Application for New License
Major Project – Existing Dam

Exhibit B
Project Operations and Resource Utilization

Security Level: Public

Camp Far West Hydroelectric Project
FERC Project No. 2997

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June 2019

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EXHIBIT B

PROJECT OPERATIONS AND RESOURCE UTILIZATION

1.0 Introduction

The South Sutter Water District (SSWD or Licensee) has prepared this Exhibit B, Project Operations and Resource Utilization, as part of its Application for a New License Major Project – Existing Dam – (Application for New License) from the Federal Energy Regulatory Commission (FERC or Commission) for the Camp Far West Hydroelectric Project, FERC Project No. 2997 (Project). This exhibit is prepared in conformance with Title 18 of the Code of Federal Regulations (C.F.R.), Subchapter B (Regulations under the Federal Power Act), Part 4 (Licenses, Permits, Exemptions and Determination of Project Costs), Subpart F and, as applicable, Part 16 (traditional process). In particular, this exhibit conforms to the regulations in 18 C.F.R. Section 4.51(c), which described the contents of Exhibit B. This Exhibit B describes in detail, the manner in which SSWD operates the existing Project and plans to operate the Project as proposed in this Application for New License. As a reference, 18 C.F.R. Section 4.51(c) states:

> Exhibit B is a statement of Project operation and resource utilization. If the project includes more than one dam with associated facilities, the information must be provided separately for each such discrete development. The exhibit must contain:
>
> (1) A statement whether operation of the powerplant will be manual or automatic, an estimate of the annual plant factor, and a statement of how the project will be operated during adverse, mean, and high water years,
>
> (2) An estimate of the dependable capacity and average annual energy production in kilowatt-hours (or a mechanical equivalent), supported by the following data:
>
> (i) The minimum, mean, and maximum recorded flows in cubic feet per second of the stream or other body of water at the powerplant intake or point of diversion, with a specification of any adjustment made for evaporation, leakage, minimum flow releases (including duration of releases), or other reductions in available flow, monthly flow duration curves indicating the period of record and the gauging stations used in deriving the curves, and a specification of the period of critical stream flow used to determine the dependable capacity,
>
> (ii) An area-capacity curve showing the gross storage capacity and usable storage capacity of the impoundment, with a rule curve showing the proposed operation of the impoundment and how the usable storage capacity is to be utilized;
>
> (iii) The estimated minimum and maximum hydraulic capacity of the powerplant (maximum flow through the powerplant) in cubic feet per second;
>
> (iv) A tailwater rating curve; and
>
> (v) A curve showing powerplant capability versus head and specifying maximum, normal, and minimum heads.
>
> (3) A statement, with load curves and tabular data, if necessary, of the manner in which the power generated at the project is to be utilized, including the amount of power to be used on-site, if any, the amount of power to be sold, and the identity of any proposed purchasers; and

(4) A statement of the applicant's plans, if any, for future development of the project or of any other existing or proposed water power project on the stream or other body of water, indicating the approximate location and estimated installed capacity of the proposed developments.

In addition to this introductory section, this Exhibit B includes nine sections. Section 2 gives a general description of the Project. Section 3 describes the use of SSWD's Water Balance/ Operations Model in this exhibit. Section 4 describes hydrology in the Project Area.[1] Section 5 summarizes regulatory and contractual operating constraints of the Project. Section 6 describes existing Project operations. Section 7 describes SSWD's proposed Project operations. Section 8.0 describes the use of Project Power. Section 9 discloses SSWD's plans for future developments of the Project and water projects in the Bear River watershed. Section 10 includes a list of references cited.

See Exhibit A for a description of Project Facilities and features; Exhibit C for a construction history and a construction schedule; Exhibit D for a description of Project costs and financing; and Exhibit E for a discussion of potential environmental effects and SSWD's proposed resource management measures. Project design drawings and Project maps are included in Exhibits F and G, respectively. Exhibit H contains a detailed description of the need for the electricity provided by the Project, the availability of electrical energy alternatives and other miscellaneous information.

All elevation data in this exhibit is in United States Department of Commerce (USDOC), National Oceanic and Atmospheric Association (NOAA), National Geodetic Survey Vertical Datum of 1929 (NGVD 29), unless otherwise stated.

2.0 General Description of the Project

The existing Project consists of one development - Camp Far West – that, in total, includes: one main dam; one powerhouse with an associated switchyard with a capacity of 6.8 megawatts (MW); and appurtenant facilities and structures, including recreation facilities and gages.

The Project operates primarily to provide irrigation water to growers in SSWD's and the Camp Far West Irrigation District's (CFWID) service districts. However, SSWD also operates the Project to meet Bear River streamflow requirements and to generate power. SSWD has historically leased the power generating facilities to the Sacramento Municipal Utility District (SMUD), which has operated the Camp Far West Powerhouse and switchyard.

Camp Far West Reservoir does not have any dedicated flood control space or associated flood control rules, and the Project does not include any in-basin or out-of-basin water diversions, open water conduits, or transmission lines.

[1] In this exhibit, "Project Area" refers to the area within and immediately adjacent to the existing FERC Project Boundary, and the Bear River downstream of the Project.

In addition to providing power and downstream water supply, SSWD pumps water directly from the Camp Far West Reservoir to supply water to the Project recreation facilities' water treatment plant for Project recreation uses and to non-Project residences and buildings utilized by the concessionaire's year-round and seasonal staff. Pumping averages approximately 15.3 acre-feet (ac-ft) per year. This relatively small volume of pumping does not affect Project operations.

3.0 Use of SSWD's Water Balance/Operations Model in Exhibit B

SSWD has operated the Project since 1984. However, Project operations have changed through time. Therefore, historical operations information (e.g., flows, storage and generation) may not provide the best picture of current existing conditions. To describe better existing operations of Camp Far West Reservoir and associated hydropower and irrigation facilities over a range of hydrologic conditions, SSWD developed the Camp Far West Hydroelectric Project Water Balance/Operations Model (Ops Model).

The Ops Model is a tool to examine water supply and hydropower generation under a variety of hydrologic and operational conditions, and addresses operational decisions including: stream flow requirements, water supply, recreation, and hydropower generation. The Ops Model simulates operations subject to the physical constraints of the Project, including maximum and minimum reservoir elevations, reservoir outlet and powerhouse capacities, and the existing configuration of the Camp Far West Dam Spillway. Ops Model logic focuses on operations of Camp Far West Reservoir and the downstream non-Project diversion dam, which includes simulated diversions into SSWD's Main Canal and CFWID's North Canal and South Canal. Irrigation diversions are based on estimated agricultural demands, Camp Far West Reservoir storage and anticipated releases and diversions from upstream water storage projects. The Ops Model contains data for historical water transfers but does not include water transfers in its simulation of operations. The Ops Model also includes a representation of the Bear River downstream of the diversion dam to the confluence of the Bear River with the Feather River, including tributary inflow from Dry Creek at river mile (R.M.)[2] 5.1. Three additional stream nodes are located downstream of the diversion dam: Bear River at Wheatland; Bear River at Pleasant Grove Road; and the Bear River at the confluence with the Feather River. Table 3.0-1 provides a summary of output available from the Ops Model and Figure 3.0-1 is an overview of the Project, SSWD and CFWID service territories, and Ops Model nodes.

Table 3.0-1. Summary of Ops Model nodes and outputs.

Model Node	Model Output
NODES WITHIN PROJECT	
Camp Far West Reservoir	Storage and elevation
Camp Far West Powerhouse	Generation and release through turbine
Camp Far West Dam	Release from low-level outlet and spillway

[2] In this exhibit, river miles are estimated using SSWD's relicensing Geographic Information System (GIS) of the Bear River basin moving from downstream to upstream in the Bear River with R.M. 0.0 designating the confluence of the Bear River with the Feather River.

Table 3.0-1. (continued)

Model Node	Model Output
NODES DOWNSTREAM OF PROJECT	
CFWID North Canal	Diversion into canal
CFWID South Canal	Diversion into canal
SSWD Main Canal	Diversion into canal
Non-Project Diversion Dam	Estimated flow below diversion dam
Bear River at Wheatland	Estimated flow in river
Bear River at Pleasant Grove Road	Estimated flow in river
Bear River at Feather River	Estimated flow in river

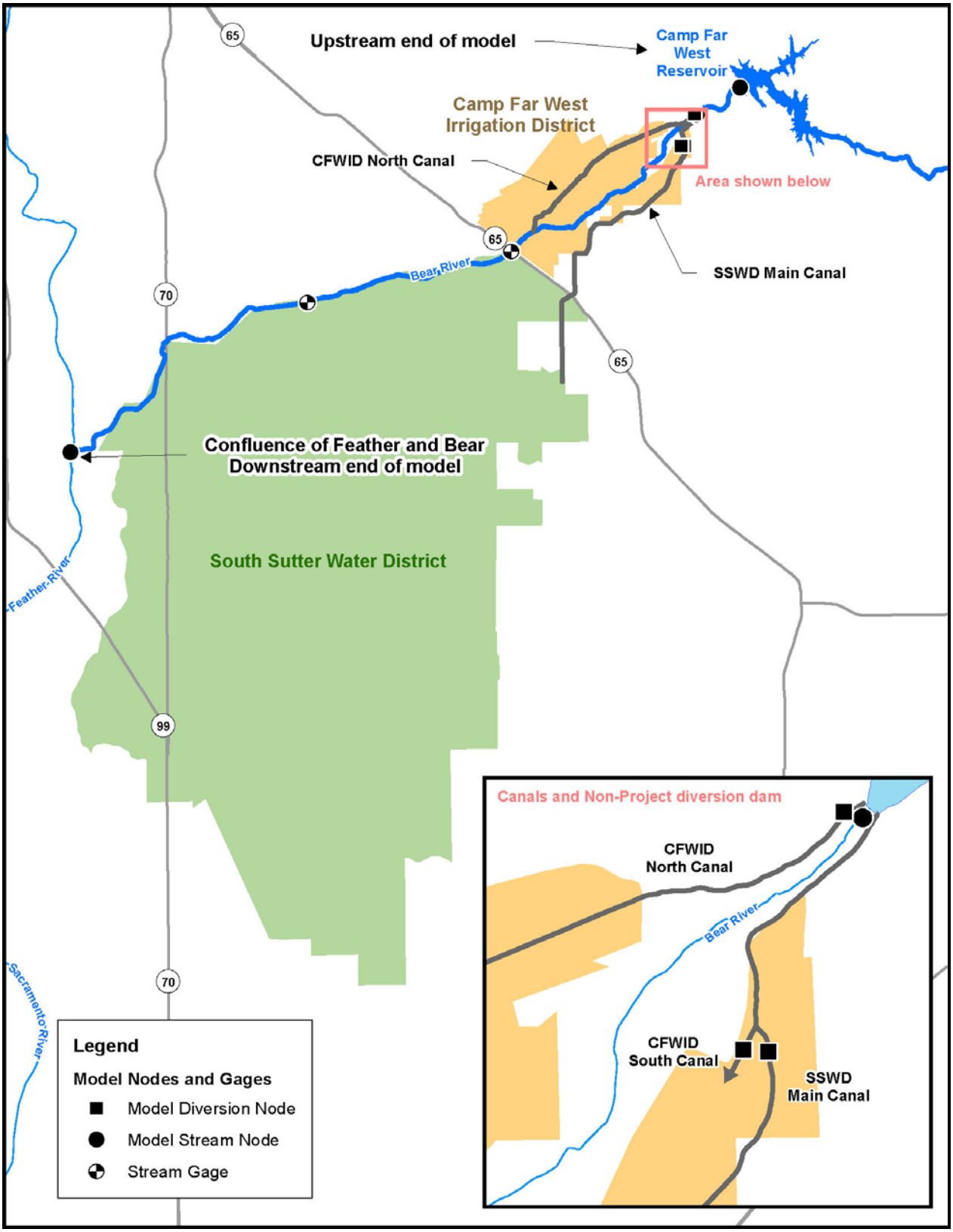

Figure 3.0-1. Camp Far West Hydroelectric Project, SSWD and CFWID service territories, and Ops Model nodes.

The Ops Model simulates operations on a daily time-step for 39 years of historical hydrology from Water Year (WY) 1976 through WY 2014. This period covers a range of hydrologic conditions and includes both the driest (1977) and wettest (1983) years on record, based on total annual inflow to Camp Far West Reservoir. The period also includes three multi-year periods of below average inflow: WYs 1976 through 1977; WYs 1987 through 1992; and WYs 2012 through 2014.

The Ops Model is a Microsoft Excel spreadsheet. SSWD selected Microsoft™ Excel as the Ops Model platform for several reasons including: availability to Relicensing Participants;[3] transparency of Ops Model logic and operations; flexibility in developing operational rules; and existing familiarity with spreadsheets for most Relicensing Participants. The Ops Model allows user-defined variables to be changed and different operations to be evaluated. Ops Model operational logic is transparent and editable.

The Ops Model includes preliminary WY types based on five WY types proposed for the upstream Nevada Irrigation District's (NID) Yuba-Bear Project (FERC Project No. 2266) and Pacific Gas and Electric's (PG&E) Drum-Spaulding Project (FERC Project No. 2310), collectively, the Yuba-Bear Drum Spaulding (YB/DS) Projects. The YB/DS Projects' WY types are used in the Ops Model for reporting model results and to evaluate potential operational decisions. The existing Project license includes only two WY types.

The Ops Model was developed and validated with inputs designed to represent historical operations and historical inflow.

Then, the Ops Model was used to develop a Baseline scenario, assuming YB/DS Projects near-term operations with assumed new YB/DS FERC license requirements based on the FERC-issued Final Environmental Impact Statement (FEIS) for both projects and the current level of development upstream. The YB/DS Projects are currently in the process of relicensing. Therefore, upstream operations are expected to change in the near future and those changes will affect inflow into Camp Far West Reservoir and SSWD's operations. Inflow into Camp Far West was provided by HDR Inc., a consultant to NID and PG&E for the YB/DS relicensing, based on a model of the YB/DS Projects. The Baseline scenario includes Camp Far West operations representative of how SSWD currently operates the Project, and includes all current physical, regulatory, and contractual constraints.

The Ops Model was then used to develop two separate Proposed Project simulations. The first scenario, Proposed Project (Near-Term Condition), assumes YB/DS Projects operations with assumed new YB/DS FERC license requirements based on the FERC-FEIS for both projects, the current level of development upstream, and SSWD's Proposed Project. The second scenario, (Future Condition), assumes YB/DS Projects operations with assumed new FERC license requirements, a future level of development upstream, and SSWD's Proposed Project.

[3] In this exhibit, "Relicensing Participants" includes SSWD, federal and State agencies, local agencies, non-governmental organizations (NGO), businesses and members of the public that routinely and actively take part (i.e., attend meetings/workshops and make filings) in the Camp Far West Project relicensing.

Inflow hydrology for Dry Creek was developed as part of SSWD's relicensing Study 2.2 *Water Temperature Modeling*, by gage reconstruction. Dry Creek was gaged from WY 1947 to 1962, capturing 87 percent (99.9 square miles, or sq mi) of the total Dry Creek drainage basin. The analysis was a flow gage reconstruction for the desired WYs (1976 through 2014), and not an estimate of the total Dry Creek flow at the Bear River. Statistical regression relationships were developed to relate the Dry Creek gage to other flow gages in Northern California as summarized in Table 3.0-2. Due to the lack of overlapping periods of record, regressions of Laguna Creek near Elk Grove and Dry Creek near Roseville to South Honcut Creek were developed to first synthesize South Honcut Creek, which is then used to synthesize Dry Creek near Wheatland. The resulting time series was used for both the Near-Term and Future Conditions scenarios.

Table 3.0-2. Flow gages used in analysis.

Flow Gage	Gage Identification	WYs Available	Mean Elevation (ft)	Watershed Area (mi^2)	Dry Creek Synthesis Periods
Dry Creek near Wheatland	11424500	1947-1962	920	99.9	--
South Honcut Creek near Bangor	11407500, *A05775*	1951-1986, *2006-2014*	1640	30.6	1975-1986
Dry Creek near Roseville	11447293	2000-2012	450	80.1	2000-2005
Laguna Creek near Elk Grove	11336585	1996-2014	120	31.9	1996-1999
Napa River near St. Helena	11456000	1947-1995, 2000-2014	1020	78.8	1987-1995

Note: Italicized data from DWR Water Data Library, all other data from USGS.

The Ops Model was validated by comparison with observed data from WY 1995 through WY 2014. Recent years are used for validation because SSWD operations have changed during the 39-year simulation period, most notably in 2000. For this reason, a separate simulation was used for model validation. The validation model also includes limited water transfers that occurred during the validation period.

The Ops Model Validation Report and the Ops Model itself is included in Appendix E1 of Exhibit E.

4.0 Hydrology

4.1 Relicensing Hydrology Datasets

SSWD developed six hydrology datasets (mean daily values for flows and daily values for reservoir elevation and storage) to support the Camp Far West Project relicensing. These datasets are:

1. Historical Hydrology. This dataset is composed of publicly available, empirical, gaged reservoir and flow data in the Project Area, and covers the period from WY 1928 through WY 2014. The WY 1928 through 1964 period covers the period prior to the

development of Camp Far West Dam;[4] the WY 1967 through 1984 covers the period from when the dam was in place but prior to the development of Camp Far West Powerhouse; and the WY 1985 through 2014 period covers the period from when both the dam and powerhouse were in place. The Ops Model includes calculated, historical inflow to Camp Far Water Reservoir based on historical gage records for the modeling period of record, which is from WY 1976 through WY 2014.

2. Unimpaired Hydrology. This dataset is an estimation of flows that would have occurred in the basin during the modeling period of record if no Project or non-Project facilities were present.[5]

3. Environmental Baseline. This dataset is the No Action Alternative, and is an estimation of inflow to Camp Far West Reservoir, operations, and flows that would have occurred in the basin during the modeling period of record if the Project and all non-Project facilities were present and operating under expected, near-term conditions. This dataset is used throughout SSWD's Application for New License to represent environmental baseline reservoir and flow conditions. SSWD uses this dataset instead of the Historical Hydrology dataset to represent near-term environmental baseline conditions because using historical data would be misleading given changes in Project and non-Project operations over time. This hydrology dataset is a product of the Ops Model, and is sometimes referred to in this Application for New License as the No Action Alternative. Near-Term Conditions assume YB/DS Project operations with assumed new FERC license requirements based on the FERC-issued FEIS for both YB-DS Projects and the current level of development upstream.

4. Proposed Project (Near-Term Condition). This dataset is SSWD's proposed Project under near-term conditions. Near-Term conditions assume YB/DS Project YB/DS Projects operations with assumed new FERC license requirements based on the FERC-issued FEIS for both YB-DS Projects and the current level of development upstream.

5. Proposed Project (Future Condition). This dataset is SSWD's proposed Project under future conditions. Future conditions assume YB/DS Project operations with assumed new FERC license requirements based on the FERC-issued FEIS for both YB-DS Projects and the future (WY 2062) level of development upstream.

Each hydrology dataset as well as SSWD's methods used to estimate each flow condition are provided in Appendix E1 of Exhibit E of SSWD's Application for New License. Specifically, for the modeling period of record the attachment includes: 1) mean daily releases from the Project powerhouse; 2) total mean daily flow below Camp Far West Dam (i.e., the sum of the powerhouse discharge, dam spill and low-level outlet release); 3) mean daily fish release flow immediately downstream of the non-Project diversion dam, the flow compliance location in the existing Project license; 4) daily Camp Far West Reservoir water surface elevation (WSE) and

[4] This period starts after the first Camp Far West Dam, which was a 50-ft high concrete gravity structure was built by the CFWID in 1927. The dam was enlarged in 1964 by SSWD as part of the California State Water Plan to enhance water supply in California's Central Valley. Camp Far West Dam and Reservoir are not part of California's State Water Project.

[5] Unlike other tributaries to the Feather River, the California Department of Water Resources (DWR) does not forecast or estimate unimpaired flow in the Bear River.

storage; and 5) other hydrologic information. Data are provided in the United States Army Corps of Engineers' (USACE) Hydrologic Engineering Center's (HEC) Data Storage System (DSS) format and in Microsoft™ Excel format, and monthly duration curves are provided for flow.

4.2 Overview of the Bear River Hydrology

The Project is located in the Bear River Basin, which drains approximately 400 square miles (sq mi) of the western slope of the Sierra Nevada, including portions of Yuba, Nevada, Sutter, and Placer counties. The Bear River is a tributary of the Feather River, which in turn is a tributary of the Sacramento River. The Bear River originates near Emigrant Gap in Nevada County at an elevation of approximately 4,900 ft and flows southwesterly for approximately 75 mi to its confluence with the Feather River northeast of the town of East Nicolaus, CA, at an elevation of about 50 ft. The average annual flow of the Bear River from WY 1976 through WY 2014, the Ops Model's period of record, as measured at the USGS Gage 11424000, *Bear River at Wheatland* (river mile (RM)[6] 11.5) is 376 cfs, and the annual flow has ranged from a maximum of approximately 1,191 cfs in WY 1983 to a minimum of approximately 3 cfs in WY 1977.

Upstream of Camp Far West Reservoir at RM 74.5, PG&E's Drum-Spaulding Project Drum Canal can add up to 840 cfs of water to the natural flow in the Bear River at PG&E's Drum Forebay, which is at an elevation of 4,756 ft and has a gross storage capacity of 621 ac-ft. Other small impoundments in the Bear River upstream of the Project include PG&E's Drum Afterbay at RM 65.9, which is at an elevation of 3,383 ft, and NID's Dutch Flat Afterbay at RM 60.5, which is at an elevation of 2,740 ft and has a gross storage capacity of 1,397 ac-ft. Major storage reservoirs in the Bear River occur at RM 50.4 (NID's Rollins Reservoir at an elevation of 2,171 ft with a gross storage capacity of 58,682 ac-ft) and at RM 37.2 (NID's Lake Combie at an elevation of 1,600 ft with a gross storage capacity of 5,555 ac-ft). Out-of-basin diversions occur at RM 50.3 (PG&E's Bear River Canal with a maximum capacity of 470 cfs) and at RM 37.2 (NID's Combie Phase I Canal with a maximum diversion of 200 cfs).

From Camp Far West Dam, the Bear River flows southwest 1.3 mi to a 38-ft high non-Project diversion dam where up to 475 cfs of Bear River water is diverted into SSWD's Main Canal. Approximately 40 cfs of that water is re-diverted from the first 0.5-mi of the canal to the CFWID South Canal, with the remaining water going down the Main Canal to SSWD's customers. In addition, up to 35 cfs of Bear River water is diverted at the non-Project diversion dam into the CFWID North Canal. The Project does not include any in-basin or out-of-basin diversions.

