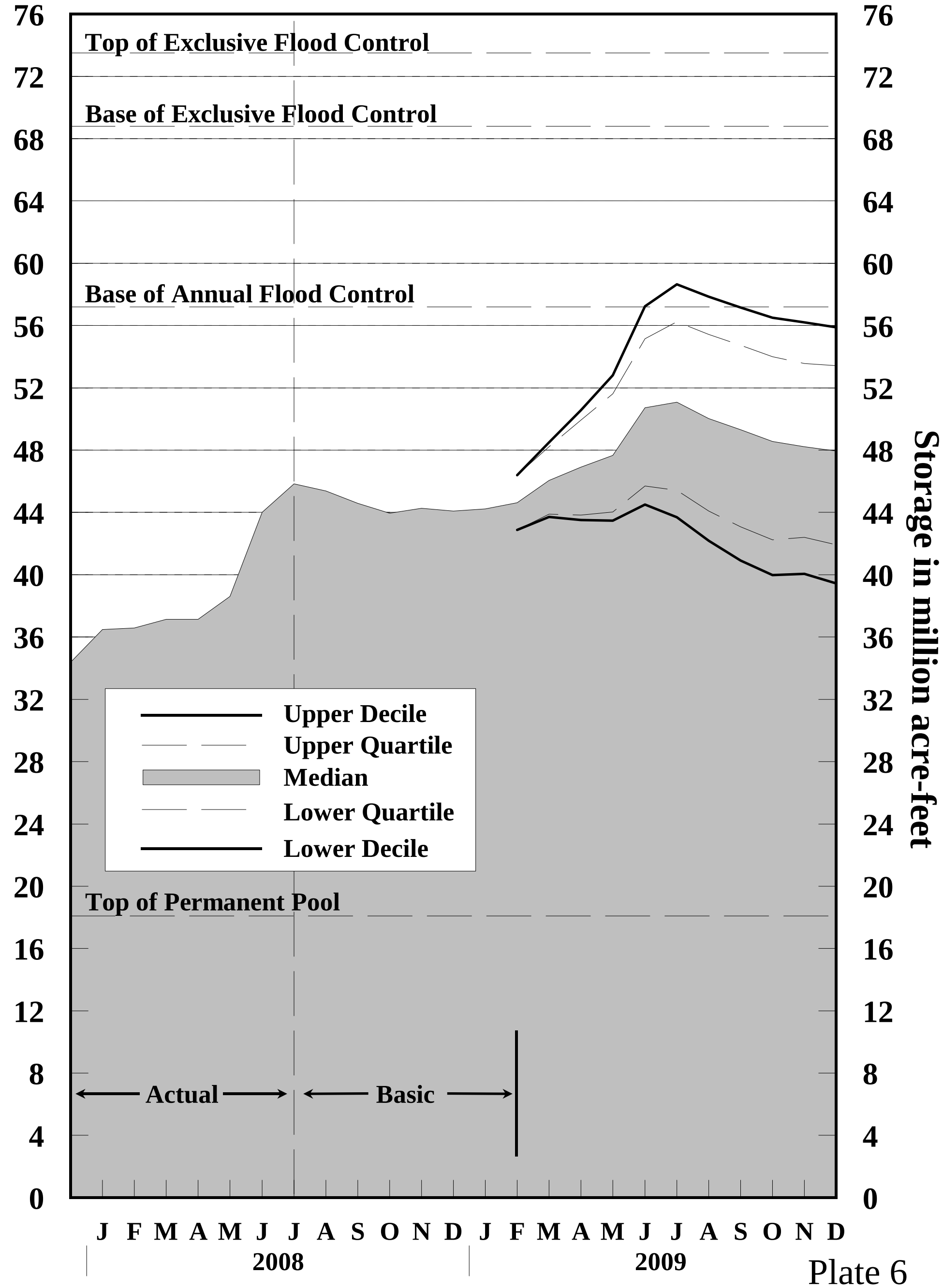
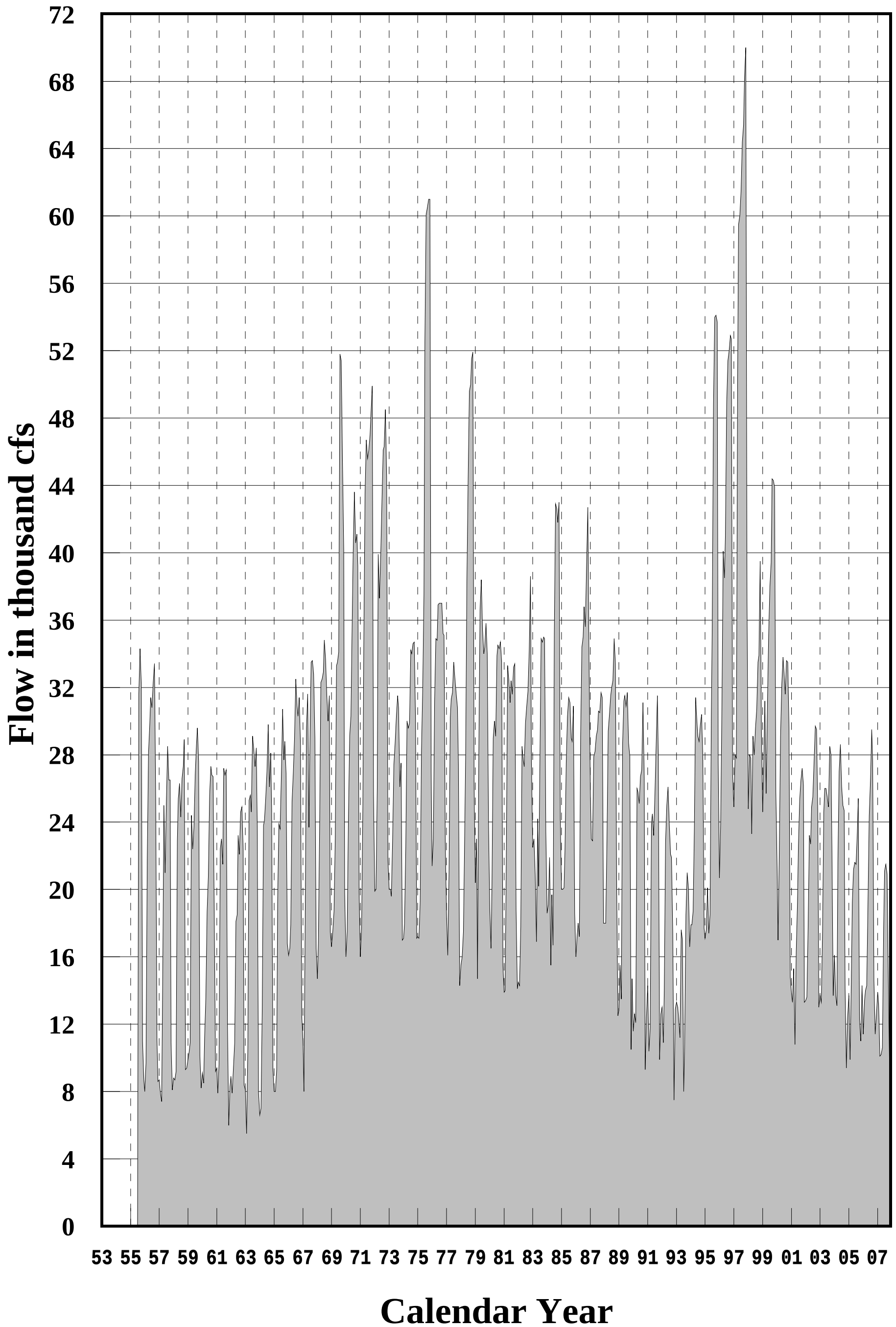


Plate 6

Gavins Point Releases



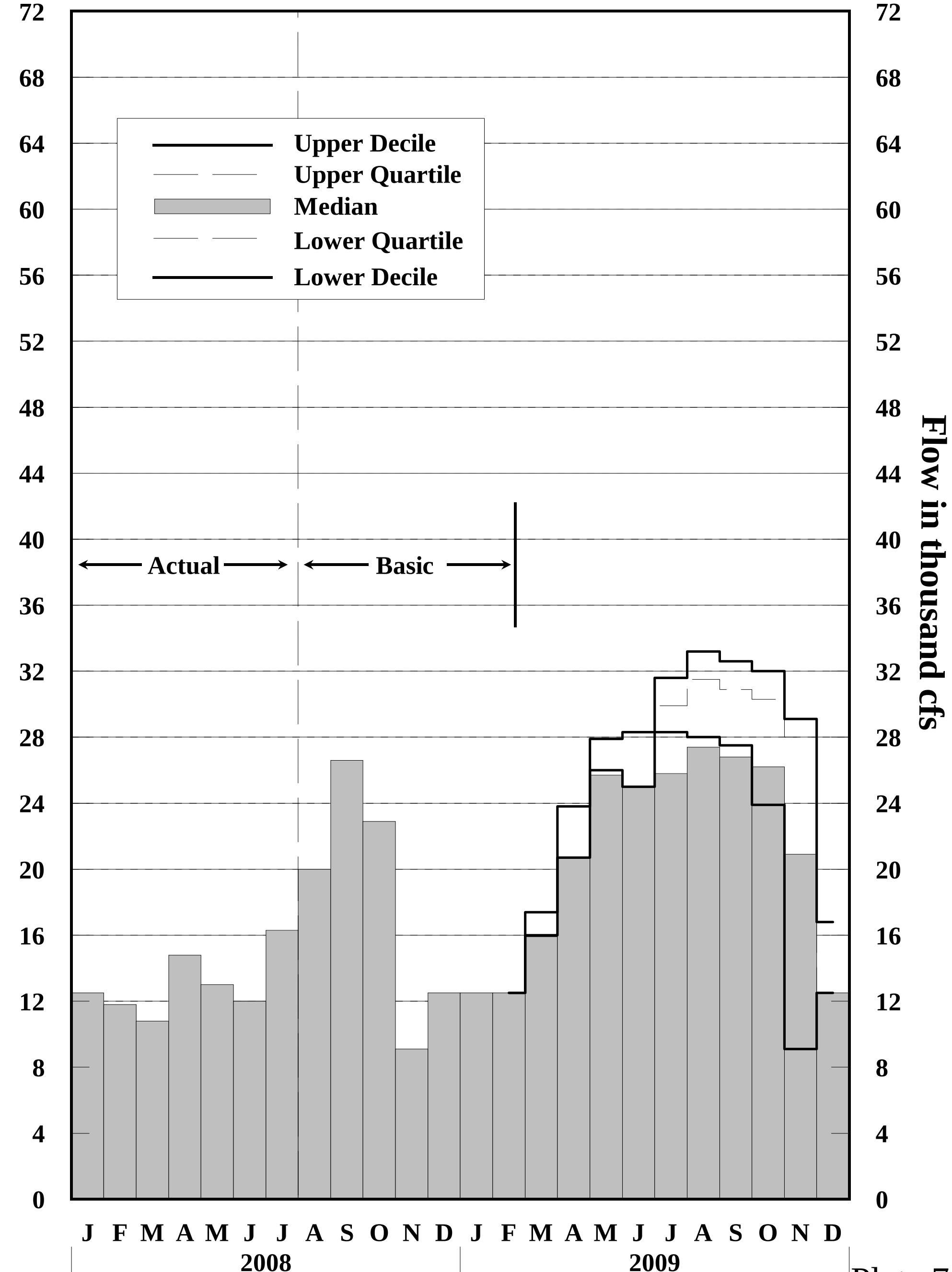
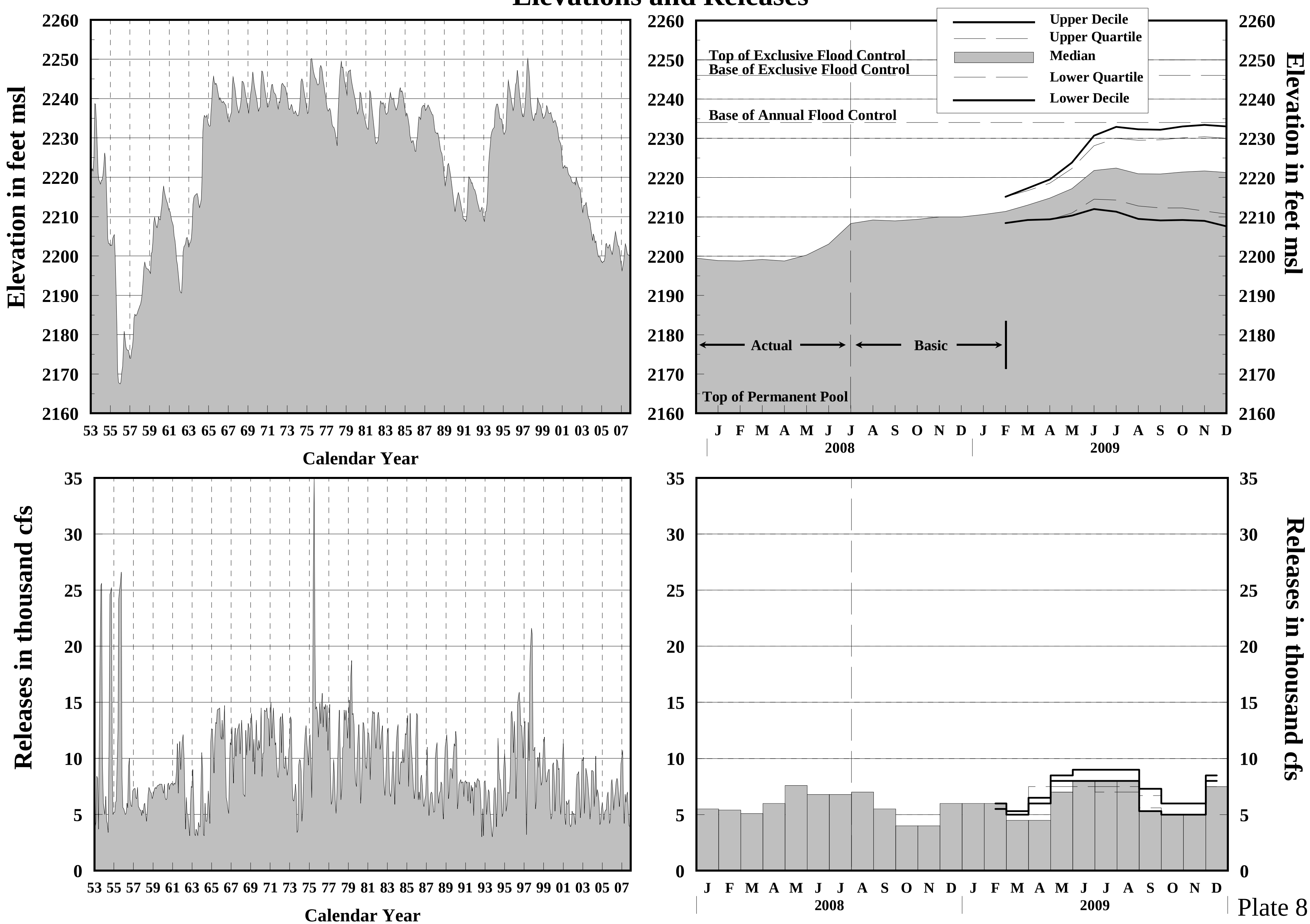


Plate 7

Fort Peck
Elevations and Releases



Garrison
Elevations and Releases

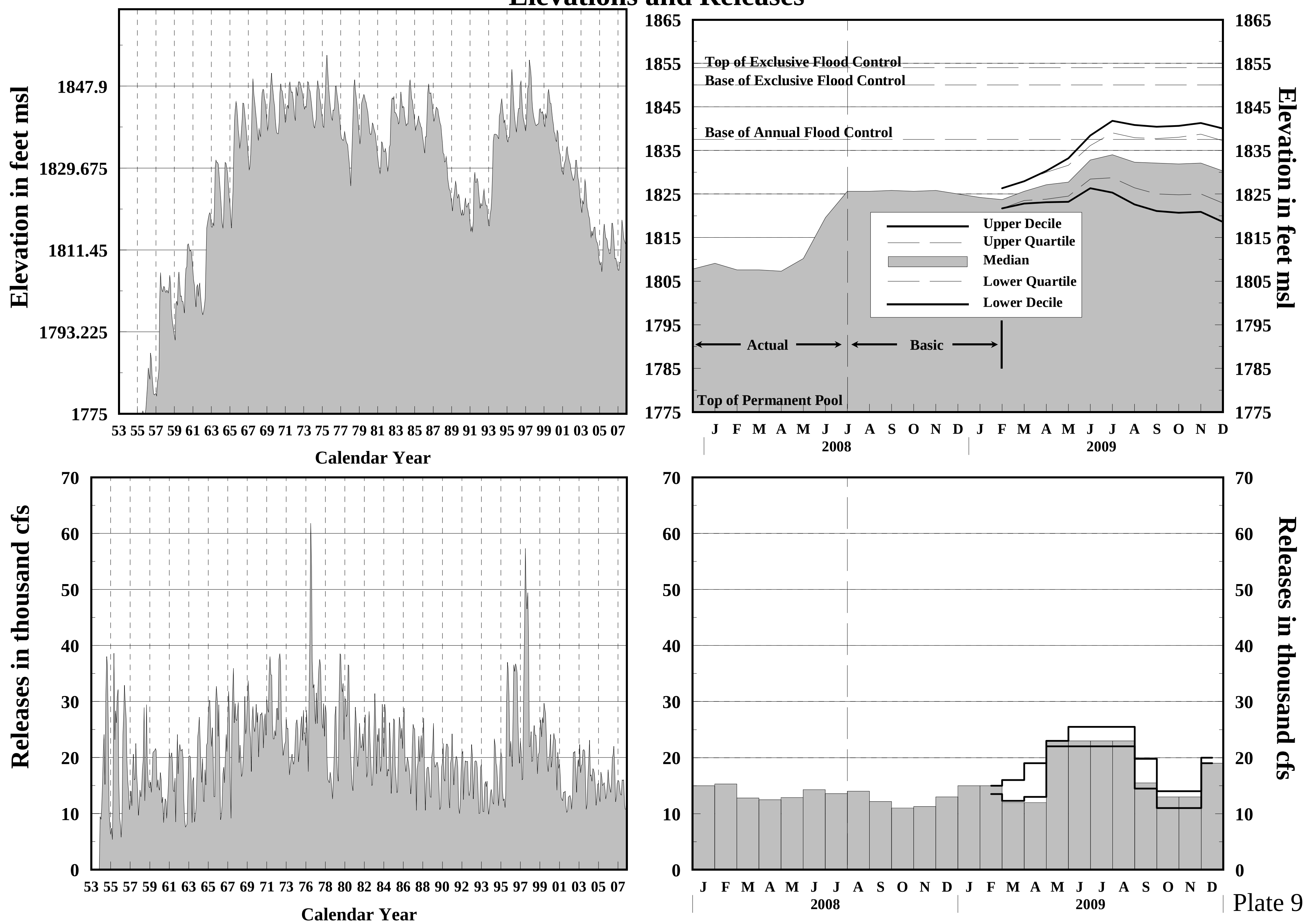


Plate 9

Oahe
Elevations and Releases

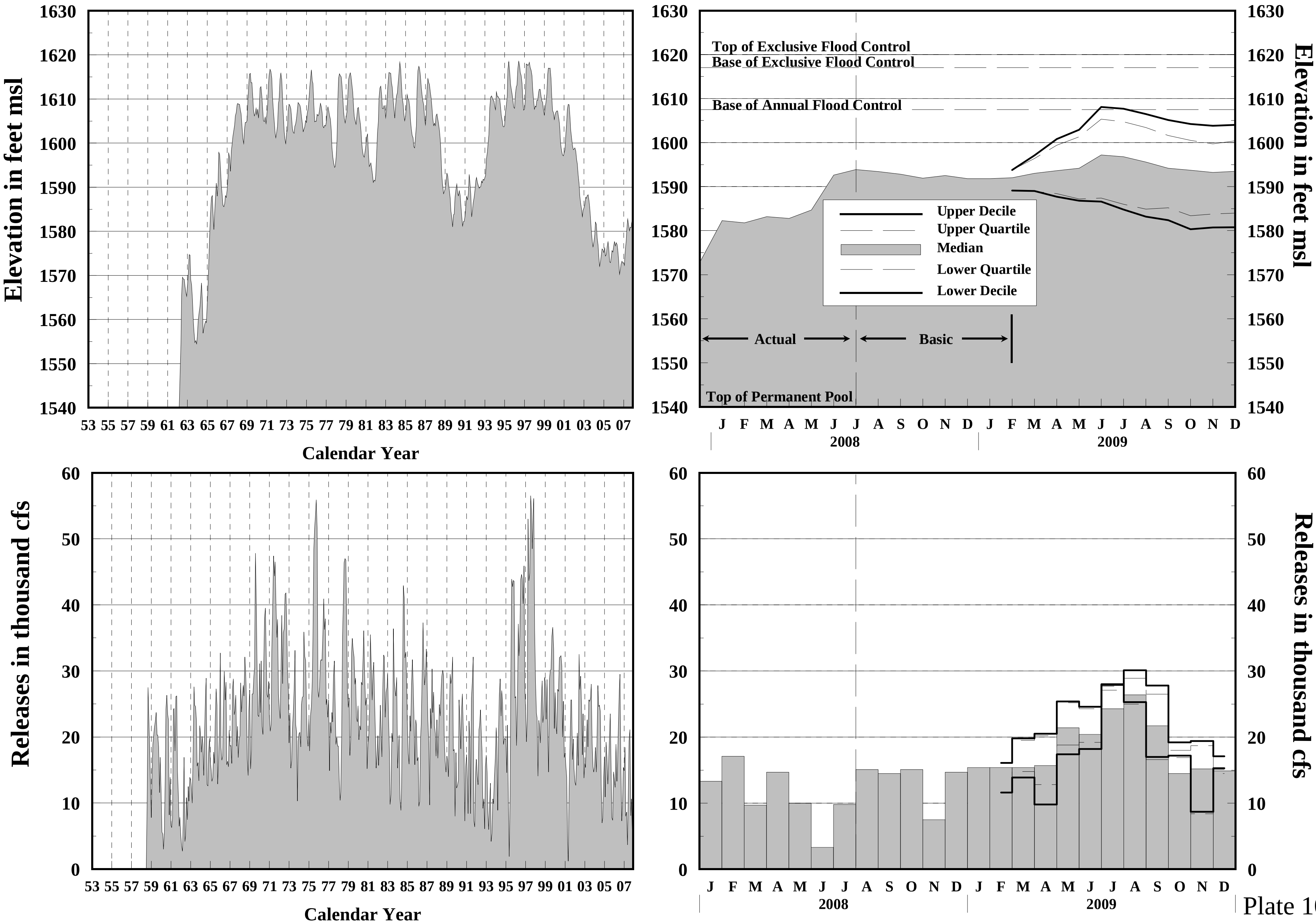


Plate 10

Fort Randall
Elevations and Releases

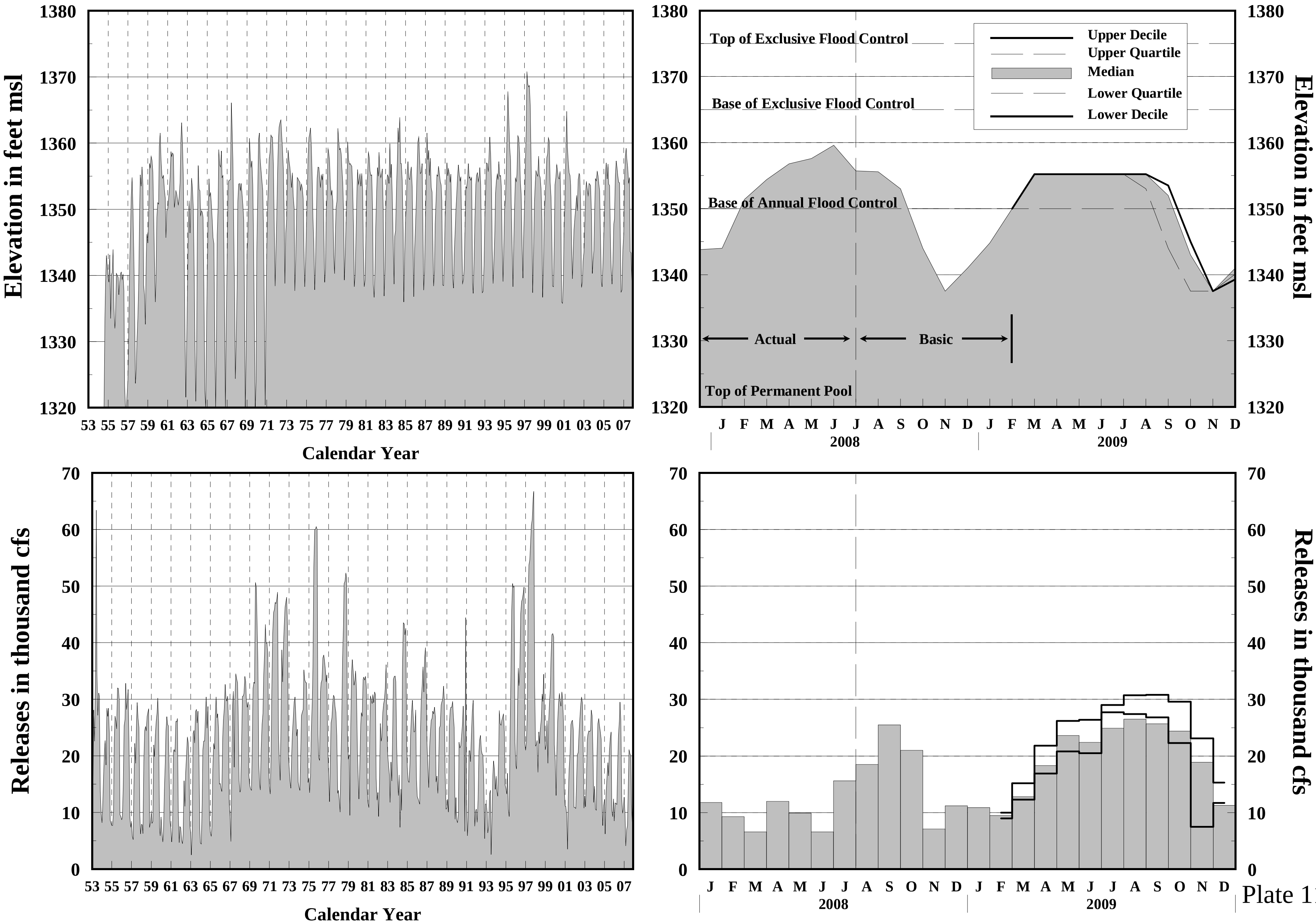
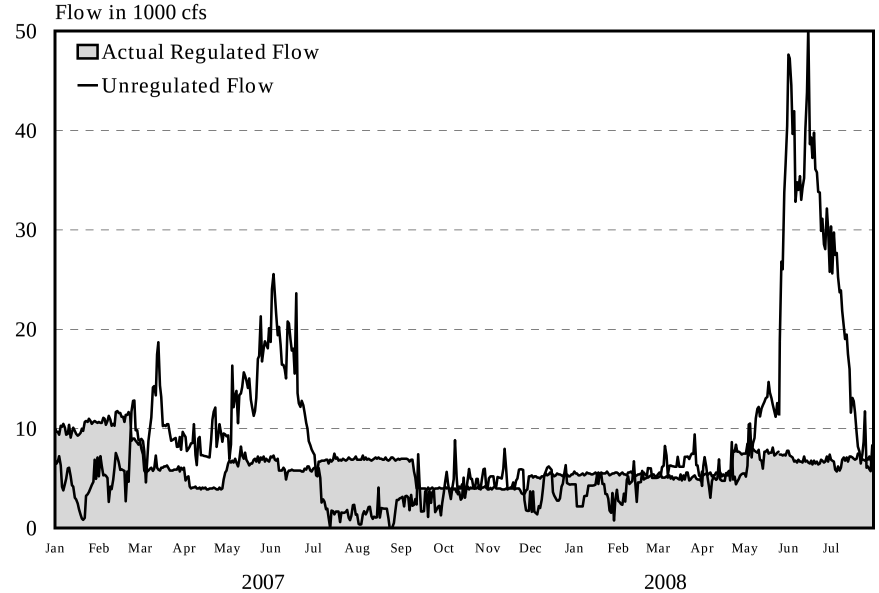


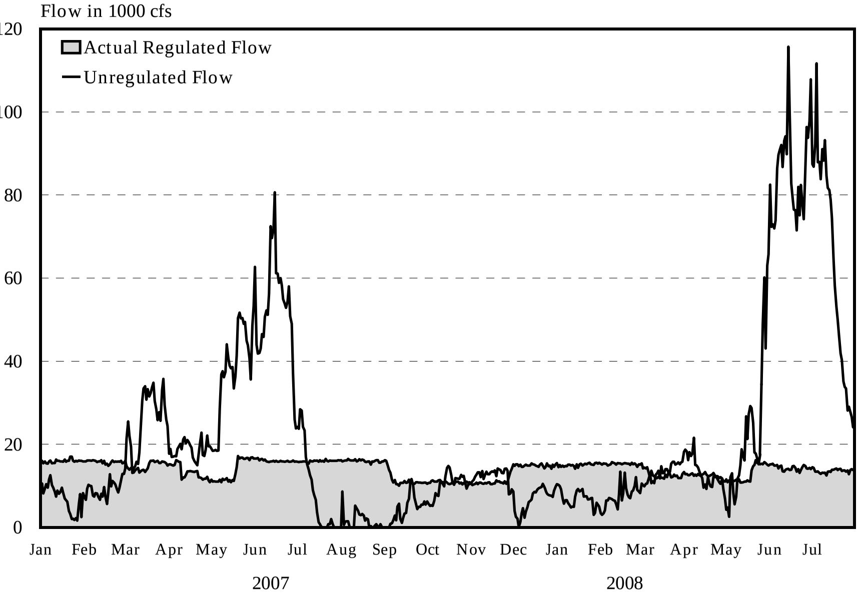
Plate 11

Reservoir Release and Unregulated Flow

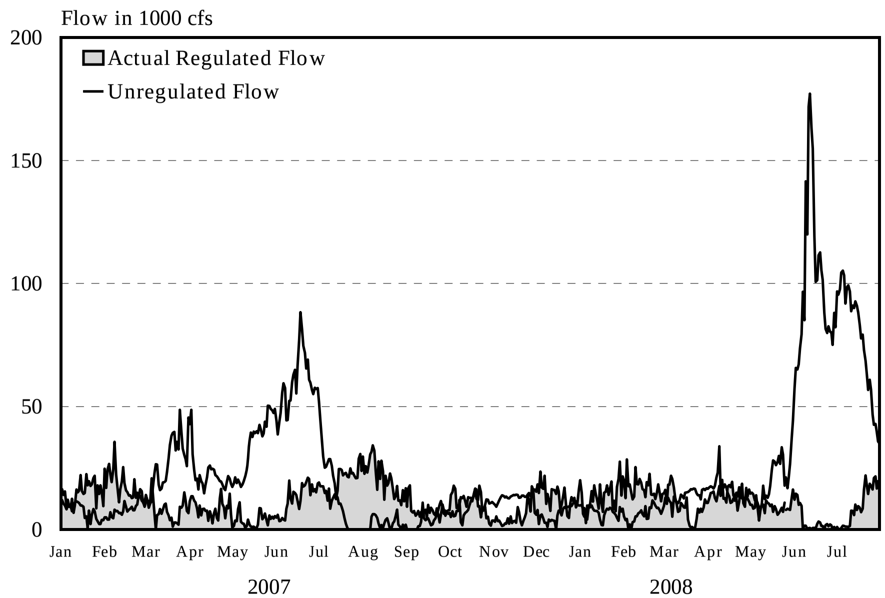
Fort Peck



Garrison



Oahe



Gavins Point

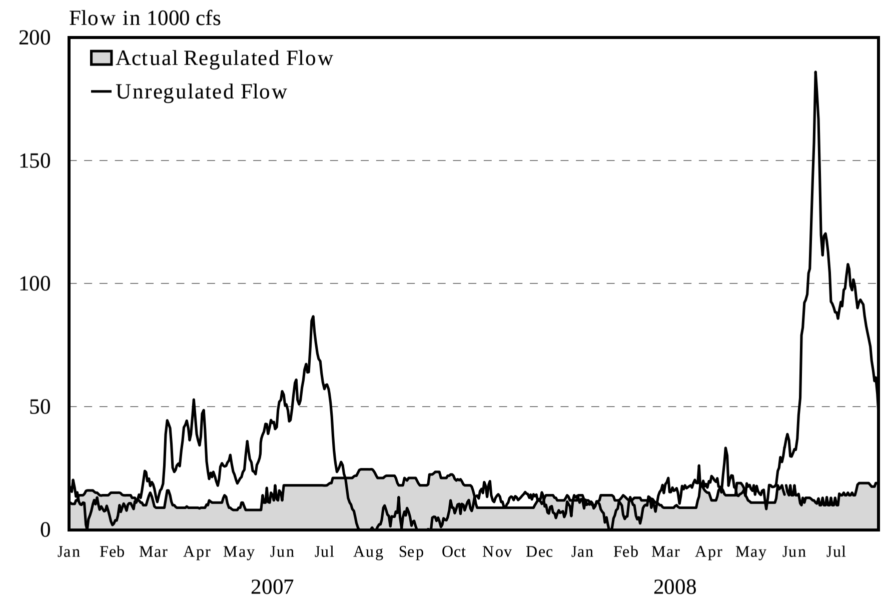


Plate 12

System Gross Capability and Average Monthly Generation

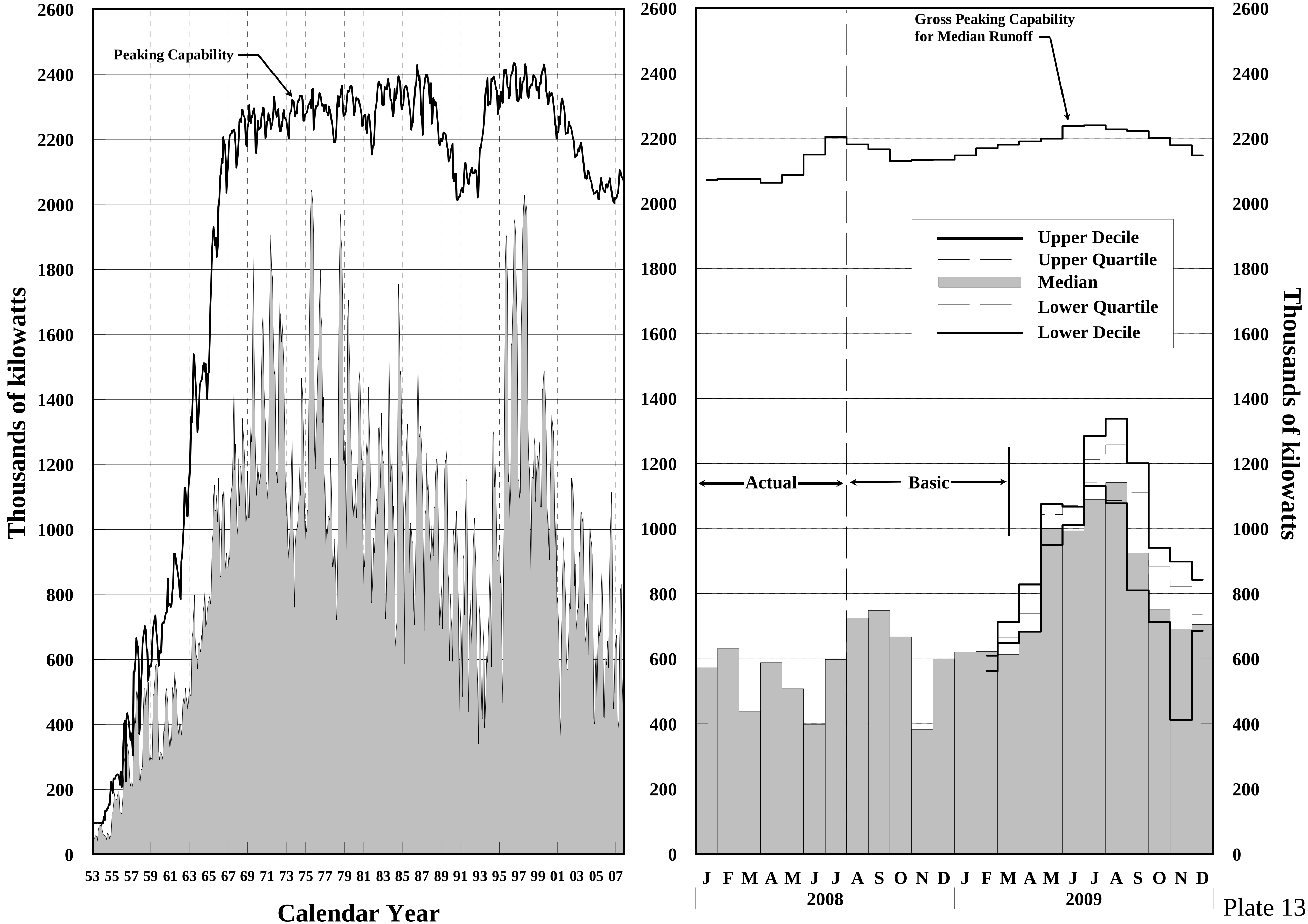
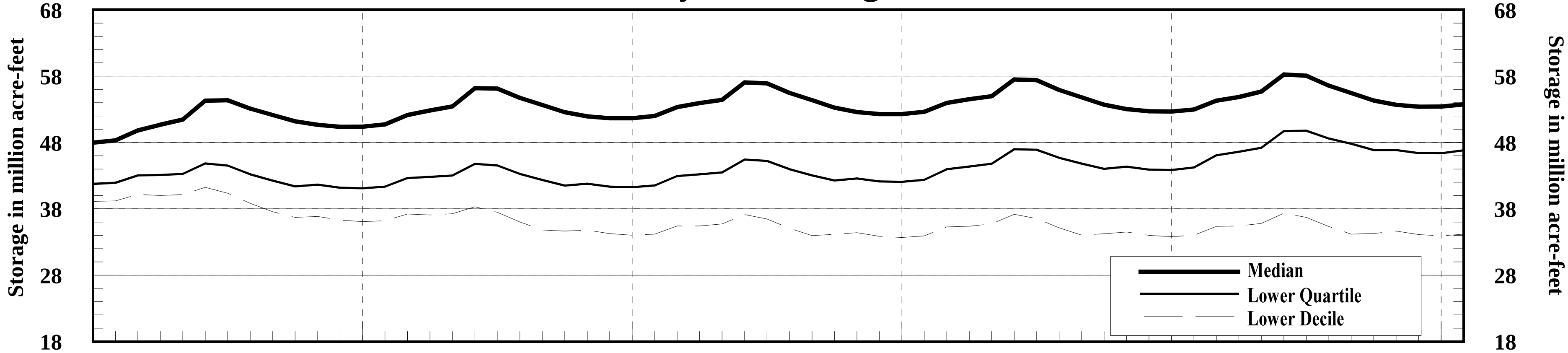