Figure 4.2-1 shows the locations of these non-Project Facilities.

[6] For the purpose of this exhibit, river miles, or RM, refer to the river mile in the Bear River from downstream to upstream with Bear River confluence with the Feather River being RM 0.0.

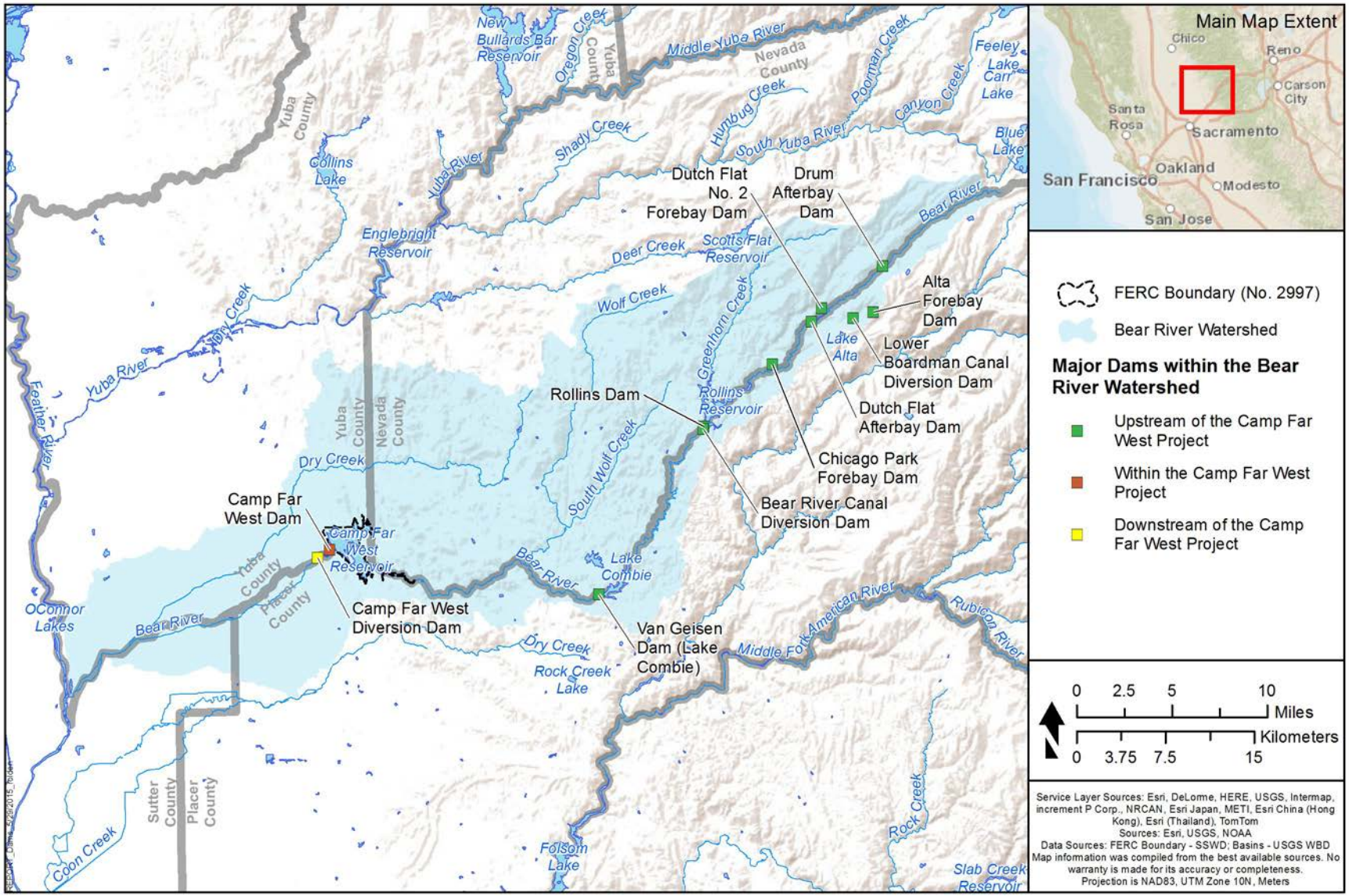

Figure 4.2-1. General location of dams within the Bear River watershed.

4.3 Climate

The Project Region experiences hot, dry summers and cool winters with substantial rainfall, but no appreciable snowfall. The National Weather Service monitoring station Number 045385 at Marysville, at an elevation of approximately 75 ft, provides a climate history representative of the Project Region. These areas occupy the eastern Central Valley and rolling, western Sierra foothills, and can experience high summer temperatures, mostly unmitigated by the "Delta breezes" that are present further south and west in California's Central Valley. July air temperatures at Marysville, California, average a high of 96.3 degrees Fahrenheit (°F), and a low of 61.3°F. January average high and low temperatures are 54.1°F and 37.7°F, respectively. Annual average precipitation totals 20.96 inches (in.), and falls exclusively as rain, with 68 percent falling during the winter months from December through March. June through August total precipitation averages only 0.31-in., generally resulting from rare summer thunderstorms (WRCC 2018).

4.4 Streamflow and Reservoir Stage Gages in the Project Area

Publicly available flow and reservoir elevation and storage data for the Project Vicinity[7] come from USGS and CDEC gages within the Bear River basin. Table 4.4-1 includes these gages, as well as several additional gages maintained by SSWD or SMUD for operation and maintenance purposes. In addition, SSWD maintains several additional non-Project seasonal flow gages for water rights compliance.

Table 4.4-1. Streamflow gages, Project release and reservoir gages.

USGS/CDEC Gage Number	Name	Elevation (ft)	Drainage (sq mi)	Period of Record	
				Start	End
STREAMFLOW GAGES					
--	Bear River above Camp Far West Reservoir[1]	325	NA	Seasonal	
11423800[2]	Bear River Fish Release below Camp Far West Reservoir, near Wheatland, CA	120	286	10/1/1989	Present
11424000[3]	Bear River near Wheatland, CA	72	292	10/23/1928	Present
11424500[4]	Dry Creek near Wheatland, CA	63	100	4/21/2006	Present
BPG	Bear River near Pleasant Grove, CA	65	NA	1/27/2006	Present
PROJECT RELEASE GAGES					
--	Camp Far West Dam Low-Level Outlet Flowmeter	140	286	1/1/1968	Present
--	Camp Far West Powerhouse Flowmeter	140	286	1/1/1985	Present
RESERVOIR STORAGE GAGES					
11423700	Camp Far West Reservoir near Wheatland, CA	N/A	283	10/1/1966	9/30/1983
CFW	Bear River at Camp Far West Dam	260	286	8/21/1997	Present

Notes: Elevation and drainage per USGS/CDEC records.
NA: Not available

[1] Gage data are unavailable.

[2] Gage is used by SSWD to document compliance with the minimum instream flow requirements in the existing FERC license. The gage has a CDEC designation (CFW) but the data are not available on CDEC.

[3] Also reported as CDEC Gage "BRW" since January 24, 1997.

[4] Existing gage reports stage data. Historical gage reported discharge over the period from October 1, 1946, through September 29, 1962.

[7] In this exhibit, "Project Vicinity" refers to the area surrounding the Project on the order of United States Geological Survey (USGS) 1:24,000-scale topographic quadrangle.

Figure 4.4-1 provides a schematic view of Project Facilities and gages in the Project Vicinity.

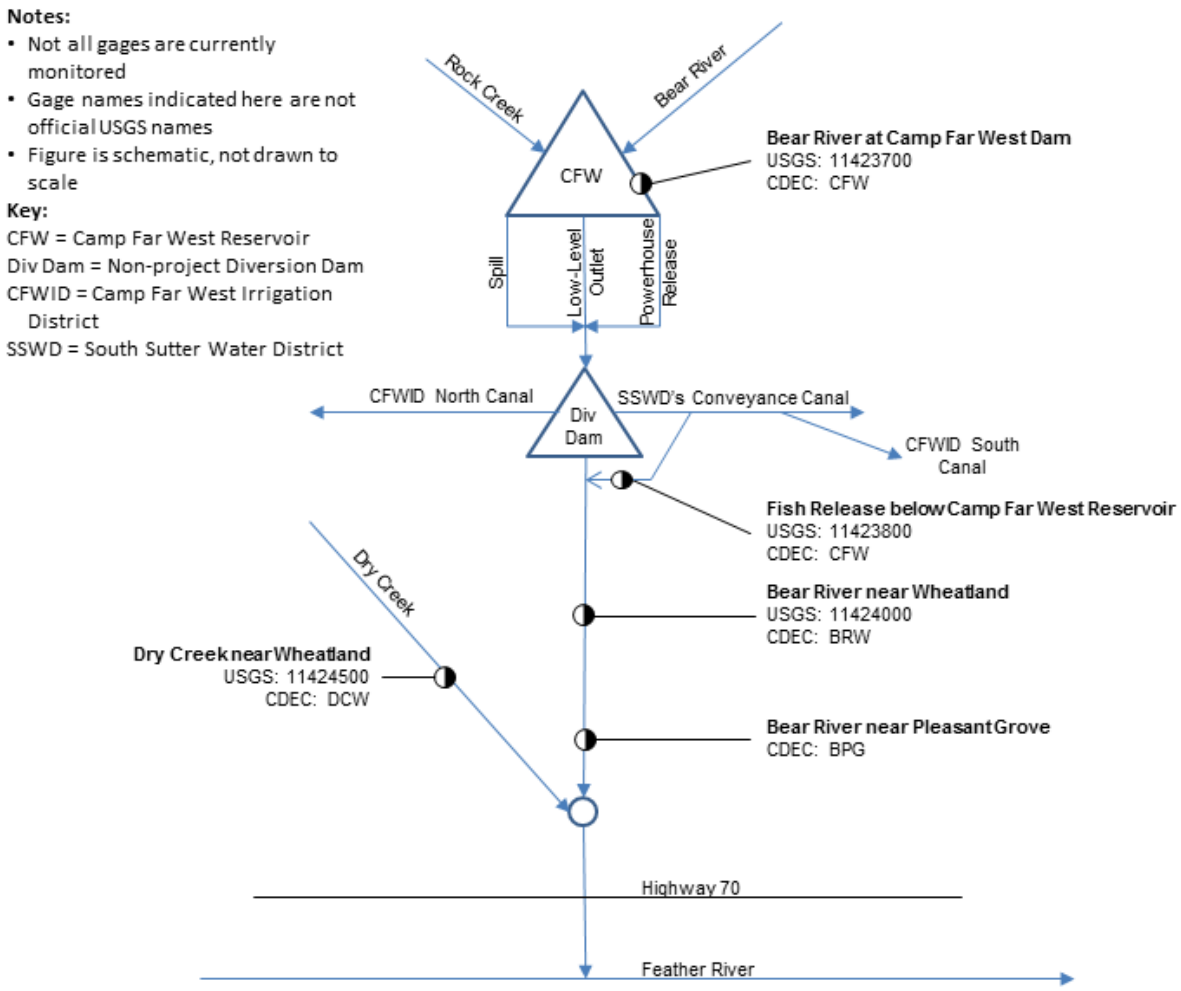

Figure 4.4-1. Schematic of the Project Vicinity, including public gage identification numbers.[8]

5.0 Regulatory/Contractual Operating Constraints

This section discusses operating constraints, including conditions in the existing FERC license, measures in other existing licenses, agreements and contracts that affect Project operations.

5.1 Conditions in Current FERC License

The initial license included 33 articles numbered 1 through 33, which have not changed since the license was issued. Of these, SSWD considers six articles (i.e., articles 24, 25, 26, 27, 28 and

[8] SSWD also collects flow data for the Bear River above Camp Far West Reservoir, Camp Far West dam low-level outlet, CFWID North Canal and the SSWD Conveyance Canal. SMUD also collects flow data for the Camp Far West Powerhouse. These data are not available to the public.

32) "expired" or "out of date," because each pertains to a construction activity that has been completed, a filing related to a construction activity that has been completed, or another activity that has been completed. As a result, the existing license contains 27 "active" articles. The general topic that each of the 27 active articles is provided in Table 5.1-1.

Table 5.1-1. List of active requirements in the existing FERC license for the Camp Far West Hydroelectric Project.

Article(s)	Description	Article(s)	Description
1	General - Compliance	15	Construction of fish and wildlife protective devices and structures by Licensee
2 & 3	FERC approval of changes	16	Construction of fish handling facilities by U.S.
4	FERC inspection and supervision	17	Recreation facilities
5	Obtain any needed land rights	18	Allow public access to Project lands and waters
6	Federal takeover	19	Soil erosion and sedimentation control
7	Project costs and depreciation	20	Clearing
8	Gaging and stream gaging	21	Implied surrender provisions
9	Install additional capacity if order by FERC	22	Termination of license
10	Coordinate with others if ordered by FERC	23	Terms and conditions of FPA
11	Headwater benefits	29	Minimum flows
12	Operation as ordered by FERC to protect life, health property or for other benefits	30	Consult with resource agencies on impacts to fish and wildlife during construction and operation of project.
13	Non-project use of project lands	31	Annual Charges
14	Public safety related to safety of transmission lines, telephone lines, etc.	33	Standard Land Use Article

Of these, Article 29 is more germane to Project operations than the other 26 articles. Provided below as Article 29 as it appears in the existing FERC License.

> **Article 29.** The licensee shall maintain a continuous minimum flow of 25 cfs from April 1 through June 30 and 10 cfs from July 1 through March 31 or inflow to the project reservoir, whichever is less, as measured immediately below the Camp Far West diversion dam to protect and enhance the fishery resources in Bear Creek. The flows may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods for fishery management purposes, upon mutual agreement between the licensee and the California Department of Fish and Game. Gaging facilities shall be constructed according to the recommendations of the Geological Survey and shall be operational by April 15, 1989.[9]

[9] Article 29 in the initial license was amended in 46 FERC ¶62,088, Order Amending License, issued by FERC on January 26, 1989 to read as shown above.

5.2 Measures in Other Existing Licenses, Agreements and Contracts that Affect Project Operations

5.2.1 SSWD's Water Rights for Power (No Expiration Date)

SSWD holds a post-1914 appropriative water right for the purposes of operating the Project for hydroelectric power generation. Table 5.2-1 provides SWRCB designations and the key terms of the post-1914 appropriative water-right permit held by SSWD for power use.

Table 5.2-1. Water right permit held by SSWD for operation of the Camp Far West Hydroelectric Project for power generation.[1]

Priority (date)	SWRCB Designation (application)	SWRCB Designation (permit)	SWRCB Designation (license)	Source (Waterbody)	Rate, Amount & Season	Point of Diversion (powerhouse)
1/4/80	26162	18360	Not Issued Yet	Bear River	725 cfs Direct Diversion from 1/1 – 12/31	Camp Far West Dam Powerhouse
					103,100 ac-ft Storage from 10/1 – 6/30	

[1] SSWD's water rights include a Bay-Delta flow component as described in Section 5.2.3.

For the protection of fish and wildlife, SSWD's Permit 18360 identifies a minimum required release of 25 cfs during April 1 through June 30 and 10 cfs from July 1 through March 31. If the total inflow to Camp Far West Reservoir is less than the designated amount for a given period, SSWD shall bypass that quantity.

The time to complete beneficial use for Permit 18360 expired on December 1, 1995. SSWD submitted a request for licensing of Permit 18360 to the SWRCB Division of Water Rights on September 9, 1997, which is still pending.

SSWD operates the Project consistent with the terms and conditions of the above water right.

5.2.2 Water Supply Deliveries from the Bear River to SSWD's Service Area (No Expiration Date)

SSWD makes water deliveries from the Bear River and several small tributaries to its members within its service area consistent with SSWD's consumptive use water rights. Table 5.2.-2 lists SSWD's post-1914 appropriative water-right licenses and permit for irrigation and domestic uses.

Table 5.2-2. Water rights held by SSWD for delivery to SSWD's members within its service area for irrigation and domestic uses.

Priority (date)	SWRCB Designation (application)	SWRCB Designation (license)	Source (Waterbody)	Purpose of Use	Rate & Amount	Season (period)	Place of Beneficial Use
6/13/41	10221	11120	Bear River	Irrigation, Domestic and Incidental Power [2]	250 cfs Direct Diversion	from 3/1 – 6/30 and from 9/1 – 10/31	59,000 ac within SSWD and 4,180 ac within CFWID
					40,000 ac-ft Storage	from 10/1 – 6/30	

Table 5.2-2. (continued)

Priority (date)	SWRCB Designation (application)	SWRCB Designation (license)	Source (Waterbody)	Purpose of Use	Rate & Amount	Season (period)	Place of Beneficial Use
5/12/52[1]	14804	11118	Bear River	Irrigation, Domestic and Incidental Power	330 cfs Direct Diversion	from 5/1 – 9/1	59,000 ac within SSWD and 4,180 ac within CFWID
					58,370 ac-ft Storage	from 10/1 – 6/30	
8/16/51	14430	4653	Coon Creek	Irrigation	2 cfs Direct Diversion	from about 4/1 – about 11/1	80 ac
4/12/65	22102	11121	East Side Canal, Coon Creek, Markham Ravine, and Auburn Ravine	Irrigation	40.3 cfs Direct Diversion 4,769 ac-ft per annum	from 4/1 – 6/15 and 9/1 – 10/31	4,000 ac
8/11/71	23838	12587	Yankee Slough	Irrigation	1.35 cfs Direct Diversion 143 ac-ft per annum	from 4/1 – 6/30 and 9/1 – 9/30	235 ac

[1] SSWD received a release from priority from Applications 5633 and 5634 for Application 14804.
[2] Incidental Power is identified as a purpose of use for Applications 10221 and 14804. The powerhouse listed in the place of use for these applications is a hydroelectric facility located along SSWD's main canal.

SSWD delivers this water from the Bear River via its Main Canal, which is located on the Bear River about 1.2 mi downstream of Camp Far West Dam.

Identical to the required fish release for SSWD's power permit, Applications 10221 and 14804 identify minimum required releases of 25 cfs during April 1 through June 30 and 10 cfs from July 1 through March 31. If the total inflow to Camp Far West Reservoir is less than the designated amount for a given period, SSWD shall bypass that quantity. These required fish releases are not additive.

5.2.3 Bay-Delta Bear River Voluntary Agreement (Expires December 31, 2035)

In February 2000, after prolonged negotiations, SSWD, DWR and the CFWID entered into the Bear River Settlement Agreement (DWR, SSWD and CFWID 2000) with the objective of settling the responsibilities of SSWD, CFWID, and all other Bear River water rights, to implement the standards in the SWRCB's May 22, 1995 *Water Quality Control Plan for the San Francisco Bay/ Sacramento-San Joaquin Delta Estuary*.

To incorporate this settlement agreement into SSWD's water rights, in July 2000, the SWRCB issued Order 2000-10 that amended SSWD's Water Right Licenses 11120 and 11118 to provide that:

> During releases of water in connection with the change of purpose of use and place of use of up to 4,400 acre-feet transferred to DWR during dry and critical years,[10] Licensee shall increase flows in the lower Bear River

[10] The Bear River Settlement Agreement and SWRCB Order 2000-10 state: *"Dry and critical years are defined, for purposes of this order, as set forth on page 23 of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin*

> by no more than 37 cfs from July through September. To avoid stranding impacts to anadromous fish in the Bear River below Camp Far West Reservoir, Licensee shall, by the end of a release period from the reservoir in connection with said change, ramp down flows from the reservoir at a rate not to exceed 25 cfs over a 24-hour period.

The required flow volume is in addition to the minimum flow requirement in the Project license, and is measured immediately downstream of the diversion dam as spill over the diversion dam (i.e., SSWD installs notched boards on the diversion dam and controls the elevation of the diversion dam impoundment to provide the required flow).

As shown in Table 5.2-3, SSWD has met the requirements in the Bear River Settlement Agreement and in its amended water rights in each "Dry" and "Critically Dry Year", as defined in the agreement. Transfers are not required in non-"Dry" and "Critically Dry" years. In each transfer year, DWR compensated SSWD for the amount of water transferred.

Table 5.2-3. Years in which SSWD has met the requirements in the Bear River Settlement Agreement and in its amended water rights.

Year	Was Year "Dry" or "Critically Dry" Based on the Bear River Settlement Agreement[1]	Amount of Water Transferred to DWR in "Dry" and Critically Dry" Years in Accordance with the Bear River Settlement Agreement[2]
2000	No	Transfer Not Required
2001	Yes	4,137
2002	Yes	3,882
2003	No	Transfer Not Required
2004	No	Transfer Not Required
2005	No	Transfer Not Required
2006	No	Transfer Not Required
2007	Yes	4,644
2008	Yes	4,425
2009	Yes	4,423
2010	No	Transfer Not Required
2011	No	Transfer Not Required
2012	No	Transfer Not Required
2013	Yes	4,402
2014	Yes	4,400
2015	Yes	4,471
2016	No	Transfer Not Required
2017	No	Transfer Not Required
2018	No	Transfer Not Required

[1] The SSWD/SWRCB/DWR Bear River Settlement Agreement and SSWD's amended water rights define "Dry" and "Critically Dry" years as determined by the Sacramento Valley 40-30-30 Index.

[2] The SSWD/SWRCB/DWR Bear River Settlement Agreement and SSWD's amended water rights stipulate that SSWD will transfer up to 4,400 ac-ft of water to DWR in "Dry" and "Critically Dry" years, and DWR will compensate SSWD for the volume of the transfer at an agreed upon cost per ac-ft.

SWRCB's Order 2000-10 states that this arrangement would terminate upon the termination of the Bear River Settlement Agreement on December 31, 2035, or sooner if the agreement was terminated sooner.

Delta Estuary (Adopted by the SWRCB in May, 1995), except that such years do not include a year in which water storage in Camp Far West Reservoir on April 1 is at or below 33,255 acre-feet ("extreme critical year")."

5.2.4 Water Supply Contracts (No Expiration Date)

SSWD and CFWID entered into an Agreement in 1957 and a Supplemental Agreement in 1973, relative to the construction and subsequent enlargement of Camp Far West Reservoir. Under the Agreement, SSWD provides CFWID 13,000 ac-ft of water from the Reservoir each year to satisfy CFWID's senior water rights along the Bear River.

5.2.5 Water Transfers

In recent years, SSWD has participated in water transfers of water held in storage in Camp Far West Reservoir. Transfers have occurred in 2008, 2009, 2010, 2014, 2015, and 2018. Table 5.2-4 summarizes the approximate volumes of water released for transfer in each of these years. In each year, transfer water was released from Camp Far West Dam in the months of July, August, and September. Transfer water flowed over the non-Project diversion dam and down the Bear River, was conveyed across the Sacramento-San Joaquin River Delta, and was subsequently pumped out of the southern Delta at facilities owned and operated by the State Water Project (SWP) or the Central Valley Project (CVP). The decision on whether to participate in voluntary water transfers is made each year, when there are potential buyers, by the SSWD Board of Directors. It is unknown whether SSWD will participate in future water transfers.

Table 5.2-4. Annual SSWD water transfers in recent years.

Water Year	Total Volume Released for Transfer (ac-ft)
2008	7,100
2009	10,000
2010	10,000
2014	10,000
2015	6,000
2018	10,590

5.2.6 SMUD Power Purchase Contract (Expires July 1, 2031)

In August 1991, SSWD and SMUD entered into a Contract for the Sale and Purchase of Electricity of the power generated at the Camp Far West Powerhouse. Under the contract, SMUD reimburses SSWD for the construction of the Camp Far West Powerhouse and associated power facilities, SMUD operates the powerhouse under a lease, and SMUD receives all the power from the powerhouse by paying for the power at a fixed rate. The contract expires on July 1, 2031.

SMUD receives Renewable Energy Credits for power generated at Camp Far West Powerhouse through the California Energy Commission. The powerhouse is registered under California Energy Commission Plant ID H0083.

6.0 Existing Operations (Environmental Baseline)

This section discusses Project operations under the No Action Alternative (i.e., environmental baseline) in typical dry, normal and wet years; by Project facility; and in the Bear River downstream of the Project.

6.1 Operations in Typical Dry, Normal and Wet Years

FERC regulations require that an applicant describe Project operation in typical adverse (dry), mean (normal) and high (wet) years. SSWD selected 1995, 2003, and 2001 as representative Wet, Normal, and Dry WYs, respectively, because these years approximate the 10, 50, and 90 percent exceedance intervals, respectively, for annual flow volume as measured at USGS Gage 11424000, *Bear River near Wheatland*. This gage was selected because it is the nearest full-flow gage to Camp Far West Dam. Figures 6.1-1 through 6.1-3 show for each representative WY: 1) observed daily water storage in Camp Far West Reservoir based on existing reservoir storage curves; 2) observed mean daily water releases from Camp Far West Dam and Powerhouse (i.e., releases through the powerhouse, low-level outlet and over the spillway); and 3) mean daily flows at USGS Gage 11424000 located about 6.5 mi downstream from Camp Far West Dam near Wheatland.

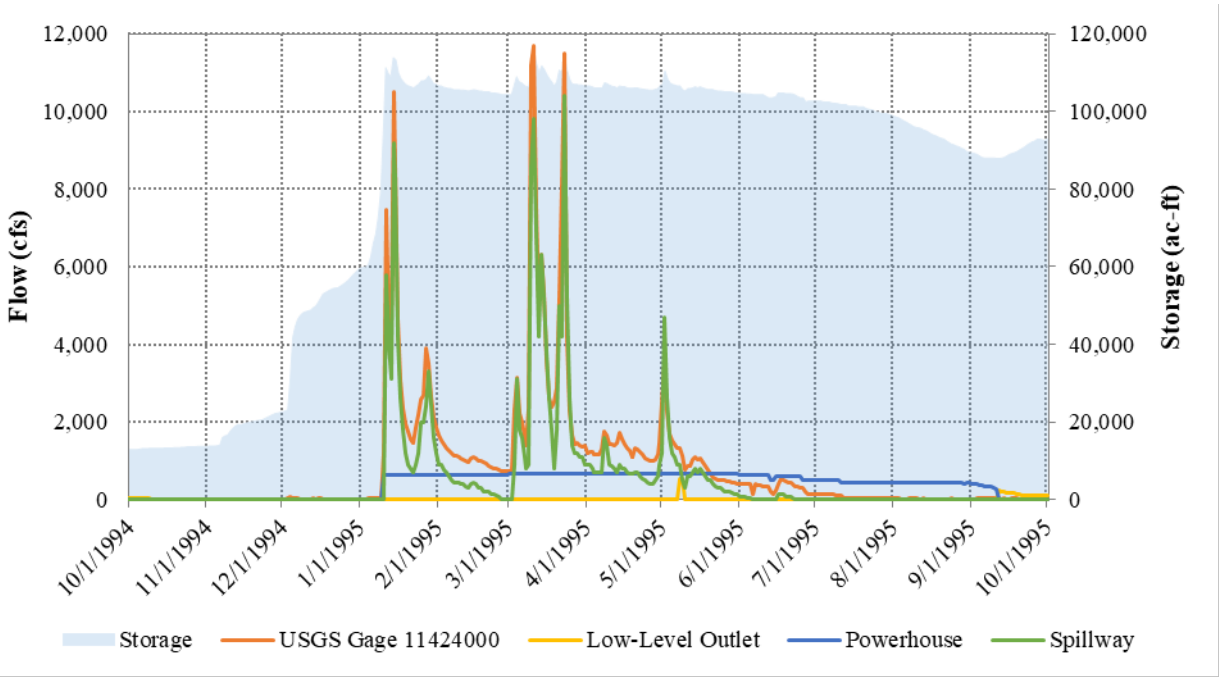

Figure 6.1-1. Camp Far West Hydroelectric Project releases and storage in a representative Wet Water Year – 1995 (Historical Hydrology).

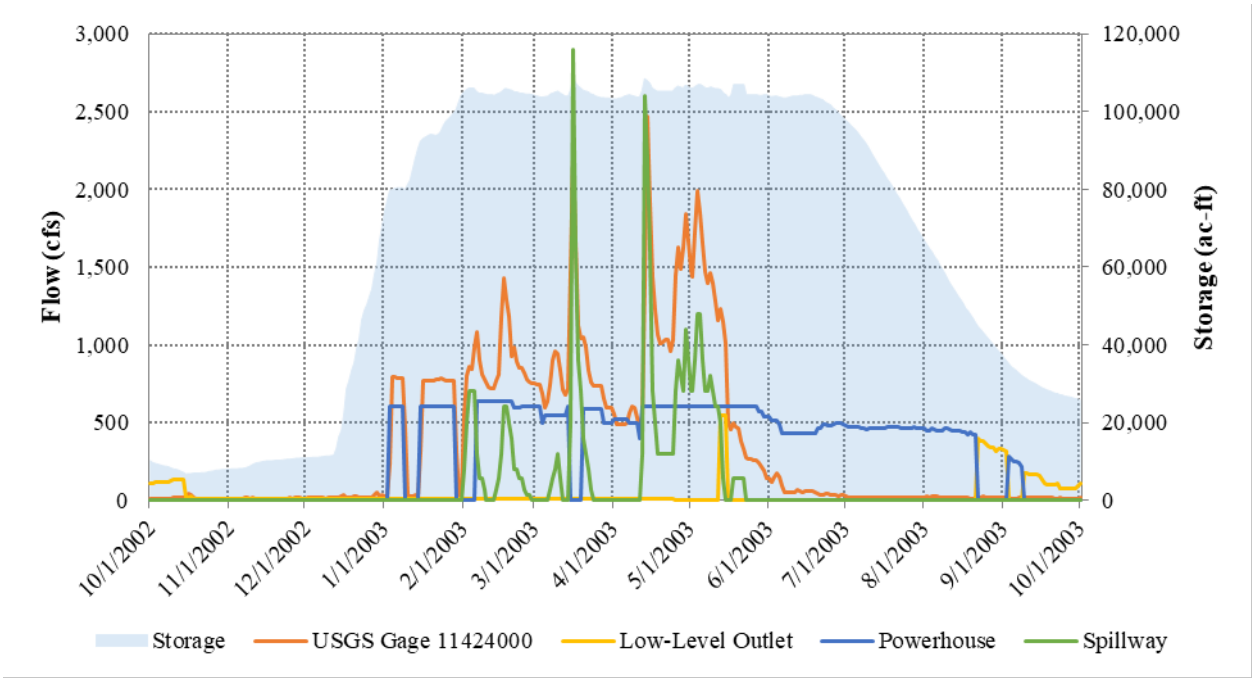

Figure 6.1-2. Camp Far West Hydroelectric Project releases and storage in a representative Normal Water Year – 2003 (Historical Hydrology).

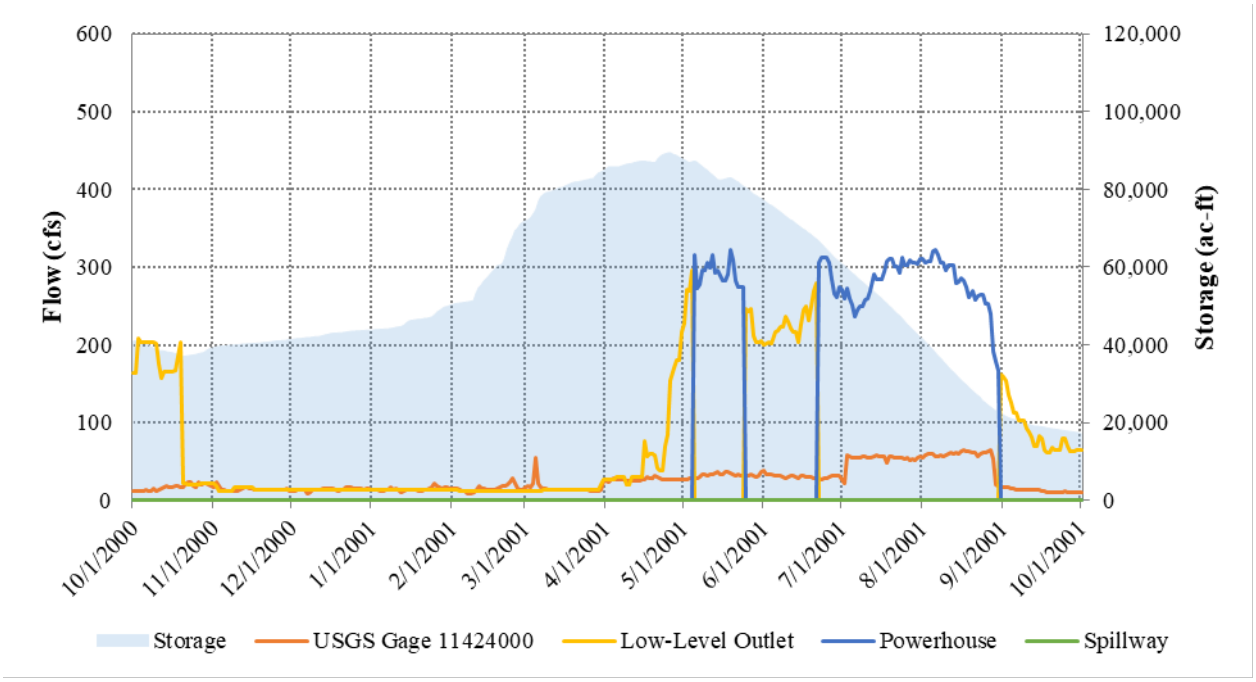

Figure 6.1-3. Camp Far West Hydroelectric Project releases and storage in a representative Dry Water Year – 2001 (Historical Hydrology).

6.2 Operations by Project Facility

This section describes reservoir operations of Camp Far West Reservoir, including water supply delivery to SSWD, reservoir carryover storage, and Project energy generation. Table 6.2-1 includes a summary of average annual results by YB/DS WY type from the Ops Model for the No Action Alternative.

Table 6.2-1. Average annual results for Project by WY type from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition).

Water Year Type[1]	SSWD Diversions for Water Supply (ac-ft)	Camp Far West Reservoir Carryover Storage[2] (ac-ft)	Peak Project Energy Generation (MWhr)	Off-Peak Project Energy Generation (MWhr)	Total Project Energy Generation (MWhr)	Mean Flow Downstream of Non-Project Diversion Dam (cfs)
Wet	109,600	39,700	14,375	22,780	37,155	826
Above Normal	109,000	23,600	11,722	18,584	30,306	365
Below Normal	100,500	14,500	8,321	13,164	21,485	178
Dry	53,700	13,000	2,138	3,378	5,515	42
Critical	19,200	5,400	412	650	1,062	15
All	**82,900**	**20,800**	**7,888**	**12,493**	**20,381**	**309**

[1] For this summary, SSWD used the WY types in FERC's FEIS for the YB/DS Projects solely to classify years.

[2] Carryover storage is reservoir storage on October 31, carried over into the following year.

6.2.1 Camp Far West Reservoir

Camp Far West Reservoir is the storage facility for the Project. The reservoir has a gross storage capacity of 93,737 ac-ft (i.e., storage at the Normal Maximum Water Surface Elevation [NMWSE] of 300 ft) and no regulatory minimum pool.

The reservoir's usable capacity is 91,237 ac-ft, which is the volume of water in the reservoir between the NMWSE and the reservoir's operational deadpool level, which is at storage level 2,500 ac-ft.

Releases from Camp Far West Reservoir are made through: 1) the Camp Far West Power Intake to Camp Far West Powerhouse at the base of the dam; 2) the dam's Low-Level Intake to the 48-in. diameter Howell-Bunger outlet valve at the base of the dam; and 3) through the ungated spillway.

One of SSWD's major considerations each year is anticipated water availability. SSWD begins estimating water availability each year in January and continually updates the estimate throughout the spring runoff period. When estimating available water supply, SSWD considers current Camp Far West Reservoir storage and estimates of upstream storage and water releases. These estimates of water availability are then compared to SSWD's estimates of water needs, including required releases to meet minimum flow requirements and for consumptive water deliveries.

Although the specific water availability can vary widely, normal Project operation is to fill Camp Far West Reservoir as early in the season as sufficient water becomes available and to then spill

the excess flows over the Camp Far West Dam ungated spillway. Because the reservoir is fed primarily by rainfall-produced runoff and releases from upstream water projects, it is difficult to predict the amount of inflow anticipated before the end of the season; therefore, SSWD retains within the reservoir, all of the inflow except releases for requirements for fisheries until the beginning of the irrigation season. Since the reservoir is operated as a fill-and-spill system, its effect on downstream flood flows is erratic, as it may range from complete control to only minor surcharge regulation.

Generally, Camp Far West Reservoir fills in winter and spring by catching rainfall and snowmelt runoff and is drawn down in the summer and fall to meet minimum flow requirements and water delivery demands. Water is released from Camp Far West Reservoir from mid-April to mid-October for water supply deliveries. Water is diverted at the non-Project diversion dam located immediately downstream of Camp Far West Dam. Starting in 2001, water was transferred in dry and critical years according to the Bay-Delta Bear River Settlement Agreement, as discussed in Section 5.2.3.

Figure 6.2-1 shows modeled daily storage in Camp Far West Reservoir, as well as the maximum-daily storage and minimum-daily storage for the period of record, and various percent exceedance levels of daily storage.

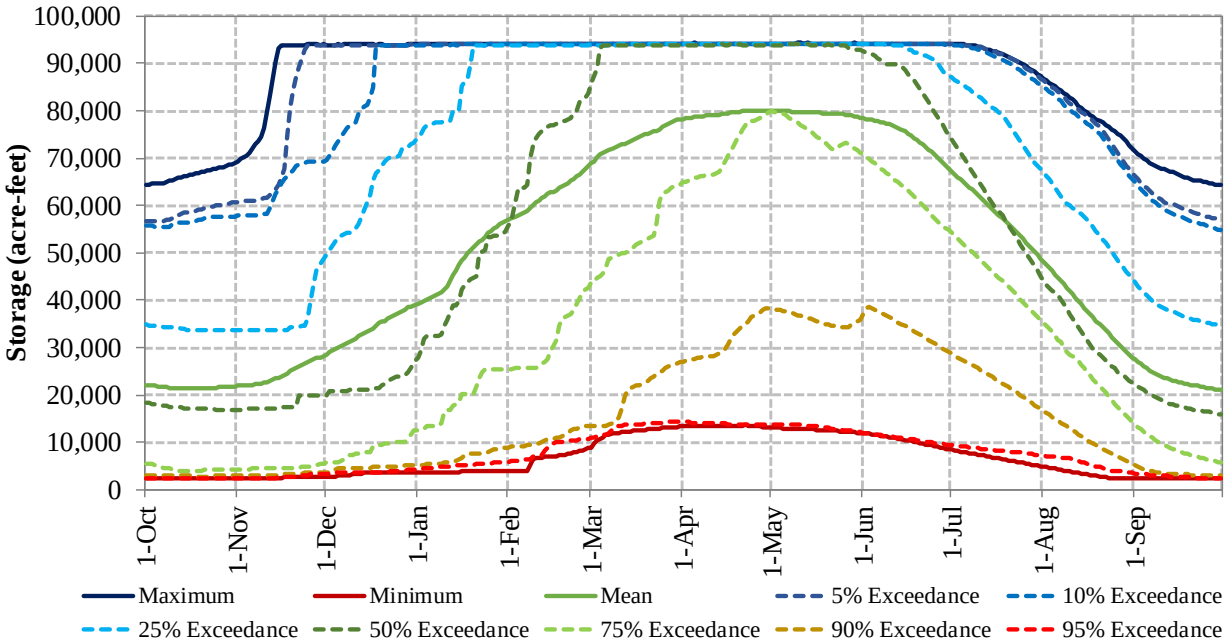

Figure 6.2-1. Daily storage in Camp Far West Reservoir for various percent exceedances for the modeled period from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition).

The area-capacity curve for the Camp Far West Reservoir is provided in Figure 6.2-2. The surface area at the NMWSE of 300 ft is 1,886 ac.

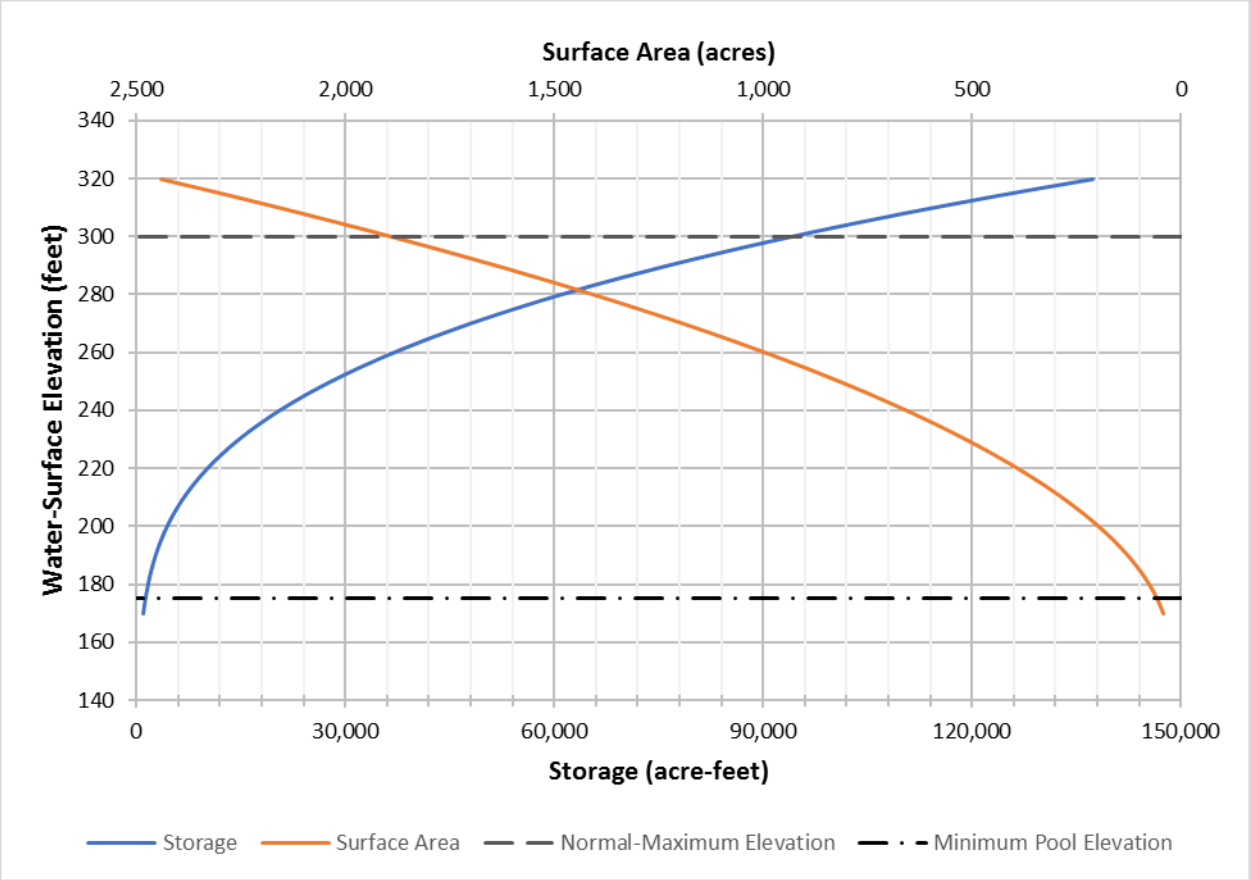

Figure 6.2-2. Camp Far West Reservoir gross and usable area-capacity curves (from GEI Consultants).

Modeled daily average WSEs for Camp Far West Reservoir are graphically presented in Figure 6.2-3. As indicated on the figure, the reservoir storage and elevation can fluctuate significantly from year to year. However, the median and mean curves represent general reservoir operation.

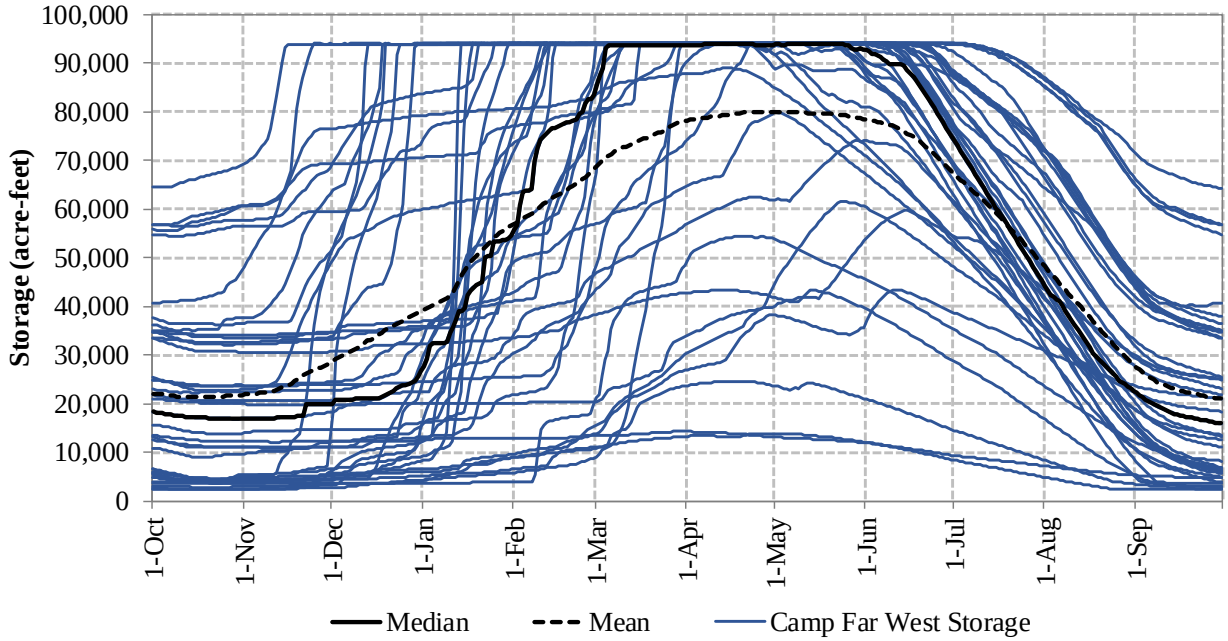

Figure 6.2-3. Camp Far West Reservoir median and mean storage from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition).