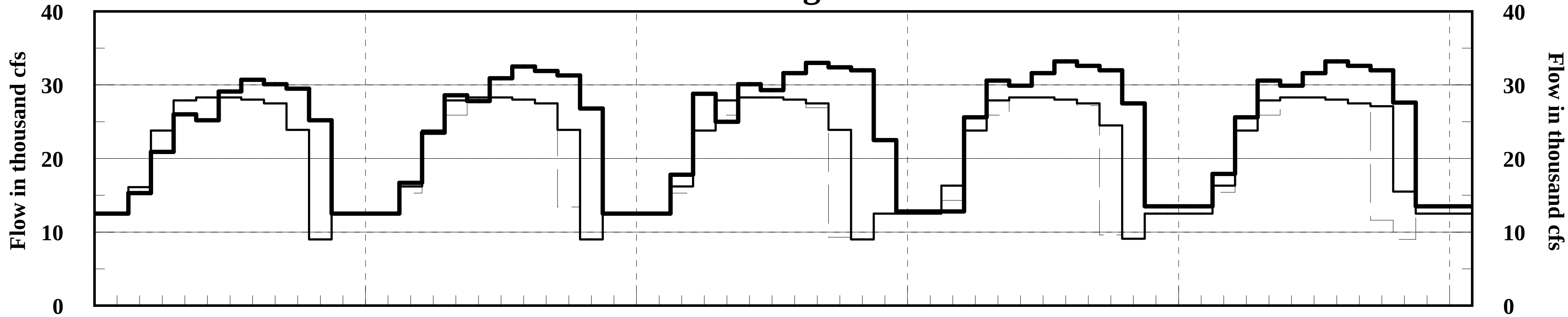
Plate 13

Tentative Five Year Extensions of 2008-2009 AOP

System Storage



Gavins Point Regulated Flows



Peaking Capability

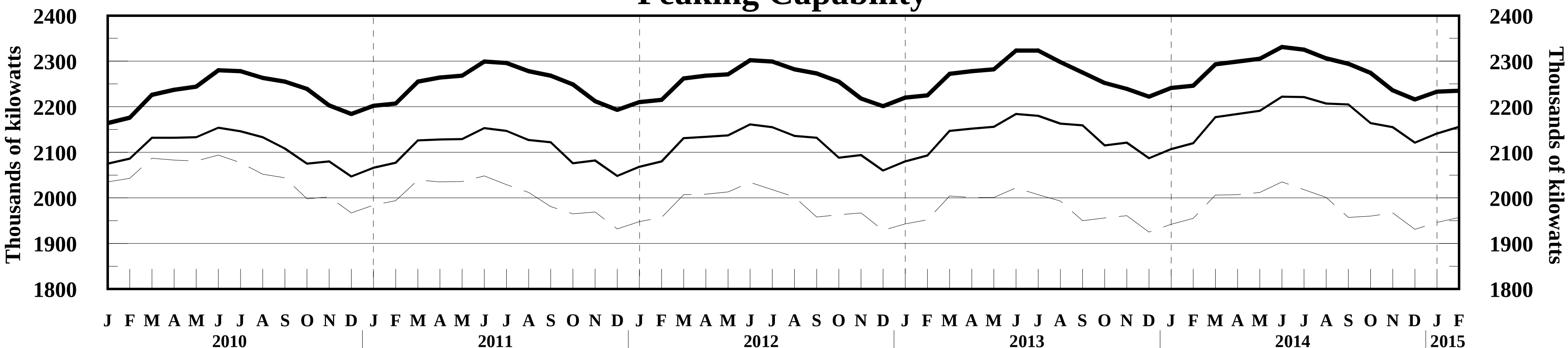


Plate 14

Tentative Five Year Extensions of 2008-2009 AOP

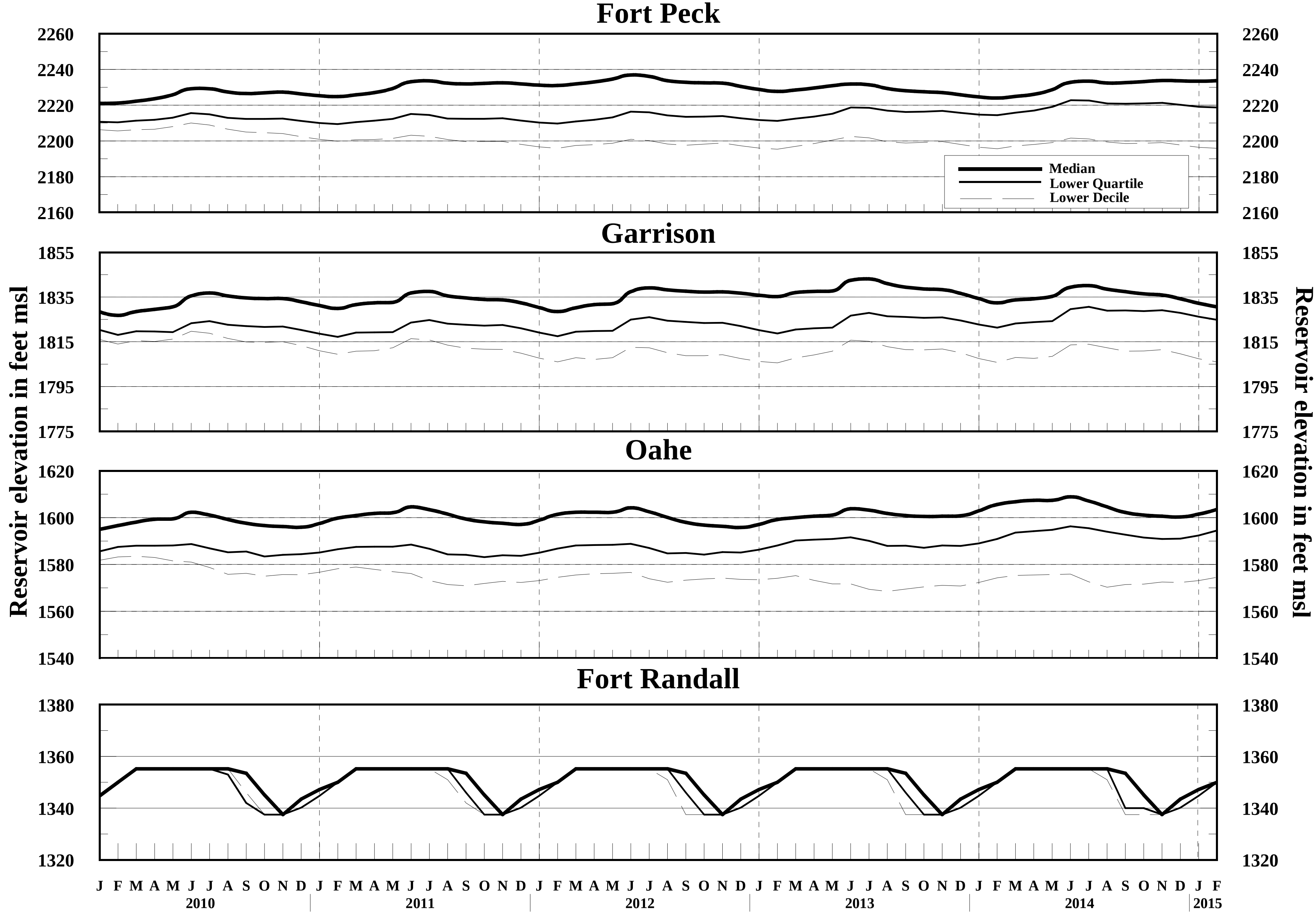
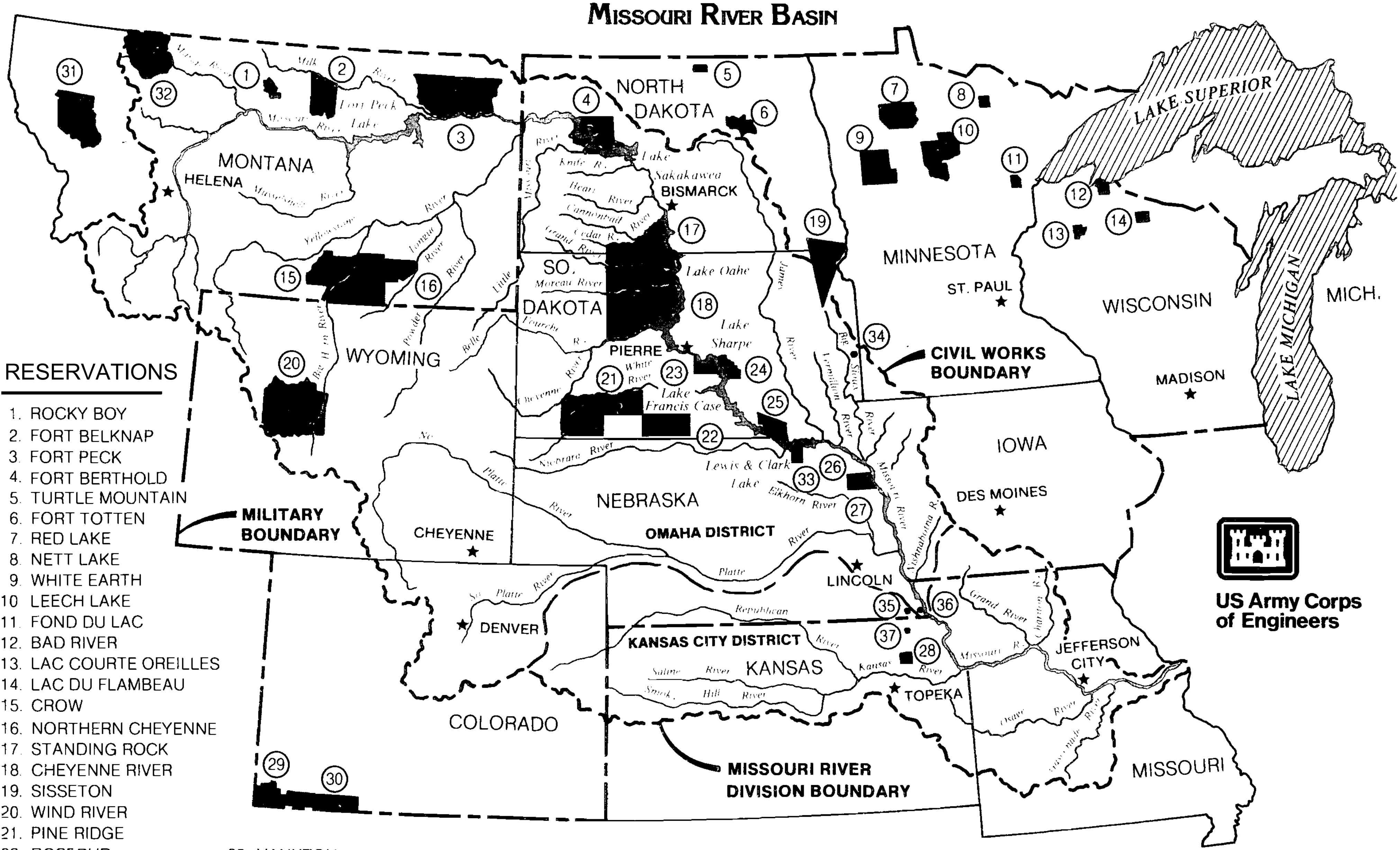


Plate 15

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.

Plate 16

VALUES IN 1000 AF EXCEPT AS INDICATED

31JUl08 2008 2009

	INI-SUM	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--										
NAT INFLOW	2260	360	290	330	160	75	85	280	315	365
DEPLETION	-614	-1	-87	-57	-39	-18	-21	-131	-154	-107
EVAPORATION	329	67	84	73	33	16	18	39		
MOD INFLOW	2545	294	293	314	165	77	88	372	469	472
RELEASE	2313	430	327	246	119	56	63	369	369	333
STOR CHANGE	233	-136	-34	68	46	22	25	3	100	139
STORAGE	10568	10432	10398	10466	10512	10534	10558	10562	10662	10801
ELEV FTMSL	2210.0	2209.2	2209.0	2209.4	2209.7	2209.8	2210.0	2210.0	2210.6	2211.4
DISCH KCFS	6.8	7.0	5.5	4.0	4.0	4.0	4.0	6.0	6.0	6.0
POWER										
AVE POWER MW		86	68	49	50	50	50	74	74	75
PEAK POW MW		138	138	138	139	139	139	139	140	141
ENERGY GWH	346.4	64.3	48.8	36.8	17.8	8.3	9.5	55.3	55.4	50.2
--GARRISON--										
NAT INFLOW	2615	625	390	430	170	79	91	210	260	360
DEPLETION	-463	60	-135	-19	-96	-45	-51	-83	-63	-32
CHAN STOR	8	-2	16	16				-21		
EVAPORATION	405	82	103	90	41	19	22	47		
REG INFLOW	4994	912	765	620	344	160	183	594	692	725
RELEASE	5443	861	726	676	312	146	167	799	922	833
STOR CHANGE	-448	51	39	-56	31	15	17	-206	-230	-108
STORAGE	14677	14728	14766	14710	14741	14756	14772	14567	14337	14229
ELEV FTMSL	1825.4	1825.6	1825.8	1825.6	1825.7	1825.7	1825.8	1825.0	1824.2	1823.7
DISCH KCFS	13.6	14.0	12.2	11.0	10.5	10.5	10.5	13.0	15.0	15.0
POWER										
AVE POWER MW		162	141	127	122	122	122	150	172	171
PEAK POW MW		425	425	424	425	425	425	422	419	418
ENERGY GWH	758.5	120.2	101.6	94.7	43.7	20.4	23.4	111.6	127.9	115.0
--OAHE--										
NAT INFLOW	450	100	115	70	33	15	17		10	90
DEPLETION	192	103	26	-8	2	1	1	15	20	32
CHAN STOR	-7	-2	8	6	2			-12	-9	
EVAPORATION	388	79	100	86	39	18	21	45		
REG INFLOW	5306	777	724	674	306	142	162	728	903	891
RELEASE	5824	930	862	926	211	109	123	906	903	855
STOR CHANGE	-518	-153	-139	-252	96	33	39	-178	0	36
STORAGE	15006	14853	14714	14462	14558	14591	14630	14452	14452	14488
ELEV FTMSL	1594.0	1593.4	1592.8	1591.9	1592.2	1592.4	1592.5	1591.8	1591.8	1592.0
DISCH KCFS	9.8	15.1	14.5	15.1	7.1	7.8	7.7	14.7	14.7	15.4
POWER										
AVE POWER MW		181	173	179	84	93	92	175	174	183
PEAK POW MW		635	633	628	630	630	631	628	628	628
ENERGY GWH	840.0	134.9	124.8	133.4	30.4	15.7	17.7	130.4	129.8	122.8
--BIG BEND--										
EVAPORATION	97	20	25	22	10	5	5	11		
REG INFLOW	5727	910	838	904	201	104	117	895	903	855
RELEASE	5737	920	838	904	201	104	117	895	903	855
STORAGE	1631	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.2	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	9.3	15.0	14.1	14.7	6.8	7.5	7.4	14.5	14.7	15.4
POWER										
AVE POWER MW		71	70	74	34	38	38	73	72	74
PEAK POW MW		518	538	538	538	538	538	538	538	529
ENERGY GWH	341.5	52.6	50.1	55.2	12.3	6.4	7.2	54.3	53.8	49.6
--FORT RANDALL--										
NAT INFLOW	180	40	40	10	5	2	3	10	20	50
DEPLETION	34	15	7	1	1	0	1	3	3	3
EVAPORATION	99	25	28	20	8	4	4	10		
REG INFLOW	5785	920	843	894	198	102	115	892	920	902
RELEASE	6245	1138	1516	1289	198	102	115	689	670	528
STOR CHANGE	-460	-218	-673	-395	0	0	0	203	250	374
STORAGE	3583	3365	2692	2296	2296	2296	2296	2499	2749	3123
ELEV FTMSL	1355.6	1353.0	1344.0	1337.5	1337.5	1337.5	1337.5	1341.0	1344.8	1350.0
DISCH KCFS	15.6	18.5	25.5	21.0	6.6	7.4	7.3	11.2	10.9	9.5
POWER										
AVE POWER MW		156	203	157	49	54	53	83	84	76
PEAK POW MW		349	314	285	285	285	285	301	319	339
ENERGY GWH	590.9	115.9	146.4	116.5	17.6	9.1	10.2	61.9	62.3	51.0
--GAVINS POINT--										
NAT INFLOW	790	115	110	120	60	28	32	100	100	125
DEPLETION	27	10	-5	1	5	2	3	10	1	
CHAN STOR	11	-6	-13	8	27	-1	0	-7	1	3
EVAPORATION	36	7	9	8	4	2	2	4		
REG INFLOW	6983	1231	1609	1408	276	125	143	767	770	655
RELEASE	6995	1230	1583	1408	276	125	143	767	770	694
STOR CHANGE	-12	1	26							-39
STORAGE	370	371	397	397	397	397	397	397	397	358
ELEV FTMSL	1206.5	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	16.3	20.0	26.6	22.9	9.3	9.0	9.0	12.5	12.5	12.5
POWER										
AVE POWER MW		70	92	81	33	32	32	44	44	44
PEAK POW MW		115	117	117	117	117	117	117	117	114
ENERGY GWH	297.4	51.8	66.6	59.9	11.9	5.4	6.2	33.0	33.1	29.6
--GAVINS POINT - SIOUX CITY--										
NAT INFLOW	560	150	95	75	38	18	20	45	35	85
DEPLETION	118	35	23	10	6	3	3	12	13	14
REGULATED FLOW AT SIOUX CITY										
KAF	7437	1345	1655	1473	308	140	160	800	792	765
KCFS		21.9	27.8	24.0	10.3	10.1	10.1	13.0	12.9	13.8
--TOTAL--										
NAT INFLOW	6855	1390	1040	1035	465	217	248	645	740	1075
DEPLETION	-706	222	-171	-72	-121	-56	-64	-174	-180	-90
CHAN STOR	14	-9	11	30	30	-1	0	-40	-9	3
EVAPORATION	1353	279	348	300	135	63	72	156		
STORAGE	45835	45370	44589	43952	44125	44194	44275	44098	44217	44620
SYSTEM POWER										
AVE POWER MW		725	748	667	372	389	387	600	621	622
PEAK POW MW		2181	2165	2130	2133	2134	2135	2145	2160	2169
ENERGY GWH	3174.7	539.7	538.3	496.5	133.8	65.3	74.2	446.4	462.1	418.3
DAILY GWH		17.4	17.9	16.0	8.9	9.3	9.3	14.4	14.9	14.9
	INI-SUM	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

VALUES IN 1000 AF EXCEPT AS INDICATED

31JUL08	INI-SUM	2008 31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	2009 31JAN	28FEB
--FORT PECK--										
NAT INFLOW	2712	432	348	396	192	90	102	336	378	438
DEPLETION	-688	-5	-112	-56	-39	-18	-21	-153	-172	-112
EVAPORATION	225	50	63	56	13	6	7	30		
MOD INFLOW	3175	387	397	396	218	102	116	459	550	550
RELEASE	2313	430	327	246	119	56	63	369	369	333
STOR CHANGE	862	-44	69	150	99	46	53	91	181	217
STORAGE	10568	10524	10594	10744	10843	10889	10942	11032	11213	11430
ELEV FTMSL	2210.0	2209.7	2210.2	2211.1	2211.7	2211.9	2212.3	2212.8	2213.9	2215.1
DISCH KCFS	6.8	7.0	5.5	4.0	4.0	4.0	4.0	6.0	6.0	6.0
POWER										
AVE POWER MW		87	68	50	50	50	50	75	76	76
PEAK POW MW		139	139	140	141	141	142	142	144	145
ENERGY GWH	349.7	64.4	49.0	37.0	18.0	8.4	9.6	56.0	56.2	51.0
--GARRISON--										
NAT INFLOW	3138	750	468	516	204	95	109	252	312	432
DEPLETION	-486	66	-125		-103	-48	-55	-100	-82	-39
CHAN STOR	8	-2	16	16				-21		
EVAPORATION	279	62	79	69	16	8	9	36		
REG INFLOW	5666	1051	857	709	410	191	218	664	763	804
RELEASE	5443	861	726	676	312	146	167	799	922	833
STOR CHANGE	224	190	131	32	97	45	52	-136	-159	-29
STORAGE	14677	14867	14998	15030	15127	15173	15224	15089	14929	14901
ELEV FTMSL	1825.4	1826.2	1826.7	1826.8	1827.1	1827.3	1827.5	1827.0	1826.4	1826.3
DISCH KCFS	13.6	14.0	12.2	11.0	10.5	10.5	10.5	13.0	15.0	15.0
POWER										
AVE POWER MW		162	142	128	123	123	123	152	174	174
PEAK POW MW		427	428	429	430	431	431	430	427	427
ENERGY GWH	765.7	120.4	102.1	95.4	44.1	20.6	23.6	112.9	129.7	116.9
--OAHE--										
NAT INFLOW	540	120	138	84	39	18	21		12	108
DEPLETION	192	103	26	-8	2	1	1	15	20	32
CHAN STOR	-6	-2	8	6	2			-11	-9	
EVAPORATION	267	60	75	66	16	7	8	35		
REG INFLOW	5517	816	771	708	336	156	178	738	905	909
RELEASE	5559	885	875	830	185	97	109	1043	888	647
STOR CHANGE	-41	-69	-105	-122	151	59	69	-305	17	262
STORAGE	15006	14937	14832	14710	14862	14921	14990	14685	14702	14965
ELEV FTMSL	1594.0	1593.7	1593.3	1592.8	1593.4	1593.7	1593.9	1592.7	1592.8	1593.8
DISCH KCFS	9.8	14.4	14.7	13.5	6.2	7.0	6.9	17.0	14.4	11.6
POWER										
AVE POWER MW		173	176	161	75	84	83	203	172	140
PEAK POW MW		637	635	633	636	637	638	632	632	638
ENERGY GWH	805.6	128.6	127.0	120.2	26.8	14.1	15.9	151.1	128.2	93.8
--BIG BEND--										
EVAPORATION	66	15	19	16	4	2	2	9		
REG INFLOW	5493	870	857	814	181	95	107	1035	888	647
RELEASE	5503	880	857	814	181	95	107	1035	888	647
STORAGE	1631	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.2	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	9.3	14.3	14.4	13.2	6.1	6.8	6.7	16.8	14.4	11.6
POWER										
AVE POWER MW		68	71	67	31	35	34	83	70	56
PEAK POW MW		518	538	538	538	538	538	538	538	529
ENERGY GWH	326.4	50.3	51.0	49.7	11.1	5.8	6.6	61.9	52.4	37.6
--FORT RANDALL--										
NAT INFLOW	216	48	48	12	6	3	3	12	24	60
DEPLETION	34	15	7	1	1	0	1	3	3	3
EVAPORATION	69	19	21	15	3	1	2	8		
REG INFLOW	5617	895	877	810	183	96	108	1036	909	704
RELEASE	6076	1113	1492	1263	183	96	108	670	652	500
STOR CHANGE	-460	-218	-615	-453	0	0	0	366	257	204
STORAGE	3583	3365	2750	2297	2297	2296	2296	2662	2919	3123
ELEV FTMSL	1355.6	1353.0	1344.8	1337.5	1337.5	1337.5	1337.5	1343.5	1347.2	1350.0
DISCH KCFS	15.6	18.1	25.1	20.5	6.2	6.9	6.8	10.9	10.6	9.0
POWER										
AVE POWER MW		152	201	154	45	51	50	82	83	73
PEAK POW MW		349	318	285	285	285	285	313	330	339
ENERGY GWH	578.7	113.3	144.6	114.6	16.3	8.5	9.6	60.9	61.9	48.9
--GAVINS POINT--										
NAT INFLOW	948	138	132	144	72	34	38	120	120	150
DEPLETION	27	10	-5	1	5	2	3	10	1	
CHAN STOR	12	-5	-13	8	27	-1	0	-8	1	3
EVAPORATION	24	5	7	6	1	1	1	3		
REG INFLOW	6985	1231	1609	1408	276	125	143	769	771	653
RELEASE	6997	1230	1583	1408	276	125	143	769	771	692
STOR CHANGE	-12	1	26							-39
STORAGE	370	371	397	397	397	397	397	397	397	358
ELEV FTMSL	1206.5	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	16.3	20.0	26.6	22.9	9.3	9.0	9.0	12.5	12.5	12.5
POWER										
AVE POWER MW		70	92	81	33	32	32	44	45	44
PEAK POW MW		115	117	117	117	117	117	117	117	114
ENERGY GWH	297.5	51.8	66.6	59.9	11.9	5.4	6.2	33.1	33.2	29.5
--GAVINS POINT - SIOUX CITY--										
NAT INFLOW	672	180	114	90	45	21	24	54	42	102
DEPLETION	118	35	23	10	6	3	3	12	13	14
REGULATED FLOW AT SIOUX CITY										
KAF	7551	1375	1674	1488	315	143	164	811	800	780
KCFS		22.4	28.1	24.2	10.6	10.3	10.3	13.2	13.0	14.0
--TOTAL--										
NAT INFLOW	8226	1668	1248	1242	558	260	298	774	888	1290
DEPLETION	-803	224	-186	-52	-129	-60	-69	-213	-217	-102
CHAN STOR	14	-9	11	29	30	-1	0	-40	-9	3
EVAPORATION	930	210	264	228	54	25	29	120		
STORAGE	45835	45685	45192	44800	45147	45297	45471	45486	45782	46398
SYSTEM POWER										
AVE POWER MW		711	750	641	356	374	372	640	620	562
PEAK POW MW		2185	2176	2141	2147	2149	2151	2172	2188	2192
ENERGY GWH	3123.6	528.9	540.3	476.8	128.3	62.8	71.4	475.9	461.5	377.7
DAILY GWH		17.1	18.0	15.4	8.6	9.0	8.9	15.4	14.9	13.5
	INI-SUM	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

TIME OF STUDY 09:14:30 SH NV SS 30 DAYS, Unbal FP -3.7 GR +2.2 OA +0.2 STUDY NO 3

VALUES IN 1000 AF EXCEPT AS INDICATED

31JUl08 2008 2009

	INI-SUM	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--										
NAT INFLOW	1808	288	232	264	128	60	68	224	252	292
DEPLETION	-552	-44	-110	-91	-28	-13	-15	-91	-94	-66
EVAPORATION	408	83	104	91	41	19	22	47		
MOD INFLOW	1952	249	238	264	115	54	61	268	346	358
RELEASE	2224	430	327	246	119	56	63	338	338	305
STOR CHANGE	-271	-181	-89	18	-4	-2	-2	-71	8	53
STORAGE	10568	10387	10297	10316	10311	10309	10307	10237	10244	10297
ELEV FTMSL	2210.0	2208.9	2208.4	2208.5	2208.4	2208.4	2208.4	2208.0	2208.0	2208.4
DISCH KCFS	6.8	7.0	5.5	4.0	4.0	4.0	4.0	5.5	5.5	5.5
POWER										
AVE POWER MW		86	68	49	49	49	49	68	67	68
PEAK POW MW		138	137	137	137	137	137	137	137	137
ENERGY GWH	330.9	64.3	48.7	36.6	17.7	8.3	9.5	50.2	50.2	45.4
--GARRISON--										
NAT INFLOW	2092	500	312	344	136	63	73	168	208	288
DEPLETION	-425	47	-130	1	-92	-43	-49	-72	-53	-35
CHAN STOR	14	-2	16	16				-16		0
EVAPORATION	503	103	129	112	50	24	27	58		
REG INFLOW	4251	779	656	492	296	138	158	504	599	628
RELEASE	5236	861	726	676	312	146	167	769	830	750
STOR CHANGE	-985	-82	-70	-184	-16	-8	-9	-264	-231	-121
STORAGE	14677	14595	14525	14341	14325	14317	14308	14044	13813	13692
ELEV FTMSL	1825.4	1825.1	1824.9	1824.2	1824.1	1824.1	1824.1	1823.0	1822.1	1821.7
DISCH KCFS	13.6	14.0	12.2	11.0	10.5	10.5	10.5	12.5	13.5	13.5
POWER										
AVE POWER MW		161	140	126	120	120	120	142	153	152
PEAK POW MW		423	422	419	419	419	419	415	412	410
ENERGY GWH	723.5	120.0	101.1	94.0	43.3	20.2	23.1	106.0	113.6	102.2
--OAHE--										
NAT INFLOW	360	80	92	56	26	12	14		8	72
DEPLETION	192	103	26	-8	2	1	1	15	20	32
CHAN STOR	0	-2	8	6	2			-9	-5	
EVAPORATION	483	100	124	107	48	23	26	56		
REG INFLOW	4922	736	676	639	291	134	154	689	813	790
RELEASE	6135	974	963	963	229	117	132	888	976	892
STOR CHANGE	-1213	-238	-287	-324	61	17	21	-199	-162	-103
STORAGE	15006	14768	14481	14157	14219	14236	14257	14058	13896	13793
ELEV FTMSL	1594.0	1593.1	1591.9	1590.6	1590.9	1590.9	1591.0	1590.2	1589.6	1589.1
DISCH KCFS	9.8	15.8	16.2	15.7	7.7	8.4	8.3	14.4	15.9	16.1
POWER										
AVE POWER MW		190	193	185	91	100	99	170	186	188
PEAK POW MW		634	628	622	623	623	624	620	616	614
ENERGY GWH	878.1	141.3	138.8	137.8	32.8	16.8	19.0	126.7	138.6	126.4
--BIG BEND--										
EVAPORATION	121	25	31	27	12	6	7	14		
REG INFLOW	6013	950	932	936	217	112	126	874	976	892
RELEASE	6023	960	932	936	217	112	126	873	976	892
STORAGE	1631	1621	1621	1621	1621	1621	1621	1621	1621	1621
ELEV FTMSL	1420.2	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0	1420.0
DISCH KCFS	9.3	15.6	15.7	15.2	7.3	8.0	7.9	14.2	15.9	16.1
POWER										
AVE POWER MW		74	77	77	37	41	40	72	78	77
PEAK POW MW		518	538	538	538	538	538	538	538	529
ENERGY GWH	358.6	54.8	55.7	57.1	13.3	6.8	7.7	53.3	58.1	51.8
--FORT RANDALL--										
NAT INFLOW	144	32	32	8	4	2	2	8	16	40
DEPLETION	34	15	7	1	1	0	1	3	3	3
EVAPORATION	123	31	35	25	10	5	5	12		
REG INFLOW	6011	946	922	918	211	108	122	866	989	929
RELEASE	6471	1164	1596	1313	211	108	122	713	689	555
STOR CHANGE	-460	-218	-673	-395	0	0	0	153	300	374
STORAGE	3583	3365	2692	2296	2296	2296	2296	2449	2749	3123
ELEV FTMSL	1355.6	1353.0	1344.0	1337.5	1337.5	1337.5	1337.5	1340.1	1344.8	1350.0
DISCH KCFS	15.6	18.9	26.8	21.4	7.1	7.8	7.7	11.6	11.2	10.0
POWER										
AVE POWER MW		159	214	160	52	57	56	86	86	80
PEAK POW MW		349	314	285	285	285	285	297	319	339
ENERGY GWH	611.5	118.5	153.9	118.7	18.7	9.6	10.8	63.8	63.7	53.7
--GAVINS POINT--										
NAT INFLOW	632	92	88	96	48	22	26	80	80	100
DEPLETION	27	10	-5	1	5	2	3	10	1	
CHAN STOR	10	-6	-15	10	26	-1	0	-7	1	2
EVAPORATION	45	9	11	10	5	2	2	5		
REG INFLOW	7041	1231	1662	1408	276	125	143	771	768	658
RELEASE	7053	1230	1636	1408	276	125	143	771	768	697
STOR CHANGE	-12	1	26							-39
STORAGE	370	371	397	397	397	397	397	397	397	358
ELEV FTMSL	1206.5	1206.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1207.5	1206.0
DISCH KCFS	16.3	20.0	27.5	22.9	9.3	9.0	9.0	12.5	12.5	12.5
POWER										
AVE POWER MW		70	95	81	33	32	32	45	44	44
PEAK POW MW		115	117	117	117	117	117	117	117	114
ENERGY GWH	299.8	51.8	68.7	59.9	11.9	5.4	6.2	33.1	33.0	29.7
--GAVINS POINT - SIOUX CITY--										
NAT INFLOW	448	120	76	60	30	14	16	36	28	68
DEPLETION	118	35	23	10	6	3	3	12	13	14
REGULATED FLOW AT SIOUX CITY										
KAF	7383	1315	1689	1458	300	136	156	795	783	751
KCFS		21.4	28.4	23.7	10.1	9.8	9.8	12.9	12.7	13.5
--TOTAL--										
NAT INFLOW	5484	1112	832	828	372	174	198	516	592	860
DEPLETION	-606	166	-189	-86	-106	-49	-57	-123	-110	-52
CHAN STOR	24	-10	9	31	30	-1	0	-32	-4	2
EVAPORATION	1682	349	434	372	167	78	89	193		
STORAGE	45835	45107	44013	43128	43169	43176	43187	42805	42720	42884
SYSTEM POWER										
AVE POWER MW		740	788	678	383	400	397	582	615	609
PEAK POW MW		2177	2156	2118	2119	2119	2120	2124	2139	2144
ENERGY GWH	3202.5	550.6	567.0	504.1	137.8	67.1	76.3	433.2	457.3	409.2
DAILY GWH		17.8	18.9	16.3	9.2	9.6	9.5	14.0	14.8	14.6
	INI-SUM	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

DATE OF STUDY 12/28/08 2008-2009 AOP UPPER DECILE RUNOFF SIMULATION 99001 9901 9901 PAGE 1

TIME OF STUDY 09:40:47 SHTN NAV SEAS 0 DAYS, SP MAR 5 MAY 16.0 STUDY NO 4

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB09	INI-SUM	2009 15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	2010 31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	9500	315	147	189	790	1590	2465	1205	450	375	525	208	97	111	345	295	395
DEPLETION	358	-34	-16	-20	47	280	594	197	-51	-114	-83	-30	-14	-16	-131	-155	-97
EVAPORATION	303							20	63	80	70	17	8	9	37		
MOD INFLOW	8839	348	163	209	743	1310	1871	988	438	409	538	220	103	117	439	450	492
RELEASE	5537	179	69	89	357	523	536	553	553	434	369	179	83	95	523	523	472
STOR CHANGE	3302	170	93	120	386	787	1335	435	-116	-25	169	42	19	22	-84	-73	20
STORAGE	11430	11600	11693	11813	12199	12986	14322	14756	14641	14616	14785	14826	14846	14868	14784	14712	14732
ELEV FTMSL	2215.1	2216.1	2216.6	2217.3	2219.5	2223.8	2230.7	2232.9	2232.3	2232.2	2233.0	2233.2	2233.3	2233.4	2233.0	2232.6	2232.7
DISCH KCFS	6.0	6.0	5.0	5.0	6.0	8.5	9.0	9.0	9.0	7.3	6.0	6.0	6.0	6.0	8.5	8.5	8.5
POWER																	
AVE POWER MW		76	64	64	77	111	120	122	122	99	82	82	82	82	116	115	115
PEAK POW MW		146	147	147	150	154	160	161	161	161	161	162	162	162	161	161	161
ENERGY GWH	898.3	27.5	10.7	13.8	55.7	82.6	86.4	90.6	90.8	71.3	60.7	29.4	13.7	15.7	86.0	85.9	77.5
--GARRISON--																	
NAT INFLOW	14000	528	246	316	1355	1840	3425	2715	835	570	645	258	120	137	270	325	415
DEPLETION	984	6	3	3	-83	82	899	579	70	-109		-106	-49	-56	-108	-94	-53
CHAN STOR	-26		10		-10	-26	-5			17	13				-24		0
EVAPORATION	360							23	76	95	83	20	9	11	44		
REG INFLOW	18167	700	323	402	1785	2255	3056	2666	1243	1035	944	522	243	278	833	942	940
RELEASE	15266	476	222	286	1131	1414	1517	1568	1568	1176	861	417	194	222	1230	1568	1416
STOR CHANGE	2901	224	101	117	654	841	1539	1098	-325	-141	83	105	49	56	-397	-626	-476
STORAGE	14901	15125	15226	15342	15996	16837	18376	19474	19149	19008	19091	19196	19245	19301	18904	18278	17802
ELEV FTMSL	1826.3	1827.1	1827.5	1827.9	1830.3	1833.2	1838.4	1841.8	1840.8	1840.4	1840.6	1840.9	1841.1	1841.3	1840.0	1838.0	1836.5
DISCH KCFS	15.0	16.0	16.0	16.0	19.0	23.0	25.5	25.5	25.5	19.8	14.0	14.0	14.0	14.0	20.0	25.5	25.5
POWER																	
AVE POWER MW		186	187	187	224	275	312	321	322	250	177	177	177	178	253	319	315
PEAK POW MW		430	431	433	442	453	471	484	480	478	479	480	481	481	477	470	464
ENERGY GWH	2284.3	66.9	31.3	40.4	161.1	204.6	225.0	238.6	239.9	179.8	131.8	63.8	29.8	34.1	188.1	237.2	211.9
--OAHE--																	
NAT INFLOW	3800	358	167	215	545	360	1265	215	110	150	95	108	50	57	-45	25	125
DEPLETION	652	23	11	14	48	69	138	164	109	27	-9	1	0	1	12	17	27
CHAN STOR	-46	-5			-13	-17	-10	0		23	23			0	-25	-23	
EVAPORATION	339							23	73	90	77	18	9	10	40		
REG INFLOW	18028	806	378	486	1614	1688	2634	1596	1496	1232	911	505	236	269	1108	1553	1514
RELEASE	14473	347	211	267	583	1069	1083	1724	1851	1656	1180	528	281	320	1050	1282	1042
STOR CHANGE	3555	459	167	220	1031	619	1551	-128	-355	-424	-269	-24	-45	-50	58	272	472
STORAGE	14965	15424	15592	15811	16843	17462	19013	18885	18530	18106	17837	17813	17768	17718	17776	18048	18520
ELEV FTMSL	1593.8	1595.6	1596.2	1597.1	1600.8	1602.9	1608.1	1607.7	1606.5	1605.1	1604.2	1604.1	1604.0	1603.8	1604.0	1604.9	1606.5
DISCH KCFS	11.6	11.7	15.2	14.9	9.8	17.4	18.2	28.0	30.1	27.8	19.2	17.8	20.2	20.1	17.1	20.8	18.8
POWER																	
AVE POWER MW		141	184	182	121	218	233	362	387	355	244	226	256	255	217	265	240
PEAK POW MW		646	649	653	673	684	711	709	703	695	690	690	689	688	689	694	702
ENERGY GWH	2225.6	50.7	31.0	39.3	87.3	162.3	167.6	269.2	287.8	255.8	181.7	81.2	43.1	49.0	161.1	197.0	161.4
--BIG BEND--																	
EVAPORATION	71							5	15	19	16	4	2	2	9		
REG INFLOW	14403	347	211	267	583	1069	1083	1719	1837	1637	1164	525	279	317	1041	1282	1042
RELEASE	14403	347	211	267	583	1069	1083	1719	1837	1637	1164	525	279	317	1041	1282	1042
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	11.6	11.7	15.2	14.9	9.8	17.4	18.2	28.0	29.9	27.5	18.9	17.6	20.1	20.0	16.9	20.8	18.8
POWER																	
AVE POWER MW		55	71	70	46	81	85	131	140	130	93	89	101	100	85	102	90
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	834.5	19.9	11.9	15.1	33.0	60.6	61.4	97.3	104.0	93.9	69.1	31.9	16.9	19.3	63.4	76.1	60.5
--FORT RANDALL--																	
NAT INFLOW	1500	148	69	89	425	220	150	90	85	80	30	20	9	11	15		60
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	81							6	19	24	18	4	2	2	7		
REG INFLOW	15743	493	279	354	1005	1280	1221	1785	1888	1687	1174	540	286	326	1046	1279	1099
RELEASE	15742	202	145	354	1005	1280	1221	1785	1888	1833	1817	861	402	352	944	929	725
STOR CHANGE	1	292	134					0	0	-146	-643	-321	-116	-26	103	350	374
STORAGE	3123	3415	3549	3549	3549	3549	3549	3549	3549	3403	2760	2439	2323	2297	2400	2750	3124
ELEV FTMSL	1350.0	1353.6	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	9.0	6.8	10.4	19.8	16.9	20.8	20.5	29.0	30.7	30.8	29.6	28.9	29.0	22.2	15.3	15.1	13.1
POWER																	
AVE POWER MW		56	89	168	143	176	174	245	258	257	237	218	212	161	113	115	104
PEAK POW MW		351	356	356	356	356	356	356	356	350	319	296	287	285	293	319	339
ENERGY GWH	1550.8	20.3	14.9	36.3	103.2	131.1	125.1	181.9	192.2	185.3	176.1	78.6	35.6	30.9	83.9	85.3	70.0
--GAVINS POINT--																	
NAT INFLOW	2300	121	56	73	225	345	290	215	185	135	155	70	33	37	90	105	165
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-9	4	-7	-18	6	-8	1	-16	-3	0	2	1	0	13	13	0	4
EVAPORATION	26							2	5	7	6	1	1	1	3		
REG INFLOW	17895	327	195	409	1232	1599	1488	1943	2054	1966	1968	925	432	398	1033	1033	894
RELEASE	17895	327	195	409	1232	1599	1488	1943	2041	1940	1968	925	432	398	1033	1033	933
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	11.0	14.0	22.9	20.7	26.0	25.0	31.6	33.2	32.6	32.0	31.1	31.1	25.1	16.8	16.8	16.8
POWER																	
AVE POWER MW		39	49	79	71	89	86	105	109	109	108	106	106	88	59	59	59
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	736.8	13.9	8.2	17.0	51.4	66.1	61.6	77.8	80.8	78.3	80.6	38.2	17.8	16.9	44.2	44.2	39.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	3200	165	77	99	515	915	395	265	210	155	80	48	22	25	60	35	135
DEPLETION	258	6	3	4	21	35	31	38	36	23	10	6	3	3	12	14	14
REGULATED FLOW AT SIOUX CITY																	
KAF	20837	486	269	504	1726	2479	1852	2170	2215	2072	2038	967	451	421	1081	1054	1054
KCFS		16.3	19.3	28.2	29.0	40.3	31.1	35.3	36.0	34.8	33.1	32.5	32.5	26.5	17.6	17.1	19.0
--TOTAL--																	
NAT INFLOW	34300	1633	762	980	3855	5270	7990	4705	1875	1465	1530	710	331	379	735	785	1295
DEPLETION	2443	2	1	1	40	494	1698	1035	189	-171	-80	-123	-57	-65	-202	-214	-106
CHAN STOR	-81	0	3	-18	-18	-50	-15	-16	-3	39	38	1	0	13	-36	-22	4
EVAPORATION	1180							79	251	313	271	64	30	34	139		
STORAGE	46398	47543	48038	48495	50566	52813	57239	58644	57860	57151	56491	56293	56200	56202	55883	55805	56156
SYSTEM POWER																	
AVE POWER MW		553	644	750	683	950	1010	1284	1338	1201	941	898	935	864	842	975	924
PEAK POW MW		2205	2207	2214	2244	2270	2322	2334	2324	2319	2305	2283	2274	2272	2238	2260	2272
ENERGY GWH	8530.3	199.2	108.1	162.0	491.7	707.1	727.0	955.6	995.6	864.5	700.0	323.2	157.0	165.9	626.7	725.8	621.0
DAILY GWH		13.3	15.4	18.0	16.4	22.8	24.2	30.8	32.1	28.8	22.6	21.5	22.4	20.7	20.2	23.4	22.2
	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

28FEB09	INI-SUM	15MAR	2009 22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	2010 30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	8640	288	134	173	705	1445	2245	1100	410	340	480	188	88	100	315	270	360
DEPLETION	514	-6	-3	-3	16	336	691	206	-52	-136	-60	-35	-16	-18	-144	-155	-107
EVAPORATION	291							19	61	77	67	16	8	9	35		
MOD INFLOW	7835	294	137	176	689	1109	1554	875	401	399	473	206	96	110	424	425	467
RELEASE	5135	179	69	89	357	430	476	492	492	396	369	179	83	95	492	492	444
STOR CHANGE	2700	115	68	87	332	679	1078	383	-91	3	104	27	13	15	-68	-67	23
STORAGE	11430	11545	11613	11700	12032	12710	13788	14171	14081	14084	14188	14215	14228	14243	14174	14107	14130
ELEV FTMSL	2215.1	2215.8	2216.2	2216.7	2218.6	2222.3	2228.1	2230.0	2229.5	2229.6	2230.1	2230.2	2230.3	2230.4	2230.0	2229.7	2229.8
DISCH KCFS	6.0	6.0	5.0	5.0	6.0	7.0	8.0	8.0	8.0	6.7	6.0	6.0	6.0	6.0	8.0	8.0	8.0
POWER																	
AVE POWER MW		76	64	64	77	91	106	107	108	90	81	81	81	81	108	108	108
PEAK POW MW		146	146	147	149	153	158	159	159	159	159	159	159	160	159	159	159
ENERGY GWH	826.9	27.5	10.7	13.8	55.5	67.7	76.4	79.9	80.1	64.5	60.1	29.1	13.6	15.5	80.2	80.1	72.3
--GARRISON--																	
NAT INFLOW	12800	484	226	290	1240	1685	3130	2480	760	520	590	235	110	125	245	300	380
DEPLETION	961	-46	-21	-28	-97	160	864	574	58	-119		-99	-46	-53	-89	-69	-29
CHAN STOR	-20		10		-10	-10	-10			13	6				-20		
EVAPORATION	344							23	72	90	79	19	9	10	42		
REG INFLOW	16609	708	327	407	1684	1945	2732	2375	1121	958	886	493	230	263	765	861	853
RELEASE	14483	476	222	286	1131	1476	1428	1476	1476	1019	799	387	180	206	1230	1414	1277
STOR CHANGE	2126	232	105	121	553	469	1304	900	-354	-61	87	106	50	57	-465	-553	-424
STORAGE	14901	15133	15238	15359	15912	16382	17686	18585	18231	18170	18257	18363	18413	18470	18004	17451	17027
ELEV FTMSL	1826.3	1827.2	1827.5	1828.0	1830.0	1831.6	1836.1	1839.0	1837.9	1837.7	1838.0	1838.3	1838.5	1838.7	1837.2	1835.3	1833.9
DISCH KCFS	15.0	16.0	16.0	16.0	19.0	24.0	24.0	24.0	24.0	17.1	13.0	13.0	13.0	13.0	20.0	23.0	23.0
POWER																	
AVE POWER MW		186	187	187	224	285	291	298	299	213	162	163	163	163	249	283	280
PEAK POW MW		430	432	433	441	447	463	474	470	469	470	471	472	472	467	460	455
ENERGY GWH	2140.7	66.9	31.4	40.4	161.0	212.1	209.3	221.4	222.6	153.6	120.8	58.6	27.4	31.3	185.3	210.5	188.2
--OAHE--																	
NAT INFLOW	3100	302	141	181	520	305	1010	185	95	125	65	55	26	29	-65	10	115
DEPLETION	652	23	11	14	48	69	138	164	109	27	-9	1	0	1	12	17	27
CHAN STOR	-37	-5			-13	-22				29	17				-30	-13	
EVAPORATION	323							22	69	86	74	17	8	9	38		
REG INFLOW	16571	751	352	453	1589	1690	2300	1475	1393	1060	817	423	198	226	1085	1394	1365
RELEASE	13815	377	221	285	763	1154	1143	1665	1776	1580	1106	488	262	330	894	932	839
STOR CHANGE	2756	374	132	169	826	536	1157	-191	-384	-520	-288	-64	-64	-105	191	462	526
STORAGE	14965	15339	15470	15639	16465	17000	18157	17967	17583	17063	16774	16710	16646	16541	16732	17194	17720
ELEV FTMSL	1593.8	1595.3	1595.8	1596.4	1599.4	1601.3	1605.3	1604.7	1603.4	1601.6	1600.5	1600.3	1600.1	1599.7	1600.4	1602.0	1603.8
DISCH KCFS	11.6	12.7	15.9	15.9	12.8	18.8	19.2	27.1	28.9	26.5	18.0	16.4	18.9	20.8	14.5	15.2	15.1
POWER																	
AVE POWER MW		153	193	194	158	233	243	344	365	333	224	204	234	258	181	190	191
PEAK POW MW		645	647	650	665	675	696	693	686	676	671	670	669	667	670	679	688
ENERGY GWH	2091.7	55.0	32.3	41.8	113.5	173.7	174.8	256.2	271.6	239.7	167.0	73.5	39.3	49.5	134.4	141.1	128.2
--BIG BEND--																	
EVAPORATION	71							5	15	19	16	4	2	2	9		
REG INFLOW	13745	377	221	285	763	1154	1143	1661	1762	1561	1089	484	260	328	885	932	839
RELEASE	13745	377	221	285	763	1154	1143	1661	1762	1561	1089	484	260	328	885	932	839
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	11.6	12.7	15.9	15.9	12.8	18.8	19.2	27.0	28.6	26.2	17.7	16.3	18.7	20.7	14.4	15.2	15.1
POWER																	
AVE POWER MW		60	74	75	60	88	90	126	134	124	87	82	94	104	72	75	72
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	795.0	21.6	12.5	16.1	43.3	65.4	64.8	94.0	99.8	89.5	64.7	29.5	15.8	19.9	53.8	55.5	48.7
--FORT RANDALL--																	
NAT INFLOW	1200	131	61	78	285	180	140	80	75	70	15	15	7	8	10	-5	50
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	81							6	19	24	18	4	2	2	7		
REG INFLOW	14784	506	281	362	1045	1325	1271	1717	1803	1601	1085	494	265	334	885	924	886
RELEASE	14783	214	147	362	1045	1325	1271	1717	1803	1747	1728	815	381	360	682	674	512
STOR CHANGE	1	292	134						0	-146	-643	-321	-116	-26	203	250	374
STORAGE	3123	3415	3549	3549	3549	3549	3549	3549	3549	3403	2760	2439	2323	2297	2500	2750	3124
ELEV FTMSL	1350.0	1353.6	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.0	1340.0	1338.0	1337.5	1341.0	1344.8	1350.0
DISCH KCFS	9.0	7.2	10.6	20.3	17.6	21.6	21.4	27.9	29.3	29.4	28.1	27.4	27.4	22.7	11.1	11.0	9.2
POWER																	
AVE POWER MW		60	90	172	149	182	181	235	247	245	225	207	201	165	82	84	74
PEAK POW MW		351	356	356	356	356	356	356	356	350	319	296	287	285	301	319	339
ENERGY GWH	1463.3	21.6	15.1	37.1	107.3	135.7	130.1	175.1	183.7	176.7	167.6	74.5	33.8	31.6	61.3	62.6	49.6
--GAVINS POINT--																	
NAT INFLOW	2000	109	51	65	185	300	240	175	165	120	140	65	30	35	85	95	140
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-2	3	-6	-19	5	-8	0	-13	-3	0	2	1	0	9	21	0	3
EVAPORATION	26							2	5	7	6	1	1	1	3		
REG INFLOW	16644	327	191	409	1232	1599	1488	1839	1950	1865	1863	875	408	400	775	769	655
RELEASE	16644	327	191	409	1232	1599	1488	1839	1937	1839	1863	875	408	400	775	769	694
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	11.0	13.8	22.9	20.7	26.0	25.0	29.9	31.5	30.9	30.3	29.4	29.4	25.2	12.6	12.5	12.5
POWER																	
AVE POWER MW		39	48	79	71	89	86	101	105	105	104	102	102	88	45	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	690.9	13.9	8.1	17.0	51.4	66.1	61.6	74.9	78.0	75.5	77.6	36.8	17.2	17.0	33.3	33.0	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	2550	145	68	87	410	705	315	215	155	125	65	38	18	20	50	30	105
DEPLETION	258	6	3	4	21	35	31	38	36	23	10	6	3	3	12	14	14
REGULATED FLOW AT SIOUX CITY																	
KAF	18936	466	256	492	1621	2269	1772	2016	2056	1941	1918	907	423	417	813	785	785
KCFS		15.7	18.5	27.6	27.2	36.9	29.8	32.8	33.4	32.6	31.2	30.5	30.5	26.3	13.2	12.8	14.1
--TOTAL--																	
NAT INFLOW	30290	1459	681	875	3345	4620	7080	4235	1660	1300	1355	595	278	317	640	700	1150
DEPLETION	2576	-21	-10	-13	-5	628	1760	1039	176	-203	-57	-121	-56	-64	-196	-189	-92
CHAN STOR	-59	-1	4	-19	-19	-40	-10	-13	-3	42	26	1	0	9	-28	-13	3
EVAPORATION	1137							76	241	302	261	62	29	33	134		
STORAGE	46398	47411	47849	48226	49937	51621	55159	56251	55435	54738	53997	53745	53628	53568	53429	53520	53980
SYSTEM POWER																	
AVE POWER MW		573	655	770	739	968	996	1212	1258	1110	884	839	875	859	737	783	769
PEAK POW MW		2203	2205	2210	2235	2254	2297	2305	2295	2289	2274	2252	2242	2239	2214	2233	2246
ENERGY GWH	8008.5	206.5	110.1	166.3	531.9	720.6	716.9	901.4	935.8	799.5	658.0	302.0	147.1	164.9	548.2	582.9	516.6
DAILY GWH		13.8	15.7	18.5	17.7	23.2	23.9	29.1	30.2	26.6	21.2	20.1	21.0	20.6	17.7	18.8	18.4
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

DATE OF STUDY 12/28/08 2008-2009 AOP MEDIAN RUNOFF SIMULATION 99001 9901 4 PAGE 1

TIME OF STUDY 08:57:33 SHTN NAV SEAS 5 DAYS, SP MAR 5 MAY 13.90 STUDY NO 6

VALUES IN 1000 AF EXCEPT AS INDICATED

	28FEB09 INI-SUM	15MAR	2009 22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	2010 31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	7200	230	107	138	600	1180	1810	840	315	295	430	180	84	96	300	250	345
DEPLETION	426	-30	-14	-18	18	329	512	220	-1	-90	-37	-39	-18	-21	-130	-151	-104
EVAPORATION	386							23	74	92	81	37	17	20	42		
MOD INFLOW	6388	260	121	156	582	851	1298	597	242	293	386	182	85	97	388	401	449
RELEASE	4692	134	62	80	268	430	476	492	492	313	307	149	69	79	461	461	417
STOR CHANGE	1696	127	59	76	314	421	822	105	-249	-21	79	33	15	18	-74	-60	32
STORAGE	10801	10927	10986	11062	11376	11797	12619	12723	12474	12453	12532	12565	12581	12598	12525	12464	12497
ELEV FTMSL	2211.4	2212.2	2212.5	2213.0	2214.8	2217.2	2221.8	2222.4	2221.0	2220.9	2221.4	2221.5	2221.6	2221.7	2221.3	2221.0	2221.2
DISCH KCFS	6.0	4.5	4.5	4.5	4.5	7.0	8.0	8.0	8.0	5.3	5.0	5.0	5.0	5.0	7.5	7.5	7.5
POWER																	
AVE POWER MW		56	56	57	57	89	103	105	104	69	65	65	65	65	98	98	98
PEAK POW MW		142	142	142	145	147	152	153	151	151	152	152	152	152	152	151	152
ENERGY GWH	735.8	20.3	9.5	12.2	40.9	66.3	74.5	77.9	77.7	49.5	48.6	23.5	11.0	12.6	72.8	72.7	65.7
--GARRISON--																	
NAT INFLOW	10800	460	214	276	870	1325	3095	1860	595	460	495	195	91	104	180	260	320
DEPLETION	900	10	5	6	20	158	751	550	77	-152	-30	-117	-54	-62	-117	-90	-54
CHAN STOR	-15	16				-26	-10			28	3			0	-25		
EVAPORATION	465							28	89	111	97	44	21	23	51		
REG INFLOW	14112	600	272	350	1118	1571	2810	1774	921	842	738	416	194	222	682	811	791
RELEASE	13299	357	167	214	714	1414	1369	1414	1414	920	799	387	180	206	1168	1353	1222
STOR CHANGE	813	243	106	136	404	157	1441	359	-493	-78	-61	30	14	16	-486	-542	-431
STORAGE	14229	14472	14577	14713	15117	15274	16715	17075	16581	16503	16442	16471	16485	16501	16015	15473	15042
ELEV FTMSL	1823.7	1824.7	1825.1	1825.6	1827.1	1827.7	1832.8	1834.0	1832.3	1832.1	1831.9	1832.0	1832.0	1832.1	1830.3	1828.4	1826.8
DISCH KCFS	15.0	12.0	12.0	12.0	12.0	23.0	23.0	23.0	23.0	15.5	13.0	13.0	13.0	13.0	19.0	22.0	22.0
POWER																	
AVE POWER MW		137	138	138	139	267	272	278	278	186	157	157	157	157	227	259	256
PEAK POW MW		421	423	424	430	432	451	456	449	448	447	448	448	448	442	435	429
ENERGY GWH	1907.9	49.5	23.2	29.9	100.4	198.8	196.0	206.8	206.5	134.0	116.5	56.3	26.3	30.1	168.8	192.8	172.1
--OAHE--																	
NAT INFLOW	2300	232	108	139	405	195	780	160	75	95	35	30	14	16	-80		95
DEPLETION	652	23	11	14	48	69	138	164	109	27	-9	1	0	1	12	17	27
CHAN STOR	-33	14				-50				34	11				-28	-14	0
EVAPORATION	423							26	82	102	88	40	18	21	46		
REG INFLOW	14491	580	264	340	1071	1490	2011	1384	1298	920	767	376	176	201	1003	1322	1290
RELEASE	13293	394	227	295	934	1318	1211	1494	1622	1293	889	407	200	276	914	947	870
STOR CHANGE	1198	187	37	45	137	171	799	-110	-324	-373	-122	-30	-25	-76	89	375	420
STORAGE	14488	14675	14712	14756	14893	15064	15864	15753	15429	15056	14933	14903	14878	14803	14891	15266	15686
ELEV FTMSL	1592.0	1592.7	1592.8	1593.0	1593.6	1594.2	1597.2	1596.8	1595.6	1594.2	1593.7	1593.6	1593.5	1593.2	1593.5	1595.0	1596.6
DISCH KCFS	15.4	13.2	16.4	16.5	15.7	21.4	20.4	24.3	26.4	21.7	14.5	13.7	14.4	17.4	14.9	15.4	15.7
POWER																	
AVE POWER MW		158	195	197	188	257	247	296	320	262	174	164	173	208	178	185	190
PEAK POW MW		632	633	634	636	640	655	652	646	639	637	636	636	634	636	643	651
ENERGY GWH	1938.0	56.7	32.8	42.6	135.3	191.1	177.5	220.2	237.8	188.5	129.3	59.0	29.0	40.0	132.5	137.9	127.7
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	13190	394	227	295	934	1318	1211	1488	1603	1268	867	397	195	271	903	947	870
RELEASE	13190	394	227	295	934	1318	1211	1488	1603	1268	867	397	195	271	903	947	870
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	15.4	13.2	16.4	16.5	15.7	21.4	20.4	24.2	26.1	21.3	14.1	13.3	14.1	17.1	14.7	15.4	15.7
POWER																	
AVE POWER MW		63	77	77	74	100	95	113	122	101	70	67	71	86	74	76	75
PEAK POW MW		517	509	509	509	509	509	509	509	521	538	538	538	538	538	538	529
ENERGY GWH	762.6	22.6	12.9	16.7	52.9	74.7	68.6	84.3	90.8	72.6	52.1	24.2	11.9	16.5	54.8	56.4	50.5
--FORT RANDALL--																	
NAT INFLOW	900	119	55	71	155	140	135	70	65	30		10	5	5	5	-10	45
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	115							8	25	31	24	9	4	4	10		
REG INFLOW	13895	511	282	365	1086	1449	1334	1532	1628	1260	843	397	196	271	895	934	912
RELEASE	13895	219	148	365	1086	1449	1334	1532	1628	1528	1498	700	222	271	692	684	538
STOR CHANGE	1	292	134					0	0	-268	-655	-303	-26	0	203	250	374
STORAGE	3123	3415	3549	3549	3549	3549	3549	3549	3549	3281	2626	2323	2297	2297	2500	2750	3124
ELEV FTMSL	1350.0	1353.6	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1352.0	1343.0	1338.0	1337.5	1337.5	1341.0	1344.8	1350.0
DISCH KCFS	9.5	7.3	10.6	20.5	18.3	23.6	22.4	24.9	26.5	25.7	24.4	23.5	16.0	17.1	11.3	11.1	9.7
POWER																	
AVE POWER MW		61	90	173	155	199	190	210	223	214	193	175	117	124	84	85	77
PEAK POW MW		351	356	356	356	356	356	356	356	345	310	287	285	285	301	319	339
ENERGY GWH	1375.1	22.0	15.1	37.4	111.4	148.2	136.5	156.5	166.1	154.0	143.4	63.0	19.6	23.9	62.2	63.6	52.0
--GAVINS POINT--																	
NAT INFLOW	1500	104	49	62	145	160	175	100	90	95	120	60	28	32	80	85	115
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	4	-6	-19	4	-10	2	-5	-3	1	2	2	14	-2	11	0	3
EVAPORATION	38							2	7	9	8	4	2	2	4		
REG INFLOW	15243	327	190	409	1232	1580	1488	1586	1698	1621	1611	753	260	297	769	769	655
RELEASE	15243	327	190	409	1232	1580	1488	1586	1685	1595	1611	753	260	297	769	769	694
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	11.0	13.7	22.9	20.7	25.7	25.0	25.8	27.4	26.8	26.2	25.3	18.7	18.7	12.5	12.5	12.5
POWER																	
AVE POWER MW		39	48	79	71	88	86	88	94	93	92	89	66	66	44	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	639.4	13.9	8.0	17.0	51.4	65.3	61.6	65.6	69.8	67.1	68.3	32.0	11.1	12.7	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1700	138	64	83	325	295	150	180	120	105	55	30	14	16	25	25	75
DEPLETION	258	6	3	4	21	35	31	38	36	23	10	6	3	3	12	14	14
REGULATED FLOW AT SIOUX CITY																	
KAF	16685	459	252	488	1536	1840	1607	1728	1769	1677	1656	777	271	310	782	780	755
KCFS		15.4	18.1	27.3	25.8	29.9	27.0	28.1	28.8	28.2	26.9	26.1	19.5	19.5	12.7	12.7	13.6
--TOTAL--																	
NAT INFLOW	24400	1283	598	769	2500	3295	6145	3210	1260	1080	1135	505	236	269	510	610	995
DEPLETION	2427	10	5	6	114	619	1468	1029	246	-190	-64	-143	-67	-76	-210	-206	-114
CHAN STOR	-50	34	-6	-19	4	-87	-8	-5	-3	63	16	1	14	-2	-42	-14	3
EVAPORATION	1529							94	296	370	320	143	66	76	164		
STORAGE	44620	45467	45803	46060	46914	47664	50726	51080	50025	49311	48551	48280	48259	48217	47948	47971	48328
SYSTEM POWER																	
AVE POWER MW		514	604	721	684	1001	993	1090	1141	925	750	717	648	707	705	748	740
PEAK POW MW		2177	2177	2180	2190	2199	2237	2240	2227	2222	2201	2178	2176	2175	2147	2164	2176
ENERGY GWH	7358.8	184.9	101.5	155.8	492.4	744.5	714.8	811.3	848.8	665.7	558.2	258.1	108.9	135.7	524.2	556.4	497.5
DAILY GWH		12.3	14.5	17.3	16.4	24.0	23.8	26.2	27.4	22.2	18.0	17.2	15.6	17.0	16.9	17.9	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