SSWD operates the Camp Far West Reservoir in all WYs in a fill-and-spill mode in the winter, and then attempts to get the reservoir as close to empty as possible by the end of the irrigation season. Therefore, the reservoir does not have rule curves for representative dry, normal and wet WYs. The range of reservoir elevations in the representative dry, normal, and wet WYs and annual elevation fluctuation in Camp Far West Reservoir are summarized in Table 6.2-2.

Table 6.2-2. Minimum and maximum elevations in Camp Far West Reservoir in the representative dry, normal and wet Water Years from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline).

Water Year	Minimum Daily Elevation (ft)	Average Daily Elevation (ft)	Maximum Daily Elevation (ft)	Annual Elevation Fluctuation (ft)
2001 (Dry Year)	199.6	237.8	280.6	81.0
2003 (Normal Year)	195.4	265.5	300.2	104.8
1995 (Wet Year)	187.9	268.6	300.2	112.3

The existing spillway rating curve for Camp Far West Reservoir is presented in Figure 6.2-4. The elevation of the spillway crest for the dam is 300 ft.

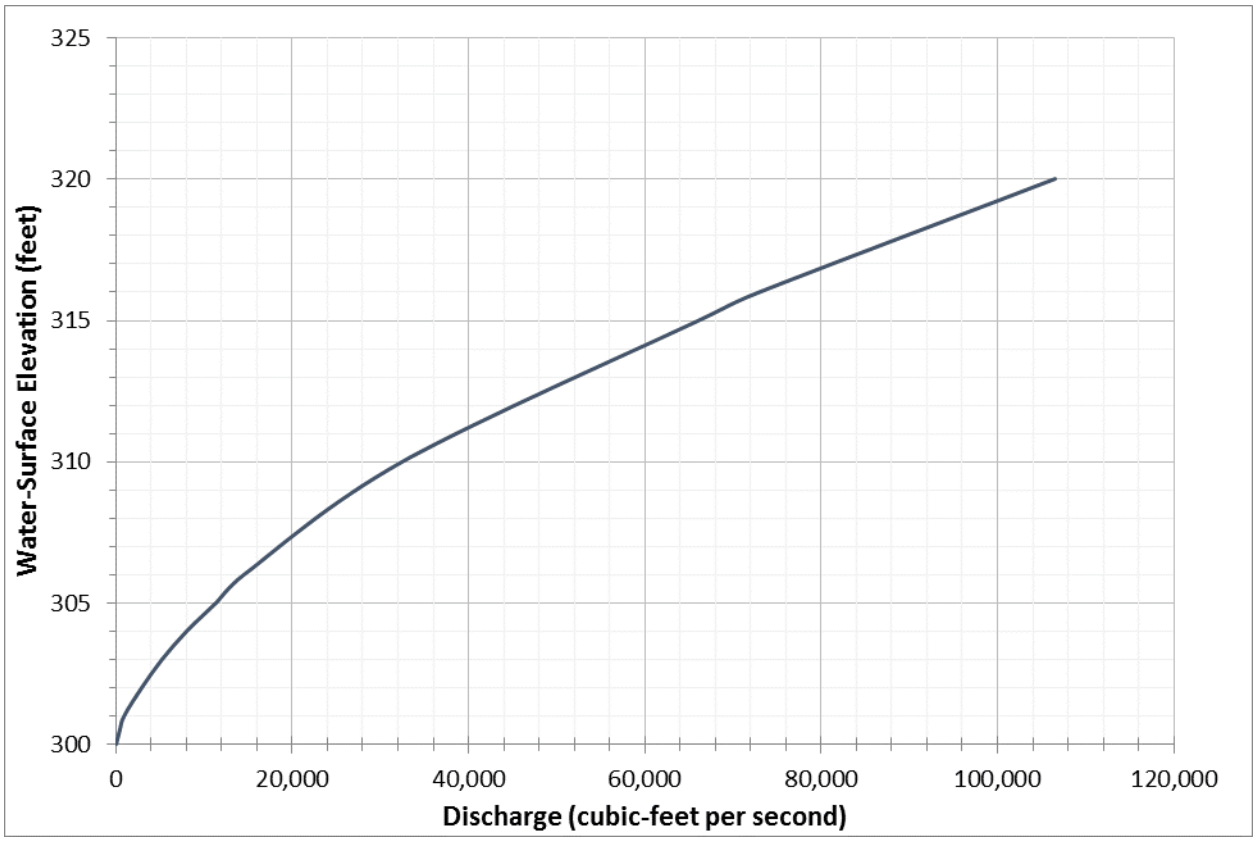

Figure 6.2-4. Camp Far West Dam spillway rating curve (from GEI Consultants).

6.2.2 Water Supply

One of the primary objectives of the Project is to supply water during the irrigation season to CFWID and SSWD. Deliveries to CFWID are set by contract and are only reduced in years when water is physically unavailable. Deliveries to SSWD are set by the allocation determined each spring, and vary based on reservoir storage and forecasted April through September reservoir inflow. Figure 6.2-5 illustrates modeled annual water supply diversions to SSWD under the No Action Alternative along with annual SSWD canal demand (110,000 ac-ft). The ability to deliver surface water in most years is limited by available supply, not demand. Annual canal demand is generally consistent with recent historical records of SSWD's Main Canal diversions in years with adequate supply. The methods detailed in the Ops Model Report to estimate canal demand provide an accurate and appropriate approach to estimate existing canal demands. Under the No Action Alternative, SSWD meets full canal demand in approximately 40 percent of WYs and diverts no water in two WYs over the modeled period of record. On average, 82,900 ac-ft is diverted annually to SSWD.

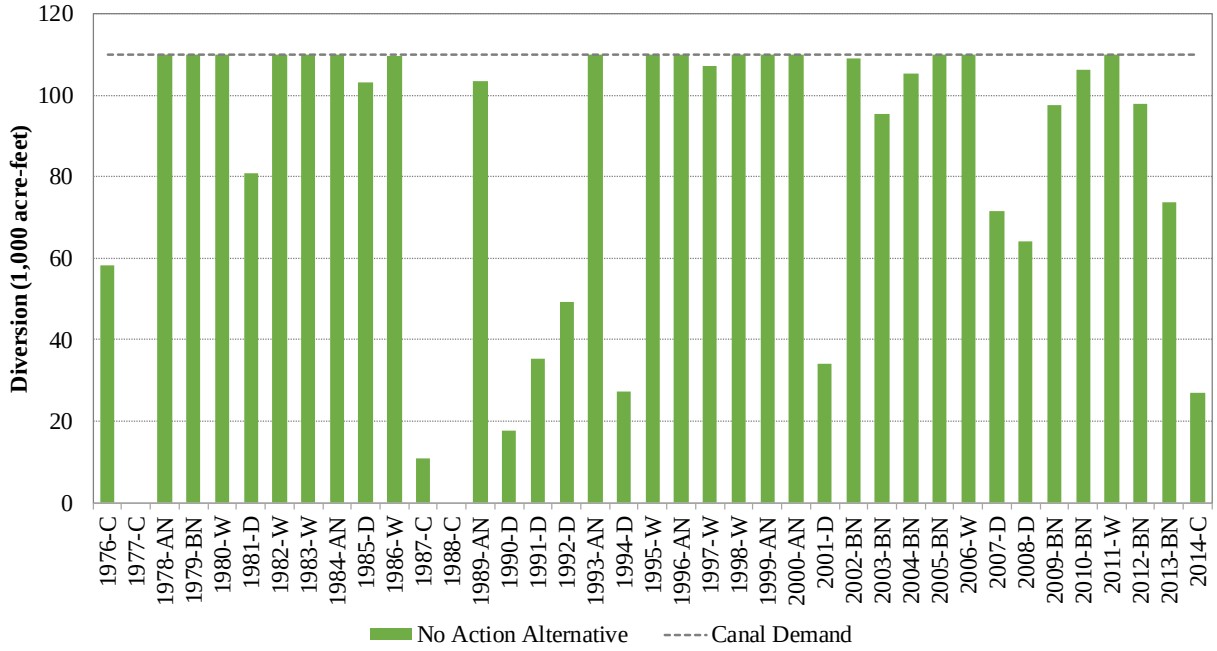

Figure 6.2-5. Annual water supply diversions to SSWD from WY 1976 through WY 2014 under the No Action Alternative (Baseline Condition).

6.2.3 Camp Far West Powerhouse

Operation of the Camp Far West Powerhouse is automatic except for start-up, which is manual. A powerhouse shutdown activates an alarm at SMUD's dispatch center, which requires sending trained personnel to the site to determine the problem and re-start the powerhouse.

Power is produced at Camp Far West Powerhouse during the winter/early spring months when the reservoir is spilling and during the spring and summer months when releases are being made for irrigation and to meet instream flow requirements. Because of the Camp Far West Powerhouse generating unit's operating characteristics, power can only be generated when the WSE of the Camp Far West Reservoir is at or above 236 ft and when reservoir outflow is greater than 130 cfs. If these two criteria cannot be met, water is released through Camp Far West Dam's low-level outlet. This condition normally occurs each year in September and continues into winter when the reservoir refills and surplus inflows are available to be passed through the powerhouse.

During the irrigation season, up to a maximum of approximately 535 cfs passes through the powerhouse in conformance with downstream irrigation and instream requirements. However, during the heavy runoff period, when spilling from the reservoir occurs, a greater quantity of water is routed through the powerhouse up to its maximum limit of 725 cfs.

Accordingly, flow requirements on the Bear River downstream of Camp Far West Dam and Powerhouse are met through a combination of releases from the Camp Far West Powerhouse and

Camp Far West Dam low-level outlet, seepage from the Camp Far West Dam, and spills through the Camp Far West Dam Spillway.

6.2.3.1 Powerhouse Minimum, Maximum and Mean Flows

Minimum-, maximum- and mean-daily average flows based on SSWD's No Action Alternative (Baseline Condition) for WYs 1976 through 2014, are 0 cfs, 650 cfs and 224 cfs, respectively.

6.2.3.2 Powerhouse Hydraulic Capacity

The Camp Far West Powerhouse contains one Francis-type turbine with a nameplate capacity of 6.8 megawatts (MW) under a design head at the plant of 143 ft and a rated flow of 725 cfs.

6.2.3.3 Powerhouse Flow Duration Curves

Modeled daily flow duration curves (by month and over the simulation period) for releases from the Camp Far West Powerhouse, based on SSWD's No Action Alternative for WYs 1976 through 2014, are provided in Figure 6.2-6. The flow duration curves show the exceedance probability for daily flow through the powerhouse in each month and over the simulation period of record. As these are flows through the powerhouse, only flows above the minimum powerhouse flow requirement of 130 cfs and below the maximum allowable modeled flow of 650 cfs are shown on this curve. The 1976-2014 curve indicates that power is generated in approximately 45 percent of days over the simulation period of record.

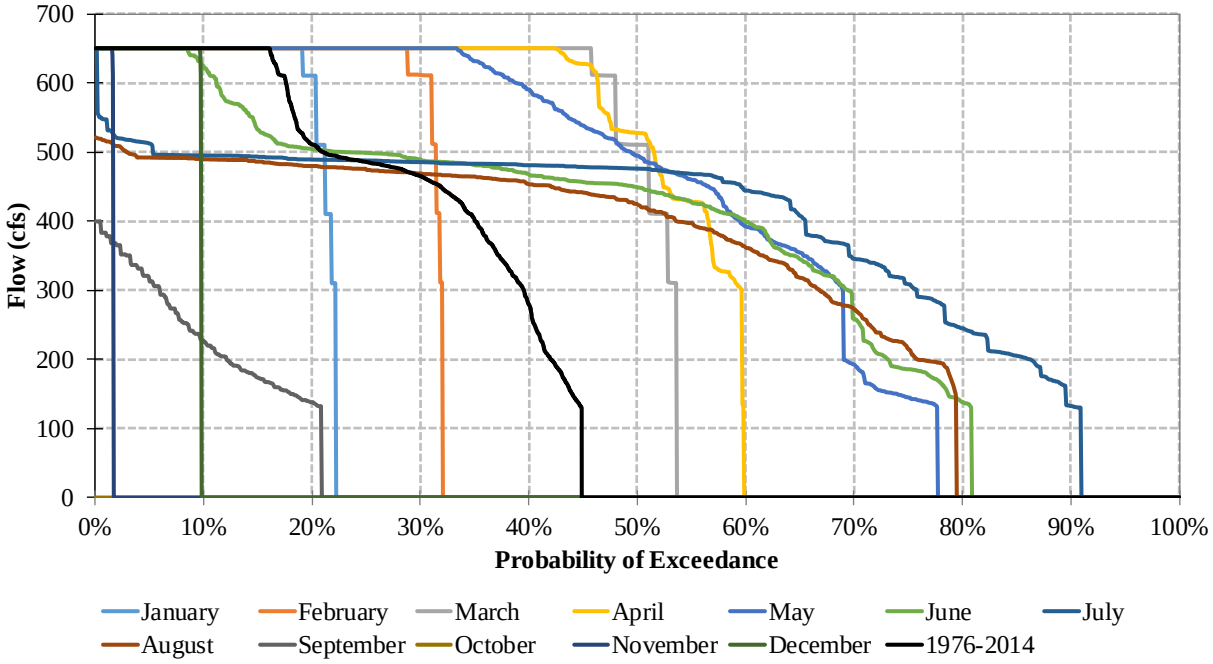

Figure 6.2-6. Modeled daily (by month and over the simulation period) flow duration curves for Camp Far West Powerhouse from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline).

6.2.3.4 Powerhouse Capability versus Head

Powerhouse capability versus head is shown in Figure 6.2-7. Minimum- and maximum-operating heads for Camp Far West Powerhouse are 90 ft (corresponding to a reservoir surface elevation of 236 ft and 17,971 ac-ft of storage) and 160 ft (corresponding to a reservoir surface elevation of 300 ft and 93,737 ac-ft of storage).

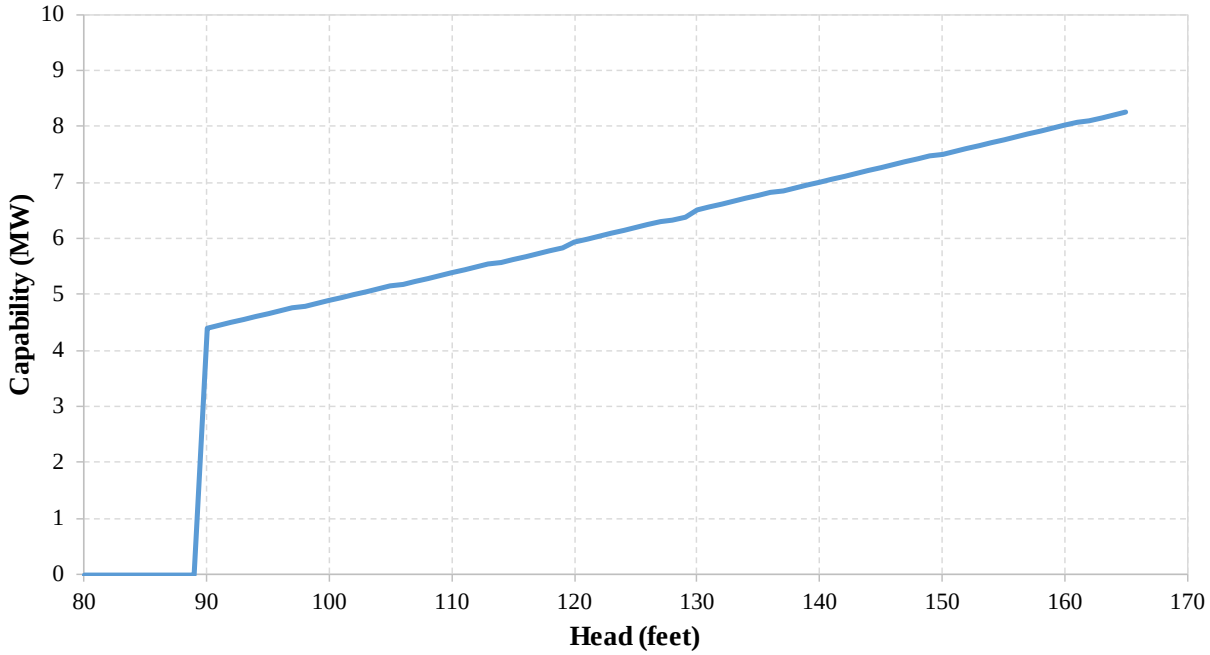

Figure 6.2-7. Camp Far West Powerhouse capability curve.

6.2.3.5 Tailwater Rating Curve

Figure 6.2-8 shows the tailwater rating curve for the Camp Far West Powerhouse.

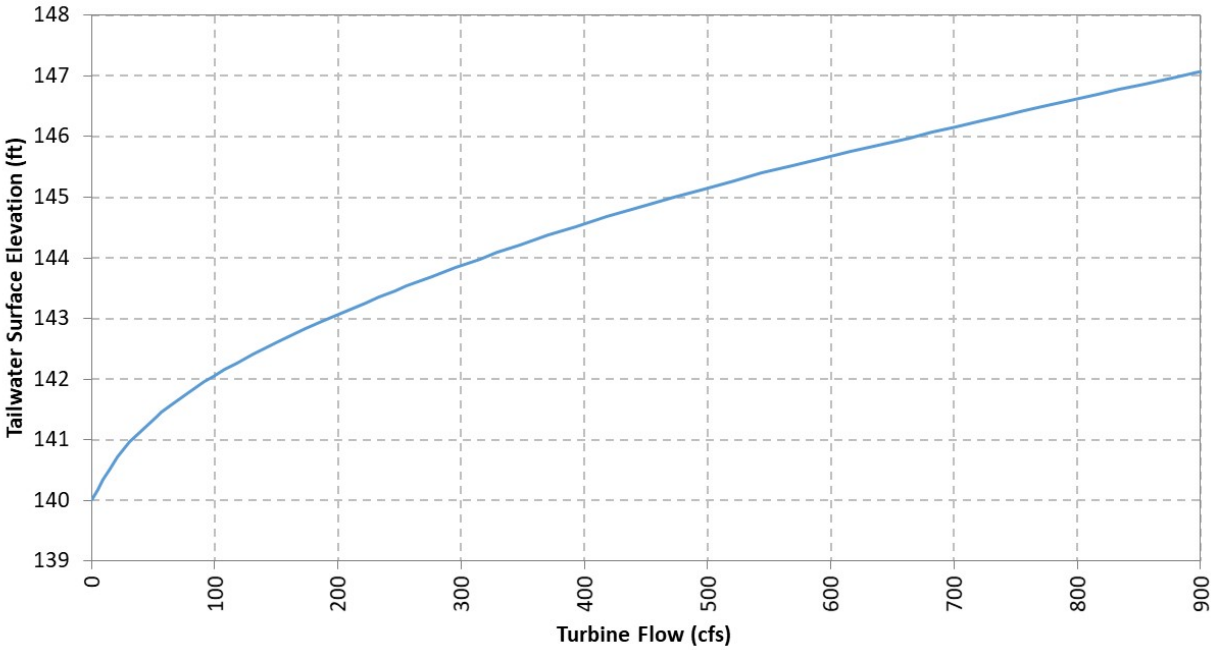

Figure 6.2-8. Tailwater rating curve for Camp Far West Powerhouse.

6.2.3.6 Average Annual Energy Production

Camp Far West Powerhouse would have generated an average of 20,381 MWh/yr from 1976 to 2014 under SSWD's No Action Alternative. The average annual plant factor for the powerhouse for this time period is 0.34 based on the annual generation divided by the plant nameplate generating capability (6.8 MW) times the number of hours per year. Annual gross generation and plant factors for the powerhouse are provided in Table 6.2-3.

Table 6.2-3. Annual generation and plant factors for Camp Far West Powerhouse from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline).

Water Year	Annual Generation (aMW)	Annual Generation (MWh)	Plant Capability (MWh)	Plant Factor
1976	0.4	3,245	59,731	0.05
1977	0.0	0	59,568	0.00
1978	3.4	29,945	59,568	0.50
1979	2.8	24,737	59,568	0.42
1980	3.8	33,629	59,731	0.56
1981	0.9	7,478	59,568	0.13
1982	4.6	40,397	59,568	0.68
1983	5.2	45,587	59,568	0.77
1984	4.9	42,796	59,731	0.72
1985	1.7	14,938	59,568	0.25
1986	3.1	27,201	59,568	0.46
1987	0.0	0	59,568	0.00
1988	0.0	0	59,731	0.00
1989	2.1	18,097	59,568	0.30
1990	0.1	570	59,568	0.01
1991	0.3	2,969	59,568	0.05
1992	0.3	2,950	59,731	0.05
1993	3.6	31,741	59,568	0.53
1994	0.2	1,706	59,568	0.03
1995	4.2	36,807	59,568	0.62
1996	3.9	33,937	59,731	0.57
1997	4.1	35,719	59,568	0.60
1998	4.0	35,051	59,568	0.59
1999	3.7	32,087	59,568	0.54
2000	3.2	28,301	59,731	0.47
2001	0.3	2,487	59,568	0.04
2002	2.5	21,504	59,568	0.36
2003	2.8	24,767	59,568	0.42
2004	2.4	21,006	59,731	0.35
2005	2.9	25,760	59,568	0.43
2006	4.3	38,085	59,568	0.64
2007	1.1	9,241	59,568	0.16
2008	0.6	5,004	59,731	0.08
2009	2.4	21,398	59,568	0.36
2010	2.1	18,414	59,568	0.31
2011	4.8	42,271	59,568	0.71
2012	2.2	19,242	59,731	0.32
2013	1.6	13,717	59,568	0.23

Table 6.2-3. (continued)

Water Year	Annual Generation (aMW)	Annual Generation (MWh)	Plant Capability (MWh)	Plant Factor
2014	0.2	2,065	59,568	0.03
Total	**90.7**	**794,849**	--	--
Minimum	**0.0**	**0**	--	**0.00**
Average	**2.3**	**20,381**	--	**0.34**
Median	**2.4**	**21,398**	--	**0.36**
Maximum	**5.2**	**45,587**	--	**0.77**

Key: aMW = annual megawatt; MWh = megawatt-hour

6.2.3.7 Station Power

SSWD estimates that, on average, less than 1 kW of Project power is used on site to serve the Camp Far West Powerhouse.