28FEB09			2009											2010			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	6000	203	95	122	485	955	1480	665	285	255	340	165	77	88	260	220	305
DEPLETION	349	-22	-10	-13	43	217	441	213	-7	-99	-75	-31	-14	-16	-100	-105	-72
EVAPORATION	447							27	86	107	94	42	20	23	49		
MOD INFLOW	5204	226	105	135	442	738	1039	425	206	247	321	153	71	82	311	325	377
RELEASE	4861	149	69	89	446	461	446	461	461	333	307	149	69	79	461	461	417
STOR CHANGE	343	77	36	46	-4	277	593	-36	-255	-86	14	4	2	2	-150	-136	-40
STORAGE	10297	10374	10410	10456	10451	10728	11321	11284	11030	10943	10957	10962	10964	10966	10816	10680	10640
ELEV FTMSL	2208.4	2208.8	2209.0	2209.3	2209.3	2211.0	2214.5	2214.3	2212.8	2212.3	2212.3	2212.4	2212.4	2212.4	2211.5	2210.7	2210.4
DISCH KCFS	5.5	5.0	5.0	5.0	7.5	7.5	7.5	7.5	7.5	5.6	5.0	5.0	5.0	5.0	7.5	7.5	7.5
POWER																	
AVE POWER MW		62	62	62	92	93	94	95	94	70	63	63	63	63	94	93	93
PEAK POW MW		138	138	138	138	140	144	144	142	142	142	142	142	142	141	140	140
ENERGY GWH	733.7	22.2	10.4	13.3	66.5	69.0	67.7	70.5	70.2	50.6	46.6	22.6	10.5	12.0	69.7	69.4	62.5
--GARRISON--																	
NAT INFLOW	9200	423	198	254	705	1110	2635	1585	505	390	420	165	77	88	150	220	275
DEPLETION	1013	13	6	8	76	156	666	505	89	-122	1	-93	-43	-50	-93	-65	-41
CHAN STOR	-21	5			-26					20	6			0	-26		
EVAPORATION	543							34	106	130	113	51	24	27	58		
REG INFLOW	12484	565	261	335	1049	1415	2415	1507	772	735	620	356	166	190	620	746	733
RELEASE	13375	327	153	196	982	1230	1369	1414	1414	1100	676	327	153	175	1168	1414	1277
STOR CHANGE	-892	237	108	139	67	185	1047	93	-643	-365	-56	29	13	15	-549	-668	-545
STORAGE	13692	13929	14037	14176	14243	14429	15475	15569	14926	14561	14505	14533	14547	14562	14013	13345	12800
ELEV FTMSL	1821.7	1822.6	1823.0	1823.5	1823.8	1824.5	1828.4	1828.7	1826.4	1825.0	1824.8	1824.9	1825.0	1825.0	1822.9	1820.3	1818.1
DISCH KCFS	13.5	11.0	11.0	11.0	16.5	20.0	23.0	23.0	23.0	18.5	11.0	11.0	11.0	11.0	19.0	23.0	23.0
POWER																	
AVE POWER MW		124	125	125	188	228	266	269	268	213	127	127	127	127	216	257	253
PEAK POW MW		413	415	417	418	421	435	436	427	422	422	422	422	422	415	405	397
ENERGY GWH	1848.4	44.7	21.0	27.1	135.1	169.4	191.2	200.4	199.0	153.2	94.2	45.6	21.3	24.3	160.9	191.2	169.8
--OAHE--																	
NAT INFLOW	1300	203	95	122	180	130	275	140	65	75	15	13	6	7	-90	-10	75
DEPLETION	652	23	11	14	48	69	138	164	109	27	-9	1	0	1	12	17	27
CHAN STOR	-46	12	0	0	-26	-17	-15			22	37		0	0	-40	-20	
EVAPORATION	467							29	90	113	98	44	20	23	51		
REG INFLOW	13510	519	237	304	1087	1274	1491	1361	1281	1057	640	295	138	157	975	1367	1325
RELEASE	13914	426	295	408	1203	1547	1445	1700	1536	990	1040	236	121	136	929	1012	890
STOR CHANGE	-404	93	-58	-104	-116	-273	46	-339	-255	67	-400	59	17	21	46	355	436
STORAGE	13793	13886	13828	13724	13609	13336	13382	13043	12788	12855	12455	12514	12531	12552	12598	12954	13389
ELEV FTMSL	1589.1	1589.5	1589.3	1588.9	1588.4	1587.2	1587.4	1586.0	1584.9	1585.2	1583.4	1583.7	1583.7	1583.8	1584.0	1585.6	1587.5
DISCH KCFS	16.1	14.3	21.2	22.9	20.2	25.2	24.3	27.7	25.0	16.6	16.9	7.9	8.7	8.6	15.1	16.5	16.0
POWER																	
AVE POWER MW		168	248	266	235	291	280	317	285	190	192	90	99	98	171	188	184
PEAK POW MW		616	615	613	611	604	606	598	592	594	584	586	586	587	588	596	606
ENERGY GWH	1933.3	60.4	41.7	57.5	169.4	216.4	201.7	236.1	211.9	136.7	142.9	32.4	16.6	18.7	127.5	139.6	124.0
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13785	426	295	408	1203	1547	1445	1693	1511	959	1013	224	115	130	915	1012	890
RELEASE	13785	426	295	408	1203	1547	1445	1693	1511	959	1013	224	115	130	915	1012	890
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	16.1	14.3	21.2	22.9	20.2	25.2	24.3	27.5	24.6	16.1	16.5	7.5	8.3	8.2	14.9	16.5	16.0
POWER																	
AVE POWER MW		68	100	107	95	118	114	129	116	80	83	38	42	41	75	81	77
PEAK POW MW		518	510	509	509	509	509	509	519	538	538	538	538	538	538	538	529
ENERGY GWH	799.6	24.4	16.7	23.1	68.2	87.6	81.9	95.9	86.5	57.3	61.7	13.7	7.0	8.0	55.8	60.2	51.7
--FORT RANDALL--																	
NAT INFLOW	450	73	34	44	90	65	125	35	25		-20	-8	-4	-4	-30	-15	40
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	133							10	31	35	25	10	5	5	12		
REG INFLOW	14024	498	328	451	1290	1603	1558	1700	1490	917	967	206	106	120	869	994	927
RELEASE	14023	236	180	434	1290	1603	1558	1700	1678	1588	1362	206	106	120	717	694	553
STOR CHANGE	0	262	148	17				0	-187	-670	-395	0	0	0	153	300	374
STORAGE	3123	3384	3532	3549	3549	3549	3549	3549	3362	2692	2296	2296	2296	2296	2449	2749	3123
ELEV FTMSL	1350.0	1353.2	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1353.0	1344.0	1337.5	1337.5	1337.5	1337.5	1340.1	1344.8	1350.0
DISCH KCFS	10.0	7.9	13.0	24.3	21.7	26.1	26.2	27.6	27.3	26.7	22.2	6.9	7.7	7.6	11.7	11.3	10.0
POWER																	
AVE POWER MW		66	110	205	183	220	221	233	228	213	165	51	56	55	86	86	80
PEAK POW MW		350	355	356	356	356	356	356	349	314	285	285	285	285	297	319	339
ENERGY GWH	1380.4	23.7	18.4	44.3	132.0	163.6	159.1	173.4	169.6	153.2	123.1	18.3	9.4	10.6	64.1	64.2	53.5
--GAVINS POINT--																	
NAT INFLOW	1300	87	41	52	125	140	150	85	75	80	110	53	25	28	75	75	100
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	4	-10	-22	5	-8	0	-3	1	1	8	28	-1	0	-8	1	2
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	15163	327	211	464	1416	1716	1684	1740	1735	1662	1470	277	125	143	769	769	655
RELEASE	15163	327	211	464	1416	1716	1684	1740	1722	1636	1470	277	125	143	769	769	694
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	11.0	15.2	26.0	23.8	27.9	28.3	28.3	28.0	27.5	23.9	9.3	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		39	53	89	82	95	96	96	96	95	84	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	634.0	13.9	8.9	19.2	58.7	70.7	69.3	71.6	71.3	68.7	62.5	12.0	5.4	6.2	33.0	33.0	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1050	121	56	73	140	170	90	105	75	60	35	25	12	13	10	20	45
DEPLETION	258	6	3	4	21	35	31	38	36	23	10	6	3	3	12	14	14
REGULATED FLOW AT SIOUX CITY																	
KAF	15955	442	265	533	1535	1851	1743	1807	1761	1673	1495	297	134	153	767	775	725
KCFS		14.9	19.1	29.9	25.8	30.1	29.3	29.4	28.6	28.1	24.3	10.0	9.7	9.7	12.5	12.6	13.1
--TOTAL--																	
NAT INFLOW	19300	1111	518	666	1725	2570	4755	2615	1030	860	900	413	193	220	375	510	840
DEPLETION	2463	21	10	13	195	505	1312	977	252	-169	-71	-111	-52	-59	-156	-135	-69
CHAN STOR	-68	21	-10	-22	-48	-25	-15	-3	1	43	52	29	-1	0	-74	-19	2
EVAPORATION	1766							110	345	427	366	164	77	88	190		
STORAGE	42884	43552	43786	43884	43832	44021	45706	45424	44097	43069	42231	42323	42355	42394	41894	41746	41932
SYSTEM POWER																	
AVE POWER MW		526	697	854	875	1044	1071	1140	1087	861	714	401	418	416	687	749	731
PEAK POW MW		2149	2148	2148	2146	2145	2164	2158	2144	2127	2087	2089	2090	2091	2056	2075	2086
ENERGY GWH	7329.5	189.3	117.0	184.5	630.0	776.8	770.8	847.8	808.4	619.7	531.1	144.5	70.2	79.9	511.0	557.5	491.0
DAILY GWH		12.6	16.7	20.5	21.0	25.1	25.7	27.3	26.1	20.7	17.1	9.6	10.0	10.0	16.5	18.0	17.5
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

TIME OF STUDY 09:30:05 SHTN NAV SEAS 30 DAYS, SP MAR 5 MAY 9.7 STUDY NO 8

VALUES IN 1000 AF EXCEPT AS INDICATED

	28FEB09		2009											2010			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	5400	194	90	116	470	845	1195	610	270	245	320	158	74	84	230	210	290
DEPLETION	414	-22	-10	-13	43	217	441	201	-13	-111	-86	-22	-10	-12	-77	-67	-44
EVAPORATION	437							27	84	105	91	41	19	22	48		
MOD INFLOW	4549	216	101	129	427	628	754	382	199	251	315	138	64	74	259	277	334
RELEASE	4996	149	69	89	387	492	476	492	492	317	307	149	69	79	492	492	444
STOR CHANGE	-446	67	31	40	40	136	278	-110	-292	-65	7	-11	-5	-6	-232	-215	-110
STORAGE	10297	10364	10395	10436	10476	10612	10890	10780	10488	10422	10430	10419	10414	10408	10176	9961	9851
ELEV FTMSL	2208.4	2208.8	2209.0	2209.2	2209.4	2210.3	2212.0	2211.3	2209.5	2209.1	2209.2	2209.1	2209.1	2209.0	2207.6	2206.3	2205.6
DISCH KCFS	5.5	5.0	5.0	5.0	6.5	8.0	8.0	8.0	8.0	5.3	5.0	5.0	5.0	5.0	8.0	8.0	8.0
POWER																	
AVE POWER MW		62	62	62	80	99	99	100	99	66	62	62	62	62	98	97	97
PEAK POW MW		138	138	138	138	139	141	141	139	138	138	138	138	138	136	135	134
ENERGY GWH	744.7	22.2	10.4	13.3	57.7	73.5	71.6	74.2	73.7	47.3	45.9	22.2	10.4	11.8	73.0	72.4	65.1
--GARRISON--																	
NAT INFLOW	7400	365	170	219	575	1055	2205	1080	360	160	390	148	69	79	135	135	255
DEPLETION	990	13	6	8	76	156	566	461	100	-97	14	-103	-48	-55	-60	-31	-17
CHAN STOR	-27	5			-16	-16				28	3			0	-32		
EVAPORATION	520							33	101	125	108	49	23	26	56		
REG INFLOW	10860	506	234	301	870	1375	2115	1078	651	477	579	350	163	187	599	658	716
RELEASE	12714	357	167	232	774	1353	1309	1353	1353	860	676	327	153	175	1168	1291	1166
STOR CHANGE	-1854	149	67	68	96	22	806	-274	-702	-383	-98	23	11	12	-569	-633	-450
STORAGE	13692	13841	13908	13977	14073	14096	14902	14627	13925	13542	13445	13468	13478	13490	12921	12288	11838
ELEV FTMSL	1821.7	1822.2	1822.5	1822.8	1823.1	1823.2	1826.3	1825.3	1822.6	1821.1	1820.7	1820.8	1820.8	1820.9	1818.6	1816.0	1814.0
DISCH KCFS	13.5	12.0	12.0	13.0	13.0	22.0	22.0	22.0	22.0	14.5	11.0	11.0	11.0	11.0	19.0	21.0	21.0
POWER																	
AVE POWER MW		135	136	147	148	249	251	253	250	163	123	123	123	123	210	228	224
PEAK POW MW		412	413	414	415	416	427	423	413	408	406	407	407	407	399	389	382
ENERGY GWH	1723.4	48.7	22.8	31.8	106.2	185.0	180.9	188.2	185.9	117.1	91.7	44.3	20.7	23.7	156.2	169.5	150.7
--OAHE--																	
NAT INFLOW	1150	196	91	118	170	115	255	125	50	65	5	8	4	4	-100	-20	65
DEPLETION	652	23	11	14	48	69	138	164	109	27	-9	1	0	1	12	17	27
CHAN STOR	-37	7		-5		-44				38	18		0	0	-41	-10	
EVAPORATION	452							28	88	109	94	42	20	22	49		
REG INFLOW	12723	537	247	331	896	1355	1426	1285	1206	827	614	292	136	156	966	1244	1204
RELEASE	14113	436	299	414	1218	1562	1465	1715	1556	1010	1060	246	125	142	944	1022	900
STOR CHANGE	-1390	101	-51	-83	-322	-207	-39	-430	-350	-183	-446	46	11	14	23	222	305
STORAGE	13793	13894	13842	13760	13437	13230	13191	12761	12411	12228	11782	11828	11839	11853	11876	12098	12403
ELEV FTMSL	1589.1	1589.6	1589.3	1589.0	1587.7	1586.8	1586.6	1584.8	1583.2	1582.4	1580.3	1580.5	1580.6	1580.7	1580.8	1581.8	1583.2
DISCH KCFS	16.1	14.7	21.5	23.2	20.5	25.4	24.6	27.9	25.3	17.0	17.2	8.3	9.0	8.9	15.3	16.6	16.2
POWER																	
AVE POWER MW		172	251	270	238	293	283	318	286	191	192	92	101	99	171	185	182
PEAK POW MW		616	615	614	607	602	601	591	583	579	568	569	570	570	571	576	583
ENERGY GWH	1941.7	61.8	42.2	58.4	171.2	217.7	203.7	236.7	212.8	137.6	143.1	33.2	16.9	19.1	127.0	138.0	122.4
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13984	436	299	414	1218	1562	1465	1707	1532	979	1033	234	120	135	930	1022	900
RELEASE	13984	436	299	414	1218	1562	1465	1707	1532	979	1033	234	120	135	930	1022	900
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	16.1	14.7	21.5	23.2	20.5	25.4	24.6	27.8	24.9	16.5	16.8	7.9	8.6	8.5	15.1	16.6	16.2
POWER																	
AVE POWER MW		69	101	109	96	119	115	130	118	81	85	40	44	43	76	82	78
PEAK POW MW		518	510	509	509	509	509	509	519	538	538	538	538	538	538	538	529
ENERGY GWH	811.2	25.0	16.9	23.4	69.0	88.5	83.0	96.7	87.6	58.4	62.9	14.4	7.3	8.3	56.7	60.8	52.2
--FORT RANDALL--																	
NAT INFLOW	350	68	32	41	85	60	115	25	15	-10	-30	-13	-6	-7	-40	-20	35
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	133							10	31	35	25	10	5	5	12		
REG INFLOW	14123	503	330	454	1300	1613	1568	1704	1501	927	977	211	108	122	874	999	932
RELEASE	14123	241	182	437	1300	1613	1568	1704	1688	1598	1372	211	109	122	721	699	558
STOR CHANGE	0	262	148	17		0		0	-187	-670	-395	0	0	0	153	300	374
STORAGE	3123	3384	3532	3549	3549	3549	3549	3549	3362	2692	2296	2296	2296	2296	2449	2749	3123
ELEV FTMSL	1350.0	1353.2	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1353.0	1344.0	1337.5	1337.5	1337.5	1337.5	1340.1	1344.8	1350.0
DISCH KCFS	10.0	8.1	13.1	24.5	21.8	26.2	26.4	27.7	27.4	26.8	22.3	7.1	7.8	7.7	11.7	11.4	10.0
POWER																	
AVE POWER MW		67	110	206	185	221	222	234	229	214	167	52	57	57	87	87	80
PEAK POW MW		350	355	356	356	356	356	356	349	314	285	285	285	285	297	319	339
ENERGY GWH	1390.0	24.2	18.6	44.6	133.0	164.7	160.1	173.8	170.6	154.1	124.0	18.8	9.6	10.9	64.5	64.7	53.9
--GAVINS POINT--																	
NAT INFLOW	1200	82	38	49	115	130	140	80	65	70	100	48	22	25	70	70	95
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	4	-10	-22	5	-8	0	-3	1	1	8	28	-1	0	-7	1	2
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	15162	327	211	464	1416	1716	1684	1740	1735	1662	1470	277	125	143	769	769	655
RELEASE	15162	327	211	464	1416	1716	1684	1740	1722	1636	1470	277	125	143	769	769	694
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	11.0	15.2	26.0	23.8	27.9	28.3	28.3	28.0	27.5	23.9	9.3	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		39	53	89	82	95	96	96	96	95	84	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	634.0	13.9	8.9	19.2	58.7	70.7	69.3	71.6	71.3	68.7	62.5	12.0	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	35	25	18	8	9	5	15	20
DEPLETION	258	6	3	4	21	35	31	38	36	23	10	6	3	3	12	14	14
REGULATED FLOW AT SIOUX CITY																	
KAF	15604	408	249	513	1485	1801	1718	1772	1726	1648	1485	289	131	149	762	770	700
KCFS		13.7	17.9	28.7	25.0	29.3	28.9	28.8	28.1	27.7	24.1	9.7	9.4	9.4	12.4	12.5	12.6
--TOTAL--																	
NAT INFLOW	16200	992	463	595	1505	2325	3975	1990	800	565	810	365	170	195	300	390	760
DEPLETION	2505	21	10	13	195	505	1212	921	257	-156	-69	-112	-52	-60	-100	-63	-17
CHAN STOR	-64	16	-10	-27	-11	-68	0	-3	1	67	29	29	-1	0	-81	-10	2
EVAPORATION	1717							108	336	416	355	159	74	85	184		
STORAGE	42884	43463	43657	43700	43514	43466	44511	43697	42178	40903	39971	40029	40046	40066	39440	39114	39193
SYSTEM POWER																	
AVE POWER MW		544	713	883	828	1075	1067	1131	1078	810	712	402	418	416	686	724	705
PEAK POW MW		2148	2147	2146	2140	2137	2149	2135	2118	2094	2052	2054	2055	2055	2019	2035	2043
ENERGY GWH	7245.0	195.7	119.8	190.7	595.9	800.0	768.6	841.2	801.9	583.3	530.1	144.8	70.3	79.9	510.5	538.5	474.0
DAILY GWH		13.0	17.1	21.2	19.9	25.8	25.6	27.1	25.9	19.4	17.1	9.7	10.0	10.0	16.5	17.4	16.9
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

DATE OF STUDY 12/28/08 2008-2009 AOP EXTENSIONS, MEDIAN RUNOFF SIMULAT 99001 9901 4 PAGE 1

TIME OF STUDY 08:57:33 SHTN NAV SEAS 0 DAYS, SP MAR 5 MAY 15.0 STUDY NO 9

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB10			2010												2011		
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	7200	230	107	138	600	1180	1810	840	315	295	430	180	84	96	300	250	345
DEPLETION	437	-28	-13	-17	-15	285	591	227	-1	-99	-38	-42	-19	-22	-133	-146	-94
EVAPORATION	411							25	79	98	86	39	18	21	45		
MOD INFLOW	6352	257	120	154	615	895	1219	588	237	296	382	183	85	97	388	396	439
RELEASE	5684	179	69	89	357	492	565	584	584	463	307	149	69	79	584	584	528
STOR CHANGE	668	79	51	65	258	403	654	4	-347	-167	75	34	16	18	-196	-188	-89
STORAGE	12497	12576	12626	12692	12950	13353	14006	14010	13663	13495	13570	13604	13620	13638	13442	13254	13165
ELEV FTMSL	2221.2	2221.6	2221.9	2222.2	2223.6	2225.8	2229.2	2229.2	2227.4	2226.5	2226.9	2227.1	2227.2	2227.3	2226.3	2225.3	2224.8
DISCH KCFS	7.5	6.0	5.0	5.0	6.0	8.0	9.5	9.5	9.5	7.8	5.0	5.0	5.0	5.0	9.5	9.5	9.5
POWER																	
AVE POWER MW		78	65	66	79	106	127	127	127	104	67	67	67	67	126	126	126
PEAK POW MW		152	152	153	154	156	159	159	157	157	157	157	157	157	157	156	155
ENERGY GWH	914.5	28.2	11.0	14.2	56.8	78.8	91.3	94.8	94.6	74.7	49.7	24.0	11.2	12.8	94.1	93.8	84.5
--GARRISON--																	
NAT INFLOW	10800	460	214	276	870	1325	3095	1860	595	460	495	195	91	104	180	260	320
DEPLETION	1070	-6	-3	-3	-2	198	850	611	73	-138	-17	-117	-54	-62	-114	-90	-56
CHAN STOR	-20	16	10		-10	-21	-15			17	28			0	-45		
EVAPORATION	479							29	93	115	100	45	21	24	52		
REG INFLOW	14914	660	297	368	1219	1598	2795	1804	1014	963	747	415	194	221	781	934	904
RELEASE	14061	417	194	250	952	1291	1369	1414	1414	1206	861	417	194	222	1168	1414	1277
STOR CHANGE	853	243	103	119	267	307	1426	390	-401	-243	-113	-1	-1	-1	-387	-480	-374
STORAGE	15042	15285	15388	15506	15773	16080	17506	17896	17495	17252	17139	17138	17137	17136	16749	16269	15895
ELEV FTMSL	1826.8	1827.7	1828.1	1828.5	1829.5	1830.6	1835.5	1836.8	1835.5	1834.6	1834.3	1834.3	1834.3	1834.3	1832.9	1831.2	1829.9
DISCH KCFS	22.0	14.0	14.0	14.0	16.0	21.0	23.0	23.0	23.0	20.3	14.0	14.0	14.0	14.0	19.0	23.0	23.0
POWER																	
AVE POWER MW		163	164	165	189	249	277	283	283	248	171	171	171	171	230	276	273
PEAK POW MW		432	434	435	439	443	461	466	461	458	456	456	456	456	451	445	440
ENERGY GWH	2051.7	58.8	27.6	35.5	135.8	184.9	199.6	210.4	210.4	178.4	127.4	61.6	28.7	32.8	171.4	205.0	183.4
--OAHE--																	
NAT INFLOW	2300	232	108	139	405	195	780	160	75	95	35	30	14	16	-80		95
DEPLETION	666	24	11	14	49	70	142	169	112	27	-10	1	0	1	12	17	27
CHAN STOR	-4	36			-9	-22	-9			12	28			0	-22	-18	
EVAPORATION	444							28	87	107	92	41	19	22	47		
REG INFLOW	15247	661	292	375	1299	1395	1998	1377	1290	1179	841	404	189	216	1007	1379	1345
RELEASE	14368	406	228	299	946	1337	1223	1704	1825	1614	1113	503	233	198	1087	953	701
STOR CHANGE	879	254	64	76	353	58	775	-326	-535	-435	-271	-99	-44	18	-80	427	645
STORAGE	15686	15941	16005	16081	16434	16492	17266	16940	16405	15970	15698	15599	15556	15574	15494	15920	16565
ELEV FTMSL	1596.6	1597.5	1597.8	1598.1	1599.3	1599.5	1602.3	1601.1	1599.2	1597.6	1596.6	1596.3	1596.1	1596.2	1595.9	1597.5	1599.8
DISCH KCFS	15.7	13.7	16.4	16.7	15.9	21.7	20.6	27.7	29.7	27.1	18.1	16.9	16.8	12.5	17.7	15.5	12.6
POWER																	
AVE POWER MW		167	201	205	196	269	256	346	367	333	221	206	204	152	215	189	156
PEAK POW MW		656	657	658	665	666	680	674	664	656	651	650	649	649	648	656	667
ENERGY GWH	2140.3	60.1	33.7	44.4	141.2	199.9	184.4	257.3	273.2	239.4	164.5	74.1	34.2	29.1	159.6	140.5	104.6
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	14265	406	228	299	946	1337	1223	1697	1806	1589	1091	494	228	193	1075	953	701
RELEASE	14265	406	228	299	946	1337	1223	1697	1806	1589	1091	494	228	193	1075	953	701
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	15.7	13.7	16.4	16.7	15.9	21.7	20.6	27.6	29.4	26.7	17.7	16.6	16.4	12.1	17.5	15.5	12.6
POWER																	
AVE POWER MW		65	77	78	74	102	96	129	137	127	87	83	83	61	86	75	61
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	822.9	23.3	12.9	16.9	53.6	75.7	69.3	96.1	102.2	91.1	64.8	30.0	13.9	11.8	64.3	56.1	40.7
--FORT RANDALL--																	
NAT INFLOW	900	119	55	71	155	140	135	70	65	30		10	5	5	5	-10	45
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	118							8	25	31	25	10	4	4	10		
REG INFLOW	14969	523	282	369	1098	1468	1346	1741	1830	1581	1066	493	228	193	1067	940	743
RELEASE	14969	232	148	369	1098	1468	1346	1741	1830	1725	1701	798	373	216	701	683	539
STOR CHANGE	0	291	134			0	0	0	0	-144	-635	-305	-145	-23	366	257	204
STORAGE	3124	3415	3549	3549	3549	3549	3549	3549	3549	3405	2770	2465	2320	2297	2663	2920	3124
ELEV FTMSL	1350.0	1353.6	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.1	1340.4	1337.9	1337.5	1343.5	1347.2	1350.0
DISCH KCFS	9.7	7.8	10.7	20.7	18.5	23.9	22.6	28.3	29.8	29.0	27.7	26.8	26.9	13.6	11.4	11.1	9.7
POWER																	
AVE POWER MW		65	90	175	156	202	191	239	251	242	222	203	197	100	86	87	78
PEAK POW MW		351	356	356	356	356	356	356	356	350	320	298	287	285	313	330	339
ENERGY GWH	1487.1	23.3	15.2	37.8	112.6	150.1	137.7	177.5	186.5	174.6	165.1	73.2	33.1	19.1	63.7	64.8	52.7
--GAVINS POINT--																	
NAT INFLOW	1500	104	49	62	145	160	175	100	90	95	120	60	28	32	80	85	115
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	4	-6	-19	4	-10	2	-11	-3	1	2	2	0	25	4	1	3
EVAPORATION	38							2	7	9	8	4	2	2	4		
REG INFLOW	16317	340	191	413	1244	1599	1500	1789	1901	1817	1814	851	397	268	771	767	656
RELEASE	16317	340	191	413	1244	1599	1500	1789	1888	1791	1814	851	397	268	771	767	695
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	11.4	13.8	23.1	20.9	26.0	25.2	29.1	30.7	30.1	29.5	28.6	28.6	16.9	12.5	12.5	12.5
POWER																	
AVE POWER MW		40	48	79	72	89	86	99	103	103	102	100	100	60	45	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	680.1	14.4	8.1	17.1	51.8	66.1	62.1	73.5	76.6	74.1	76.2	36.0	16.8	11.5	33.1	33.0	29.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1700	138	64	83	325	295	150	180	120	105	55	30	14	16	25	25	75
DEPLETION	263	7	3	4	22	35	31	38	36	24	10	6	3	3	13	14	14
REGULATED FLOW AT SIOUX CITY																	
KAF	17754	471	253	491	1547	1859	1619	1931	1972	1872	1859	875	408	281	783	778	756
KCFS		15.8	18.2	27.5	26.0	30.2	27.2	31.4	32.1	31.5	30.2	29.4	29.4	17.7	12.7	12.7	13.6
--TOTAL--																	
NAT INFLOW	24400	1283	598	769	2500	3295	6145	3210	1260	1080	1135	505	236	269	510	610	995
DEPLETION	2627	-2	-1	-1	61	616	1650	1102	245	-184	-53	-145	-68	-77	-209	-201	-106
CHAN STOR	-26	55	5	-19	-15	-53	-22	-11	-3	30	58	2	0	25	-63	-17	3
EVAPORATION	1592							99	311	386	332	148	69	78	170		
STORAGE	48328	49196	49547	49807	50685	51452	54307	54374	53104	52141	51196	50824	50650	50663	50366	50381	50728
SYSTEM POWER																	
AVE POWER MW		578	646	768	767	1015	1034	1223	1268	1156	870	830	821	610	788	797	737
PEAK POW MW		2222	2222	2226	2237	2244	2280	2278	2263	2255	2239	2216	2204	2203	2184	2202	2207
ENERGY GWH	8096.7	208.2	108.5	165.9	551.9	755.4	744.4	909.7	943.5	832.4	647.6	299.0	138.0	117.2	586.2	593.2	495.5
DAILY GWH		13.9	15.5	18.4	18.4	24.4	24.8	29.3	30.4	27.7	20.9	19.9	19.7	14.6	18.9	19.1	17.7

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

TIME OF STUDY 08:57:33 SHT NV 0, SP MR 5 MY 15.5, FTPK +4.2 GARR -3.0 STUDY NO 10

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB11	INI-SUM	15MAR (2011)	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV (2012)	31DEC	31JAN	29FEB
--FORT PECK--																	
NAT INFLOW	7200	230	107	138	600	1180	1810	840	315	295	430	180	84	96	300	250	345
DEPLETION	452	-25	-12	-15	16	302	547	234	4	-99	-40	-41	-19	-22	-131	-144	-104
EVAPORATION	443							27	85	106	93	42	20	22	49		
MOD INFLOW	6305	255	119	153	584	878	1263	579	226	288	377	179	83	95	382	394	449
RELEASE	5091	179	69	89	357	430	476	492	492	367	307	149	69	79	523	523	489
STOR CHANGE	1214	76	49	63	227	448	787	87	-266	-79	70	30	14	16	-140	-129	-40
STORAGE	13165	13241	13291	13354	13581	14029	14815	14903	14637	14558	14628	14658	14672	14688	14548	14419	14379
ELEV FTMSL	2224.8	2225.2	2225.5	2225.8	2227.0	2229.3	2233.1	2233.6	2232.3	2231.9	2232.2	2232.4	2232.5	2232.5	2231.9	2231.2	2231.0
DISCH KCFS	9.5	6.0	5.0	5.0	6.0	7.0	8.0	8.0	8.0	6.2	5.0	5.0	5.0	5.0	8.5	8.5	8.5
POWER																	
AVE POWER MW		80	66	66	80	94	108	109	109	84	68	68	68	68	115	115	115
PEAK POW MW		156	156	156	157	159	162	162	161	161	161	161	161	161	161	160	160
ENERGY GWH	832.0	28.6	11.2	14.4	57.6	69.7	77.8	81.0	80.9	60.3	50.5	24.5	11.4	13.0	85.7	85.5	79.9
--GARRISON--																	
NAT INFLOW	10800	460	214	276	870	1325	3095	1860	595	460	495	195	91	104	180	260	320
DEPLETION	1041	-7	-3	-4	-5	181	851	619	78	-140	-22	-120	-56	-64	-114	-90	-62
CHAN STOR	10	36	10		-10	-10	-10			18	12			0	-35		0
EVAPORATION	479							30	93	115	100	45	21	24	52		
REG INFLOW	14382	681	297	369	1222	1564	2710	1703	916	871	737	419	195	223	730	873	871
RELEASE	14782	417	194	250	1012	1506	1458	1506	1506	1154	922	446	208	238	1107	1476	1381
STOR CHANGE	-400	265	103	119	210	58	1252	197	-591	-283	-186	-27	-13	-15	-377	-603	-510
STORAGE	15895	16160	16263	16383	16593	16651	17903	18099	17509	17225	17039	17012	16999	16985	16608	16005	15495
ELEV FTMSL	1829.9	1830.9	1831.2	1831.6	1832.4	1832.6	1836.8	1837.5	1835.5	1834.6	1833.9	1833.8	1833.8	1833.7	1832.4	1830.3	1828.5
DISCH KCFS	23.0	14.0	14.0	14.0	17.0	24.5	24.5	24.5	24.5	19.4	15.0	15.0	15.0	15.0	18.0	24.0	24.0
POWER																	
AVE POWER MW		167	167	168	204	294	298	303	302	237	183	183	183	183	218	286	282
PEAK POW MW		444	445	447	449	450	466	468	461	457	455	455	455	454	450	442	435
ENERGY GWH	2164.6	60.0	28.1	36.3	147.1	218.8	214.7	225.4	224.4	170.8	136.2	65.8	30.7	35.0	161.9	212.8	196.5
--OAHE--																	
NAT INFLOW	2300	232	108	139	405	195	780	160	75	95	35	30	14	16	-80		95
DEPLETION	681	24	11	14	49	71	145	173	116	28	-10	1	0	1	12	18	28
CHAN STOR	-5	39			-13	-32				22	19				-13	-27	
EVAPORATION	456							29	90	110	94	42	20	22	48		
REG INFLOW	15940	664	292	375	1355	1599	2093	1465	1376	1132	892	433	202	231	953	1431	1448
RELEASE	15480	406	258	360	1099	1497	1378	1813	1936	1721	1224	557	258	216	1080	953	726
STOR CHANGE	460	258	34	15	256	102	715	-348	-560	-589	-332	-124	-55	16	-127	479	722
STORAGE	16565	16823	16857	16872	17127	17229	17944	17596	17036	16447	16116	15992	15937	15952	15825	16304	17025
ELEV FTMSL	1599.8	1600.7	1600.8	1600.9	1601.8	1602.1	1604.6	1603.4	1601.5	1599.4	1598.2	1597.7	1597.5	1597.6	1597.1	1598.9	1601.4
DISCH KCFS	12.6	13.6	18.5	20.2	18.5	24.3	23.2	29.5	31.5	28.9	19.9	18.7	18.6	13.6	17.6	15.5	12.6
POWER																	
AVE POWER MW		170	231	251	231	305	292	372	394	358	245	230	227	167	215	190	157
PEAK POW MW		672	673	673	678	680	693	686	676	665	659	657	656	656	654	662	676
ENERGY GWH	2331.9	61.1	38.8	54.3	166.3	226.7	210.4	277.1	293.2	258.0	182.4	82.7	38.2	32.0	159.9	141.6	109.3
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	15377	406	258	360	1099	1497	1378	1806	1916	1696	1202	547	253	210	1069	953	726
RELEASE	15377	406	258	360	1099	1497	1378	1806	1916	1696	1202	547	253	210	1069	953	726
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	12.6	13.6	18.5	20.2	18.5	24.3	23.2	29.4	31.2	28.5	19.5	18.4	18.2	13.3	17.4	15.5	12.6
POWER																	
AVE POWER MW		65	87	95	86	114	108	137	146	135	96	92	92	67	86	75	61
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	886.5	23.3	14.6	20.4	62.3	84.8	78.0	102.3	108.5	97.3	71.3	33.2	15.4	12.8	63.9	56.1	42.2
--FORT RANDALL--																	
NAT INFLOW	900	119	55	71	155	140	135	70	65	30		10	5	5	5	-10	45
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	118							8	25	31	25	10	4	4	10		
REG INFLOW	16080	523	312	431	1251	1628	1501	1850	1941	1688	1176	547	253	211	1061	940	768
RELEASE	16080	232	178	431	1251	1628	1501	1850	1941	1832	1811	852	398	234	695	683	564
STOR CHANGE	0	291	134					0	0	-144	-635	-305	-145	-23	366	257	204
STORAGE	3124	3415	3549	3549	3549	3549	3549	3549	3549	3405	2770	2465	2320	2297	2663	2920	3124
ELEV FTMSL	1350.0	1353.6	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.1	1340.4	1337.9	1337.5	1343.5	1347.2	1350.0
DISCH KCFS	9.7	7.8	12.8	24.1	21.0	26.5	25.2	30.1	31.6	30.8	29.5	28.6	28.7	14.8	11.3	11.1	9.8
POWER																	
AVE POWER MW		65	109	204	178	223	213	253	266	257	236	217	210	108	85	87	79
PEAK POW MW		351	356	356	356	356	356	356	356	350	320	298	287	285	313	330	339
ENERGY GWH	1597.2	23.3	18.2	44.0	128.1	166.2	153.3	188.5	197.5	185.2	175.7	78.0	35.3	20.7	63.2	64.8	55.1
--GAVINS POINT--																	
NAT INFLOW	1500	104	49	62	145	160	175	100	90	95	120	60	28	32	80	85	115
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-2	4	-10	-22	6	-10	2	-9	-3	1	2	2	0	26	6	0	2
EVAPORATION	38							2	7	9	8	4	2	2	4		
REG INFLOW	17429	340	217	472	1398	1759	1654	1900	2011	1924	1925	904	422	287	767	767	681
RELEASE	17429	340	217	472	1398	1759	1654	1900	1998	1898	1925	904	422	287	767	767	720
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	11.4	15.6	26.4	23.5	28.6	27.8	30.9	32.5	31.9	31.3	30.4	30.4	18.1	12.5	12.5	12.5
POWER																	
AVE POWER MW		40	54	90	81	97	95	103	107	107	107	105	105	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	718.7	14.4	9.2	19.5	58.0	72.4	68.2	76.6	79.7	77.2	79.4	37.7	17.6	12.3	33.0	33.0	30.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1700	138	64	83	325	295	150	180	120	105	55	30	14	16	25	25	75
DEPLETION	266	7	3	4	22	36	31	39	36	24	11	6	3	3	13	14	14
REGULATED FLOW AT SIOUX CITY																	
KAF	18863	471	278	550	1701	2018	1773	2041	2082	1979	1969	928	433	300	779	778	781
KCFS		15.8	20.1	30.8	28.6	32.8	29.8	33.2	33.9	33.3	32.0	31.2	31.2	18.9	12.7	12.7	13.6
--TOTAL--																	
NAT INFLOW	24400	1283	598	769	2500	3295	6145	3210	1260	1080	1135	505	236	269	510	610	995
DEPLETION	2631	0	0	0	89	618	1610	1122	259	-185	-59	-148	-69	-79	-207	-198	-121
CHAN STOR	4	78	1	-22	-17	-52	-8	-9	-3	41	33	2	0	26	-42	-26	2
EVAPORATION	1636							102	319	397	341	152	70	80	174		
STORAGE	50728	51618	51939	52136	52829	53436	56190	56126	54723	53653	52571	52145	51946	51940	51661	51665	52003
SYSTEM POWER																	
AVE POWER MW		586	715	874	860	1127	1115	1278	1323	1179	935	894	884	656	763	798	738
PEAK POW MW		2254	2253	2255	2264	2268	2299	2296	2278	2268	2249	2225	2213	2212	2193	2210	2215
ENERGY GWH	8530.9	210.9	120.1	188.9	619.3	838.6	802.5	950.8	984.3	848.8	695.5	321.8	148.5	125.9	567.6	593.8	513.7
DAILY GWH		14.1	17.2	21.0	20.6	27.1	26.7	30.7	31.8	28.3	22.4	21.5	21.2	15.7	18.3	19.2	17.7
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB

DATE OF STUDY 12/28/08 2008-2009 AOP EXTENSIONS, MEDIAN RUNOFF SIMULAT 99001 9901 4 PAGE 1

TIME OF STUDY 08:57:33 SHT NV 0, SP MR 5 MY 14.7, GARR +3.0 OAHE -3.0 STUDY NO 11

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB12		2012												2013			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	7200	230	107	138	600	1180	1810	840	315	295	430	180	84	96	300	250	345
DEPLETION	468	-24	-11	-14	15	303	552	241	8	-100	-41	-43	-20	-23	-134	-147	-94
EVAPORATION	447							28	86	107	93	42	20	22	48		
MOD INFLOW	6285	254	118	152	585	877	1258	571	221	288	378	181	84	97	386	397	439
RELEASE	6954	179	69	89	357	553	762	738	738	479	430	208	97	111	738	738	666
STOR CHANGE	-669	75	49	63	228	324	496	-167	-517	-192	-53	-27	-13	-15	-352	-341	-227
STORAGE	14379	14454	14503	14566	14794	15117	15614	15447	14930	14738	14685	14658	14645	14631	14279	13938	13710
ELEV FTMSL	2231.0	2231.4	2231.6	2231.9	2233.0	2234.6	2236.9	2236.1	2233.7	2232.8	2232.5	2232.4	2232.3	2232.3	2230.5	2228.8	2227.7
DISCH KCFS	8.5	6.0	5.0	5.0	6.0	9.0	12.8	12.0	12.0	8.1	7.0	7.0	7.0	7.0	12.0	12.0	12.0
POWER																	
AVE POWER MW		81	68	68	82	123	163	161	159	110	95	95	95	95	157	156	154
PEAK POW MW		160	160	161	162	163	164	164	162	161	161	161	161	161	160	158	158
ENERGY GWH	1115.1	29.2	11.4	14.6	58.7	91.2	117.7	119.5	118.6	78.9	70.7	34.2	16.0	18.2	116.7	115.7	103.8
--GARRISON--																	
NAT INFLOW	10800	460	214	276	870	1325	3095	1860	595	460	495	195	91	104	180	260	320
DEPLETION	1063	-7	-3	-4	-4	182	861	636	84	-143	-26	-124	-58	-66	-117	-92	-57
CHAN STOR	-36	26	10		-10	-31	-39	8		39	10			0	-50		
EVAPORATION	500							30	97	120	105	47	22	25	54		
REG INFLOW	16155	671	297	369	1221	1666	2957	1940	1152	1001	857	480	224	256	931	1090	1043
RELEASE	14230	417	194	250	833	1537	1369	1414	1414	1185	984	476	222	254	1107	1353	1222
STOR CHANGE	1924	254	103	119	388	129	1588	525	-262	-184	-126	4	2	2	-176	-263	-178
STORAGE	15495	15749	15852	15972	16359	16488	18076	18602	18340	18156	18029	18033	18035	18037	17861	17598	17419
ELEV FTMSL	1828.5	1829.4	1829.8	1830.2	1831.6	1832.0	1837.4	1839.1	1838.2	1837.6	1837.2	1837.2	1837.3	1837.3	1836.7	1835.8	1835.2
DISCH KCFS	24.0	14.0	14.0	14.0	14.0	25.0	23.0	23.0	23.0	19.9	16.0	16.0	16.0	16.0	18.0	22.0	22.0
POWER																	
AVE POWER MW		165	166	166	167	299	280	287	287	248	199	199	199	199	223	271	270
PEAK POW MW		438	440	441	446	448	468	474	471	469	467	467	467	467	465	462	460
ENERGY GWH	2112.9	59.5	27.9	35.9	120.5	222.2	201.8	213.2	213.7	178.5	148.1	71.6	33.4	38.2	166.0	201.5	181.1
--OAHE--																	
NAT INFLOW	2300	232	108	139	405	195	780	160	75	95	35	30	14	16	-80		95
DEPLETION	696	24	11	15	50	72	148	178	119	29	-11	1	0	1	13	18	28
CHAN STOR	8	42				-46	8			13	17				-9	-18	0
EVAPORATION	448							29	89	108	92	41	19	22	47		
REG INFLOW	15395	667	291	375	1188	1614	2009	1368	1282	1156	955	464	217	247	957	1317	1289
RELEASE	16033	406	285	404	1187	1589	1467	1854	1966	1751	1267	578	267	225	1099	971	717
STOR CHANGE	-639	261	6	-30	2	25	542	-487	-685	-595	-312	-114	-51	23	-141	346	571
STORAGE	17025	17286	17293	17263	17265	17290	17831	17345	16660	16065	15753	15639	15588	15611	15470	15815	16387
ELEV FTMSL	1601.4	1602.3	1602.4	1602.3	1602.3	1602.3	1604.2	1602.5	1600.1	1598.0	1596.8	1596.4	1596.2	1596.3	1595.8	1597.1	1599.2
DISCH KCFS	12.6	13.6	20.5	22.6	19.9	25.8	24.7	30.2	32.0	29.4	20.6	19.4	19.3	14.2	17.9	15.8	12.9
POWER																	
AVE POWER MW		171	258	284	250	324	311	380	398	362	252	236	234	172	217	192	159
PEAK POW MW		681	681	680	680	681	691	682	669	658	652	650	649	650	647	654	664
ENERGY GWH	2406.5	61.7	43.3	61.4	180.3	241.0	223.8	282.4	296.0	260.5	187.3	85.1	39.3	33.1	161.4	143.0	106.8
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	15930	406	285	404	1187	1589	1467	1848	1947	1726	1245	568	263	220	1088	971	717
RELEASE	15930	406	285	404	1187	1589	1467	1848	1947	1726	1245	568	263	220	1088	971	717
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	12.6	13.6	20.5	22.6	19.9	25.8	24.7	30.1	31.7	29.0	20.3	19.1	18.9	13.8	17.7	15.8	12.9
POWER																	
AVE POWER MW		65	96	106	93	121	115	141	148	137	99	96	95	70	87	77	62
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	918.2	23.3	16.1	22.9	67.2	90.0	83.1	104.6	110.2	99.0	73.9	34.5	16.0	13.4	65.0	57.2	41.7
--FORT RANDALL--																	
NAT INFLOW	900	119	55	71	155	140	135	70	65	30		10	5	5	5	-10	45
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	118							8	25	31	25	10	4	4	10		
REG INFLOW	16634	523	340	474	1339	1720	1590	1892	1971	1717	1220	567	263	221	1079	958	759
RELEASE	16634	232	206	474	1339	1720	1590	1892	1971	1862	1855	872	408	243	713	701	555
STOR CHANGE	0	291	134					0	0	-144	-635	-305	-145	-23	366	257	204
STORAGE	3124	3415	3549	3549	3549	3549	3549	3549	3549	3405	2770	2465	2320	2297	2663	2920	3124
ELEV FTMSL	1350.0	1353.6	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.1	1340.4	1337.9	1337.5	1343.5	1347.2	1350.0
DISCH KCFS	9.8	7.8	14.8	26.6	22.5	28.0	26.7	30.8	32.1	31.3	30.2	29.3	29.4	15.3	11.6	11.4	10.0
POWER																	
AVE POWER MW		65	125	224	190	236	225	259	270	261	242	222	215	112	87	89	81
PEAK POW MW		351	356	356	356	356	356	356	356	350	320	298	287	285	313	330	339
ENERGY GWH	1651.9	23.3	21.0	48.4	136.9	175.4	162.3	192.6	200.6	188.2	179.8	79.9	36.2	21.5	64.8	66.5	54.3
--GAVINS POINT--																	
NAT INFLOW	1500	104	49	62	145	160	175	100	90	95	120	60	28	32	80	85	115
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-2	4	-13	-23	8	-11	2	-8	-2	1	2	2	0	26	7	0	3
EVAPORATION	38							2	7	9	8	4	2	2	4		
REG INFLOW	17983	340	241	515	1487	1851	1744	1943	2042	1954	1968	925	432	297	786	785	673
RELEASE	17983	340	241	515	1487	1851	1744	1943	2029	1928	1968	925	432	297	786	785	712
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	11.4	17.4	28.8	25.0	30.1	29.3	31.6	33.0	32.4	32.0	31.1	31.1	18.7	12.8	12.8	12.8
POWER																	
AVE POWER MW		40	60	98	86	101	99	105	108	108	108	106	106	66	45	45	45
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	737.6	14.4	10.1	21.2	61.6	75.2	71.4	77.8	80.5	78.0	80.6	38.2	17.8	12.7	33.8	33.8	30.4
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1700	138	64	83	325	295	150	180	120	105	55	30	14	16	25	25	75
DEPLETION	267	7	3	4	22	36	31	39	37	24	11	6	3	3	13	14	14
REGULATED FLOW AT SIOUX CITY																	
KAF	19416	472	302	593	1790	2110	1863	2084	2112	2009	2012	949	443	310	798	796	773
KCFS		15.9	21.8	33.2	30.1	34.3	31.3	33.9	34.3	33.8	32.7	31.9	31.9	19.5	13.0	13.0	13.9
--TOTAL--																	
NAT INFLOW	24400	1283	598	769	2500	3295	6145	3210	1260	1080	1135	505	236	269	510	610	995
DEPLETION	2685	1	1	1	90	621	1628	1151	273	-188	-65	-154	-72	-82	-212	-203	-106
CHAN STOR	-29	72	-3	-23	-2	-87	-28	0	-2	54	30	2	0	26	-52	-18	3
EVAPORATION	1654							103	323	401	345	154	71	81	176		
STORAGE	52003	52884	53176	53329	53946	54423	57050	56922	55471	54382	53256	52813	52606	52593	52290	52289	52620
SYSTEM POWER																	
AVE POWER MW		587	773	946	868	1203	1194	1331	1370	1226	995	954	944	714	817	830	771
PEAK POW MW		2261	2261	2262	2268	2271	2302	2299	2282	2273	2255	2232	2220	2218	2201	2220	2225
ENERGY GWH	8942.1	211.5	129.9	204.4	625.2	895.1	860.0	990.2	1019.6	883.0	740.5	343.5	158.7	137.1	607.7	617.7	518.1
DAILY GWH		14.1	18.6	22.7	20.8	28.9	28.7	31.9	32.9	29.4	23.9	22.9	22.7	17.1	19.6	19.9	18.5
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

DATE OF STUDY 12/28/08 2008-2009 AOP EXTENSIONS, MEDIAN RUNOFF SIMULAT 99001 9901 4 PAGE 1

TIME OF STUDY 08:57:33 SHT NV 0, SP MR 5 MY 14.1, FTPK -4.2 OAHE -3.0 STUDY NO 12

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB13			2013												2014		
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	7200	230	107	138	600	1180	1810	840	315	295	430	180	84	96	300	250	345
DEPLETION	477	-25	-12	-15	15	304	556	248	12	-100	-43	-44	-20	-23	-135	-147	-95
EVAPORATION	418							26	82	100	87	39	18	21	45		
MOD INFLOW	6305	255	119	153	585	876	1254	566	221	295	386	184	86	98	390	397	440
RELEASE	6995	179	83	107	357	615	1083	646	646	526	492	238	111	127	615	615	555
STOR CHANGE	-689	76	35	46	228	261	171	-80	-424	-232	-106	-54	-25	-28	-225	-218	-115
STORAGE	13710	13786	13822	13867	14095	14357	14528	14448	14023	13792	13686	13632	13608	13579	13354	13137	13021
ELEV FTMSL	2227.7	2228.1	2228.2	2228.5	2229.6	2230.9	2231.8	2231.4	2229.3	2228.1	2227.5	2227.3	2227.1	2227.0	2225.8	2224.6	2224.0
DISCH KCFS	12.0	6.0	6.0	6.0	6.0	10.0	18.2	10.5	10.5	8.8	8.0	8.0	8.0	8.0	10.0	10.0	10.0
POWER																	
AVE POWER MW		80	80	80	81	134	160	141	140	119	107	107	107	107	133	132	132
PEAK POW MW		158	158	158	159	160	160	160	159	158	157	157	157	157	156	155	154
ENERGY GWH	1068.8	28.9	13.5	17.4	58.1	100.0	115.0	104.6	104.1	85.4	79.6	38.5	17.9	20.5	98.7	98.3	88.5
--GARRISON--																	
NAT INFLOW	10800	460	214	276	870	1325	3095	1860	595	460	495	195	91	104	180	260	320
DEPLETION	1074	-7	-3	-4	-4	182	871	652	89	-146	-32	-127	-59	-68	-119	-93	-58
CHAN STOR	19	60				-40	-81	75		16	8				-20		
EVAPORATION	518							33	102	125	107	48	22	26	55		
REG INFLOW	16221	705	301	387	1231	1718	3226	1896	1050	1023	920	512	239	273	839	968	933
RELEASE	17051	417	194	250	1071	1660	1666	1722	1722	1538	1168	565	264	301	1353	1660	1500
STOR CHANGE	-830	289	107	137	160	58	1560	174	-672	-515	-248	-53	-25	-28	-513	-692	-566
STORAGE	17419	17708	17815	17952	18112	18170	19729	19903	19231	18716	18468	18414	18389	18361	17848	17155	16589
ELEV FTMSL	1835.2	1836.2	1836.5	1837.0	1837.5	1837.7	1842.5	1843.1	1841.0	1839.4	1838.6	1838.5	1838.4	1838.3	1836.6	1834.3	1832.4
DISCH KCFS	22.0	14.0	14.0	14.0	18.0	27.0	28.0	28.0	28.0	25.9	19.0	19.0	19.0	19.0	22.0	27.0	27.0
POWER																	
AVE POWER MW		173	173	174	223	334	352	356	354	325	238	238	237	237	273	330	325
PEAK POW MW		463	465	466	468	469	495	498	481	475	472	472	471	471	465	456	449
ENERGY GWH	2570.0	62.1	29.1	37.5	160.9	248.8	253.4	264.8	263.7	234.3	177.3	85.5	39.9	45.6	203.0	245.4	218.7
--OAHE--																	
NAT INFLOW	2300	232	108	139	405	195	780	160	75	95	35	30	14	16	-80		95
DEPLETION	709	24	11	15	50	73	151	182	122	30	-11	1	0	1	13	18	29
CHAN STOR	-21	35			-17	-38	-4			9	29				-13	-21	
EVAPORATION	466							29	90	112	97	44	20	23	51		
REG INFLOW	18156	659	291	375	1409	1744	2291	1671	1585	1501	1146	551	257	294	1196	1621	1566
RELEASE	16291	406	286	406	1223	1620	1503	1853	1979	1763	1267	578	267	228	1142	1014	756
STOR CHANGE	1864	253	5	-31	186	124	788	-182	-394	-262	-120	-27	-10	65	54	607	809
STORAGE	16387	16640	16645	16614	16800	16924	17712	17530	17135	16874	16753	16726	16716	16781	16835	17442	18251
ELEV FTMSL	1599.2	1600.1	1600.1	1600.0	1600.6	1601.1	1603.8	1603.2	1601.8	1600.9	1600.5	1600.4	1600.3	1600.6	1600.8	1602.9	1605.6
DISCH KCFS	12.9	13.6	20.6	22.7	20.6	26.3	25.3	30.1	32.2	29.6	20.6	19.4	19.3	14.4	18.6	16.5	13.6
POWER																	
AVE POWER MW		169	256	282	255	328	317	380	403	369	256	241	239	179	231	207	173
PEAK POW MW		669	669	668	672	674	688	685	678	673	671	670	670	671	672	683	698
ENERGY GWH	2462.9	60.9	43.0	60.9	183.8	243.7	228.2	282.4	299.8	265.6	190.7	86.9	40.2	34.4	172.1	153.9	116.4
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	16188	406	286	406	1223	1620	1503	1847	1959	1738	1245	568	263	223	1131	1014	756
RELEASE	16188	406	286	406	1223	1620	1503	1847	1959	1738	1245	568	263	223	1131	1014	756
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	12.9	13.6	20.6	22.7	20.6	26.3	25.3	30.0	31.9	29.2	20.2	19.1	18.9	14.1	18.4	16.5	13.6
POWER																	
AVE POWER MW		65	97	106	96	123	118	141	149	138	99	96	95	71	91	80	65
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	933.0	23.3	16.2	23.0	69.3	91.7	85.1	104.6	110.9	99.6	73.9	34.5	16.0	13.6	67.6	59.8	43.9
--FORT RANDALL--																	
NAT INFLOW	900	119	55	71	155	140	135	70	65	30		10	5	5	5	-10	45
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	118							8	25	31	25	10	4	4	10		
REG INFLOW	16892	523	341	476	1375	1751	1626	1891	1984	1729	1219	567	263	224	1122	1001	798
RELEASE	16892	232	207	476	1375	1751	1626	1891	1984	1873	1854	872	408	247	756	744	594
STOR CHANGE	0	291	134					0	0	-144	-635	-305	-145	-23	366	257	204
STORAGE	3124	3415	3549	3549	3549	3549	3549	3549	3549	3405	2770	2465	2320	2297	2663	2920	3124
ELEV FTMSL	1350.0	1353.6	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.1	1340.4	1337.9	1337.5	1343.5	1347.2	1350.0
DISCH KCFS	10.0	7.8	14.9	26.7	23.1	28.5	27.3	30.7	32.3	31.5	30.2	29.3	29.4	15.6	12.3	12.1	10.7
POWER																	
AVE POWER MW		65	126	225	195	240	230	259	271	263	242	222	215	114	92	95	86
PEAK POW MW		351	356	356	356	356	356	356	356	350	320	298	287	285	313	330	339
ENERGY GWH	1676.8	23.3	21.1	48.6	140.6	178.5	165.9	192.5	201.9	189.4	179.8	79.9	36.2	21.8	68.7	70.6	58.0
--GAVINS POINT--																	
NAT INFLOW	1500	104	49	62	145	160	175	100	90	95	120	60	28	32	80	85	115
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-3	4	-14	-23	7	-10	2	-7	-3	1	2	2	0	26	6	0	3
EVAPORATION	38							2	7	9	8	4	2	2	4		
REG INFLOW	18239	341	242	516	1523	1882	1779	1943	2054	1966	1968	925	432	300	828	828	712
RELEASE	18239	341	242	516	1523	1882	1779	1943	2041	1940	1968	925	432	300	828	828	751
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.8	11.5	17.4	28.9	25.6	30.6	29.9	31.6	33.2	32.6	32.0	31.1	31.1	18.9	13.5	13.5	13.5
POWER																	
AVE POWER MW		40	60	98	87	102	101	105	109	109	108	106	106	67	48	48	48
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	747.1	14.5	10.2	21.2	63.0	76.1	72.5	77.8	80.8	78.3	80.6	38.2	17.8	12.8	35.6	35.6	32.0
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1700	138	64	83	325	295	150	180	120	105	55	30	14	16	25	25	75
DEPLETION	270	7	3	4	23	36	31	39	37	25	11	6	3	3	13	14	15
REGULATED FLOW AT SIOUX CITY																	
KAF	19669	472	303	595	1825	2141	1898	2084	2124	2020	2012	949	443	313	840	839	811
KCFS		15.9	21.8	33.3	30.7	34.8	31.9	33.9	34.5	33.9	32.7	31.9	31.9	19.7	13.7	13.7	14.6
--TOTAL--																	
NAT INFLOW	24400	1283	598	769	2500	3295	6145	3210	1260	1080	1135	505	236	269	510	610	995
DEPLETION	2721	0	0	0	91	623	1645	1178	285	-189	-73	-158	-73	-84	-215	-204	-106
CHAN STOR	-5	99	-14	-23	-10	-88	-83	68	-3	27	40	2	0	26	-27	-21	3
EVAPORATION	1660							104	325	403	346	154	71	81	176		
STORAGE	52620	53529	53810	53961	54535	54978	57496	57409	55931	54804	53695	53256	53051	53036	52718	52672	52965
SYSTEM POWER																	
AVE POWER MW		592	792	966	938	1262	1278	1380	1426	1323	1051	1010	1000	775	868	892	830
PEAK POW MW		2272	2271	2272	2278	2282	2323	2323	2298	2291	2275	2252	2241	2239	2222	2241	2246
ENERGY GWH	9458.5	213.0	133.1	208.6	675.7	938.7	920.0	1026.7	1061.3	952.5	781.8	363.5	168.0	148.7	645.6	663.6	557.5
DAILY GWH		14.2	19.0	23.2	22.5	30.3	30.7	33.1	34.2	31.8	25.2	24.2	24.0	18.6	20.8	21.4	19.9
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

DATE OF STUDY 12/28/08 2008-2009 AOP EXTENSIONS, MEDIAN RUNOFF SIMULAT 99001 9901 4 PAGE 1

TIME OF STUDY 08:57:33 SHT NV 0, SP MR 5 MY 13.7, FTPK +4.2 GARR -3.0 STUDY NO 13

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	230	107	138	600	1180	1810	840	315	295	430	180	84	96	300	250	345
DEPLETION	488	-25	-12	-15	15	305	560	255	17	-100	-45	-44	-21	-23	-136	-148	-95
EVAPORATION	446							27	85	106	94	43	20	23	49		
MOD INFLOW	6266	255	119	153	585	875	1250	558	213	289	381	181	85	97	387	398	440
RELEASE	4358	179	83	107	357	369	417	430	430	253	246	119	56	63	430	430	389
STOR CHANGE	1907	77	36	46	228	506	833	128	-217	36	135	62	29	33	-44	-32	51
STORAGE	13021	13098	13133	13179	13407	13913	14747	14875	14657	14693	14829	14891	14920	14954	14910	14877	14929
ELEV FTMSL	2224.0	2224.4	2224.6	2224.9	2226.1	2228.7	2232.8	2233.4	2232.4	2232.6	2233.2	2233.5	2233.6	2233.8	2233.6	2233.4	2233.7
DISCH KCFS	10.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	4.2	4.0	4.0	4.0	4.0	7.0	7.0	7.0
POWER																	
AVE POWER MW		79	79	80	80	80	95	95	95	58	54	55	55	55	95	95	95
PEAK POW MW		155	155	155	156	158	161	162	161	161	162	162	162	162	162	162	162
ENERGY GWH	713.1	28.6	13.3	17.2	57.4	59.7	68.1	70.8	70.8	41.5	40.5	19.6	9.2	10.5	71.0	70.9	64.1
--GARRISON--																	
NAT INFLOW	10800	460	214	276	870	1325	3095	1860	595	460	495	195	91	104	180	260	320
DEPLETION	728	-6	-3	-4	-3	-182	881	668	95	-149	-36	-131	-61	-70	-120	-93	-58
CHAN STOR	30	41					-10			27	2				-30		
EVAPORATION	498							31	98	121	104	46	22	25	53		
REG INFLOW	13962	685	301	387	1230	1876	2621	1591	833	768	676	399	186	213	648	783	767
RELEASE	14467	476	222	286	1101	1537	1369	1353	1353	1092	984	476	222	254	1168	1353	1222
STOR CHANGE	-505	209	79	101	129	339	1252	239	-520	-324	-308	-77	-36	-41	-521	-569	-455
STORAGE	16589	16798	16877	16978	17107	17446	18698	18936	18416	18092	17784	17707	17671	17630	17109	16540	16085
ELEV FTMSL	1832.4	1833.1	1833.4	1833.7	1834.2	1835.3	1839.4	1840.1	1838.5	1837.4	1836.4	1836.2	1836.1	1835.9	1834.2	1832.2	1830.6
DISCH KCFS	27.0	16.0	16.0	16.0	18.5	25.0	23.0	22.0	22.0	18.4	16.0	16.0	16.0	16.0	19.0	22.0	22.0
POWER																	
AVE POWER MW		193	194	194	225	304	285	277	276	229	198	198	197	197	232	266	263
PEAK POW MW		452	453	454	456	460	475	478	472	468	464	463	463	462	456	449	443
ENERGY GWH	2150.2	69.6	32.6	42.0	161.9	226.4	205.1	205.8	205.3	164.7	147.7	71.2	33.2	37.9	173.0	197.6	176.4
--OAHE--																	
NAT INFLOW	2300	232	108	139	405	195	780	160	75	95	35	30	14	16	-80		95
DEPLETION	724	25	12	15	51	75	154	187	125	30	-12	1	0	1	13	19	29
CHAN STOR	20	45			-10	-26	8	4		15	10				-13	-13	0
EVAPORATION	477							31	94	115	98	44	20	23	51		
REG INFLOW	15586	728	319	410	1445	1631	2003	1299	1208	1057	943	461	215	246	1012	1321	1288
RELEASE	16209	406	286	406	1248	1638	1527	1852	1979	1763	1267	578	267	223	1093	965	712
STOR CHANGE	-623	322	33	4	197	-7	476	-553	-771	-705	-324	-117	-52	23	-81	356	576
STORAGE	18251	18574	18606	18610	18807	18801	19276	18723	17952	17247	16923	16806	16754	16777	16696	17052	17628
ELEV FTMSL	1605.6	1606.7	1606.8	1606.8	1607.4	1607.4	1608.9	1607.1	1604.6	1602.2	1601.1	1600.7	1600.5	1600.6	1600.3	1601.5	1603.5
DISCH KCFS	13.6	13.6	20.6	22.7	21.0	26.6	25.7	30.1	32.2	29.6	20.6	19.4	19.3	14.1	17.8	15.7	12.8
POWER																	
AVE POWER MW		175	265	292	270	343	332	389	410	373	258	242	240	175	221	196	162
PEAK POW MW		703	704	704	707	707	715	706	692	680	674	672	671	671	670	676	687
ENERGY GWH	2494.8	63.1	44.5	63.2	194.6	255.4	239.1	289.4	305.4	268.6	191.7	87.1	40.3	33.6	164.5	145.7	108.6
--BIG BEND--																	
EVAPORATION	103							6	20	25	22	10	5	5	11		
REG INFLOW	16106	406	286	406	1248	1638	1527	1846	1959	1738	1245	568	263	218	1081	965	712
RELEASE	16106	406	286	406	1248	1638	1527	1846	1959	1738	1245	568	263	218	1081	965	712
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	13.6	13.6	20.6	22.7	21.0	26.6	25.7	30.0	31.9	29.2	20.2	19.1	18.9	13.7	17.6	15.7	12.8
POWER																	
AVE POWER MW		65	97	106	98	125	120	140	149	138	99	96	95	69	87	76	62
PEAK POW MW		517	509	509	509	509	509	509	509	517	538	538	538	538	538	538	529
ENERGY GWH	928.0	23.3	16.2	23.0	70.7	92.8	86.5	104.5	111.0	99.6	73.9	34.5	16.0	13.3	64.7	56.9	41.3
--FORT RANDALL--																	
NAT INFLOW	900	119	55	71	155	140	135	70	65	30		10	5	5	5	-10	45
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	118							8	25	31	25	10	4	4	10		
REG INFLOW	16810	523	341	476	1400	1769	1650	1890	1984	1729	1219	567	263	219	1073	952	754
RELEASE	16810	232	207	476	1400	1769	1650	1890	1984	1873	1854	872	408	242	707	695	550
STOR CHANGE	0	291	134					0	0	-144	-635	-305	-145	-23	366	257	204
STORAGE	3124	3415	3549	3549	3549	3549	3549	3549	3549	3405	2770	2465	2320	2297	2663	2920	3124
ELEV FTMSL	1350.0	1353.6	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1353.5	1345.1	1340.4	1337.9	1337.5	1343.5	1347.2	1350.0
DISCH KCFS	10.7	7.8	14.9	26.7	23.5	28.8	27.7	30.7	32.3	31.5	30.2	29.3	29.4	15.2	11.5	11.3	9.9
POWER																	
AVE POWER MW		65	126	225	199	242	234	259	271	263	242	222	215	111	86	89	80
PEAK POW MW		351	356	356	356	356	356	356	356	350	320	298	287	285	313	330	339
ENERGY GWH	1669.6	23.3	21.1	48.6	143.1	180.3	168.3	192.4	201.9	189.4	179.8	79.9	36.2	21.3	64.3	66.0	53.7
--GAVINS POINT--																	
NAT INFLOW	1500	104	49	62	145	160	175	100	90	95	120	60	28	32	80	85	115
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	0	6	-14	-23	6	-10	2	-6	-3	1	2	2	0	26	7	0	3
EVAPORATION	38							2	7	9	8	4	2	2	4		
REG INFLOW	18160	342	242	516	1547	1900	1803	1943	2054	1966	1968	925	432	295	780	779	667
RELEASE	18160	342	242	516	1547	1900	1803	1943	2041	1940	1968	925	432	295	780	779	706
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	13.5	11.5	17.4	28.9	26.0	30.9	30.3	31.6	33.2	32.6	32.0	31.1	31.1	18.6	12.7	12.7	12.7
POWER																	
AVE POWER MW		40	60	98	89	103	102	105	109	109	108	106	106	66	45	45	45
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	743.1	14.5	10.2	21.2	63.9	76.6	73.2	77.8	80.8	78.3	80.6	38.2	17.8	12.6	33.5	33.5	30.1
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1700	138	64	83	325	295	150	180	120	105	55	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	19584	473	303	595	1849	2159	1921	2084	2123	2020	2012	949	443	308	791	789	766
KCFS		15.9	21.8	33.3	31.1	35.1	32.3	33.9	34.5	33.9	32.7	31.9	31.9	19.4	12.9	12.8	13.8
--TOTAL--																	
NAT INFLOW	24400	1283	598	769	2500	3295	6145	3210	1260	1080	1135	505	236	269	510	610	995
DEPLETION	2407	1	1	1	93	262	1663	1206	300	-192	-80	-162	-75	-86	-216	-203	-106
CHAN STOR	51	91	-14	-23	-4	-36	0	-2	-3	44	15	2	0	27	-36	-12	3
EVAPORATION	1680							105	328	407	350	156	72	82	179		
STORAGE	52965	53864	54145	54296	54850	55688	58249	58062	56567	55456	54324	53888	53683	53676	53396	53407	53745
SYSTEM POWER																	
AVE POWER MW		618	821	996	961	1198	1167	1265	1311	1170	960	918	908	673	767	767	706
PEAK POW MW		2292	2292	2293	2299	2305	2331	2325	2306	2294	2274	2250	2238	2236	2216	2233	2235
ENERGY GWH	8698.9	222.4	138.0	215.2	691.6	891.2	840.2	940.8	975.1	842.2	714.2	330.6	152.6	129.3	570.9	570.6	474.3
DAILY GWH		14.8	19.7	23.9	23.1	28.7	28.0	30.3	31.5	28.1	23.0	22.0	21.8	16.2	18.4	18.4	16.9
	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