6.2.3.8 Camp Far West Powerhouse Dependable Capacity

The dependable capacity of a generating facility is defined as "*the generating capacity that the plant can deliver under the most adverse water supply conditions to meet the needs of an electric power system with a given maximum demand*." (Elliott et al. 1997). One of the critical parameters for defining dependable capacity is the period over which the capacity must be provided. Traditionally, a season that coincides with peak seasonal demand is used for the time period over which capacity is calculated. For base load generation in California, the time period of the most adverse hydrology was the WY 1977; therefore, the period of July and August 1977 was used for this analysis. Based on this time period, the dependable capacity of the Project is estimated at 0 kW.

6.3 Flows in the Bear River Downstream of the Project

Downstream of Camp Far West Dam, the SSWD Main Canal has the capacity to divert up to 435 cfs, the CFWID South Canal has the capacity to divert up to 40 cfs, and the CFWID North Canal has the capacity to divert up to 35 cfs.

6.3.1 Bear River Fish Release below Camp Far West Reservoir

The compliance point for the flow requirements in the existing FERC license is at the fish release gage (USGS 11423800), which is located at a structure off the non-Project diversion dam into the SSWD Conveyance Canal at the south edge of the non-Project diversion dam, approximately 1.2 mi downstream of Camp Far West Reservoir. The gage is a low-flow gage and does not measure spill or total release from the non-Project diversion dam. The fish flow gage has been in active operation since October 1989.

In the Ops Model, compliance with the FERC license is met through flow release below the non-Project diversion dam. Modeled flow below the diversion dam includes releases into the river through the fish release gage and spill from the diversion dam. Figure 6.3-1 shows modeled flow

below the diversion dam. The simulated maximum monthly average flow was 6,097 cfs, which occurred in January 1997.

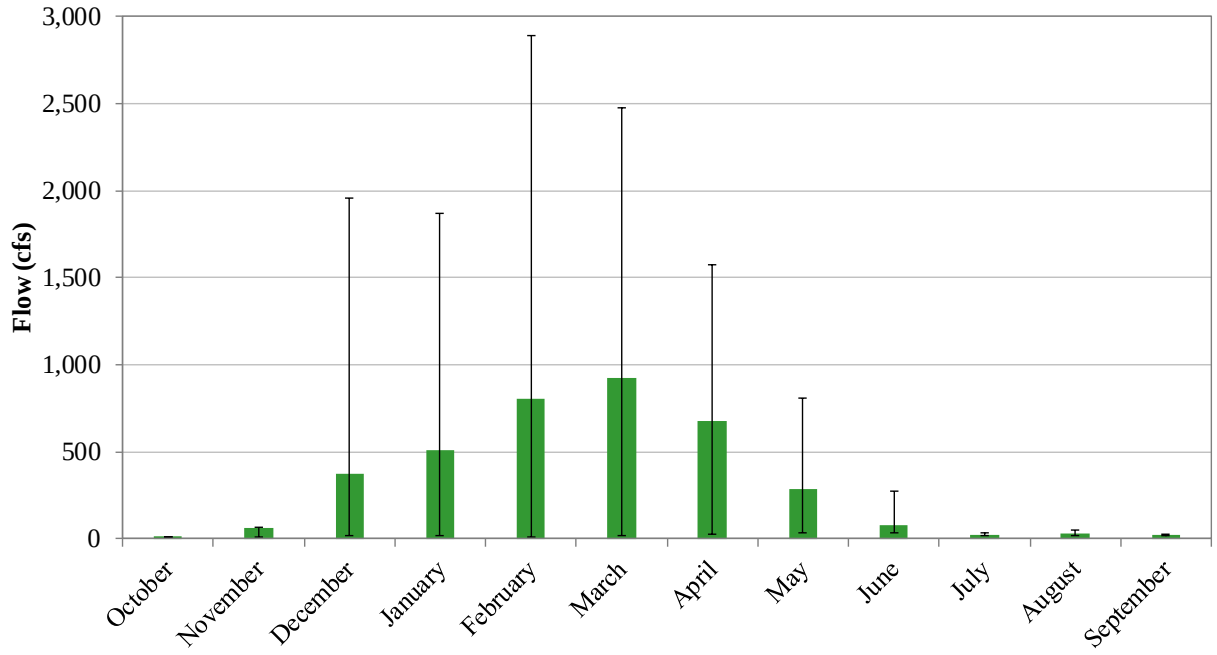

Figure 6.3-1. Mean monthly flow release through the Camp Far West Reservoir fish release gage plus spill from the non-Project diversion dam from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition). The bar shows the values for the 10 percent and 90 percent exceedances.

Figure 6.3-2 shows the modeled mean daily flows below the non-Project diversion dam. The simulated maximum daily average flow was approximately 46,000 cfs, which occurred on January 2, 1997.

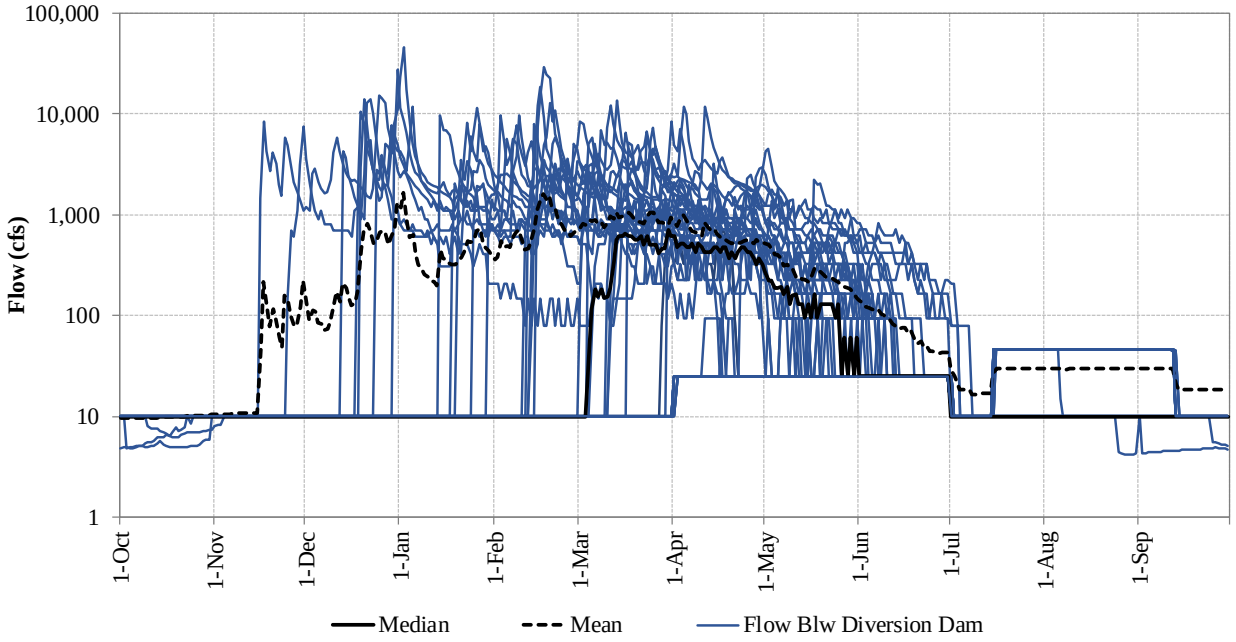

Figure 6.3-2. Mean daily flow below the non-Project diversion dam each year from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition). Flow is plotted in logarithmic scale to better show both high and low values.

Figure 6.3-3 shows modeled flow exceedance of the mean daily streamflow below the non-Project diversion dam for the modeled period. Daily flow exceeds 25 cfs 28 percent of the time, and exceeds 100 cfs 21 percent of the time. Figure 6.3-4 shows modeled flow exceedance curves for daily flows (by month and over the simulation period) below the non-Project diversion dam. In most months, flow exceeds the minimum instream flow less than 40 percent of the time. However, the peak runoff months of March through May experience average daily flow greater than minimum flow requirements more than 50 percent of the time.

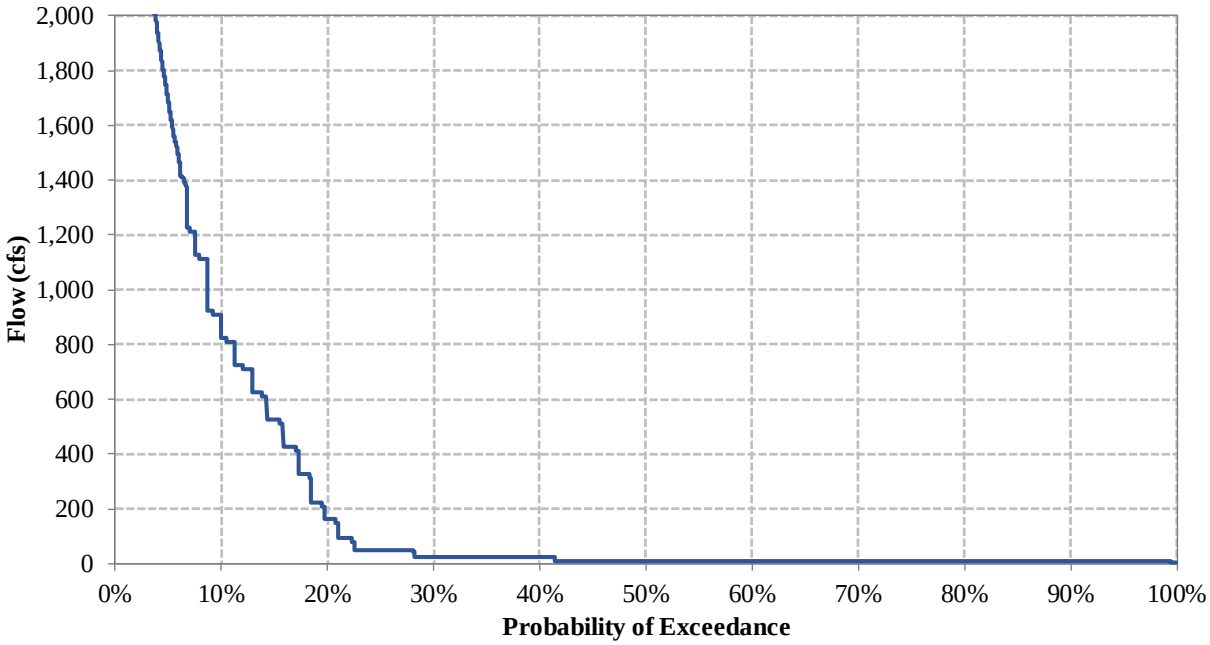

Figure 6.3-3. Flow exceedance below the non-Project diversion dam from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition).

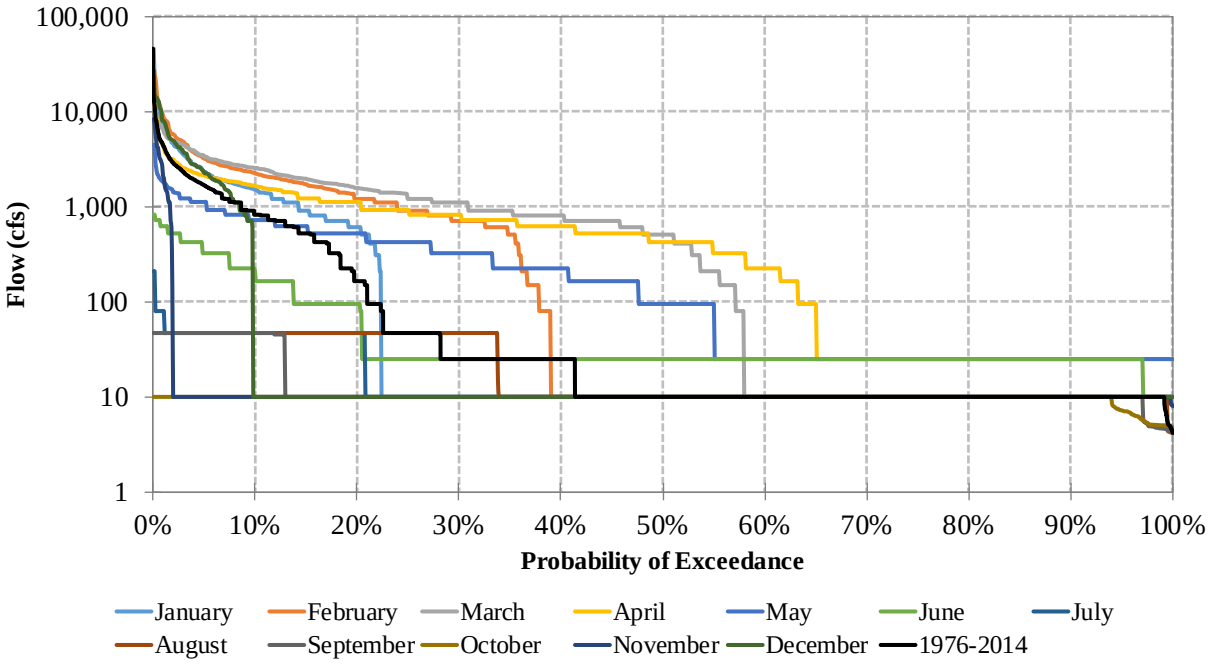

Figure 6.3-4. Modeled daily (by month and over the simulation period) flow duration curves for flow below the non-Project diversion dam from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition). Flow is plotted in logarithmic scale to better show both high and low values.

6.3.2 Bear River Near Wheatland

The primary full-flow-rated gage used for flow characterization in the lower Bear River is the Wheatland gage (USGS 11424000). The gage is located approximately 6.5 mi downstream of Camp Far West Dam, and reflects releases from Camp Far West Reservoir through the powerhouse, low-level outlet, and spills over Camp Far West Dam less diversions from the non-Project diversion dam to SSWD and CFWID. The Wheatland gage has been in active operation since October 1928. SSWD's Ops Model calculates flow on the Bear River near Wheatland. Figure 6.3-5 shows average monthly-modeled streamflow for the Bear River near Wheatland. The simulated maximum monthly average streamflow was 6,102 cfs, which occurred in January 1997.

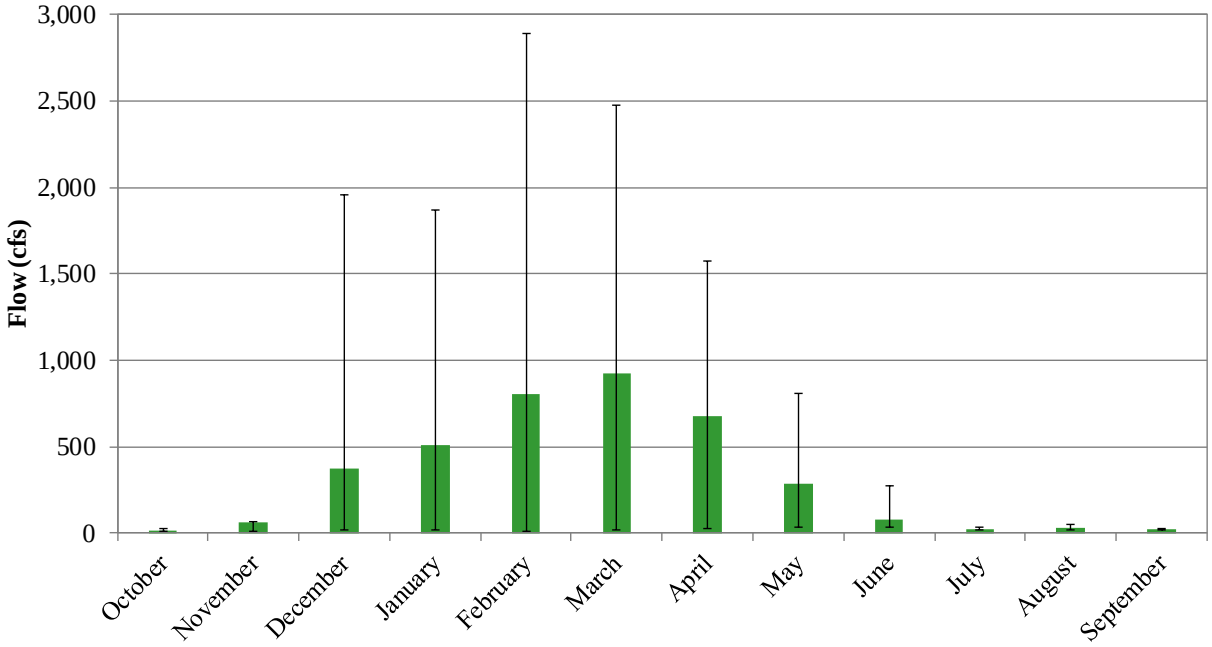

Figure 6.3-5. Mean monthly streamflow for the Bear River near Wheatland from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition). Bars show the values for the 10 percent and 90 percent exceedances.

Figure 6.3-6 shows the modeled mean daily streamflow for the Bear River near Wheatland under the No Action Alternative. The simulated maximum daily average streamflow was 46,036 cfs, which occurred on January 2, 1997. The only other simulated flows above 25,000 cfs occurred on February 17, 1986 (29,396 cfs) and December 31, 2005 (27,384 cfs).

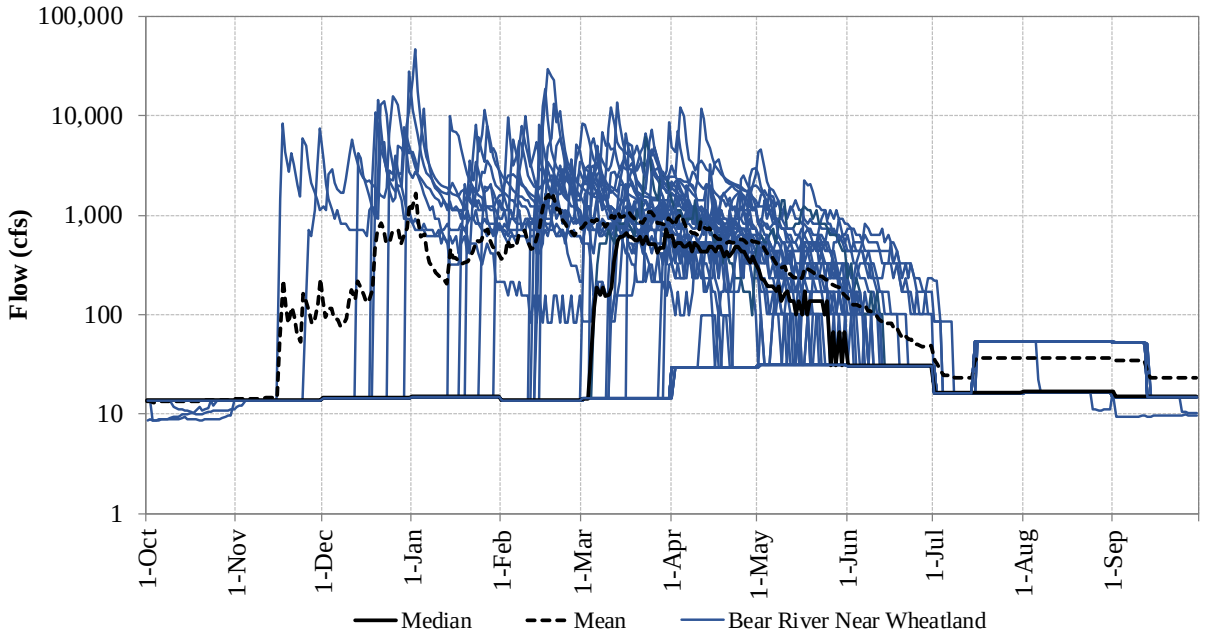

Figure 6.3-6. Mean daily streamflow for the Bear River near Wheatland from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition). Flow is plotted in logarithmic scale to better show both high and low values.

Figure 6.3-7 shows modeled flow exceedance of the mean daily streamflow for the Bear River near Wheatland during the simulation period. Daily flow exceeds 25 cfs 41 percent of the time and exceeds 100 cfs 22 percent of the time.

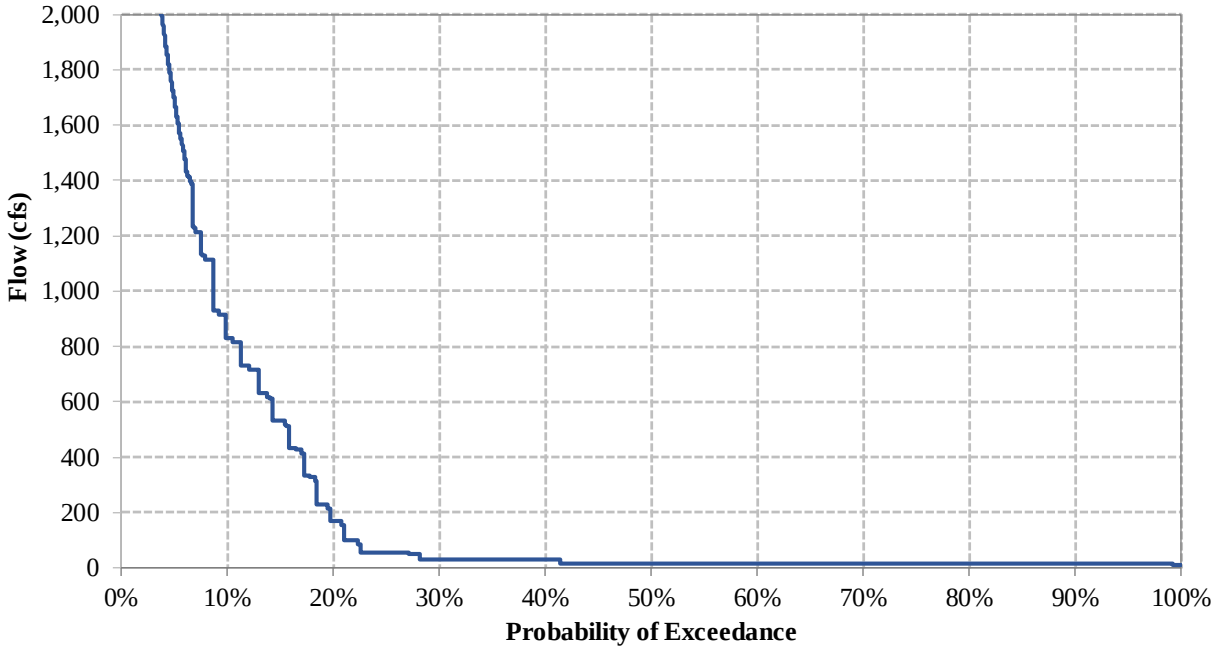

Figure 6.3-7. Flow exceedance curve for the Bear River near Wheatland from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition).

Figure 6.3-8 shows modeled flow exceedance curves for daily flows (by month and over the simulation period) for the Bear River near Wheatland. Results are similar in magnitude and probability to streamflow below the non-Project diversion dam.

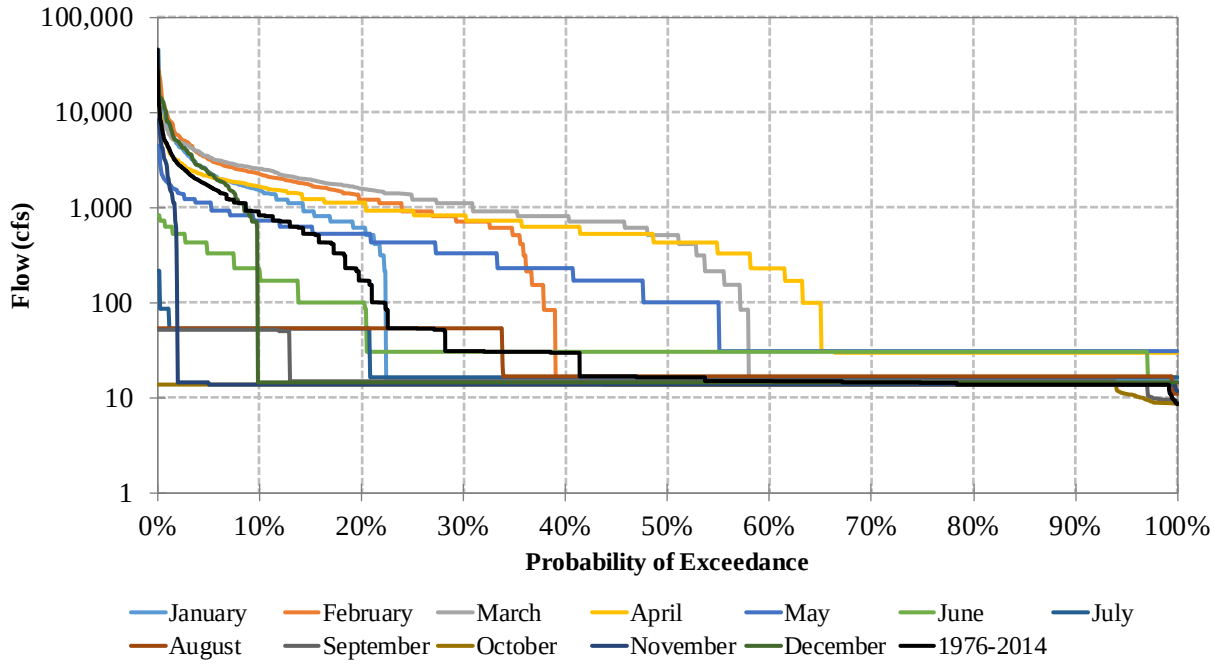

Figure 6.3-8 Modeled daily (by month and over the simulation period) flow duration curves for the Bear River near Wheatland from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition). Flow is plotted in logarithmic scale to better show both high and low values.

6.3.3 Bear River at Confluence with the Feather River

The Bear River is a tributary to the Feather River and flows into the Feather River approximately 11 river miles downstream from the Wheatland gage. Flows at the confluence reflect upstream (Wheatland) flows and accretions or depletions that occur along the lower Bear River, notably inflow from Dry Creek that enters from the north approximately 5 river miles upstream of the confluence.

Figure 6.3-9 shows average monthly-modeled streamflow for the Bear River at the Feather River confluence. The simulated maximum monthly average streamflow was 6,865 cfs, which occurred in January 1997.

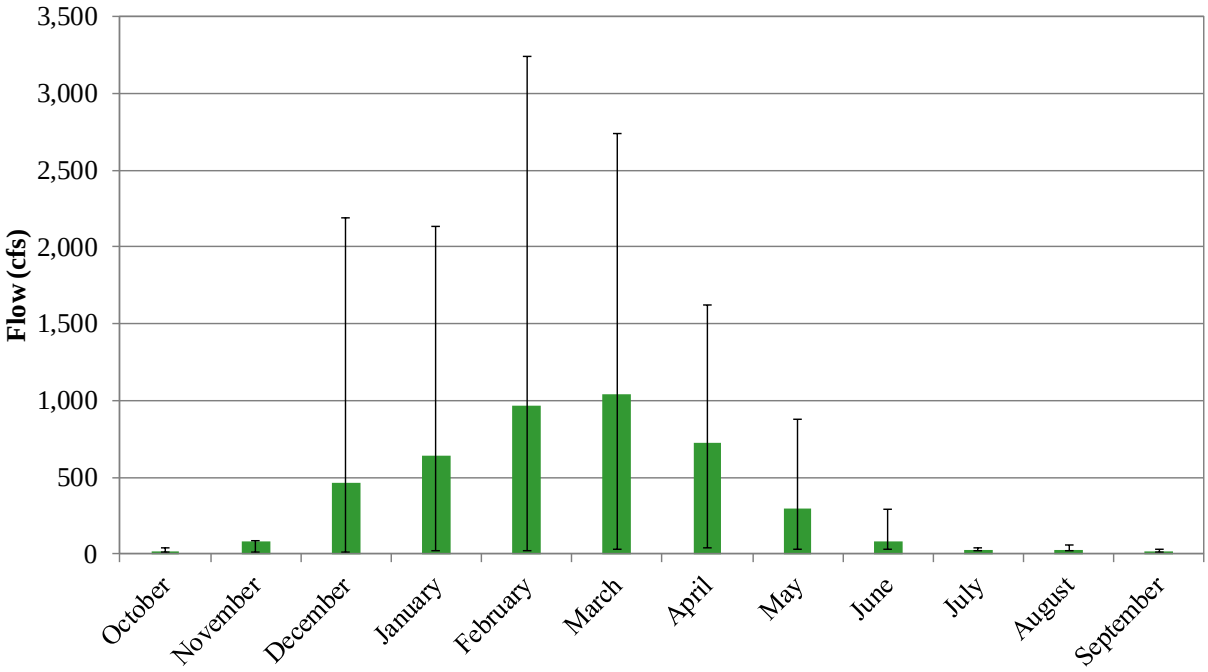

Figure 6.3-9. Mean monthly streamflow for the Bear River at the Feather River confluence from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition). Bars show the values for the 10 percent and 90 percent exceedances.

Figure 6.3-10 shows the modeled mean daily streamflow for the Bear River at the Feather River confluence. The simulated maximum daily average streamflow was 51,938 cfs, which occurred on January 2, 1997. Results are somewhat different from Bear River streamflow near Wheatland, given the influence from Dry Creek inflows.

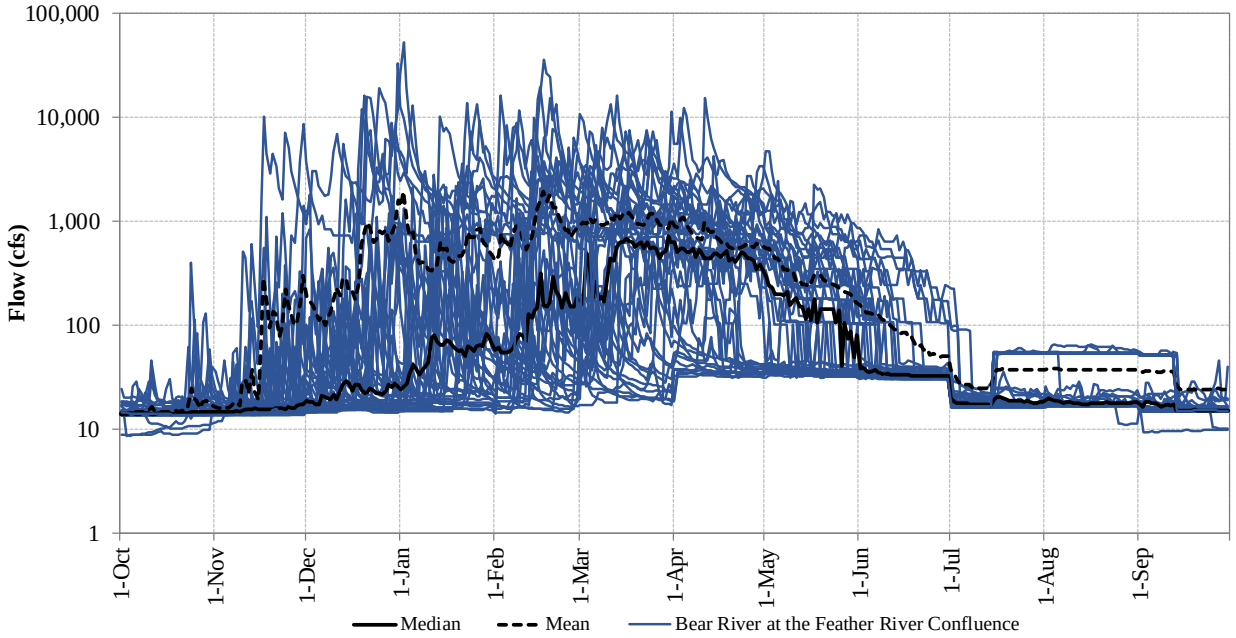

Figure 6.3-10. Mean daily streamflow for the Bear River at the Feather River confluence from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition). Flow is plotted in logarithmic scale to better show both high and low values.

Figure 6.3-11 shows modeled flow exceedance of the mean daily streamflow for the Bear River at the Feather River confluence over the simulation period. Daily flow exceeds 25 cfs 55 percent of the time and exceeds 100 cfs 27 percent of the time. Figure 6.3-12 shows modeled flow exceedance curves for daily flows (by month and over the simulation period) for the Bear River at the Feather River confluence. Results are somewhat different in magnitude and probability to streamflow below the non-Project diversion dam, given the influence from Dry Creek inflows.

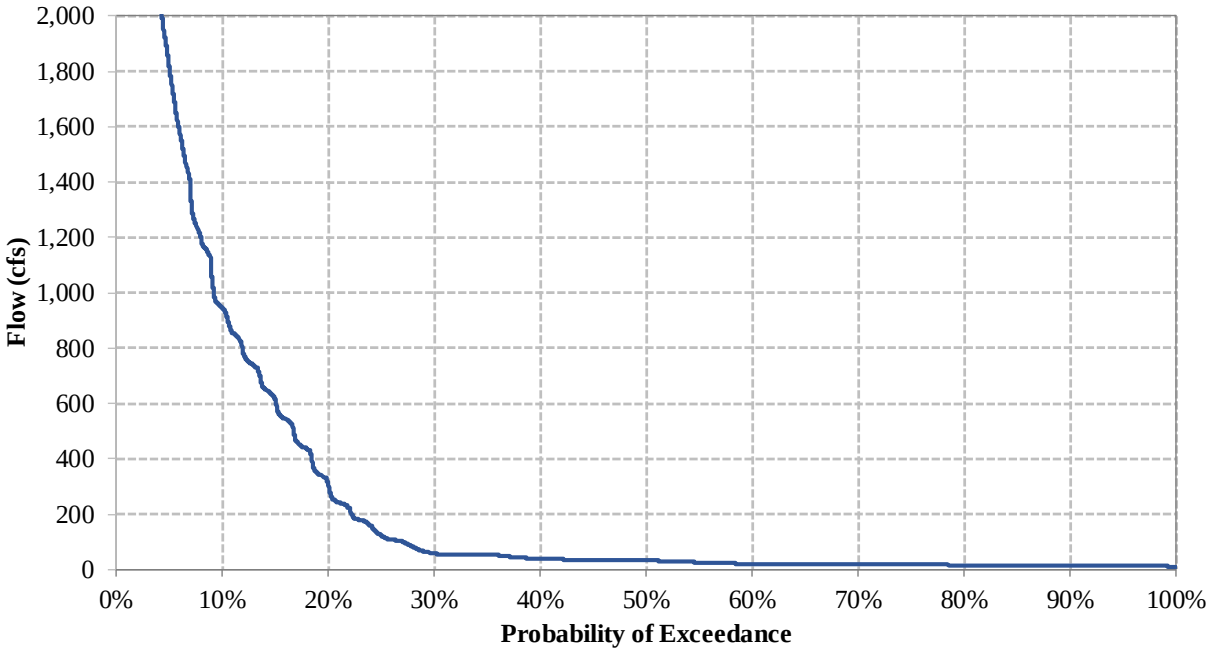

Figure 6.3-11. Flow exceedance curve for the Bear River at the Feather River confluence from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition).

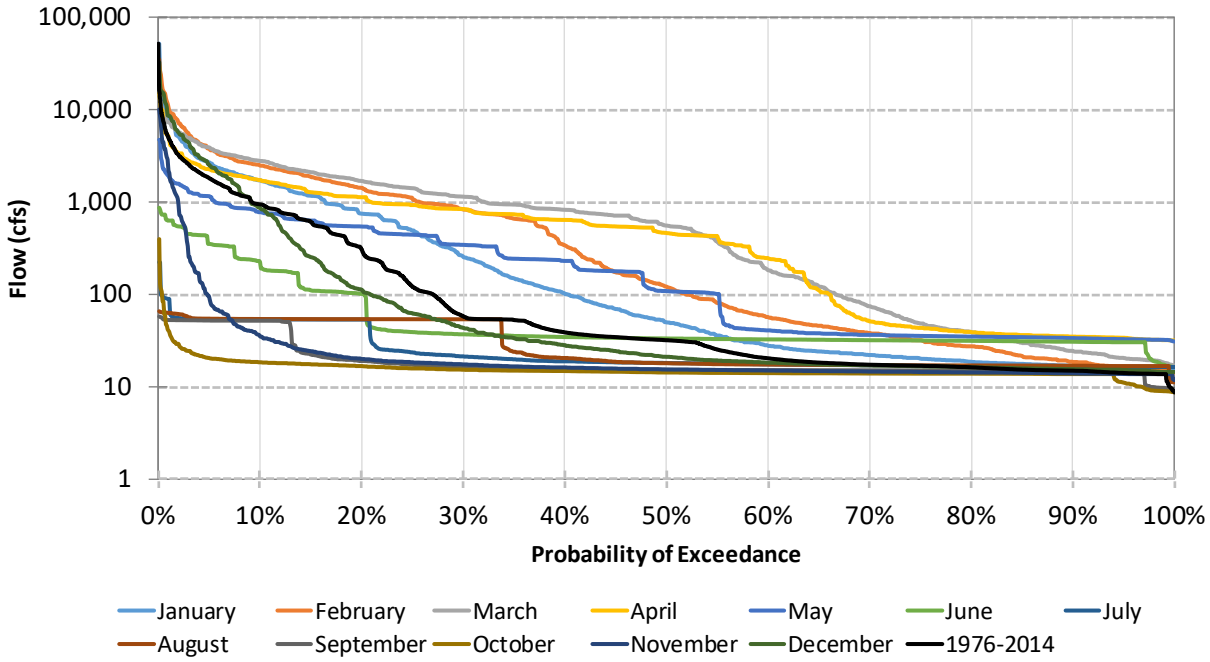

Figure 6.3-12. Modeled daily (by month and over the simulation period) flow duration curves for the Bear River at the Feather River confluence from WY 1976 through WY 2014 under SSWD's No Action Alternative (Baseline Condition). Flow is plotted in logarithmic scale to better show both high and low values.

6.4 Facility Maintenance

6.4.1 Camp Far West Powerhouse Maintenance

SMUD conducts annual mechanical and electrical inspections and maintenance at the Camp Far West Powerhouse to verify the structural and/or functional integrity of the facilities and to identify conditions that might disrupt operations. The Camp Far West Powerhouse unit is offline to support planned outages for approximately 2-3 weeks in the September/October period. During an unplanned outage, such as when the unit trips offline, water flows to the low-level outlet. Depending on maintenance work needed on the tunnel and penstock, it can be dewatered by closing the intake gates.

6.4.2 Other Facility Maintenance

Routine maintenance activities conducted in the vicinity of Project Facilities include vegetation management, pest management, road and trail maintenance, maintenance of communication facilities, debris management, and facility painting. Each of these activities is described below.

6.4.2.1 Vegetation Maintenance

Vegetation management, manually using hand tools and chemically by the use of herbicides, is implemented by SSWD at Project Facilities. Vegetation management is completed throughout the Project Area as necessary to reduce fire hazard, to provide for adequate Project Facility access and inspection, to protect Project Facilities, and to provide for worker and public health and safety. In general, vegetation management is implemented within about 75 ft of the powerhouse and switchyard; within about 15 ft on either side of roads and trails to Project Facilities; and within recreation areas.

Vegetation management occurs both by hand trimming and herbicides. Hand trimming includes trimming grasses and forbs using string trimmers, and removal or trimming of overhanging shrubs and tree limbs using a chain saw or other handheld saw or clippers. These management activities are conducted as needed in conjunction with facility inspections.

Herbicides, in combination with surfactants, are used in combination with hand trimming vegetation management activities on an annual basis at Project Facilities located on SSWD-owned property. All herbicide applications are supervised by a Qualified Applicator with direction of a licensed Pest Control Advisor (PCA). The PCA prepares Pest Control Recommendations (PCR) consistent with the specific herbicide label(s) for each site prescribing specific application direction and associated precautions that must be strictly followed. All-terrain vehicles, other vehicles (pick-up trucks), backpack sprayers, or small hand-held sprayers are used to apply herbicides. Herbicide application occurs, at a minimum, twice annually. These applications occur between December 1 and March 31, as determined by the PCA for pre-emergents, and seasonally dependent, typically occurring between April 1 and June 30. This cycle is for follow-up visits to apply post-emergent herbicide application and/or additional treatments as needed. A third cycle, if required, is completed between July 1 and October 14.

6.4.2.2 Hazard Trees

Hazard trees, generally defined as dead or dying trees or trees with defects that may result in failure and have the potential to cause property damage, personal injury, or death, are removed as needed. Removal is conducted with a chainsaw, handheld saw, or other equipment. Smaller diameter debris from felled hazard trees is either chipped or lopped and scattered. Downed logs are typically left onsite and only moved if needed for safety. If moving logs is necessary, it may be completed by hand or machine depending on the situation.

6.4.2.3 Vertebrate Pest Management

SSWD implements rodent control as needed in facility interiors using an integrated pest management approach that includes sanitation and exclusion. General use of rodenticides, applied in accordance with the label instruction, may be used when necessary.

6.4.2.4 Road Maintenance

Regular inspection of the Project access roads occurs during the course of day-to-day Project activities. Road maintenance on Project and shared roads occurs as needed. Maintenance generally includes, but is not limited to, the following types of activities: debris removal; filling potholes; grading, sealing, and surfacing; maintenance or replacement of erosion control features (e.g., culverts, drains, ditches, and water bars); repair, replacement, or installation of access control structures such as posts, cables, rails, gates, and barrier rock; and repair and replacement of signage. Vegetation management may be conducted concurrently with road maintenance.

6.4.2.5 Facility Painting

SSWD paints the exterior of Project Facilities, including the powerhouse and ancillary facilities as needed.

6.4.2.6 Recreation Facilities Maintenance

SSWD, through a concessionaire, routinely maintains the Project recreation facilities at the North and South Shore recreation areas. Typical routine maintenance activities include litter and trash collection, lowering/raising the boat launch docks as the water level changes, fire pit cleaning and ash removal, cleaning and maintaining restroom buildings, gate and traffic control maintenance, keeping roadways and parking areas clear of debris, and public signage maintenance. In addition, SSWD routinely maintains and tests the water supply system and sewage treatment ponds with aerators that serve the flush restroom buildings and RV sanitary dump stations at both recreation areas.

7.0 SSWD's Proposed Project Operations

Operations of SSWD's reservoir, dam, and powerhouse under SSWD's Proposed Project (Proposed Project) are presented below. SSWD has modeled operations of the Proposed Project

in its Ops Model using the same modeling tools used for the No Action Alternative. Accordingly, many of the facility features are identical to those described in Section 6.0. Differences in operations from the No Action Alterative are described here, as are the model output resulting from modeled operations according to the Proposed Project.

7.1 Changes to Operating Constraints

7.1.1 Changes to Proposed Facilities

Exhibit A of SSWD's Application for New License describes SSWD's existing and proposed Project facilities. SSWD proposes to maintain all existing facilities with the following modification: 1) increase the Camp Far West Reservoir NMWSE by 5 ft from 300 ft to 305 ft by raising the spillway crest to elevation 305 ft.; 2) modifications to Project recreation facilities; and, 3) addition of a Primary Project Road. A discussion about how the changes would affect existing Project operations is below. Refer to Exhibit A for a detailed description of the Proposed Project facilities.

7.1.1.1 Camp Far West Reservoir

The Proposed Project would not affect the existing Camp Far West Dam spillway-rating curve, which is shown in Figure 6.2-5.

The Proposed Project would increase the NMWSE of Camp Far West Reservoir to 305 ft. The area-capacity curve for Camp Far West Reservoir with a NMWSE of 305 ft is shown in Figure 7.1-1. The surface area at the NMWSE of 305 ft is 2,018 ac.