	28FEB10		2010											2011			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	6100	207	96	124	493	971	1505	676	290	259	346	168	78	89	264	224	310
DEPLETION	469	-12	-6	-7	48	286	528	219	-9	-112	-50	-38	-18	-20	-119	-132	-89
EVAPORATION	448							28	86	107	94	42	20	23	49		
MOD INFLOW	5183	219	102	131	445	685	977	429	213	264	302	163	76	87	334	356	399
RELEASE	5361	149	69	89	357	492	536	553	553	351	307	149	69	79	553	553	500
STOR CHANGE	-178	70	33	42	88	193	441	-124	-340	-87	-5	14	7	8	-219	-197	-101
STORAGE	10640	10710	10743	10785	10873	11066	11507	11383	11043	10956	10951	10965	10972	10980	10760	10563	10462
ELEV FTMSL	2210.4	2210.9	2211.1	2211.3	2211.8	2213.0	2215.6	2214.9	2212.9	2212.3	2212.3	2212.4	2212.4	2212.5	2211.2	2210.0	2209.4
DISCH KCFS	7.5	5.0	5.0	5.0	6.0	8.0	9.0	9.0	9.0	5.9	5.0	5.0	5.0	5.0	9.0	9.0	9.0
POWER																	
AVE POWER MW		62	62	62	75	100	114	114	113	74	63	63	63	63	112	111	111
PEAK POW MW		140	140	141	141	143	145	145	142	142	142	142	142	142	140	139	138
ENERGY GWH	811.5	22.4	10.5	13.5	53.9	74.4	81.7	84.8	84.3	53.3	46.6	22.6	10.5	12.0	83.4	82.9	74.6
--GARRISON--																	
NAT INFLOW	9338	430	200	258	716	1127	2674	1609	513	396	426	168	78	89	152	223	279
DEPLETION	987	7	3	4	15	132	775	598	87	-134		-117	-54	-62	-116	-90	-61
CHAN STOR	-16	27			-11	-21	-11			33	10			0	-42		
EVAPORATION	521							32	100	125	109	49	23	26	57		
REG INFLOW	13175	599	267	343	1047	1465	2424	1533	879	789	634	384	179	205	722	866	840
RELEASE	13384	387	180	232	1071	1537	1428	1291	1291	949	738	357	167	190	1107	1291	1166
STOR CHANGE	-209	212	86	111	-24	-72	996	241	-412	-161	-104	26	12	14	-385	-425	-326
STORAGE	12800	13012	13098	13209	13185	13114	14109	14351	13939	13778	13674	13701	13713	13727	13342	12918	12591
ELEV FTMSL	1818.1	1818.9	1819.3	1819.7	1819.6	1819.3	1823.3	1824.2	1822.6	1822.0	1821.6	1821.7	1821.7	1821.8	1820.3	1818.6	1817.2
DISCH KCFS	23.0	13.0	13.0	13.0	18.0	25.0	24.0	21.0	21.0	16.0	12.0	12.0	12.0	12.0	18.0	21.0	21.0
POWER																	
AVE POWER MW		143	144	144	199	275	267	238	238	180	135	135	135	135	201	231	229
PEAK POW MW		400	401	403	403	402	416	419	414	411	410	410	410	411	405	399	394
ENERGY GWH	1804.2	51.5	24.1	31.1	143.3	204.6	192.6	177.3	176.9	129.5	100.6	48.6	22.7	26.0	149.5	172.1	153.8
--OAHE--																	
NAT INFLOW	1369	214	100	128	190	137	290	147	68	79	16	13	6	7	-95	-10	79
DEPLETION	666	24	11	14	49	70	142	169	112	27	-10	1	0	1	12	17	27
CHAN STOR	9	49			-24	-34	5	14		25	20				-30	-15	
EVAPORATION	470							29	91	113	98	44	21	23	51		
REG INFLOW	13627	626	269	346	1188	1570	1581	1254	1157	913	686	325	152	173	919	1249	1218
RELEASE	13840	421	279	404	1195	1541	1435	1697	1536	858	1165	226	121	136	928	1014	884
STOR CHANGE	-213	205	-9	-58	-7	29	146	-443	-379	55	-479	100	30	37	-9	235	334
STORAGE	13389	13594	13585	13526	13519	13549	13694	13252	12872	12927	12448	12548	12578	12615	12606	12842	13176
ELEV FTMSL	1587.5	1588.3	1588.3	1588.0	1588.0	1588.1	1588.7	1586.9	1585.2	1585.5	1583.4	1583.8	1584.0	1584.1	1584.1	1585.1	1586.5
DISCH KCFS	16.0	14.1	20.1	22.6	20.1	25.1	24.1	27.6	25.0	14.4	18.9	7.6	8.7	8.6	15.1	16.5	15.9
POWER																	
AVE POWER MW		164	233	263	233	290	280	319	286	165	215	86	99	98	171	188	183
PEAK POW MW		610	610	609	609	609	612	603	594	595	584	586	587	588	588	593	601
ENERGY GWH	1925.1	59.1	39.2	56.7	167.7	215.9	201.6	237.2	212.7	118.8	160.1	31.0	16.7	18.7	127.5	139.6	122.6
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13711	421	279	404	1195	1541	1435	1690	1511	827	1138	213	116	130	914	1014	884
RELEASE	13711	421	279	404	1195	1541	1435	1690	1511	827	1138	213	116	130	914	1014	884
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	16.0	14.1	20.1	22.6	20.1	25.1	24.1	27.5	24.6	13.9	18.5	7.2	8.3	8.2	14.9	16.5	15.9
POWER																	
AVE POWER MW		67	94	106	94	117	113	129	116	69	93	36	42	41	75	81	76
PEAK POW MW		517	510	509	509	509	509	509	519	538	538	538	538	538	538	538	529
ENERGY GWH	796.0	24.1	15.8	22.9	67.7	87.3	81.3	95.7	86.5	50.0	69.2	13.1	7.1	8.0	55.7	60.3	51.3
--FORT RANDALL--																	
NAT INFLOW	480	77	36	46	96	69	133	37	27		-21	-8	-4	-4	-32	-16	43
DEPLETION	79	1	1	1	3	9	12	18	15	7	-1	1	0	1	3	3	3
EVAPORATION	131							10	31	34	24	10	5	5	12		
REG INFLOW	13982	497	314	450	1288	1601	1556	1699	1492	786	1092	196	107	119	866	995	924
RELEASE	13982	223	179	433	1288	1601	1556	1699	1677	1587	1360	196	107	119	713	695	550
STOR CHANGE	0	274	135	17				0	-184	-800	-268	0	0	0	153	300	374
STORAGE	3123	3397	3532	3549	3549	3549	3549	3549	3365	2565	2297	2296	2296	2296	2449	2749	3123
ELEV FTMSL	1350.0	1353.4	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1353.0	1342.0	1337.5	1337.5	1337.5	1337.5	1340.2	1344.8	1350.0
DISCH KCFS	10.0	7.5	12.9	24.3	21.6	26.0	26.2	27.6	27.3	26.7	22.1	6.6	7.7	7.5	11.6	11.3	9.9
POWER																	
AVE POWER MW		62	109	205	183	220	221	233	228	211	164	48	56	55	86	86	79
PEAK POW MW		350	355	356	356	356	356	356	349	305	285	285	285	285	297	319	339
ENERGY GWH	1374.2	22.4	18.3	44.2	131.8	163.4	158.9	173.3	169.5	151.8	121.8	17.4	9.5	10.6	63.8	64.3	53.2
--GAVINS POINT--																	
NAT INFLOW	1318	89	41	53	127	142	152	86	76	81	112	53	25	28	76	76	101
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	5	-10	-22	5	-8	0	-3	1	1	8	29	-2	0	-8	1	3
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	15140	317	210	465	1416	1716	1684	1740	1735	1662	1470	268	125	143	766	770	653
RELEASE	15140	317	210	465	1416	1716	1684	1740	1722	1636	1470	268	125	143	766	770	692
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	10.7	15.1	26.0	23.8	27.9	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		37	53	89	82	95	96	96	96	95	84	32	32	32	44	45	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	633.1	13.4	8.9	19.2	58.7	70.7	69.3	71.6	71.3	68.7	62.5	11.6	5.4	6.2	32.9	33.1	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1095	126	59	76	146	177	94	109	78	63	37	26	12	14	10	21	47
DEPLETION	263	7	3	4	22	35	31	38	36	24	10	6	3	3	13	14	14
REGULATED FLOW AT SIOUX CITY																	
KAF	15972	436	266	536	1540	1858	1747	1811	1764	1675	1497	288	134	154	763	777	725
KCFS		14.7	19.1	30.0	25.9	30.2	29.4	29.5	28.7	28.2	24.3	9.7	9.7	9.7	12.4	12.6	13.1
--TOTAL--																	
NAT INFLOW	19700	1143	533	685	1768	2623	4848	2664	1052	878	916	419	196	223	375	518	859
DEPLETION	2576	26	12	16	141	551	1512	1081	251	-193	-48	-142	-66	-75	-197	-187	-106
CHAN STOR	-6	80	-10	-22	-30	-64	-6	12	1	59	38	30	-2	0	-80	-14	3
EVAPORATION	1746							109	341	422	362	162	76	87	188		
STORAGE	41932	42692	42937	43048	43106	43256	44839	44514	43211	42244	41388	41528	41577	41636	41177	41090	41332
SYSTEM POWER																	
AVE POWER MW		536	695	869	866	1097	1091	1129	1077	795	754	401	428	424	689	742	722
PEAK POW MW		2132	2132	2132	2132	2133	2154	2146	2133	2108	2075	2078	2079	2080	2047	2066	2077
ENERGY GWH	7344.0	193.0	116.7	187.6	623.2	816.3	785.3	839.9	801.1	572.1	560.8	144.2	71.9	81.5	512.9	552.4	485.1
DAILY GWH		12.9	16.7	20.8	20.8	26.3	26.2	27.1	25.8	19.1	18.1	9.6	10.3	10.2	16.5	17.8	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

	28FEB11		2011											2012			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB
--FORT PECK--																	
NAT INFLOW	6345	215	100	129	513	1010	1565	703	301	270	360	175	81	93	275	233	322
DEPLETION	453	-26	-12	-15	22	288	559	228	-5	-112	-52	-38	-18	-20	-118	-131	-98
EVAPORATION	447							27	86	107	94	42	20	23	49		
MOD INFLOW	5445	241	112	144	491	722	1006	448	220	275	318	170	79	90	344	364	420
RELEASE	5388	149	69	89	357	553	536	553	553	298	307	149	69	79	553	553	518
STOR CHANGE	57	92	43	55	134	169	470	-106	-333	-23	11	21	10	11	-209	-189	-98
STORAGE	10462	10554	10597	10652	10786	10954	11425	11319	10986	10963	10974	10994	11004	11015	10806	10616	10519
ELEV FTMSL	2209.4	2209.9	2210.2	2210.5	2211.3	2212.3	2215.1	2214.5	2212.5	2212.4	2212.4	2212.6	2212.6	2212.7	2211.4	2210.3	2209.7
DISCH KCFS	9.0	5.0	5.0	5.0	6.0	9.0	9.0	9.0	9.0	5.0	5.0	5.0	5.0	5.0	9.0	9.0	9.0
POWER																	
AVE POWER MW		62	62	62	75	112	113	114	113	63	63	63	63	63	112	112	111
PEAK POW MW		139	139	140	141	142	145	144	142	142	142	142	142	142	141	139	139
ENERGY GWH	814.7	22.3	10.4	13.4	53.7	83.4	81.5	84.7	84.1	45.3	46.7	22.6	10.5	12.1	83.5	83.1	77.4
--GARRISON--																	
NAT INFLOW	9674	445	208	267	741	1167	2771	1667	531	410	442	174	81	93	158	231	289
DEPLETION	1042	-1	0	-1	4	194	788	615	94	-136	-2	-120	-56	-64	-116	-90	-67
CHAN STOR	0	43			-11	-32				42	0			0	-42		
EVAPORATION	525							32	101	126	110	50	23	26	57		
REG INFLOW	13496	638	278	357	1083	1494	2519	1573	890	760	642	393	183	209	728	874	874
RELEASE	13427	387	180	232	1071	1476	1428	1291	1291	893	738	357	167	190	1107	1353	1265
STOR CHANGE	69	251	97	125	12	19	1090	282	-402	-133	-96	36	17	19	-379	-478	-392
STORAGE	12591	12843	12940	13064	13077	13095	14186	14468	14066	13933	13837	13873	13890	13909	13530	13052	12660
ELEV FTMSL	1817.2	1818.2	1818.6	1819.1	1819.2	1819.3	1823.6	1824.7	1823.1	1822.6	1822.2	1822.4	1822.4	1822.5	1821.0	1819.1	1817.5
DISCH KCFS	21.0	13.0	13.0	13.0	18.0	24.0	24.0	21.0	21.0	15.0	12.0	12.0	12.0	12.0	18.0	22.0	22.0
POWER																	
AVE POWER MW		142	143	143	198	264	268	239	239	170	136	136	136	136	202	243	240
PEAK POW MW		398	399	401	401	401	417	421	415	413	412	413	413	413	408	401	395
ENERGY GWH	1812.8	51.2	24.0	31.0	142.8	196.1	192.7	177.8	177.5	122.4	101.0	48.8	22.8	26.1	150.2	181.0	167.3
--OAHE--																	
NAT INFLOW	1547	242	113	145	214	155	327	167	77	89	18	15	7	8	-107	-12	89
DEPLETION	681	24	11	14	49	71	145	173	116	28	-10	1	0	1	12	18	28
CHAN STOR	-5	39			-24	-29		14		30	15				-30	-20	
EVAPORATION	466							29	90	111	97	44	20	23	51		
REG INFLOW	13822	644	282	363	1212	1531	1610	1270	1162	873	684	327	153	174	907	1303	1326
RELEASE	13752	408	271	395	1175	1524	1408	1687	1714	939	903	226	121	136	933	1011	902
STOR CHANGE	71	236	11	-32	37	7	202	-417	-551	-66	-219	102	32	39	-26	292	424
STORAGE	13176	13413	13424	13392	13428	13435	13637	13220	12669	12603	12384	12486	12518	12556	12530	12822	13247
ELEV FTMSL	1586.5	1587.6	1587.6	1587.5	1587.6	1587.6	1588.5	1586.7	1584.3	1584.1	1583.1	1583.5	1583.7	1583.9	1583.7	1585.0	1586.8
DISCH KCFS	15.9	13.7	19.5	22.1	19.7	24.8	23.7	27.4	27.9	15.8	14.7	7.6	8.7	8.6	15.2	16.4	15.7
POWER																	
AVE POWER MW		158	226	256	228	286	274	317	318	179	166	86	99	97	172	187	180
PEAK POW MW		606	606	606	607	607	611	602	589	588	583	585	586	587	586	593	603
ENERGY GWH	1908.1	57.0	38.0	55.2	164.4	213.0	197.4	235.6	236.3	129.0	123.7	30.9	16.6	18.7	127.9	139.0	125.3
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13623	408	271	395	1175	1524	1408	1680	1689	908	876	213	115	129	919	1011	902
RELEASE	13623	408	271	395	1175	1524	1408	1680	1689	908	876	213	115	129	919	1011	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	15.9	13.7	19.5	22.1	19.7	24.8	23.7	27.3	27.5	15.3	14.2	7.2	8.3	8.2	14.9	16.4	15.7
POWER																	
AVE POWER MW		65	92	104	92	116	111	128	129	75	72	36	42	41	75	81	75
PEAK POW MW		517	510	509	509	509	509	509	509	538	538	538	538	538	538	538	529
ENERGY GWH	788.5	23.4	15.4	22.4	66.6	86.3	79.8	95.1	95.7	53.8	53.5	13.1	7.1	7.9	56.0	60.1	52.4
--FORT RANDALL--																	
NAT INFLOW	560	91	42	54	112	81	155	44	31		-25	-10	-4	-5	-37	-19	50
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	136							10	32	36	25	10	5	5	12		
REG INFLOW	13969	497	313	448	1284	1596	1551	1696	1673	864	824	194	106	118	866	989	949
RELEASE	13969	223	178	431	1284	1596	1551	1696	1674	1584	1357	194	106	118	713	689	575
STOR CHANGE	0	274	135	17				0	0	-719	-533	0	0	0	153	300	374
STORAGE	3123	3397	3532	3549	3549	3549	3549	3549	3549	2830	2297	2297	2296	2296	2449	2749	3123
ELEV FTMSL	1350.0	1353.4	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1346.0	1337.5	1337.5	1337.5	1337.5	1340.2	1344.8	1350.0
DISCH KCFS	9.9	7.5	12.8	24.2	21.6	26.0	26.1	27.6	27.2	26.6	22.1	6.5	7.6	7.5	11.6	11.2	10.0
POWER																	
AVE POWER MW		62	108	204	183	219	220	232	229	216	166	48	56	55	86	86	80
PEAK POW MW		350	355	356	356	356	356	356	356	324	284	285	285	285	297	319	339
ENERGY GWH	1380.7	22.4	18.2	44.1	131.4	162.9	158.4	173.0	170.7	155.6	123.8	17.2	9.4	10.5	63.8	63.7	55.6
--GAVINS POINT--																	
NAT INFLOW	1361	91	42	55	131	147	157	89	79	84	115	55	26	29	78	78	105
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	5	-10	-22	5	-8	0	-3	1	1	8	29	-2	0	-8	1	2
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	15169	319	210	465	1416	1716	1684	1740	1735	1662	1470	268	125	143	768	766	682
RELEASE	15169	319	210	465	1416	1716	1684	1740	1722	1636	1470	268	125	143	768	766	721
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	10.7	15.2	26.0	23.8	27.9	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		38	53	89	82	95	96	96	96	95	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	634.3	13.5	8.9	19.2	58.7	70.7	69.3	71.6	71.3	68.7	62.5	11.6	5.4	6.2	33.0	32.9	30.8
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1212	140	65	84	162	196	104	121	87	69	40	29	14	15	11	23	52
DEPLETION	266	7	3	4	22	36	31	39	36	24	11	6	3	3	13	14	14
REGULATED FLOW AT SIOUX CITY																	
KAF	16115	452	272	544	1556	1876	1757	1822	1773	1681	1499	291	136	155	766	775	759
KCFS		15.2	19.6	30.5	26.1	30.5	29.5	29.6	28.8	28.3	24.4	9.8	9.8	9.8	12.5	12.6	13.2
--TOTAL--																	
NAT INFLOW	20699	1224	571	734	1873	2756	5079	2791	1106	922	950	438	204	233	378	534	907
DEPLETION	2633	5	2	3	104	617	1559	1112	266	-194	-51	-145	-67	-77	-196	-185	-120
CHAN STOR	-6	87	-10	-22	-30	-70	0	12	1	73	23	30	-2	0	-80	-19	2
EVAPORATION	1749							109	341	423	363	163	76	87	189		
STORAGE	41332	42185	42471	42636	42819	43013	44775	44535	43262	42347	41510	41668	41726	41795	41334	41258	41528
SYSTEM POWER																	
AVE POWER MW		527	684	858	858	1092	1082	1126	1123	798	687	401	428	424	692	753	731
PEAK POW MW		2125	2125	2126	2128	2129	2153	2147	2127	2122	2076	2080	2081	2082	2048	2068	2080
ENERGY GWH	7339.0	189.9	114.9	185.3	617.7	812.5	779.1	837.7	835.6	574.8	511.0	144.2	71.8	81.4	514.5	559.9	508.7
DAILY GWH		12.7	16.4	20.6	20.6	26.2	26.0	27.0	27.0	19.2	16.5	9.6	10.3	10.2	16.6	18.1	17.5
	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

28FEB12	INI-SUM	2012 15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	2013 30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	6537	222	103	133	528	1041	1613	724	310	278	370	180	84	96	283	240	332
DEPLETION	471	-25	-12	-15	22	289	564	234		-113	-53	-39	-18	-21	-120	-133	-90
EVAPORATION	453							28	87	108	95	43	20	23	49		
MOD INFLOW	5613	246	115	148	506	752	1049	462	223	283	328	176	82	94	354	373	422
RELEASE	5366	149	69	89	357	523	506	523	523	416	307	149	69	79	553	553	500
STOR CHANGE	247	98	45	58	149	229	543	-60	-300	-133	21	27	13	15	-200	-180	-78
STORAGE	10519	10616	10662	10720	10869	11099	11642	11581	11282	11148	11169	11197	11209	11224	11024	10844	10766
ELEV FTMSL	2209.7	2210.3	2210.6	2210.9	2211.8	2213.2	2216.4	2216.0	2214.3	2213.5	2213.6	2213.8	2213.8	2213.9	2212.7	2211.7	2211.2
DISCH KCFS	9.0	5.0	5.0	5.0	6.0	8.5	8.5	8.5	8.5	7.0	5.0	5.0	5.0	5.0	9.0	9.0	9.0
POWER																	
AVE POWER MW		62	62	62	75	106	107	108	108	88	63	63	63	63	113	112	112
PEAK POW MW		139	140	140	141	143	146	146	144	143	143	143	143	144	142	141	140
ENERGY GWH	815.9	22.3	10.4	13.4	53.9	79.1	77.4	80.5	80.1	63.5	46.9	22.7	10.6	12.1	84.1	83.6	75.2
--GARRISON--																	
NAT INFLOW	9933	457	213	274	761	1198	2845	1711	545	421	454	178	83	95	162	238	297
DEPLETION	1063	0	0	0	5	195	799	632	99	-139	-7	-124	-58	-66	-119	-92	-62
CHAN STOR	0	43			-11	-27	0	0		16	21			0	-42		
EVAPORATION	531							32	102	128	111	50	23	27	58		
REG INFLOW	13705	650	283	364	1102	1499	2552	1569	866	864	678	400	187	213	735	883	859
RELEASE	13405	387	180	232	1041	1476	1250	1291	1291	1002	799	387	180	206	1107	1353	1222
STOR CHANGE	300	263	102	132	61	23	1302	278	-425	-138	-121	13	6	7	-372	-469	-363
STORAGE	12660	12923	13025	13157	13218	13241	14543	14821	14396	14259	14138	14151	14157	14164	13792	13323	12960
ELEV FTMSL	1817.5	1818.6	1819.0	1819.5	1819.8	1819.9	1824.9	1826.0	1824.4	1823.9	1823.4	1823.4	1823.5	1823.5	1822.0	1820.2	1818.7
DISCH KCFS	22.0	13.0	13.0	13.0	17.5	24.0	21.0	21.0	21.0	16.8	13.0	13.0	13.0	13.0	18.0	22.0	22.0
POWER																	
AVE POWER MW		143	143	144	194	265	236	241	241	192	148	148	148	148	203	245	242
PEAK POW MW		399	400	402	403	404	422	426	420	418	416	417	417	417	411	405	399
ENERGY GWH	1822.8	51.3	24.1	31.1	139.3	196.9	170.0	179.4	179.1	138.3	110.3	53.3	24.9	28.4	151.3	182.4	162.8
--OAHE--																	
NAT INFLOW	1698	265	124	159	235	170	359	183	85	98	20	17	8	9	-118	-13	98
DEPLETION	696	24	11	15	50	72	148	178	119	29	-11	1	0	1	13	18	28
CHAN STOR	1	44			-22	-31	14			21	19				-25	-20	0
EVAPORATION	471							29	90	112	98	44	21	24	52		
REG INFLOW	13937	672	293	377	1205	1542	1475	1267	1167	979	751	358	167	191	899	1302	1292
RELEASE	13630	397	265	387	1159	1511	1385	1680	1708	937	903	225	121	136	938	1013	865
STOR CHANGE	307	275	28	-11	46	31	90	-413	-541	43	-151	133	46	55	-38	289	427
STORAGE	13247	13521	13549	13538	13584	13615	13705	13292	12751	12794	12642	12775	12821	12876	12838	13127	13554
ELEV FTMSL	1586.8	1588.0	1588.1	1588.1	1588.3	1588.4	1588.8	1587.0	1584.7	1584.9	1584.2	1584.8	1585.0	1585.3	1585.1	1586.3	1588.1
DISCH KCFS	15.7	13.3	19.1	21.7	19.5	24.6	23.3	27.3	27.8	15.7	14.7	7.6	8.7	8.5	15.3	16.5	15.6
POWER																	
AVE POWER MW		155	222	251	226	285	271	316	317	179	167	86	100	98	174	189	180
PEAK POW MW		609	609	609	610	611	613	603	591	592	589	592	593	594	593	600	609
ENERGY GWH	1899.2	55.7	37.3	54.3	162.8	212.0	194.8	235.0	235.9	129.2	124.4	31.1	16.7	18.8	129.7	140.4	121.1
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13501	397	265	387	1159	1511	1385	1673	1683	906	876	213	115	129	924	1013	865
RELEASE	13501	397	265	387	1159	1511	1385	1673	1683	906	876	213	115	129	924	1013	865
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	15.7	13.3	19.1	21.7	19.5	24.6	23.3	27.2	27.4	15.2	14.2	7.2	8.3	8.1	15.0	16.5	15.6
POWER																	
AVE POWER MW		63	90	102	91	115	109	127	128	75	72	36	42	41	76	81	75
PEAK POW MW		517	510	509	509	509	509	509	509	538	538	538	538	538	538	538	529
ENERGY GWH	781.5	22.8	15.1	21.9	65.7	85.6	78.5	94.7	95.3	53.7	53.5	13.1	7.1	7.9	56.3	60.3	50.2
--FORT RANDALL--																	
NAT INFLOW	627	101	47	61	125	91	174	49	35	7	-28	-11	-5	-6	-42	-21	56
DEPLETION	79	1	1	1	3	9	12	18	15		1	1	0	1	3	3	3
EVAPORATION	136							10	32	36	25	10	5	5	12		
REG INFLOW	13913	497	312	447	1281	1593	1547	1694	1671	862	821	192	105	118	866	989	918
RELEASE	13913	223	177	430	1281	1593	1547	1694	1672	1582	1354	192	105	118	713	689	544
STOR CHANGE	0	274	135	17				0	0	-719	-533	0	0	0	153	300	374
STORAGE	3123	3397	3532	3549	3549	3549	3549	3549	3549	2830	2297	2297	2296	2296	2449	2749	3123
ELEV FTMSL	1350.0	1353.4	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1346.0	1337.5	1337.5	1337.5	1337.5	1340.2	1344.8	1350.0
DISCH KCFS	10.0	7.5	12.7	24.1	21.5	25.9	26.0	27.5	27.2	26.6	22.0	6.5	7.6	7.4	11.6	11.2	9.8
POWER																	
AVE POWER MW		62	108	203	182	219	219	232	229	216	166	47	56	54	86	86	78
PEAK POW MW		350	355	356	356	356	356	356	356	324	284	285	285	285	297	319	339
ENERGY GWH	1375.3	22.4	18.1	43.9	131.1	162.6	158.0	172.8	170.5	155.4	123.5	17.1	9.3	10.4	63.8	63.7	52.6
--GAVINS POINT--																	
NAT INFLOW	1394	93	44	56	134	150	161	91	81	86	118	57	26	30	80	80	107
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	5	-10	-22	5	-8	0	-3	1	1	8	29	-2	0	-8	1	3
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	15147	322	211	464	1416	1716	1684	1740	1735	1662	1470	268	125	143	770	768	654
RELEASE	15147	322	211	464	1416	1716	1684	1740	1722	1636	1470	268	125	143	770	768	693
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	10.8	15.2	26.0	23.8	27.9	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		38	53	89	82	95	96	96	96	95	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	633.4	13.7	8.9	19.2	58.7	70.7	69.3	71.6	71.3	68.7	62.5	11.6	5.4	6.2	33.1	33.0	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1311	151	70	91	175	212	112	131	94	75	44	31	14	17	13	25	56
DEPLETION	268	7	3	4	22	36	31	39	37	24	11	6	3	3	13	14	15
REGULATED FLOW AT SIOUX CITY																	
KAF	16190	466	278	551	1569	1892	1765	1832	1779	1687	1503	293	137	156	770	779	734
KCFS		15.7	20.0	30.9	26.4	30.8	29.7	29.8	28.9	28.4	24.4	9.8	9.8	9.8	12.5	12.7	13.2
--TOTAL--																	
NAT INFLOW	21500	1290	602	774	1958	2862	5264	2889	1150	958	978	452	211	241	378	549	946
DEPLETION	2689	7	3	4	106	620	1578	1140	280	-197	-58	-150	-70	-80	-200	-189	-106
CHAN STOR	1	92	-10	-22	-28	-66	14	-3	1	38	48	30	-2	0	-75	-19	3
EVAPORATION	1767							110	344	427	366	164	77	88	191		
STORAGE	41528	42437	42747	42944	43199	43483	45419	45223	43970	43049	42264	42438	42502	42579	42122	42061	42382
SYSTEM POWER																	
AVE POWER MW		523	677	851	849	1085	1039	1121	1119	845	700	413	440	437	697	757	732
PEAK POW MW		2129	2130	2131	2134	2137	2161	2155	2136	2132	2088	2092	2093	2094	2060	2080	2093
ENERGY GWH	7328.1	188.2	113.8	183.9	611.6	807.0	747.9	834.1	832.2	608.7	521.0	148.8	74.0	83.9	518.2	563.4	491.6
DAILY GWH		12.5	16.3	20.4	20.4	26.0	24.9	26.9	26.8	20.3	16.8	9.9	10.6	10.5	16.7	18.2	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

	29FEB13		2013											2014			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	6841	232	108	139	553	1089	1687	758	325	291	388	188	88	100	296	251	348
DEPLETION	478	-26	-12	-15	21	290	568	241	4	-113	-55	-40	-19	-21	-121	-134	-90
EVAPORATION	466							28	89	112	97	44	21	24	51		
MOD INFLOW	5897	257	120	154	532	799	1119	489	232	292	346	184	86	98	366	385	438
RELEASE	5362	149	69	89	357	523	506	523	523	412	307	149	69	79	553	553	500
STOR CHANGE	535	109	51	65	175	276	613	-34	-291	-120	38	35	16	19	-187	-168	-62
STORAGE	10766	10875	10925	10990	11165	11442	12055	12021	11730	11610	11648	11683	11700	11718	11531	11363	11301
ELEV FTMSL	2211.2	2211.9	2212.2	2212.5	2213.6	2215.2	2218.7	2218.5	2216.9	2216.2	2216.4	2216.6	2216.7	2216.8	2215.7	2214.7	2214.4
DISCH KCFS	9.0	5.0	5.0	5.0	6.0	8.5	8.5	8.5	8.5	6.9	5.0	5.0	5.0	5.0	9.0	9.0	9.0
POWER																	
AVE POWER MW		62	63	63	75	107	109	109	109	88	64	64	64	64	115	114	114
PEAK POW MW		141	142	142	143	145	149	149	147	146	146	147	147	147	146	144	144
ENERGY GWH	825.2	22.5	10.5	13.5	54.3	79.8	78.2	81.4	81.1	63.7	47.5	23.0	10.8	12.3	85.2	84.8	76.4
--GARRISON--																	
NAT INFLOW	10335	476	222	285	792	1247	2960	1780	567	438	472	186	87	99	169	247	309
DEPLETION	1075	0	0	0	5	194	808	648	105	-142	-12	-128	-60	-68	-120	-92	-63
CHAN STOR	0	43			-11	-27	0	0		16	20			0	-42		
EVAPORATION	546							33	105	131	114	52	24	28	59		
REG INFLOW	14077	668	292	375	1133	1549	2658	1621	880	878	697	410	191	219	741	892	872
RELEASE	13424	446	194	250	1012	1476	1250	1291	1291	959	799	387	180	206	1107	1353	1222
STOR CHANGE	653	222	97	125	122	73	1408	330	-412	-82	-102	23	11	12	-365	-460	-350
STORAGE	12960	13182	13279	13404	13525	13599	15007	15337	14925	14844	14742	14765	14776	14788	14423	13963	13613
ELEV FTMSL	1818.7	1819.6	1820.0	1820.5	1821.0	1821.3	1826.7	1827.9	1826.4	1826.1	1825.7	1825.8	1825.8	1825.9	1824.5	1822.7	1821.3
DISCH KCFS	22.0	15.0	14.0	14.0	17.0	24.0	21.0	21.0	21.0	16.1	13.0	13.0	13.0	13.0	18.0	22.0	22.0
POWER																	
AVE POWER MW		166	155	156	190	267	239	244	244	187	150	150	150	150	207	249	247
PEAK POW MW		403	404	406	408	409	429	433	427	426	425	425	425	425	420	414	409
ENERGY GWH	1849.0	59.6	26.1	33.7	136.4	198.7	171.9	181.6	181.4	134.4	111.9	54.1	25.3	28.9	153.8	185.5	165.7
--OAHE--																	
NAT INFLOW	1957	306	143	183	271	195	414	211	98	113	23	19	9	10	-135	-15	113
DEPLETION	709	24	11	15	50	73	151	182	122	30	-11	1	0	1	13	18	29
CHAN STOR	1	34	5		-14	-33	14			24	15				-24	-19	0
EVAPORATION	491							30	94	117	102	46	22	25	54		
REG INFLOW	14181	762	331	419	1218	1565	1527	1290	1173	948	746	358	167	191	881	1300	1306
RELEASE	13512	379	255	374	1130	1488	1346	1669	1700	934	942	235	120	136	940	1017	850
STOR CHANGE	670	383	76	45	88	77	181	-379	-527	15	-195	123	47	55	-59	284	456
STORAGE	13554	13937	14013	14058	14146	14223	14403	14025	13498	13513	13317	13441	13488	13543	13484	13768	14224
ELEV FTMSL	1588.1	1589.7	1590.0	1590.2	1590.6	1590.9	1591.6	1590.1	1587.9	1588.0	1587.1	1587.7	1587.9	1588.1	1587.9	1589.0	1590.9
DISCH KCFS	15.6	12.7	18.4	20.9	19.0	24.2	22.6	27.1	27.6	15.7	15.3	7.9	8.7	8.6	15.3	16.5	15.3
POWER																	
AVE POWER MW		149	215	246	223	285	267	319	321	182	177	92	101	100	177	192	180
PEAK POW MW		617	619	620	622	623	627	619	608	608	604	607	608	609	608	614	623
ENERGY GWH	1912.3	53.5	36.2	53.1	160.8	211.7	192.2	237.3	239.2	131.2	132.0	33.0	16.9	19.1	132.0	143.2	120.8
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13383	379	255	374	1130	1488	1346	1661	1675	903	915	223	114	129	925	1017	850
RELEASE	13383	379	255	374	1130	1488	1346	1661	1675	903	915	223	114	129	925	1017	850
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	15.6	12.7	18.4	20.9	19.0	24.2	22.6	27.0	27.2	15.2	14.9	7.5	8.2	8.1	15.0	16.5	15.3
POWER																	
AVE POWER MW		60	86	98	89	113	106	126	128	74	75	38	42	41	76	81	73
PEAK POW MW		517	510	509	509	509	509	509	509	538	538	538	538	538	538	538	529
ENERGY GWH	775.0	21.7	14.5	21.2	64.0	84.3	76.3	94.1	94.9	53.5	55.8	13.7	7.0	7.9	56.4	60.5	49.3
--FORT RANDALL--																	
NAT INFLOW	744	120	56	72	149	108	207	58	41		-33	-13	-6	-7	-50	-25	66
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	136							10	32	36	25	10	5	5	12		
REG INFLOW	13913	497	310	445	1276	1587	1541	1691	1669	859	855	200	103	117	860	989	913
RELEASE	13913	223	176	428	1276	1587	1541	1691	1670	1578	1388	200	103	117	707	689	539
STOR CHANGE	0	274	135	17			0	0	0	-719	-533	0	0	0	153	300	374
STORAGE	3123	3397	3532	3549	3549	3549	3549	3549	3549	2830	2297	2297	2296	2296	2449	2749	3123
ELEV FTMSL	1350.0	1353.4	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1346.0	1337.5	1337.5	1337.5	1337.5	1340.2	1344.8	1350.0
DISCH KCFS	9.8	7.5	12.7	24.0	21.4	25.8	25.9	27.5	27.2	26.5	22.6	6.7	7.5	7.3	11.5	11.2	9.7
POWER																	
AVE POWER MW		62	107	202	181	218	219	232	229	215	170	49	55	54	85	86	78
PEAK POW MW		350	355	356	356	356	356	356	356	324	284	285	285	285	297	319	339
ENERGY GWH	1375.0	22.4	17.9	43.7	130.6	162.0	157.4	172.5	170.3	155.1	126.5	17.8	9.2	10.4	63.3	63.7	52.1
--GAVINS POINT--																	
NAT INFLOW	1444	97	45	58	139	156	167	94	83	89	122	59	27	31	83	83	111
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	4	-10	-22	5	-8	0	-3	1	1	7	29	-1	0	-8	1	3
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	15196	325	211	464	1416	1716	1684	1740	1735	1662	1506	278	125	143	767	771	652
RELEASE	15196	325	211	464	1416	1716	1684	1740	1722	1636	1506	278	125	143	767	771	691
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	10.9	15.2	26.0	23.8	27.9	28.3	28.3	28.0	27.5	24.5	9.3	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		38	53	89	82	95	96	96	96	95	86	33	32	32	44	45	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	635.4	13.8	8.9	19.2	58.7	70.7	69.3	71.6	71.3	68.7	64.0	12.0	5.4	6.2	33.0	33.2	29.5
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1479	170	79	102	197	240	127	148	106	85	49	35	16	19	14	28	63
DEPLETION	270	7	3	4	23	36	31	39	37	25	11	6	3	3	13	14	15
REGULATED FLOW AT SIOUX CITY																	
KAF	16405	488	287	563	1590	1920	1780	1849	1791	1696	1544	307	138	158	768	785	739
KCFS		16.4	20.7	31.5	26.7	31.2	29.9	30.1	29.1	28.5	25.1	10.3	10.0	10.0	12.5	12.8	13.3
--TOTAL--																	
NAT INFLOW	22800	1401	653	840	2101	3035	5562	3049	1220	1016	1021	473	221	252	377	569	1010
DEPLETION	2723	6	3	3	106	621	1594	1167	293	-198	-65	-155	-72	-82	-202	-190	-106
CHAN STOR	1	81	-5	-22	-20	-68	14	-3	1	41	42	30	-1	0	-74	-19	3
EVAPORATION	1815							112	353	439	377	169	79	90	196		
STORAGE	42382	43370	43728	43980	44365	44791	46993	46911	45695	44815	44022	44204	44278	44364	43905	43860	44240
SYSTEM POWER																	
AVE POWER MW		538	679	853	840	1085	1035	1127	1127	842	723	427	444	441	704	767	735
PEAK POW MW		2143	2145	2147	2152	2156	2184	2180	2163	2159	2115	2119	2120	2121	2087	2107	2120
ENERGY GWH	7371.8	193.6	114.1	184.3	605.0	807.3	745.2	838.5	838.1	606.6	537.8	153.6	74.5	84.7	523.7	570.9	493.9
DAILY GWH		12.9	16.3	20.5	20.2	26.0	24.8	27.0	27.0	20.2	17.3	10.2	10.6	10.6	16.9	18.4	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	7200	244	114	146	582	1146	1776	798	342	306	408	198	92	106	312	264	366
DEPLETION	486	-26	-12	-16	21	290	572	248	8	-114	-57	-41	-19	-22	-122	-134	-91
EVAPORATION	481							29	92	115	101	46	21	24	53		
MOD INFLOW	6233	270	126	162	561	856	1204	521	242	305	364	193	90	103	381	398	457
RELEASE	5472	149	69	89	357	492	536	553	553	311	338	164	76	87	584	584	528
STOR CHANGE	761	121	57	73	204	364	668	-33	-311	-7	26	29	14	16	-203	-186	-71
STORAGE	11301	11422	11479	11551	11755	12119	12788	12755	12444	12437	12463	12493	12506	12522	12319	12133	12062
ELEV FTMSL	2214.4	2215.1	2215.4	2215.8	2217.0	2219.1	2222.8	2222.6	2220.9	2220.8	2221.0	2221.1	2221.2	2221.3	2220.2	2219.1	2218.7
DISCH KCFS	9.0	5.0	5.0	5.0	6.0	8.0	9.0	9.0	9.0	5.2	5.5	5.5	5.5	5.5	9.5	9.5	9.5
POWER																	
AVE POWER MW		63	64	64	77	103	117	118	117	68	72	72	72	72	123	123	122
PEAK POW MW		145	145	146	147	149	153	153	151	151	151	152	152	152	151	149	149
ENERGY GWH	858.0	22.8	10.7	13.8	55.2	76.5	84.3	87.8	87.4	49.1	53.4	25.8	12.1	13.8	91.8	91.4	82.3
--GARRISON--																	
NAT INFLOW	10800	497	232	298	828	1303	3093	1861	593	458	493	194	90	103	176	258	323
DEPLETION	1073				6	194	818	664	110	-145	-16	-131	-61	-70	-128	-99	-69
CHAN STOR	-5	43			-11	-21	-11			39	-3		0	0	-41		
EVAPORATION	567							34	108	136	119	54	25	29	62		
REG INFLOW	14627	688	301	387	1168	1580	2800	1716	928	817	726	434	203	232	785	941	920
RELEASE	13728	446	194	250	1012	1476	1369	1414	1414	781	799	387	180	206	1107	1414	1277
STOR CHANGE	899	242	107	137	157	104	1431	302	-486	36	-74	48	22	25	-322	-473	-358
STORAGE	13613	13855	13962	14099	14256	14360	15792	16093	15607	15643	15569	15617	15639	15665	15343	14870	14512
ELEV FTMSL	1821.3	1822.3	1822.7	1823.2	1823.8	1824.2	1829.6	1830.6	1828.9	1829.0	1828.7	1828.9	1829.0	1829.1	1827.9	1826.2	1824.8
DISCH KCFS	22.0	15.0	14.0	14.0	17.0	24.0	23.0	23.0	23.0	13.1	13.0	13.0	13.0	13.0	18.0	23.0	23.0
POWER																	
AVE POWER MW		169	158	159	193	272	266	272	271	155	153	153	154	154	211	267	264
PEAK POW MW		412	414	416	418	420	439	443	437	437	436	437	437	437	433	427	422
ENERGY GWH	1928.7	60.7	26.6	34.3	139.1	202.7	191.8	202.4	201.9	111.7	114.2	55.2	25.8	29.5	157.2	198.4	177.3
--OAHE--																	
NAT INFLOW	2300	360	168	216	318	230	486	248	115	133	27	22	10	12	-159	-18	133
DEPLETION	724	25	12	15	51	75	154	187	125	30	-12	1	0	1	13	19	29
CHAN STOR	-5	33	5		-14	-32	5			45	1				-23	-23	
EVAPORATION	520							32	101	126	108	48	23	26	56		
REG INFLOW	14779	814	355	451	1265	1599	1705	1443	1303	804	731	359	168	192	855	1354	1381
RELEASE	13860	485	124	339	1094	1460	1297	1653	1688	1151	1035	496	98	139	950	1016	836
STOR CHANGE	919	329	231	111	171	139	408	-210	-385	-347	-305	-137	70	53	-94	338	546
STORAGE	14224	14553	14784	14896	15066	15205	15613	15403	15019	14672	14367	14231	14300	14353	14259	14597	15143
ELEV FTMSL	1590.9	1592.2	1593.1	1593.6	1594.2	1594.8	1596.3	1595.5	1594.0	1592.7	1591.5	1590.9	1591.2	1591.4	1591.0	1592.4	1594.5
DISCH KCFS	15.3	16.3	8.9	19.0	18.4	23.7	21.8	26.9	27.4	19.3	16.8	16.7	7.1	8.8	15.4	16.5	15.0
POWER																	
AVE POWER MW		193	107	227	221	285	264	325	330	231	200	197	84	104	183	196	180
PEAK POW MW		630	634	636	640	642	650	646	639	632	626	623	625	626	624	630	641
ENERGY GWH	2007.6	69.5	17.9	49.1	158.8	212.2	189.7	241.8	245.4	166.5	148.8	71.0	14.1	19.9	135.9	145.7	121.1
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13731	485	124	339	1094	1460	1297	1645	1663	1120	1008	484	93	132	935	1016	836
RELEASE	13731	485	124	339	1094	1460	1297	1645	1663	1120	1008	484	93	132	935	1016	836
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	15.3	16.3	8.9	19.0	18.4	23.7	21.8	26.8	27.0	18.8	16.4	16.3	6.7	8.3	15.2	16.5	15.0
POWER																	
AVE POWER MW		76	42	89	86	111	102	125	127	91	83	82	34	42	77	81	72
PEAK POW MW		510	509	509	509	509	509	509	509	532	538	538	538	538	538	538	529
ENERGY GWH	795.4	27.5	7.0	19.2	62.0	82.7	73.5	93.2	94.2	65.4	61.4	29.5	5.7	8.1	57.0	60.4	48.5
--FORT RANDALL--																	
NAT INFLOW	900	145	68	87	180	130	250	70	50		-40	-15	-7	-8	-60	-30	80
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	140							10	32	37	27	11	5	5	12		
REG INFLOW	14412	629	191	426	1271	1581	1535	1687	1667	1075	939	457	81	118	860	983	913
RELEASE	14412	220	174	426	1271	1581	1535	1687	1667	1575	1548	600	81	119	707	683	539
STOR CHANGE	0	409	17					0	0	-500	-609	-143	0	0	153	300	374
STORAGE	3123	3532	3549	3549	3549	3549	3549	3549	3549	3049	2440	2297	2297	2296	2449	2749	3123
ELEV FTMSL	1350.0	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1349.0	1340.0	1337.5	1337.5	1337.5	1340.2	1344.8	1350.0
DISCH KCFS	9.7	7.4	12.5	23.8	21.4	25.7	25.8	27.4	27.1	26.5	25.2	20.2	5.9	7.5	11.5	11.1	9.7
POWER																	
AVE POWER MW		62	107	201	181	217	218	231	229	218	194	148	43	55	85	85	78
PEAK POW MW		355	356	356	356	356	356	356	356	336	296	285	285	285	297	319	339
ENERGY GWH	1424.9	22.3	17.9	43.5	130.1	161.4	156.8	172.1	170.0	156.8	144.4	53.3	7.2	10.5	63.3	63.2	52.1
--GAVINS POINT--																	
NAT INFLOW	1500	101	47	60	144	162	173	98	86	92	127	61	28	32	87	87	115
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	4	-10	-22	5	-8	0	-3	1	1	2	9	27	-3	-7	1	3
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	15752	326	211	464	1416	1716	1684	1740	1735	1662	1666	661	132	143	771	769	656
RELEASE	15752	326	211	464	1416	1716	1684	1740	1722	1636	1666	661	132	143	771	769	695
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	10.9	15.2	26.0	23.8	27.9	28.3	28.3	28.0	27.5	27.1	22.2	9.5	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		38	53	89	82	95	96	96	96	95	95	78	34	32	45	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	658.8	13.8	8.9	19.2	58.7	70.7	69.3	71.6	71.3	68.7	70.6	28.1	5.7	6.2	33.2	33.1	29.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1700	196	91	118	227	275	146	170	121	97	57	41	19	22	16	32	73
DEPLETION	276	7	3	4	23	36	32	39	38	25	11	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	17176	514	299	578	1620	1955	1798	1871	1805	1708	1712	695	147	161	773	786	753
KCFS		17.3	21.6	32.4	27.2	31.8	30.2	30.4	29.3	28.7	27.8	23.3	10.6	10.1	12.6	12.8	13.6
--TOTAL--																	
NAT INFLOW	24400	1543	719	925	2279	3246	5924	3245	1307	1086	1072	500	233	266	372	593	1090
DEPLETION	2750	7	3	4	108	623	1612	1195	306	-202	-72	-158	-74	-84	-210	-195	-113
CHAN STOR	-11	80	-5	-22	-20	-61	-6	-3	1	85	-1	9	28	-3	-72	-23	3
EVAPORATION	1883							116	366	456	392	175	82	93	202		
STORAGE	44240	45341	45753	46074	46606	47213	49721	49780	48611	47819	46858	46655	46761	46854	46388	46367	46819
SYSTEM POWER																	
AVE POWER MW		602	530	829	839	1084	1063	1168	1170	858	797	731	420	459	724	796	760
PEAK POW MW		2167	2173	2177	2184	2191	2222	2221	2207	2205	2164	2151	2153	2155	2121	2141	2156
ENERGY GWH	7673.3	216.7	89.0	179.1	604.0	806.2	765.3	868.8	870.2	618.1	592.8	263.0	70.5	88.0	538.4	592.1	511.1
DAILY GWH		14.4	12.7	19.9	20.1	26.0	25.5	28.0	28.1	20.6	19.1	17.5	10.1	11.0	17.4	19.1	18.3
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

DATE OF STUDY 12/28/08 2008-2009 AOP EXTENSIONS, LOWER DECILE RUNOFF SIMULATION 99001 9901 9901 PAGE 1

TIME OF STUDY 09:30:05 SHTN NAV SEAS 30 DAYS, SP MAR 0 MAY 9.0 STUDY NO 19

VALUES IN 1000 AF EXCEPT AS INDICATED

	28FEB10		2010											2011			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	5527	198	93	119	481	865	1223	624	276	251	328	161	75	86	235	215	297
DEPLETION	372	-7	-3	-4	59	196	358	233	12	-94	-72	-17	-8	-9	-101	-114	-56
EVAPORATION	421							26	82	101	88	40	18	21	45		
MOD INFLOW	4734	206	96	123	422	669	865	365	182	244	312	138	65	74	291	329	353
RELEASE	5599	149	69	89	387	430	536	553	553	500	369	179	83	95	553	553	500
STOR CHANGE	-866	57	27	34	35	239	329	-189	-371	-256	-57	-40	-19	-21	-263	-224	-147
STORAGE	9851	9908	9934	9968	10003	10242	10571	10383	10012	9756	9699	9659	9640	9619	9356	9132	8985
ELEV FTMSL	2205.6	2205.9	2206.1	2206.3	2206.5	2208.0	2210.0	2208.9	2206.6	2205.0	2204.6	2204.3	2204.2	2204.1	2202.4	2200.9	2199.9
DISCH KCFS	8.0	5.0	5.0	5.0	6.5	7.0	9.0	9.0	9.0	8.4	6.0	6.0	6.0	6.0	9.0	9.0	9.0
POWER																	
AVE POWER MW		61	61	61	79	85	111	111	110	102	72	72	72	72	107	107	106
PEAK POW MW		134	135	135	135	137	139	138	135	133	133	133	133	132	130	129	128
ENERGY GWH	818.9	21.8	10.2	13.1	56.9	63.6	79.6	82.5	81.8	73.2	53.8	26.0	12.1	13.9	79.9	79.3	71.1
--GARRISON--																	
NAT INFLOW	7739	382	178	229	601	1103	2306	1129	377	167	408	155	72	82	141	141	267
DEPLETION	1051	21	10	13	51	109	717	578	106	-128	-5	-103	-48	-55	-98	-71	-46
CHAN STOR	-11	33			-16	-5	-22			6	26				-33		
EVAPORATION	486							30	94	117	101	46	21	24	52		
REG INFLOW	11791	543	238	306	920	1419	2103	1074	730	685	707	390	182	208	707	765	813
RELEASE	12836	357	167	214	1012	1168	1250	1291	1291	1070	738	357	167	190	1107	1291	1166
STOR CHANGE	-1045	186	71	92	-91	251	853	-217	-561	-385	-31	33	16	18	-399	-526	-353
STORAGE	11838	12023	12095	12186	12095	12346	13199	12982	12420	12036	12005	12038	12054	12072	11672	11146	10793
ELEV FTMSL	1814.0	1814.8	1815.1	1815.5	1815.1	1816.2	1819.7	1818.8	1816.5	1814.9	1814.8	1814.9	1815.0	1815.0	1813.3	1811.0	1809.4
DISCH KCFS	21.0	12.0	12.0	12.0	17.0	19.0	21.0	21.0	21.0	18.0	12.0	12.0	12.0	12.0	18.0	21.0	21.0
POWER																	
AVE POWER MW		128	129	129	182	204	229	231	229	193	129	129	129	129	191	220	216
PEAK POW MW		385	386	388	386	390	403	400	391	385	385	385	386	386	380	371	365
ENERGY GWH	1664.7	46.2	21.7	27.9	131.4	151.8	164.9	171.9	170.0	139.2	95.8	46.4	21.6	24.8	142.4	163.4	145.3
--OAHE--																	
NAT INFLOW	1181	201	94	121	175	118	262	128	51	67	5	8	4	4	-103	-20	67
DEPLETION	666	24	11	14	49	70	142	169	112	27	-10	1	0	1	12	17	27
CHAN STOR	0	45			-25	-10	-10			16	32				-32	-16	
EVAPORATION	412							26	80	98	86	39	18	21	45		
REG INFLOW	12939	580	249	321	1112	1206	1359	1224	1151	1028	699	325	152	173	915	1238	1206
RELEASE	14010	427	276	370	1216	1549	1456	1712	1742	963	923	246	125	141	944	1025	895
STOR CHANGE	-1071	153	-26	-49	-103	-343	-97	-488	-591	65	-224	79	27	32	-29	213	311
STORAGE	12403	12556	12530	12480	12377	12034	11937	11449	10858	10923	10699	10778	10805	10837	10808	11021	11332
ELEV FTMSL	1583.2	1583.9	1583.7	1583.5	1583.0	1581.5	1581.0	1578.7	1575.8	1576.2	1575.0	1575.4	1575.6	1575.7	1575.6	1576.7	1578.2
DISCH KCFS	16.2	14.3	19.9	20.7	20.4	25.2	24.5	27.8	28.3	16.2	15.0	8.3	9.0	8.9	15.4	16.7	16.1
POWER																	
AVE POWER MW		162	225	234	230	282	272	307	307	175	162	89	97	96	166	180	176
PEAK POW MW		587	586	585	583	574	572	560	545	546	540	543	543	544	543	549	557
ENERGY GWH	1863.5	58.5	37.7	50.6	165.9	209.7	196.0	228.2	228.4	125.8	120.4	32.1	16.3	18.5	123.2	134.1	118.1
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13881	427	276	370	1216	1549	1456	1704	1717	932	896	234	119	135	930	1025	895
RELEASE	13881	427	276	370	1216	1549	1456	1704	1717	932	896	234	119	135	930	1025	895
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	16.2	14.3	19.9	20.7	20.4	25.2	24.5	27.7	27.9	15.7	14.6	7.9	8.6	8.5	15.1	16.7	16.1
POWER																	
AVE POWER MW		68	93	97	96	118	115	130	131	77	73	40	44	43	76	82	77
PEAK POW MW		518	510	509	509	509	509	509	509	538	538	538	538	538	538	538	529
ENERGY GWH	803.4	24.4	15.6	21.0	68.9	87.8	82.5	96.5	97.3	55.2	54.7	14.3	7.3	8.3	56.7	61.0	52.0
--FORT RANDALL--																	
NAT INFLOW	368	71	33	43	90	63	121	26	16	-11	-32	-13	-6	-7	-42	-21	37
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	136							10	32	36	25	10	5	5	12		
REG INFLOW	14035	497	308	412	1303	1603	1565	1702	1687	877	837	210	108	122	872	1001	929
RELEASE	14034	235	161	395	1303	1603	1565	1702	1687	1597	1370	210	108	122	719	701	555
STOR CHANGE	0	262	147	17				0	0	-719	-533	0	0	0	153	300	374
STORAGE	3123	3385	3532	3549	3549	3549	3549	3549	3549	2830	2297	2297	2296	2296	2449	2749	3123
ELEV FTMSL	1350.0	1353.2	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1355.2	1346.0	1337.5	1337.5	1337.5	1337.5	1340.2	1344.8	1350.0
DISCH KCFS	10.0	7.9	11.6	22.1	21.9	26.1	26.3	27.7	27.4	26.8	22.3	7.1	7.8	7.7	11.7	11.4	10.0
POWER																	
AVE POWER MW		66	98	187	185	220	222	233	231	218	168	52	57	56	87	87	80
PEAK POW MW		350	355	356	356	356	356	356	356	324	284	285	285	285	297	319	339
ENERGY GWH	1386.7	23.6	16.4	40.4	133.3	163.7	159.8	173.6	172.1	156.8	124.9	18.7	9.6	10.8	64.4	64.9	53.7
--GAVINS POINT--																	
NAT INFLOW	1223	84	39	50	117	133	143	82	66	71	102	49	23	26	71	71	97
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	4	-7	-20	0	-8	0	-3	0	1	8	28	-1	0	-7	1	3
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	15097	323	193	425	1416	1709	1684	1740	1735	1662	1470	277	125	143	768	772	655
RELEASE	15097	323	193	425	1416	1709	1684	1740	1722	1636	1470	277	125	143	768	772	694
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	10.9	13.9	23.8	23.8	27.8	28.3	28.3	28.0	27.5	23.9	9.3	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		38	49	82	82	95	96	96	96	95	84	33	32	32	44	45	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	631.4	13.7	8.2	17.6	58.7	70.4	69.3	71.6	71.3	68.7	62.5	12.0	5.4	6.2	33.0	33.2	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	762	95	44	57	98	131	71	76	44	38	27	19	9	10	5	16	22
DEPLETION	263	7	3	4	22	35	31	38	36	24	10	6	3	3	13	14	14
REGULATED FLOW AT SIOUX CITY																	
KAF	15596	411	234	478	1492	1805	1724	1778	1730	1650	1487	290	131	150	760	774	702
KCFS		13.8	16.9	26.8	25.1	29.4	29.0	28.9	28.1	27.7	24.2	9.8	9.4	9.4	12.4	12.6	12.6
--TOTAL--																	
NAT INFLOW	16800	1032	481	619	1562	2413	4126	2065	830	583	838	378	176	201	307	402	787
DEPLETION	2543	45	21	27	188	438	1284	1075	291	-169	-75	-107	-50	-57	-161	-150	-58
CHAN STOR	-12	82	-7	-20	-41	-24	-32	-3	0	24	66	29	-1	0	-72	-16	3
EVAPORATION	1631							103	320	395	337	151	70	80	174		
STORAGE	39193	39850	40069	40163	40004	40150	41235	40341	38831	37562	36718	36790	36813	36842	36303	36066	36212
SYSTEM POWER																	
AVE POWER MW		523	654	790	854	1004	1045	1108	1103	860	688	415	431	429	671	720	699
PEAK POW MW		2088	2087	2087	2083	2081	2094	2077	2052	2044	1998	2001	2001	2002	1967	1984	1994
ENERGY GWH	7168.5	188.3	109.9	170.6	615.0	747.0	752.1	824.4	820.8	618.9	512.1	149.4	72.4	82.4	499.6	535.8	469.9
DAILY GWH		12.6	15.7	19.0	20.5	24.1	25.1	26.6	26.5	20.6	16.5	10.0	10.3	10.3	16.1	17.3	16.8
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

TIME OF STUDY 09:30:05 SHTN NAV SEAS 41 DAYS, SP MAR 0 MAY 0 STUDY NO 20

VALUES IN 1000 AF EXCEPT AS INDICATED

	28FEB11		2011											2012			
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB
--FORT PECK--																	
NAT INFLOW	5589	200	93	120	486	875	1237	631	280	254	331	163	76	87	238	217	300
DEPLETION	526	-2	-1	-1	75	294	487	208	-16	-126	-64	-25	-12	-13	-91	-105	-81
EVAPORATION	400							25	77	96	83	38	18	20	43		
MOD INFLOW	4663	203	95	122	411	581	750	398	219	284	312	150	70	80	286	322	381
RELEASE	5251	149	69	89	387	492	476	492	492	466	307	149	69	79	523	523	489
STOR CHANGE	-588	54	25	32	24	89	274	-94	-273	-182	4	1	1	1	-237	-201	-108
STORAGE	8985	9039	9064	9096	9121	9210	9484	9390	9117	8935	8939	8941	8941	8942	8705	8504	8396
ELEV FTMSL	2199.9	2200.3	2200.5	2200.7	2200.8	2201.4	2203.2	2202.6	2200.8	2199.6	2199.6	2199.6	2199.6	2199.7	2198.1	2196.7	2195.9
DISCH KCFS	9.0	5.0	5.0	5.0	6.5	8.0	8.0	8.0	8.0	7.8	5.0	5.0	5.0	5.0	8.5	8.5	8.5
POWER																	
AVE POWER MW		59	59	59	77	95	95	95	95	92	59	59	59	59	99	98	98
PEAK POW MW		128	128	129	129	129	131	131	129	127	127	127	127	127	125	123	122
ENERGY GWH	746.6	21.2	9.9	12.8	55.3	70.3	68.5	71.0	70.5	66.3	43.7	21.2	9.9	11.3	73.8	73.1	67.9
--GARRISON--																	
NAT INFLOW	7910	391	182	234	615	1128	2357	1154	385	171	417	158	74	84	144	144	273
DEPLETION	1051	21	10	13	51	109	717	578	106	-128	-5	-103	-48	-55	-98	-71	-46
CHAN STOR	6	45			-17	-17				2	31			0	-39		0
EVAPORATION	466							29	91	112	97	44	20	23	50		
REG INFLOW	11650	563	242	311	934	1494	2116	1039	680	655	664	366	171	195	676	738	808
RELEASE	12366	387	180	232	893	1199	1160	1199	1199	979	769	372	174	198	1045	1230	1150
STOR CHANGE	-716	176	61	79	42	295	956	-160	-519	-324	-105	-6	-3	-3	-369	-492	-342
STORAGE	10793	10969	11030	11109	11150	11445	12401	12241	11722	11397	11293	11287	11284	11280	10911	10419	10076
ELEV FTMSL	1809.4	1810.2	1810.5	1810.8	1811.0	1812.3	1816.4	1815.8	1813.5	1812.1	1811.7	1811.6	1811.6	1811.6	1809.9	1807.7	1806.0
DISCH KCFS	21.0	13.0	13.0	13.0	15.0	19.5	19.5	19.5	19.5	16.5	12.5	12.5	12.5	12.5	17.0	20.0	20.0
POWER																	
AVE POWER MW		134	135	135	156	203	207	210	208	173	131	131	131	131	176	204	201
PEAK POW MW		368	369	371	371	376	391	388	380	375	374	373	373	373	367	359	353
ENERGY GWH	1563.5	48.3	22.7	29.2	112.4	151.3	149.4	156.3	154.7	124.9	97.7	47.2	22.0	25.2	131.2	151.6	139.6
--OAHE--																	
NAT INFLOW	1196	204	95	122	177	119	265	130	52	68	5	8	4	4	-104	-21	68
DEPLETION	682	24	11	14	49	71	145	173	116	28	-10	1	0	1	12	18	29
CHAN STOR	6	42			-10	-24				17	22				-25	-17	
EVAPORATION	387							24	74	92	81	37	17	20	43		
REG INFLOW	12499	609	264	340	1010	1223	1280	1132	1061	944	725	342	160	182	862	1174	1189
RELEASE	13232	456	240	368	1213	1426	1456	1711	1391	1040	523	258	125	142	945	1020	920
STOR CHANGE	-733	153	25	-28	-203	-202	-176	-579	-329	-96	203	84	35	41	-83	154	269
STORAGE	11332	11485	11510	11482	11279	11077	10901	10321	9992	9896	10099	10182	10217	10258	10175	10329	10598
ELEV FTMSL	1578.2	1578.9	1579.0	1578.9	1577.9	1576.9	1576.1	1573.1	1571.4	1570.9	1571.9	1572.4	1572.6	1572.8	1572.3	1573.1	1574.5
DISCH KCFS	16.1	15.3	17.3	20.6	20.4	23.2	24.5	27.8	22.6	17.5	8.5	8.7	9.0	8.9	15.4	16.6	16.0
POWER																	
AVE POWER MW		168	190	226	223	252	264	297	238	183	89	92	95	95	162	175	170
PEAK POW MW		561	561	561	556	551	546	530	521	519	524	527	527	529	526	531	538
ENERGY GWH	1713.1	60.5	31.9	48.9	160.7	187.5	190.3	220.6	177.0	131.8	66.5	33.1	16.0	18.2	120.9	130.6	118.6
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	13104	456	240	368	1213	1426	1456	1703	1366	1010	495	246	119	135	931	1020	920
RELEASE	13104	456	240	368	1213	1426	1456	1703	1366	1010	495	246	119	135	931	1020	920
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	16.1	15.3	17.3	20.6	20.4	23.2	24.5	27.7	22.2	17.0	8.1	8.3	8.6	8.5	15.1	16.6	16.0
POWER																	
AVE POWER MW		73	81	97	95	109	115	130	106	85	41	42	43	43	76	82	77
PEAK POW MW		517	510	509	509	509	509	509	525	538	538	538	538	538	538	538	529
ENERGY GWH	760.5	26.1	13.6	20.9	68.7	80.8	82.5	96.5	78.7	60.9	30.4	15.1	7.3	8.3	56.7	60.7	53.4
--FORT RANDALL--																	
NAT INFLOW	378	73	34	44	92	65	124	27	16	-11	-32	-14	-6	-7	-43	-22	38
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	130							10	30	33	24	10	5	5	12		
REG INFLOW	13272	527	273	411	1302	1482	1568	1702	1337	959	438	221	107	122	873	995	955
RELEASE	13271	232	160	394	1302	1482	1568	1702	1686	1596	704	221	107	122	719	695	581
STOR CHANGE	1	295	113	17				0	-349	-637	-266	0	0	0	153	300	374
STORAGE	3123	3419	3532	3549	3549	3549	3549	3549	3200	2563	2297	2297	2297	2297	2450	2750	3124
ELEV FTMSL	1350.0	1353.7	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1351.0	1342.0	1337.5	1337.5	1337.5	1337.5	1340.2	1344.8	1350.0
DISCH KCFS	10.0	7.8	11.5	22.1	21.9	24.1	26.4	27.7	27.4	26.8	11.4	7.4	7.7	7.7	11.7	11.3	10.1
POWER																	
AVE POWER MW		65	97	187	185	204	222	233	227	210	85	55	57	56	87	86	81
PEAK POW MW		351	355	356	356	356	356	356	342	305	285	285	285	285	297	319	339
ENERGY GWH	1307.0	23.3	16.3	40.3	133.2	151.5	160.1	173.6	169.0	151.3	63.5	19.7	9.5	10.8	64.4	64.3	56.2
--GAVINS POINT--																	
NAT INFLOW	1233	85	40	51	118	134	144	82	67	72	103	49	23	26	72	72	97
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	4	-7	-20	0	-4	-4	-3	1	1	28	7	-1	0	-7	1	2
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	14344	321	192	425	1416	1593	1684	1740	1735	1662	824	268	125	143	769	767	680
RELEASE	14344	321	192	425	1416	1593	1684	1740	1722	1636	824	268	125	143	769	767	719
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	10.8	13.9	23.8	23.8	25.9	28.3	28.3	28.0	27.5	13.4	9.0	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		38	48	82	82	88	96	96	96	95	48	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	600.1	13.6	8.1	17.6	58.8	65.8	69.3	71.6	71.3	68.7	35.4	11.6	5.4	6.2	33.0	33.0	30.7
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	794	99	46	59	102	136	74	79	45	40	28	20	9	11	6	17	23
DEPLETION	266	7	3	4	22	36	31	39	36	24	11	6	3	3	13	14	14
REGULATED FLOW AT SIOUX CITY																	
KAF	14872	413	235	480	1496	1693	1727	1780	1731	1652	841	282	131	150	762	770	728
KCFS		13.9	16.9	26.9	25.1	27.5	29.0	29.0	28.1	27.8	13.7	9.5	9.5	9.5	12.4	12.5	12.7
--TOTAL--																	
NAT INFLOW	17100	1051	490	630	1590	2457	4201	2103	845	594	852	384	179	205	313	407	799
DEPLETION	2716	50	23	30	204	538	1416	1055	267	-200	-66	-115	-54	-61	-151	-140	-81
CHAN STOR	9	91	-7	-20	-27	-45	-4	-3	1	20	81	7	-1	0	-71	-16	2
EVAPORATION	1559							98	305	375	322	145	68	78	168		
STORAGE	36212	36890	37115	37215	37078	37260	38313	37480	36023	34810	34646	34725	34757	34796	34259	34021	34175
SYSTEM POWER																	
AVE POWER MW		537	610	785	818	951	1000	1061	969	839	453	410	417	416	645	690	670
PEAK POW MW		2039	2039	2039	2035	2036	2048	2029	2012	1981	1965	1967	1968	1969	1932	1948	1957
ENERGY GWH	6690.9	193.2	102.6	169.6	589.0	707.2	720.1	789.6	721.2	603.8	337.3	147.7	70.1	79.9	480.1	513.2	466.4
DAILY GWH		12.9	14.7	18.8	19.6	22.8	24.0	25.5	23.3	20.1	10.9	9.8	10.0	10.0	15.5	16.6	16.1
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	29FEB