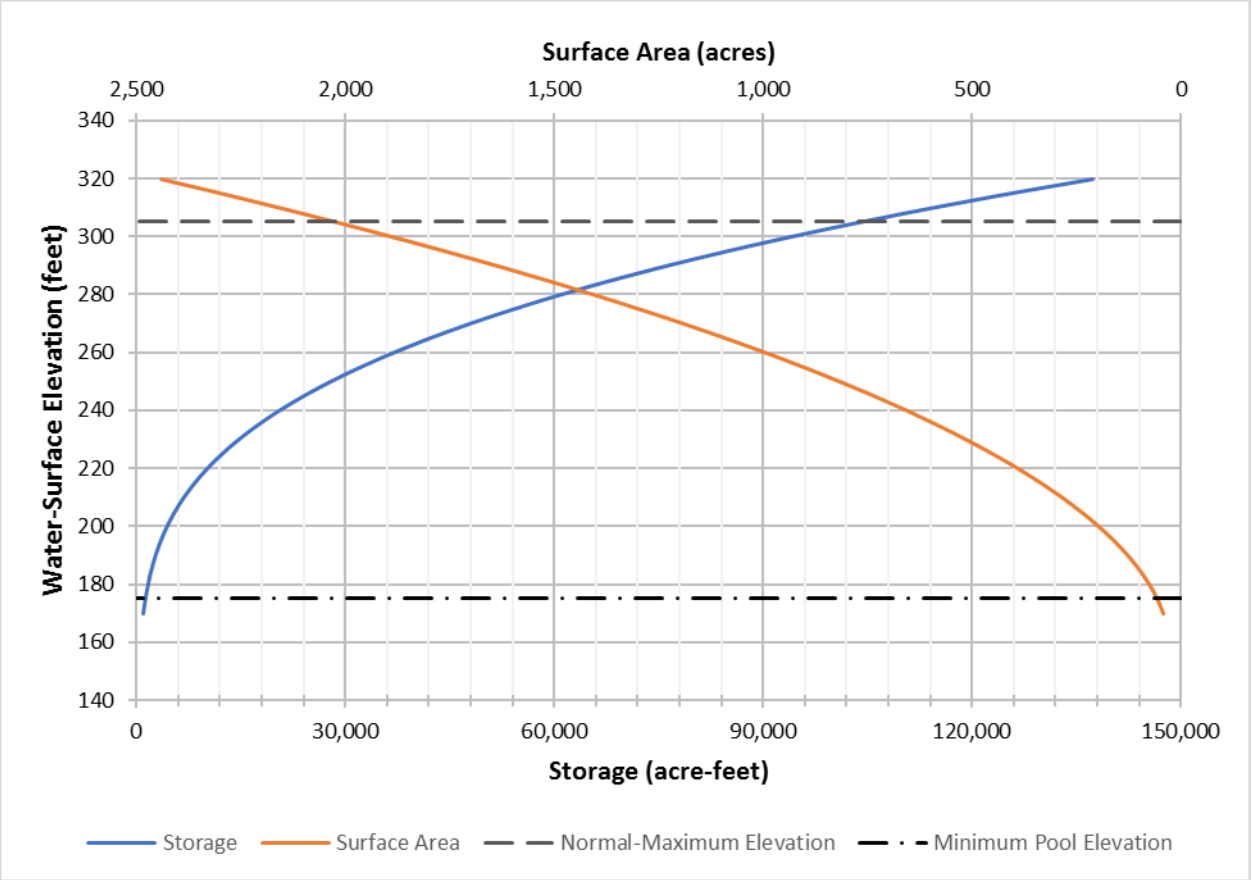

Figure 7.1-1. Camp Far West Reservoir gross and usable area-capacity curves for the Proposed Project (from GEI Consultants).

7.1.2 SSWD's Proposed Conditions in the New License

SSWD developed Proposed Conditions, including associated implementation plans, for the new licenses. These conditions are:

- SSWD Proposed Condition WR1, Implement Water Year Types. SSWD shall determine the WY types in this condition, and shall use the determinations to implement articles and conditions of the license that are dependent on WY type.
- SSWD Proposed Conditions AR1, Implement Minimum Streamflows. SSWD shall maintain the minimum streamflows in the Bear River downstream of the Project as described in this condition.
- SSWD Proposed Condition AR2, Implement Fall and Spring Pulse Flows. SSWD shall provide fall and spring pulse flows in the Bear River downstream of the Project described in this condition.

- SSWD Proposed Condition AR3, Implement Ramping Rates. SSWD shall make a good-faith effort to adhere to the target ramping rates in the Bear River downstream of the Project described in this condition.
- SSWD Proposed Condition TR1, Implement a Bald Eagle Management Plan. SSWD shall implement the Bald Eagle Management Plan included in Appendix E2 in Exhibit E of this Application for New License.
- SSWD proposed Condition TR2, Implement Blue Heron Rookery Management. SSWD shall implement a Limited Operating Period within a buffer of any great blue heron (*Ardea herodias*) rookeries located on Camp Far West Reservoir.
- SSWD Proposed Condition RR1, Implement Recreation Facilities Plan. SSWD shall implement the Recreation Facilities Plan included in Appendix E2 in Exhibit E of this Application for New License.
- SSWD Proposed Condition CR1, Implement Historic Properties Management Plan. SSWD shall implement the Historic Properties Management Plan included in Volume 3 of SSWD's Application for New License.

Refer to Appendix E2 in Exhibit E for the full text of each measure.

7.1.3 Changes to Measures in Other Licenses, Agreements and Contracts that Affect Operations

Section 5.2 describes other licenses (i.e., not the FERC license), agreements and contracts that affect current Project operations. When FERC issues its new license, SSWD would apply to the SWRCB to modify any water rights, if necessary, to make them consistent with the new license. SSWD does not anticipate any changes will be needed to SSWD's water delivery contracts. In addition, as described in Section 8, upon termination of the existing SSWD/SMUD Contract, SSWD plans to negotiate a new lease/power purchase contract or multiple contracts with, at this time, an unknown third party, which could be SMUD, or other parties.

7.1.4 Changes to Other Operating Constraints

Section 4.3 describes other current operating constraints. SSWD may continue to make water transfers, when possible, and will abide by the requirements, which are unknown at this time, in a new power purchase contract.

7.2 Changes in Project Operations with the Proposed Project

7.2.1 Near-Term Condition

The following sections describe project operations, water supply, and power generation results from the Ops Model (Baseline) with the Proposed Project. Results are presented as comparisons to the No Action Alternative Ops Model simulation.

Table 7.2-1. Average annual results by WY Type from WY 1976 through WY 2014 for the No Action Alternative (Baseline) and the Proposed Project (Near-Term Condition), and the difference between the two.

Water Year Type[1]	SSWD Diversions for Water Supply (ac-ft)	Camp Far West Reservoir Carryover Storage[2] (ac-ft)	Peak Project Energy Generation (MWhr)	Off-Peak Project Energy Generation (MWhr)	Total Project Energy Generation (MWhr)	Mean Flow Downstream of Non-Project Diversion Dam (cfs)
NO ACTION ALTERNATIVE (BASELINE CONDITION)						
Wet	109,600	39,700	14,375	22,780	37,155	826
Above Normal	109,000	23,600	11,722	18,584	30,306	365
Below Normal	100,500	14,500	8,321	13,164	21,485	178
Dry	53,700	13,000	2,138	3,378	5,515	42
Critical	19,200	5,400	412	650	1,062	15
All	**82,900**	**20,800**	**7,888**	**12,493**	**20,381**	**309**
PROPOSED PROJECT (NEAR-TERM CONDITION)						
Wet	110,000	48,000	14,829	23,500	38,329	832
Above Normal	110,000	31,700	11,872	18,824	30,696	357
Below Normal	105,300	20,300	8,537	13,505	22,042	166
Dry	54,700	12,600	2,091	3,303	5,394	44
Critical	18,900	4,500	416	657	1,072	18
All	**84,500**	**25,500**	**8,059**	**12,765**	**20,824**	**307**
DIFFEERNCE BETWEEN PROPOSED PROJECT AND NO ACTION ALTERNATIVE						
Wet	400	8,300	454	720	1,174	6
Above Normal	1,000	8,100	150	240	390	-8
Below Normal	4,800	5,800	216	341	557	-12
Dry	1,000	-400	-47	-75	-121	2
Critical	-300	-900	4	7	10	3
All	**1,600**	**4,700**	**171**	**272**	**443**	**-2**

[1] For this summary, SSWD used the WY types in FERC's FEIS for the YB/DS Projects. Simulated WY types were as described in SSWD Proposed Condition WR1 in Appendix E2 in Exhibit E of SSWD's Application for New License.

[2] Carryover storage is reservoir storage on October 31, carried over into the following year.

The Proposed Project (Near-Term Condition) creates additional storage space in Camp Far West Reservoir. The additional storage space allows more water to be stored when Camp Far West Reservoir fills and spills. Additional stored water may be delivered for water supply in the year when it is stored, or carried over for water supply and downstream demands in future years.

The additional storage space created by the Proposed Project (Near-Term Condition) also increases annual water supply deliveries to SSWD. The greatest water supply benefit occurs in Below Normal WYs when more than 4,000 ac-ft of water may be available annually (an additional 4% of total canal demand), as compared to the No Action Alternative. The additional water supply created by the additional storage space offsets the water supply impacts created by the proposed minimum streamflows and pulse flow requirements.

The mean streamflow downstream of the non-Project diversion dam is largely unchanged between the Proposed Project (Near-Term Condition) and the No Action Alternative. While the increased storage space under the Proposed Project (Near-Term Condition) does reduce the average annual spill from the reservoir, the minimum streamflow and pulse flow requirements proposed by SSWD for inclusion in the new license require larger volumes of water to be released downstream of the non-Project diversion dam in most WY types. As such, mean

streamflows downstream of the non-Project diversion dam are largely unchanged between the No Action Alternative and the Proposed Project (Near-Term Condition).

Average annual Project power generation increases by 443 MWhrs, with the largest increases occurring in Wet WYs.

Each of these results is discussed in more detail below.

7.2.1.1 Camp Far West Reservoir

Figure 7.2-1 is a comparison of modeled storage in Camp Far West Reservoir throughout the simulation period under the No Action Alternative and the Proposed Project (Near-Term Condition). The figure demonstrates that storage in Camp Far West is often greater under the Proposed Project, and that the maximum possible storage is 9,836 ac-ft greater. The reservoir is typically higher in wetter years, when additional water can be stored under the Proposed Project (Near-Term Condition). The reservoir is often lower in drier years, when additional water is required to be released to meet increased minimum streamflow requirements.

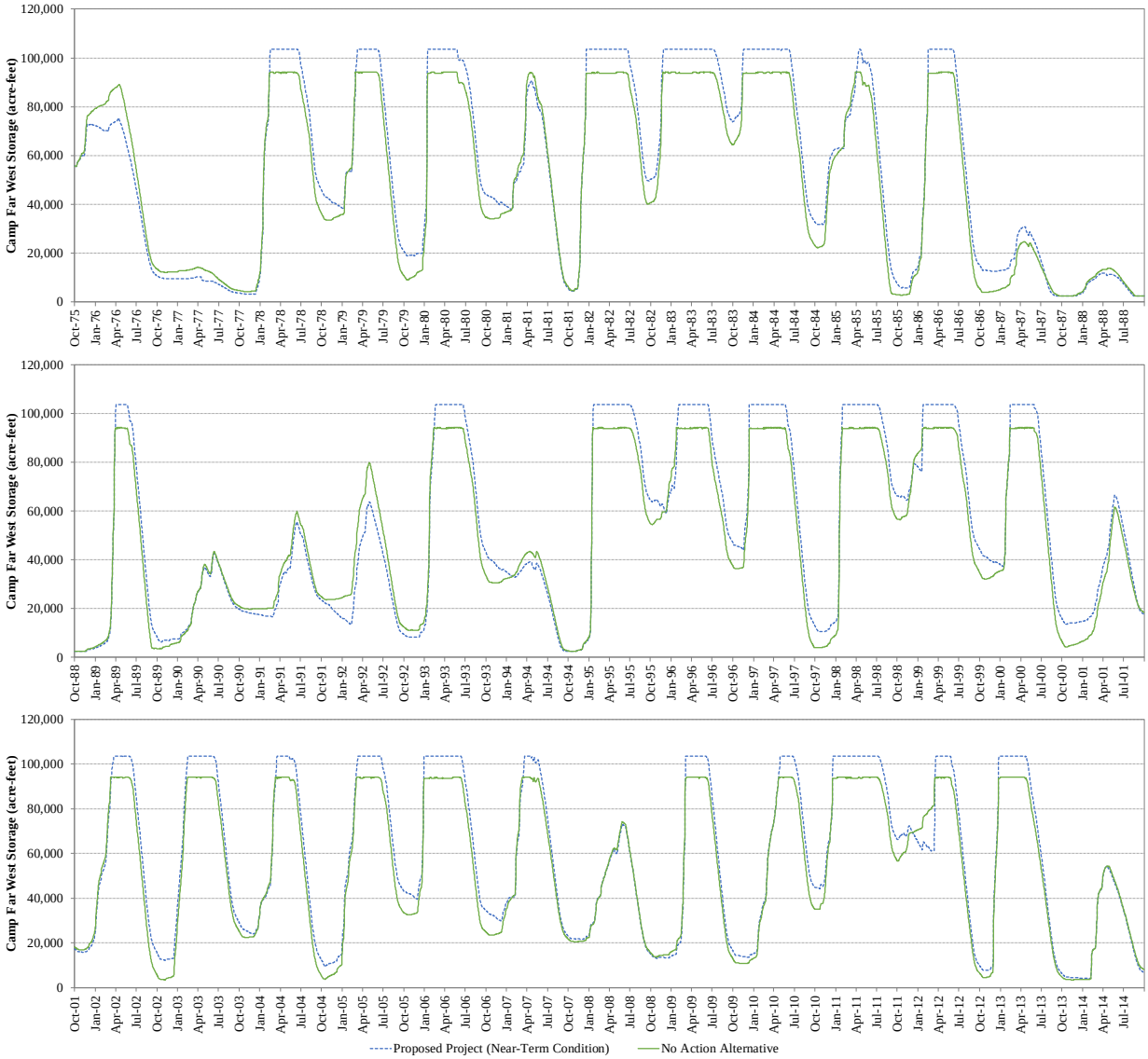

Figure 7.2-1. Comparison of Camp Far West Reservoir storage from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Near-Term Condition).

Table 7.2-2 shows minimum, average, and maximum elevations in Camp Far West Reservoir under the Proposed Project (Near-Term Condition) during the representative dry, normal, and wet Wys.

Table 7.2-2. Minimum and maximum elevations in Camp Far West Reservoir in the representative dry, normal and wet Water Years from WY 1976 through WY 2014 under SSWD's Proposed Project (Near-Term Condition).

Water Year	Minimum Daily Elevation (ft)	Average Daily Elevation (ft)	Maximum Daily Elevation (ft)	Annual Elevation Fluctuation (ft)
2001 (Dry Year)	228.1	249.2	284.0	55.9
2003 (Normal Year)	225.1	275.4	305.0	79.9
1995 (Wet Year)	187.9	272.1	305.0	117.1

Under the Proposed Project (Near-Term Condition), carryover storage is higher in most years, particularly wetter years, than it would be under the No Action Alternative. Figure 7.2-2 shows an exceedance plot of modeled carryover storage under the Proposed Project (Near-Term Condition) and the No Action Alternative. Carryover storage is 4,700 ac-ft higher on average.

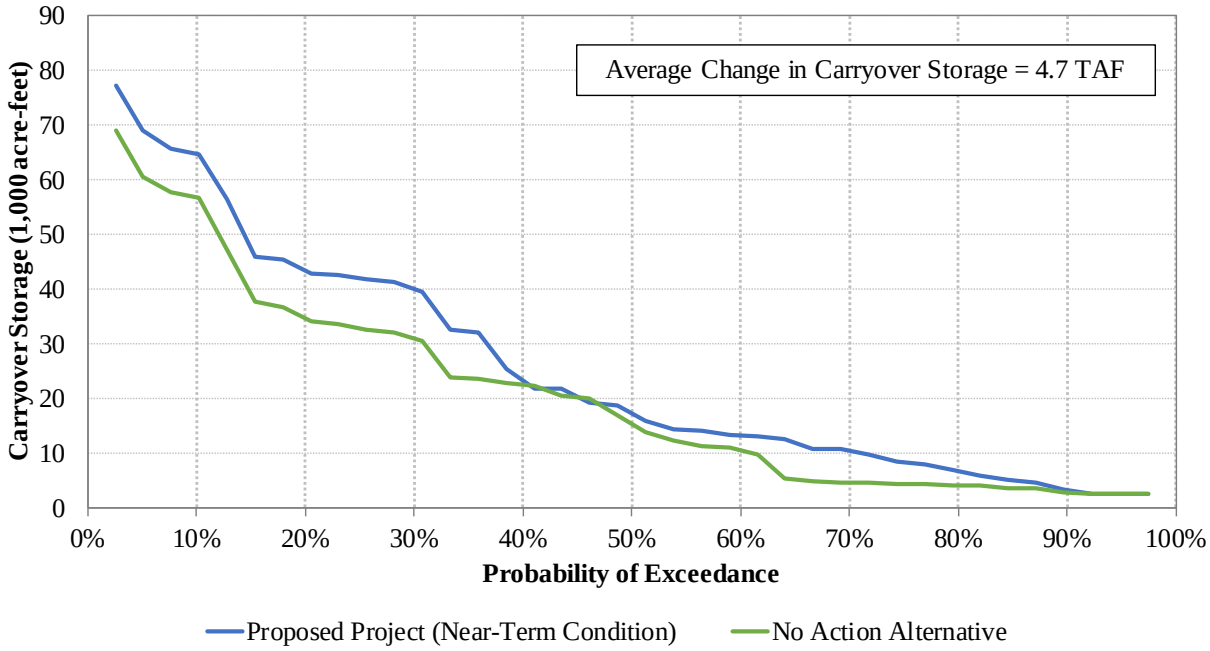

Figure 7.2-2. Comparison of Camp Far West Reservoir carryover storage probability of exceedance from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Near-Term Condition).

Typical reservoir operations are largely unaffected by the increase in available storage under the Proposed Project (Near-Term Condition). Reservoir storage is often higher, although the reservoir often fills slightly later in the year given the increased minimum flow requirements in the fall under the new license. However, the reservoir's fill and drawdown pattern is essentially identical to the No Action Alternative. Figure 7.2-3 shows maximum, mean, median, and minimum daily storage for Camp Far West Reservoir under the Proposed Project (Near-Term Condition) and the No Action Alternative.

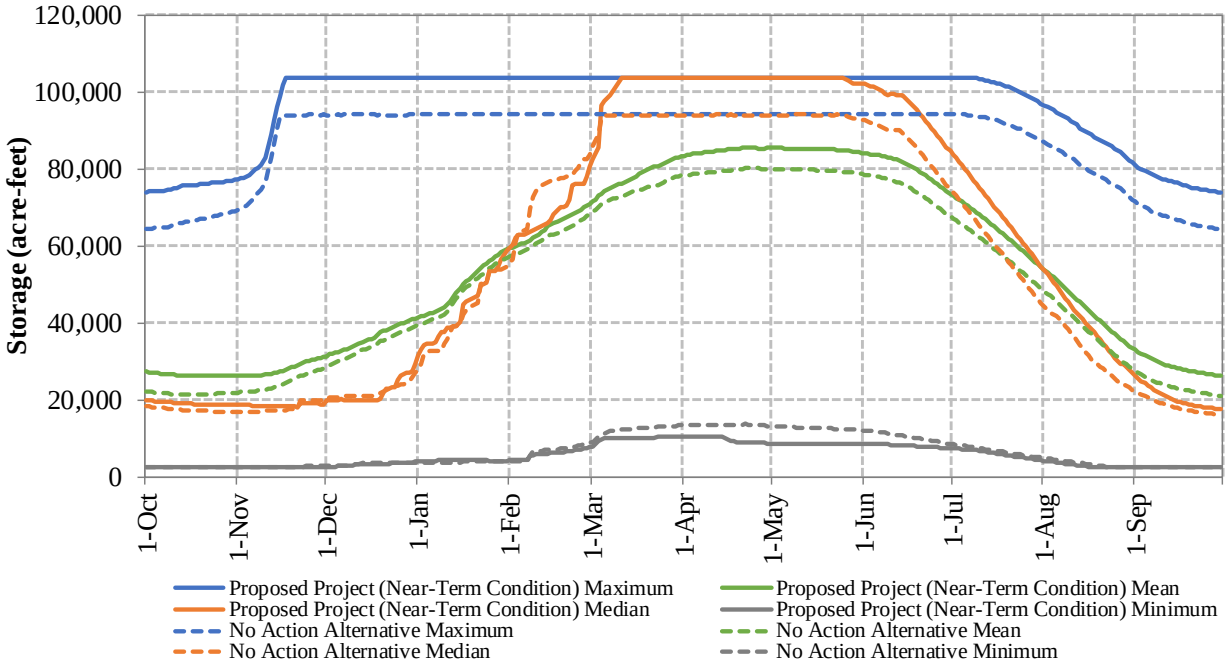

Figure 7.2-3. Maximum, mean, median, and minimum daily Camp Far West Reservoir storage levels from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Near-Term Condition).

7.2.1.2 Water Supply

Figure 7.2.1-5 illustrates annual water supply delivery to SSWD under the Proposed Project (Near-Term Condition) and the No Action Alternative (Baseline Condition), along with annual SSWD canal demand, which is 110,000 ac-ft. The figure shows increases in SSWD deliveries in most years, and decreases in some Dry and Critical years. Under the Proposed Project (Near-Term Condition), SSWD receives a full allocation in more than 50 percent of years, as compared to approximately 40 percent of years under the No Action Alternative. On average, approximately 1,600 ac-ft of additional water is delivered annually to SSWD.

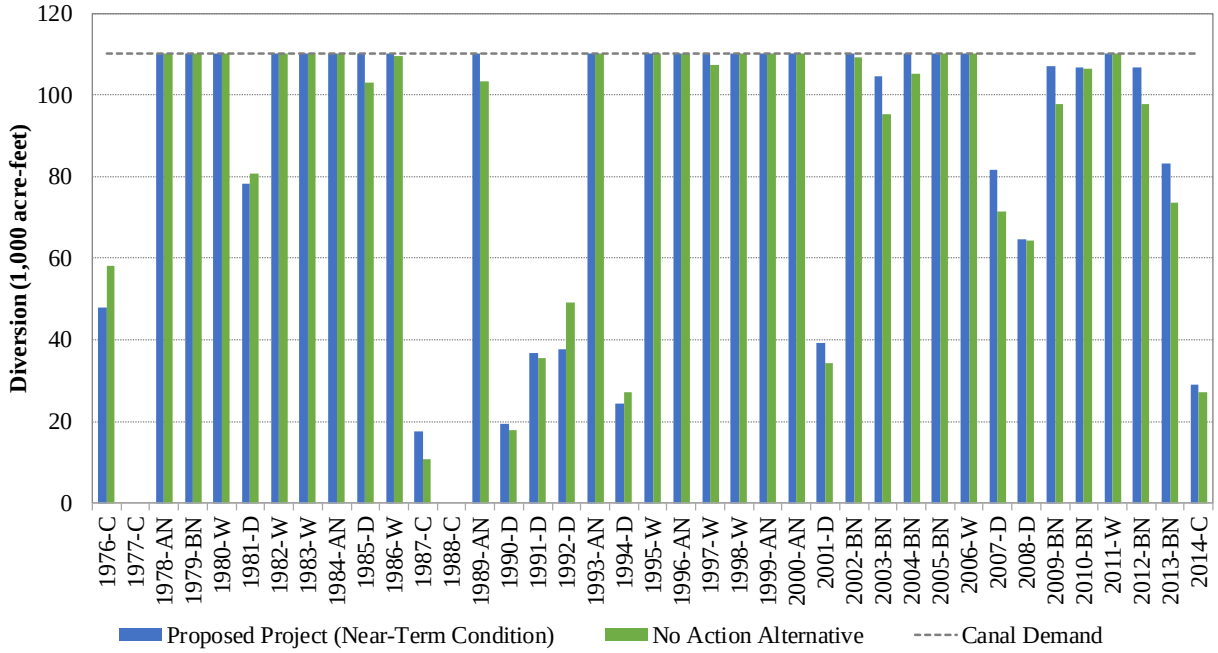

Figure 7.2-4. Comparison of annual water supply diversions to SSWD from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Near-Term Condition).