TIME OF STUDY 09:30:05 SHTN NAV SEAS 56 DAYS, SP MAR 0 MAY 0 STUDY NO 21

VALUES IN 1000 AF EXCEPT AS INDICATED

	28FEB12 INI-SUM	15MAR	2012 22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	2013 30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	5895	212	99	127	513	922	1305	666	295	267	349	172	80	92	251	229	317
DEPLETION	468	-16	-8	-10	62	282	475	215	-12	-126	-66	-27	-12	-14	-94	-107	-74
EVAPORATION	393							24	75	94	82	37	17	20	43		
MOD INFLOW	5034	228	106	137	451	640	830	427	232	299	333	161	75	86	302	336	391
RELEASE	5106	119	56	71	387	523	506	523	523	399	246	119	56	63	523	523	472
STOR CHANGE	-72	109	51	65	64	117	324	-96	-291	-99	87	42	20	22	-221	-187	-81
STORAGE	8396	8505	8556	8622	8686	8803	9127	9032	8741	8641	8728	8770	8790	8813	8592	8405	8324
ELEV FTMSL	2195.9	2196.7	2197.0	2197.5	2197.9	2198.7	2200.9	2200.2	2198.3	2197.6	2198.2	2198.5	2198.6	2198.8	2197.3	2196.0	2195.4
DISCH KCFS	8.5	4.0	4.0	4.0	6.5	8.5	8.5	8.5	8.5	6.7	4.0	4.0	4.0	4.0	8.5	8.5	8.5
POWER																	
AVE POWER MW		46	46	46	76	99	100	100	99	78	47	47	47	47	99	98	97
PEAK POW MW		123	124	125	125	126	129	128	126	125	126	126	126	126	124	122	122
ENERGY GWH	718.6	16.6	7.8	10.0	54.4	73.6	71.8	74.5	74.0	56.1	34.7	16.8	7.9	9.0	73.5	72.8	65.3
--GARRISON--																	
NAT INFLOW	8842	437	204	262	687	1261	2635	1290	430	191	466	177	82	94	161	161	305
DEPLETION	1062	6	3	3	15	186	767	600	111	-140	-25	-120	-56	-64	-102	-74	-49
CHAN STOR	0	51			-28	-23	0	0		20	30				-50		0
EVAPORATION	446							28	87	107	93	42	20	22	48		
REG INFLOW	12440	601	256	330	1031	1575	2374	1185	755	643	674	373	174	199	687	758	826
RELEASE	12532	417	167	214	1190	1414	1369	1230	1230	936	676	327	153	175	1045	1045	944
STOR CHANGE	-91	184	90	116	-159	161	1005	-45	-475	-293	-2	46	21	24	-358	-288	-118
STORAGE	10076	10261	10350	10466	10307	10467	11473	11428	10953	10660	10658	10703	10725	10749	10391	10103	9985
ELEV FTMSL	1806.0	1806.9	1807.3	1807.9	1807.1	1807.9	1812.5	1812.3	1810.1	1808.8	1808.8	1809.0	1809.1	1809.2	1807.5	1806.2	1805.6
DISCH KCFS	20.0	14.0	12.0	12.0	20.0	23.0	23.0	20.0	20.0	15.7	11.0	11.0	11.0	11.0	17.0	17.0	17.0
POWER																	
AVE POWER MW		141	121	122	202	231	236	210	208	162	113	113	113	113	173	171	170
PEAK POW MW		356	358	360	357	360	377	376	368	363	363	364	364	365	359	354	352
ENERGY GWH	1547.0	50.6	20.4	26.3	145.2	172.2	170.3	156.0	154.6	116.4	84.0	40.7	19.0	21.7	128.7	127.1	113.9
--OAHE--																	
NAT INFLOW	1272	217	101	130	188	127	282	138	55	72	6	9	4	5	-111	-22	72
DEPLETION	696	24	11	15	50	72	148	178	119	29	-11	1	0	1	13	18	28
CHAN STOR	17	33	11		-43	-16		16		24	26		0	0	-33		0
EVAPORATION	395							24	75	94	83	38	18	20	44		
REG INFLOW	12730	642	267	330	1285	1453	1503	1181	1091	909	636	297	139	158	845	1005	988
RELEASE	12824	412	267	360	1195	1412	1433	1704	1386	738	528	266	124	141	951	1023	884
STOR CHANGE	-94	230	0	-30	90	41	69	-523	-295	171	109	31	15	17	-106	-18	104
STORAGE	10598	10829	10828	10798	10888	10930	10999	10476	10181	10352	10460	10491	10506	10523	10417	10400	10504
ELEV FTMSL	1574.5	1575.7	1575.7	1575.5	1576.0	1576.2	1576.6	1573.9	1572.4	1573.3	1573.8	1574.0	1574.1	1574.2	1573.6	1573.5	1574.1
DISCH KCFS	16.0	13.8	19.3	20.2	20.1	23.0	24.1	27.7	22.5	12.4	8.6	8.9	8.9	8.9	15.5	16.6	15.9
POWER																	
AVE POWER MW		149	207	217	216	248	260	297	239	132	92	96	95	95	165	177	170
PEAK POW MW		544	544	543	546	547	549	535	526	531	534	535	535	536	533	533	535
ENERGY GWH	1660.3	53.6	34.8	46.9	155.7	184.2	187.2	220.7	177.5	94.7	68.1	34.4	16.0	18.3	122.7	131.6	113.9
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	12695	412	267	360	1195	1412	1433	1696	1362	707	501	254	118	135	937	1023	884
RELEASE	12695	412	267	360	1195	1412	1433	1696	1362	707	501	254	118	135	937	1023	884
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	16.0	13.8	19.3	20.2	20.1	23.0	24.1	27.6	22.1	11.9	8.1	8.5	8.5	8.5	15.2	16.6	15.9
POWER																	
AVE POWER MW		65	90	94	94	107	113	129	105	60	41	43	43	43	77	82	76
PEAK POW MW		518	510	509	509	509	509	509	525	538	538	538	538	538	538	538	529
ENERGY GWH	736.9	23.6	15.2	20.4	67.7	80.0	81.2	96.1	78.5	43.3	30.7	15.6	7.2	8.3	57.1	60.9	51.3
--FORT RANDALL--																	
NAT INFLOW	430	83	39	50	105	74	141	31	18	-12	-37	-16	-7	-8	-49	-25	43
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	126							10	30	31	22	10	5	5	12		
REG INFLOW	12915	493	305	409	1297	1477	1562	1699	1335	652	441	227	106	121	872	995	924
RELEASE	12916	232	159	392	1297	1477	1562	1699	1684	1556	441	227	106	121	719	695	550
STOR CHANGE	-1	261	146	17				0	-349	-903	0	0	0	0	153	300	374
STORAGE	3124	3386	3532	3549	3549	3549	3549	3549	3200	2296	2296	2296	2296	2296	2449	2749	3123
ELEV FTMSL	1350.0	1353.3	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1351.0	1337.5	1337.5	1337.5	1337.5	1337.5	1340.1	1344.8	1350.0
DISCH KCFS	10.1	7.8	11.5	22.0	21.8	24.0	26.3	27.6	27.4	26.1	7.2	7.6	7.6	7.6	11.7	11.3	9.9
POWER																	
AVE POWER MW		65	97	186	184	203	221	233	227	201	53	56	56	56	87	86	79
PEAK POW MW		350	355	356	356	356	356	356	342	284	285	285	285	285	297	319	339
ENERGY GWH	1270.8	23.3	16.2	40.1	132.7	151.0	159.5	173.3	168.8	144.6	39.1	20.2	9.4	10.7	64.4	64.3	53.2
--GAVINS POINT--																	
NAT INFLOW	1284	88	41	53	123	139	150	85	69	75	107	51	24	27	75	75	102
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	4	-7	-20	0	-4	-4	-3	0	2	35	-1	0	0	-8	1	3
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	14040	325	193	425	1416	1593	1684	1740	1735	1627	572	268	125	143	772	770	654
RELEASE	14040	325	193	425	1416	1593	1684	1740	1722	1601	572	268	125	143	772	770	693
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	10.9	13.9	23.8	23.8	25.9	28.3	28.3	28.0	26.9	9.3	9.0	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		38	49	82	82	88	96	96	96	93	33	32	32	32	45	44	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	587.3	13.8	8.2	17.6	58.7	65.8	69.3	71.6	71.3	67.3	24.7	11.6	5.4	6.2	33.2	33.1	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	977	121	57	73	125	167	91	98	56	49	35	25	11	13	7	21	28
DEPLETION	268	7	3	4	22	36	31	39	37	24	11	6	3	3	13	14	15
REGULATED FLOW AT SIOUX CITY																	
KAF	14749	440	247	494	1519	1724	1744	1799	1741	1626	596	286	134	153	766	777	706
KCFS		14.8	17.8	27.7	25.5	28.0	29.3	29.3	28.3	27.3	9.7	9.6	9.6	9.6	12.4	12.6	12.7
--TOTAL--																	
NAT INFLOW	18700	1158	540	694	1741	2690	4604	2308	923	642	926	417	195	222	334	439	867
DEPLETION	2685	21	10	13	156	604	1457	1089	280	-211	-89	-133	-62	-71	-157	-145	-77
CHAN STOR	12	88	4	-20	-71	-43	-4	13	0	41	92	-1	0	0	-90	1	3
EVAPORATION	1537							97	300	368	317	144	67	77	167		
STORAGE	34175	34959	35246	35414	35409	35728	37127	36464	35067	33967	34160	34279	34335	34399	33867	33675	33915
SYSTEM POWER																	
AVE POWER MW		504	611	747	853	977	1027	1065	974	726	378	387	386	386	644	658	636
PEAK POW MW		2006	2006	2007	2008	2013	2034	2018	2002	1958	1963	1965	1966	1967	1929	1943	1952
ENERGY GWH	6520.9	181.5	102.6	161.4	614.4	726.7	739.2	792.1	724.6	522.4	281.3	139.2	64.9	74.2	479.5	489.7	427.2
DAILY GWH		12.1	14.7	17.9	20.5	23.4	24.6	25.6	23.4	17.4	9.1	9.3	9.3	9.3	15.5	15.8	15.3

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

TIME OF STUDY 09:30:05 SHTN NAV SEAS 55 DAYS, SP MAR 0 MAY 0 STUDY NO 22

VALUES IN 1000 AF EXCEPT AS INDICATED

28FEB13		2013												2014		
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB
--FORT PECK--																	
NAT INFLOW	5983	214	100	129	521	936	1324	676	299	271	355	175	81	93	255	233	321
DEPLETION	503	-17	-8	-10	62	283	479	222	-8	-126	-68	-27	-13	-14	-97	-107	-47
EVAPORATION	397							24	76	95	83	38	18	20	43		
MOD INFLOW	5083	232	108	139	459	653	845	430	231	302	340	164	76	87	309	340	368
RELEASE	5058	119	56	71	238	369	536	553	553	411	277	134	62	71	553	553	500
STOR CHANGE	25	113	53	68	221	284	309	-124	-323	-109	63	30	14	16	-245	-213	-132
STORAGE	8324	8437	8490	8557	8778	9062	9372	9248	8925	8816	8879	8909	8923	8939	8694	8481	8349
ELEV FTMSL	2195.4	2196.2	2196.6	2197.0	2198.5	2200.5	2202.5	2201.7	2199.5	2198.8	2199.2	2199.4	2199.5	2199.6	2198.0	2196.5	2195.6
DISCH KCFS	8.5	4.0	4.0	4.0	4.0	6.0	9.0	9.0	9.0	6.9	4.5	4.5	4.5	4.5	9.0	9.0	9.0
POWER																	
AVE POWER MW		46	46	46	47	70	106	107	106	81	53	53	53	53	105	104	103
PEAK POW MW		123	123	124	126	128	131	130	127	126	127	127	127	127	125	123	122
ENERGY GWH	715.4	16.6	7.8	10.0	33.6	52.4	76.6	79.4	78.8	58.2	39.3	19.0	8.9	10.2	78.1	77.3	69.3
--GARRISON--																	
NAT INFLOW	9140	452	211	271	710	1303	2723	1334	444	198	482	182	85	97	167	167	315
DEPLETION	1074	6	3	3	15	185	777	616	117	-143	-30	-124	-58	-66	-104	-75	-49
CHAN STOR	-5	51				-22	-33			23	27				-50		
EVAPORATION	464							29	90	111	96	44	20	23	50		
REG INFLOW	12655	616	263	339	933	1465	2448	1242	790	664	719	396	185	211	725	795	864
RELEASE	12617	387	167	196	655	1107	1309	1353	1353	958	738	357	167	190	1107	1353	1222
STOR CHANGE	38	229	97	142	278	358	1139	-110	-563	-294	-19	39	18	21	-382	-557	-358
STORAGE	9985	10214	10311	10453	10732	11090	12229	12118	11556	11262	11243	11282	11300	11321	10939	10381	10023
ELEV FTMSL	1805.6	1806.7	1807.2	1807.8	1809.1	1810.8	1815.7	1815.2	1812.8	1811.5	1811.4	1811.6	1811.7	1811.8	1810.1	1807.5	1805.8
DISCH KCFS	17.0	13.0	12.0	11.0	11.0	18.0	22.0	22.0	22.0	16.1	12.0	12.0	12.0	12.0	18.0	22.0	22.0
POWER																	
AVE POWER MW		130	121	112	113	185	232	236	233	169	126	126	126	126	187	224	220
PEAK POW MW		356	357	360	364	370	388	387	378	373	373	373	374	374	368	358	352
ENERGY GWH	1585.1	46.9	20.4	24.1	81.1	137.9	166.9	175.3	173.4	121.7	93.5	45.3	21.1	24.2	139.0	166.5	147.8
--OAHE--																	
NAT INFLOW	1295	221	103	132	192	130	287	141	56	73	6	9	4	5	-113	-23	73
DEPLETION	709	24	11	15	50	73	151	182	122	30	-11	1	0	1	13	18	29
CHAN STOR	-27	22	5	5		-38	-22			34	23				-33	-22	0
EVAPORATION	374							23	70	89	79	36	17	19	42		
REG INFLOW	12802	605	264	320	797	1125	1423	1289	1217	946	699	329	153	175	905	1289	1266
RELEASE	12762	352	254	359	1191	1408	1426	1702	1387	754	546	265	124	141	947	1024	882
STOR CHANGE	40	253	10	-39	-394	-282	-3	-413	-171	193	153	63	30	34	-41	266	384
STORAGE	10504	10757	10767	10727	10333	10051	10048	9634	9464	9656	9809	9873	9902	9936	9894	10160	10544
ELEV FTMSL	1574.1	1575.3	1575.4	1575.2	1573.2	1571.7	1571.7	1569.4	1568.5	1569.5	1570.4	1570.7	1570.9	1571.1	1570.8	1572.3	1574.3
DISCH KCFS	15.9	11.8	18.3	20.1	20.0	22.9	24.0	27.7	22.6	12.7	8.9	8.9	8.9	8.9	15.4	16.7	15.9
POWER																	
AVE POWER MW		127	197	216	213	241	251	287	232	131	93	93	93	94	161	175	169
PEAK POW MW		542	542	541	531	523	523	511	506	512	516	518	519	520	519	526	537
ENERGY GWH	1619.6	45.7	33.0	46.6	153.6	179.4	180.8	213.8	172.8	94.3	68.9	33.6	15.7	18.0	119.9	130.1	113.3
--BIG BEND--																	
EVAPORATION	129							8	24	31	27	12	6	7	14		
REG INFLOW	12633	352	254	359	1191	1408	1426	1694	1363	723	519	253	118	135	933	1024	882
RELEASE	12633	352	254	359	1191	1408	1426	1694	1363	723	519	253	118	135	933	1024	882
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	15.9	11.8	18.3	20.1	20.0	22.9	24.0	27.6	22.2	12.1	8.4	8.5	8.5	8.5	15.2	16.7	15.9
POWER																	
AVE POWER MW		56	86	94	94	107	112	129	106	61	43	43	43	43	76	82	76
PEAK POW MW		518	510	509	509	509	509	509	525	538	538	538	538	538	538	538	529
ENERGY GWH	733.4	20.2	14.4	20.3	67.4	79.7	80.8	96.0	78.5	44.2	31.8	15.5	7.2	8.3	56.8	60.9	51.2
--FORT RANDALL--																	
NAT INFLOW	447	87	40	52	108	77	147	32	19	-13	-38	-16	-7	-9	-51	-26	45
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	126							10	30	31	22	10	5	5	12		
REG INFLOW	12870	437	294	410	1296	1476	1561	1698	1337	667	458	226	105	120	866	995	924
RELEASE	12870	173	149	393	1296	1476	1561	1698	1683	1573	458	226	105	120	713	695	550
STOR CHANGE	0	265	144	17	0		0	0	-346	-906	0	0	0	0	153	300	374
STORAGE	3123	3388	3532	3549	3549	3549	3549	3549	3203	2296	2296	2296	2296	2296	2449	2749	3123
ELEV FTMSL	1350.0	1353.3	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1351.0	1337.5	1337.5	1337.5	1337.5	1337.5	1340.1	1344.8	1350.0
DISCH KCFS	9.9	5.8	10.8	22.0	21.8	24.0	26.2	27.6	27.4	26.4	7.5	7.6	7.6	7.6	11.6	11.3	9.9
POWER																	
AVE POWER MW		48	91	186	184	203	221	233	227	203	55	56	56	56	86	86	79
PEAK POW MW		350	355	356	356	356	356	356	342	284	285	285	285	285	297	319	339
ENERGY GWH	1266.0	17.4	15.3	40.2	132.6	150.9	159.4	173.2	168.7	146.3	40.7	20.1	9.4	10.7	63.8	64.3	53.2
--GAVINS POINT--																	
NAT INFLOW	1297	89	42	53	124	140	151	86	70	76	108	52	24	27	76	76	103
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	8	-9	-22	0	-4	-4	-3	0	2	35	0	0	0	-7	1	3
EVAPORATION	47							3	9	11	10	5	2	2	5		
REG INFLOW	14007	270	182	425	1416	1593	1684	1740	1735	1645	590	268	125	143	767	770	655
RELEASE	14007	270	182	425	1416	1593	1684	1740	1722	1619	590	268	125	143	767	770	694
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	9.1	13.1	23.8	23.8	25.9	28.3	28.3	28.0	27.2	9.6	9.0	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		32	46	82	82	88	96	96	96	94	34	32	32	32	44	45	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	585.9	11.5	7.7	17.6	58.7	65.8	69.3	71.6	71.3	68.0	25.4	11.6	5.4	6.2	33.0	33.1	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1038	129	60	77	134	178	96	104	59	52	37	26	12	14	7	22	30
DEPLETION	270	7	3	4	23	36	31	39	37	25	11	6	3	3	13	14	15
REGULATED FLOW AT SIOUX CITY																	
KAF	14775	392	239	499	1527	1735	1749	1805	1744	1646	616	288	134	153	761	778	709
KCFS		13.2	17.2	27.9	25.7	28.2	29.4	29.4	28.4	27.7	10.0	9.7	9.7	9.7	12.4	12.7	12.8
--TOTAL--																	
NAT INFLOW	19200	1192	556	715	1789	2764	4728	2373	947	657	950	427	199	227	341	449	887
DEPLETION	2747	20	9	12	157	605	1474	1116	293	-212	-96	-138	-64	-73	-162	-146	-49
CHAN STOR	-37	81	-4	-16	0	-65	-60	-3	0	53	85	0	0	0	-91	-22	3
EVAPORATION	1537							97	300	368	317	144	67	77	167		
STORAGE	33915	34775	35078	35266	35371	35731	37176	36529	35140	34049	34246	34378	34440	34510	33995	33789	34019
SYSTEM POWER																	
AVE POWER MW		440	587	736	732	895	1019	1088	1000	740	403	403	403	403	659	715	691
PEAK POW MW		2002	2003	2004	2001	2001	2022	2007	1993	1950	1956	1958	1960	1961	1925	1942	1955
ENERGY GWH	6505.4	158.2	98.5	159.0	527.0	666.1	733.8	809.4	743.6	532.7	299.6	145.0	67.7	77.4	490.6	532.2	464.3
DAILY GWH		10.5	14.1	17.7	17.6	21.5	24.5	26.1	24.0	17.8	9.7	9.7	9.7	9.7	15.8	17.2	16.6
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB

TIME OF STUDY 09:30:05 SHTN NAV SEAS 55 DAYS, SP MAR 0 MAY 0 STUDY NO 23

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	6017	216	101	129	524	942	1331	680	301	273	356	176	82	94	256	234	323
DEPLETION	487	-17	-8	-10	61	283	483	229	-3	-126	-70	-28	-13	-15	-97	-108	-74
EVAPORATION	368							24	76	95	83	24	11	13	43		
MOD INFLOW	5162	233	109	140	463	659	848	427	228	304	343	179	84	96	310	342	397
RELEASE	5115	119	56	71	357	492	476	492	492	438	307	149	69	79	523	523	472
STOR CHANGE	47	114	53	68	106	167	372	-65	-264	-133	36	31	14	16	-213	-181	-75
STORAGE	8349	8463	8517	8585	8691	8858	9230	9165	8901	8768	8804	8834	8848	8865	8652	8471	8396
ELEV FTMSL	2195.6	2196.4	2196.8	2197.2	2198.0	2199.1	2201.6	2201.1	2199.4	2198.5	2198.7	2198.9	2199.0	2199.1	2197.7	2196.4	2195.9
DISCH KCFS	9.0	4.0	4.0	4.0	6.0	8.0	8.0	8.0	8.0	7.4	5.0	5.0	5.0	5.0	8.5	8.5	8.5
POWER																	
AVE POWER MW		46	46	46	70	93	94	95	94	86	58	59	59	59	99	98	97
PEAK POW MW		123	124	124	125	127	130	129	127	126	126	127	127	127	125	123	122
ENERGY GWH	721.7	16.6	7.8	10.0	50.2	69.4	67.8	70.4	70.0	61.9	43.5	21.1	9.8	11.3	73.6	73.0	65.5
--GARRISON--																	
NAT INFLOW	9260	457	213	274	720	1320	2759	1351	451	200	488	185	86	98	169	169	319
DEPLETION	1144	6	3	4	16	185	787	636	101	-145	-34	-118	-55	-63	-88	-57	-34
CHAN STOR	6	57			-22	-22				7	26			0	-39		0
EVAPORATION	427							28	89	110	95	27	13	15	50		
REG INFLOW	12810	627	266	342	1039	1604	2448	1179	753	680	760	424	198	226	691	749	825
RELEASE	12758	387	167	214	1131	1414	1309	1107	1107	1023	738	357	167	190	1107	1230	1111
STOR CHANGE	52	240	99	128	-92	190	1139	72	-354	-343	22	67	31	36	-416	-481	-286
STORAGE	10023	10263	10362	10490	10398	10588	11727	11799	11445	11101	11124	11191	11222	11258	10842	10361	10075
ELEV FTMSL	1805.8	1806.9	1807.4	1808.0	1807.6	1808.5	1813.6	1813.9	1812.3	1810.8	1810.9	1811.2	1811.3	1811.5	1809.6	1807.4	1806.0
DISCH KCFS	22.0	13.0	12.0	12.0	19.0	23.0	22.0	18.0	18.0	17.2	12.0	12.0	12.0	12.0	18.0	20.0	20.0
POWER																	
AVE POWER MW		131	121	122	192	232	228	191	190	180	125	125	126	126	186	203	200
PEAK POW MW		356	358	360	359	362	381	382	376	370	371	372	372	373	366	358	353
ENERGY GWH	1589.4	47.0	20.4	26.3	138.3	172.9	164.1	142.0	141.3	129.3	93.1	45.1	21.1	24.1	138.6	151.2	134.6
--OAHE--																	
NAT INFLOW	1305	222	104	133	193	130	289	142	57	74	6	9	4	5	-113	-23	74
DEPLETION	724	25	12	15	51	75	154	187	125	30	-12	1	0	1	13	19	29
CHAN STOR	11	49	5		-38	-22	5	21		5	29				-33	-11	
EVAPORATION	358							24	73	91	81	23	11	12	43		
REG INFLOW	12992	633	264	333	1235	1448	1449	1059	966	980	704	341	159	182	905	1177	1156
RELEASE	12939	408	265	357	1188	1406	1423	1700	1383	775	674	251	119	136	948	1024	882
STOR CHANGE	53	225	-1	-24	47	42	26	-641	-418	206	30	90	40	46	-43	153	274
STORAGE	10544	10769	10768	10744	10791	10833	10859	10219	9801	10007	10037	10127	10167	10213	10170	10323	10597
ELEV FTMSL	1574.3	1575.4	1575.4	1575.3	1575.5	1575.7	1575.9	1572.6	1570.3	1571.4	1571.6	1572.1	1572.3	1572.5	1572.3	1573.1	1574.5
DISCH KCFS	15.9	13.7	19.1	20.0	20.0	22.9	23.9	27.6	22.5	13.0	11.0	8.4	8.6	8.6	15.4	16.7	15.9
POWER																	
AVE POWER MW		147	205	215	214	246	257	294	235	136	115	89	91	91	163	176	169
PEAK POW MW		542	542	542	543	544	545	527	516	522	523	525	526	527	526	530	538
ENERGY GWH	1664.8	53.0	34.5	46.3	154.4	182.8	185.2	218.7	175.2	98.2	85.8	32.1	15.3	17.4	121.1	131.0	113.7
--BIG BEND--																	
EVAPORATION	120							8	24	31	27	8	4	4	14		
REG INFLOW	12819	408	265	357	1188	1406	1423	1692	1359	744	647	243	116	132	934	1024	882
RELEASE	12819	408	265	357	1188	1406	1423	1692	1359	744	647	243	116	132	934	1024	882
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	15.9	13.7	19.1	20.0	20.0	22.9	23.9	27.5	22.1	12.5	10.5	8.2	8.3	8.3	15.2	16.7	15.9
POWER																	
AVE POWER MW		65	90	94	93	107	112	129	105	63	53	41	42	42	76	82	76
PEAK POW MW		518	510	509	509	509	509	509	525	538	538	538	538	538	538	538	529
ENERGY GWH	744.5	23.4	15.0	20.2	67.3	79.6	80.6	95.8	78.3	45.5	39.6	14.9	7.1	8.1	56.9	60.9	51.2
--FORT RANDALL--																	
NAT INFLOW	453	88	41	53	110	78	149	33	19	-13	-39	-16	-7	-9	-52	-26	45
DEPLETION	79	1	1	1	3	9	12	18	15	7	1	1	0	1	3	3	3
EVAPORATION	119							10	30	31	22	6	3	3	12		
REG INFLOW	13070	494	305	408	1295	1475	1560	1697	1333	688	584	220	105	120	866	995	924
RELEASE	13070	232	159	391	1295	1475	1560	1697	1682	1592	584	220	105	120	713	695	550
STOR CHANGE	0	262	147	17			0	0	-349	-903	0	0	0	0	153	300	374
STORAGE	3123	3385	3532	3549	3549	3549	3549	3549	3200	2297	2296	2296	2296	2296	2449	2749	3123
ELEV FTMSL	1350.0	1353.3	1355.0	1355.2	1355.2	1355.2	1355.2	1355.2	1351.0	1337.5	1337.5	1337.5	1337.5	1337.5	1340.2	1344.8	1350.0
DISCH KCFS	9.9	7.8	11.4	21.9	21.8	24.0	26.2	27.6	27.4	26.7	9.5	7.4	7.6	7.5	11.6	11.3	9.9
POWER																	
AVE POWER MW		65	96	185	184	203	221	233	227	205	70	54	55	55	86	86	79
PEAK POW MW		350	355	356	356	356	356	356	342	284	285	285	285	285	297	319	339
ENERGY GWH	1284.3	23.3	16.2	40.0	132.5	150.8	159.3	173.1	168.6	147.9	51.8	19.6	9.3	10.6	63.8	64.3	53.2
--GAVINS POINT--																	
NAT INFLOW	1303	90	42	54	125	141	152	87	71	76	108	52	24	27	76	76	103
DEPLETION	112	0	0	0	4	19	24	39	10	-5	1	5	2	3	10	1	
CHAN STOR	-1	4	-7	-20	0	-4	-4	-3	0	1	32	4	0	0	-8	1	3
EVAPORATION	44							3	9	11	10	3	1	2	5		
REG INFLOW	14216	326	194	425	1416	1593	1684	1740	1735	1662	713	268	125	143	766	770	655
RELEASE	14216	326	194	425	1416	1593	1684	1740	1722	1636	713	268	125	143	766	770	694
STOR CHANGE									13	26							-39
STORAGE	358	358	358	358	358	358	358	358	371	397	397	397	397	397	397	397	358
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	12.5	11.0	13.9	23.8	23.8	25.9	28.3	28.3	28.0	27.5	11.6	9.0	9.0	9.0	12.5	12.5	12.5
POWER																	
AVE POWER MW		38	49	82	82	88	96	96	96	95	41	32	32	32	44	45	44
PEAK POW MW		114	114	114	114	114	114	114	115	117	117	117	117	117	78	78	76
ENERGY GWH	594.7	13.8	8.2	17.6	58.7	65.8	69.3	71.6	71.3	68.7	30.7	11.6	5.4	6.2	32.9	33.1	29.6
--GAVINS POINT - SIOUX CITY--																	
NAT INFLOW	1062	132	62	79	136	182	99	106	61	53	38	27	12	14	8	23	30
DEPLETION	276	7	3	4	23	36	32	39	38	25	11	7	3	3	14	15	15
REGULATED FLOW AT SIOUX CITY																	
KAF	15002	451	252	500	1529	1739	1751	1807	1745	1664	740	288	134	153	760	778	709
KCFS		15.2	18.1	28.0	25.7	28.3	29.4	29.4	28.4	28.0	12.0	9.7	9.7	9.7	12.4	12.7	12.8
--TOTAL--																	
NAT INFLOW	19400	1205	562	722	1808	2793	4779	2399	960	663	957	431	201	230	344	453	894
DEPLETION	2822	22	10	13	158	607	1492	1148	286	-214	-103	-132	-62	-70	-145	-127	-61
CHAN STOR	12	109	-2	-20	-60	-48	1	19	0	8	87	4	0	0	-79	-10	3
EVAPORATION	1436							97	301	369	318	91	43	49	168		
STORAGE	34019	34860	35158	35348	35409	35808	37345	36711	35339	34190	34279	34467	34552	34650	34131	33923	34171
SYSTEM POWER																	
AVE POWER MW		492	608	743	835	969	1009	1037	947	766	463	401	405	405	655	690	666
PEAK POW MW		2004	2004	2006	2007	2012	2035	2018	2001	1957	1960	1963	1965	1967	1931	1946	1957
ENERGY GWH	6599.5	177.1	102.1	160.6	601.5	721.3	726.3	771.7	704.7	551.5	344.4	144.3	68.0	77.7	487.1	513.6	447.8
DAILY GWH		11.8	14.6	17.8	20.1	23.3	24.2	24.9	22.7	18.4	11.1	9.6	9.7	9.7	15.7	16.6	16.0
	INI-SUM	15MAR	22MAR	31MAR	30APR	31MAY	30JUN	31JUL	31AUG	30SEP	31OCT	15NOV	22NOV	30NOV	31DEC	31JAN	28FEB