7.2.1.3 Camp Far West Powerhouse

The Proposed Project (Near-Term Condition) would not affect the existing Camp Far West Powerhouse capability curve, which is shown in Figure 6.2-8, or the Camp Far West Powerhouse tailwater-rating curve, which is shown in Figure 6.2-9. Figure 7.2-5 shows modeled daily (by month and over the simulation period) flow duration curves through the Camp Far West Powerhouse under the Proposed Project (Near-Term Condition). There is a slightly greater probability of higher flows in most months, as compared to the No Action Alternative.

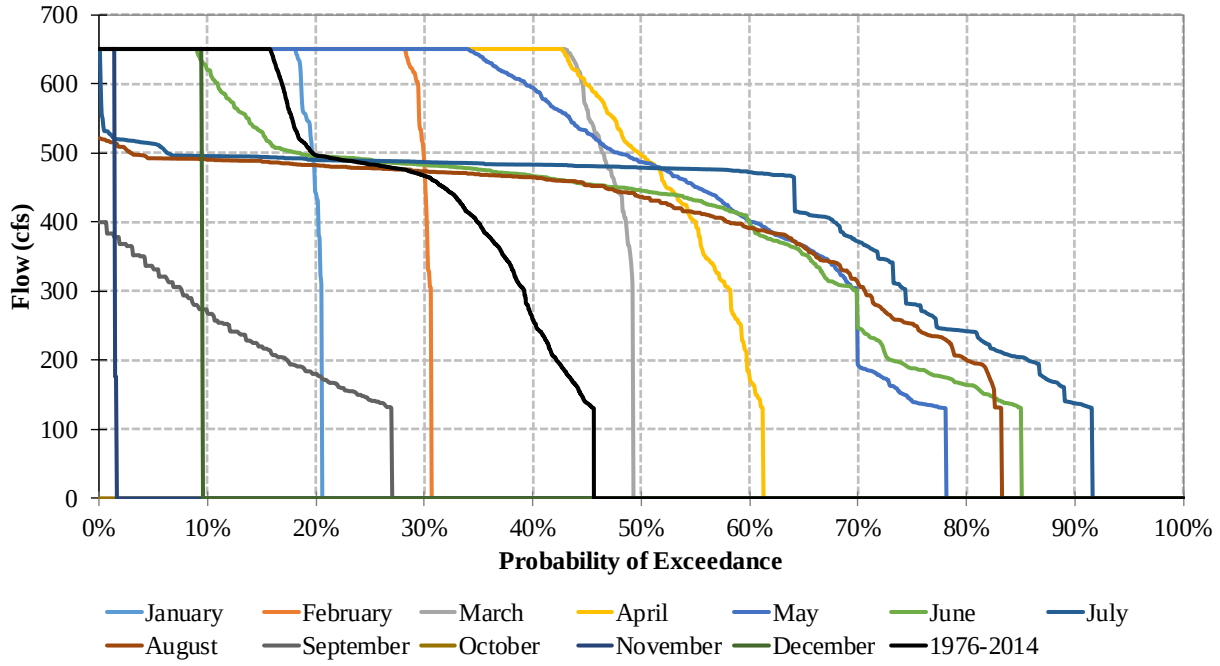

Figure 7.2-5. Modeled daily (by month and over the simulation period) flow duration curves for Camp Far West Powerhouse from WY 1976 through WY 2014 under SSWD's Proposed Project (Near-Term Condition).

Camp Far West Powerhouse would have generated an average of 20,824 MWh/yr from 1976 to 2014 under SSWD's Proposed Project (Near-Term Condition). The average annual plant factor for the powerhouse for this period is 0.35 based on the annual generation divided by the plant nameplate generating capability (6.8 MW) times the number of hours per year. Annual gross generation and plant factors for the powerhouse are provided in Table 7.2-3.

Table 7.2-3. Annual generation and plant factors for Camp Far West Powerhouse from WY 1976 through WY 2014 under SSWD's Proposed Project (Near-Term Condition).

Water Year	Annual Generation (aMW)	Annual Generation (MWh)	Plant Capability (MWh)	Plant Factor
1976	0.3	2,835	59,731	0.05
1977	0.0	0	59,568	0.00
1978	3.4	29,999	59,568	0.50
1979	2.8	24,393	59,568	0.41
1980	3.9	34,656	59,731	0.58
1981	0.8	6,798	59,568	0.11
1982	4.7	41,447	59,568	0.70
1983	5.3	46,520	59,568	0.78
1984	5.0	43,953	59,731	0.74
1985	1.7	14,456	59,568	0.24
1986	3.3	29,006	59,568	0.49
1987	0.1	505	59,568	0.01
1988	0.0	0	59,731	0.00

Table 7.2-3. (continued)

Water Year	Annual Generation (aMW)	Annual Generation (MWh)	Plant Capability (MWh)	Plant Factor
1989	2.2	18,896	59,568	0.32
1990	0.1	887	59,568	0.01
1991	0.3	3,002	59,568	0.05
1992	0.3	2,491	59,731	0.04
1993	3.6	31,254	59,568	0.52
1994	0.2	1,335	59,568	0.02
1995	4.2	37,183	59,568	0.62
1996	3.8	33,166	59,731	0.56
1997	4.3	37,845	59,568	0.64
1998	4.1	35,760	59,568	0.60
1999	3.7	32,248	59,568	0.54
2000	3.4	30,095	59,731	0.50
2001	0.3	2,938	59,568	0.05
2002	2.4	21,446	59,568	0.36
2003	3.0	26,047	59,568	0.44
2004	2.4	21,433	59,731	0.36
2005	2.9	25,618	59,568	0.43
2006	4.5	39,245	59,568	0.66
2007	1.1	9,529	59,568	0.16
2008	0.6	4,923	59,731	0.08
2009	2.6	22,655	59,568	0.38
2010	2.0	17,757	59,568	0.30
2011	5.0	43,426	59,568	0.73
2012	2.3	20,149	59,731	0.34
2013	1.8	16,198	59,568	0.27
2014	0.2	2,023	59,568	0.03
Total	**92.6**	**812,119**	--	--
Minimum	**0.0**	**0**	--	**0.00**
Average	**2.4**	**20,824**	--	**0.35**
Median	**2.4**	**21,446**	--	**0.36**
Maximum	**5.3**	**46,520**	--	**0.78**

Key: aMW = annual megawatt; MWh = megawatt-hour

Average annual power generation increases by 443 MW hrs under the Proposed Project (Near-Term Condition), as shown in Figure 7.2-6. Most of this increase occurs during April through August, as reservoir storage is often higher under the Proposed Project (Near-Term Condition), leading to greater head and thus increased power production.

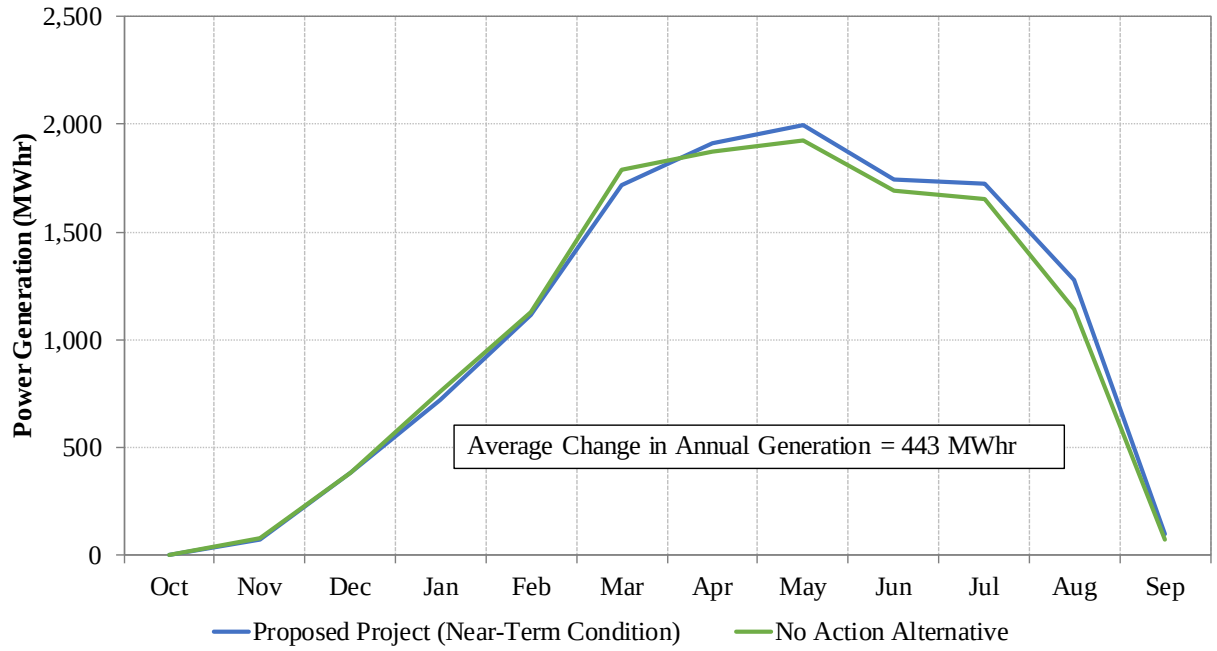

Figure 7.2-6. Comparison of average monthly power production from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Near-Term Condition).

7.2.1.4 Flows in the Bear River Downstream of the Project

7.2.1.4.1 Bear River Fish Release below the non-Project Diversion Dam

Figure 7.2-7 is a comparison of flow below the non-Project diversion dam throughout the simulation period under the Proposed Project and the No Action Alternative. The difference in flow downstream of the non-Project diversion dam between the two alternatives can be substantial given the change in minimum streamflow and the pulse flows under SSWD's Proposed Project, and the delay in spills resulting from the increased storage capability under the Proposed Project (Near-Term Condition). Flows between the two alternatives are most often different in the fall months of most years, and in the spring of Dry WYs. Flows are frequently higher under the Proposed Project (Near-Term Condition), but can be lower for shorter periods of time. Changes in reservoir storage under the Proposed Project (Near-Term Condition) also result in some differences in the volume and frequency of Bear River Agreement releases. Overall, annual average flow below the non-Project diversion dam is 1,800 ac-ft less under the Proposed Project (Near-Term Condition).

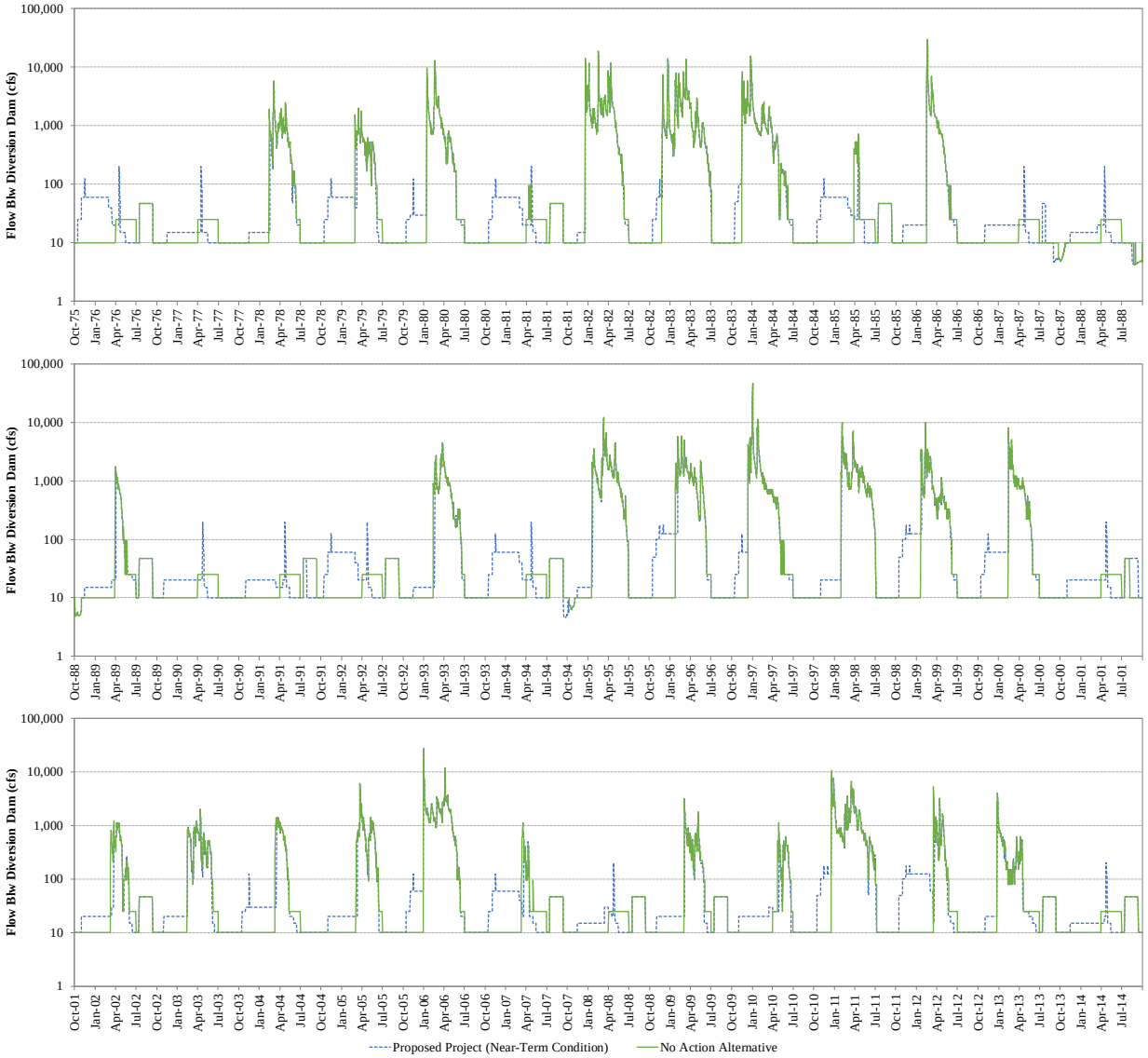

Figure 7.2-7. Comparison of flows in the Bear River downstream of the non-Project diversion dam from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Near-Term Condition). Flow is plotted in logarithmic scale to better show both high and low values.

Figure 7.2-8 shows modeled daily, by month and over the simulation period, flow duration curves for the Bear River below the non-Project diversion dam under the Proposed Project (Near-Term Condition). Results are noticeably different from the average monthly streamflow below the non-Project diversion dam under the No Action Alternative, largely a result of the changes to the required minimum streamflows and the addition of pulse flows under the Proposed Project (Near-Term Condition).

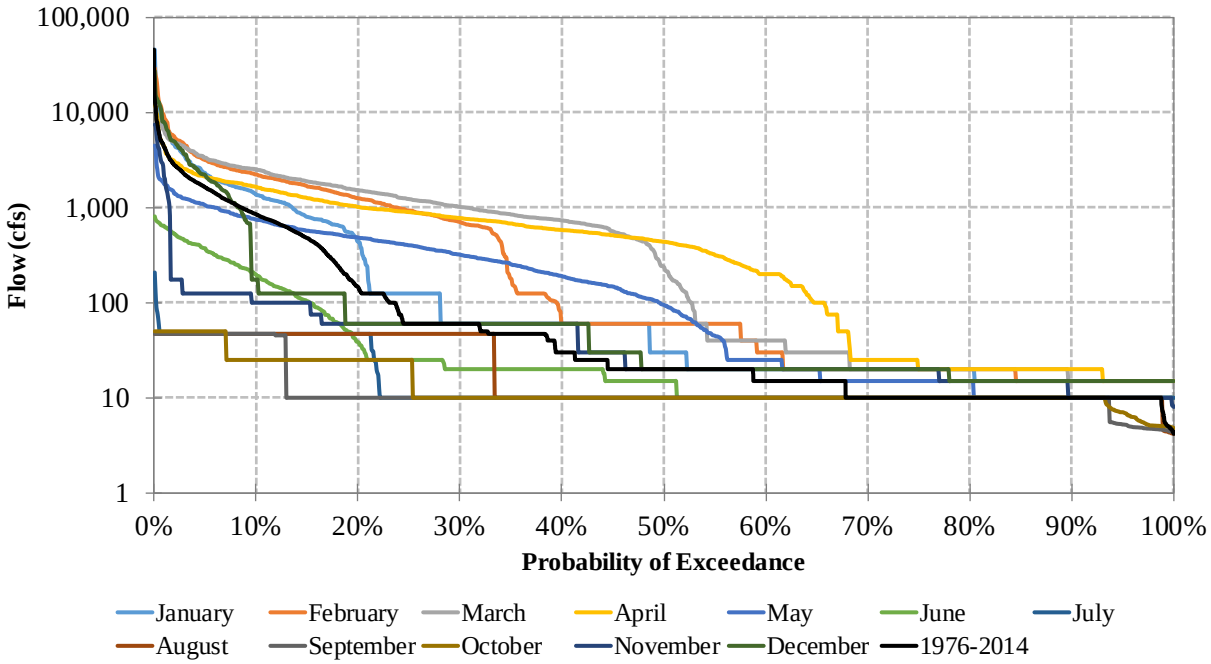

Figure 7.2-8. Modeled daily (by month and over the simulation period) flow duration curves below the non-Project diversion dam from WY 1976 through WY 2014 under SSWD's Proposed Project (Near-Term Condition). Flow is plotted in logarithmic scale to better show both high and low values.

7.2.1.4.2 Bear River Near Wheatland

The differences in Bear River flow near Wheatland between the No Action Alternative and the Proposed Project (Near-Term Condition) are noticeable, with similar differences as discussed in Section 7.2.1.4.1. Figure 7.2-9 shows a comparison of daily-modeled streamflow for the Bear River near Wheatland between the No Action Alternative and the Proposed Project (Near-Term Condition). Differences are largely the result of the changes to required minimum streamflows and the addition of pulse flows below the non-Project diversion dam under the Proposed Project (Near-Term Condition), as well as the additional storage space capturing more inflow and delaying peak downstream flow during storm events.

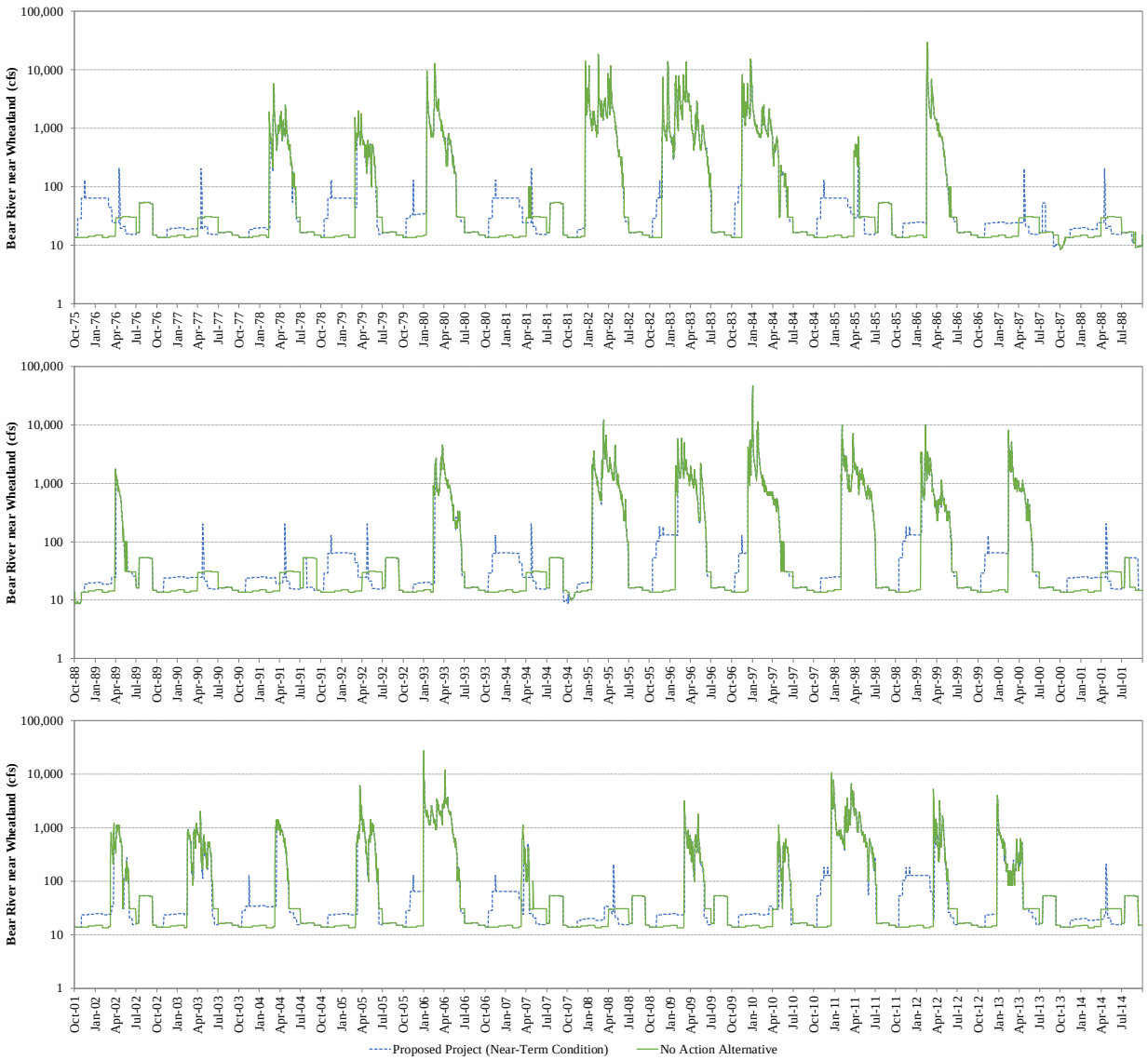

Figure 7.2-9. Comparison of flows in the Bear River near Wheatland from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Near-Term Condition). Flow is plotted in logarithmic scale to better show both high and low values.

Figure 7.2-10 shows modeled daily, by month and over the simulation period, flow duration curves for the Bear River near Wheatland under the Proposed Project (Near-Term Condition). Results are noticeably different in the magnitude and probability of average monthly streamflow below the non-Project diversion dam compared to those seen under the No Action Alternative.

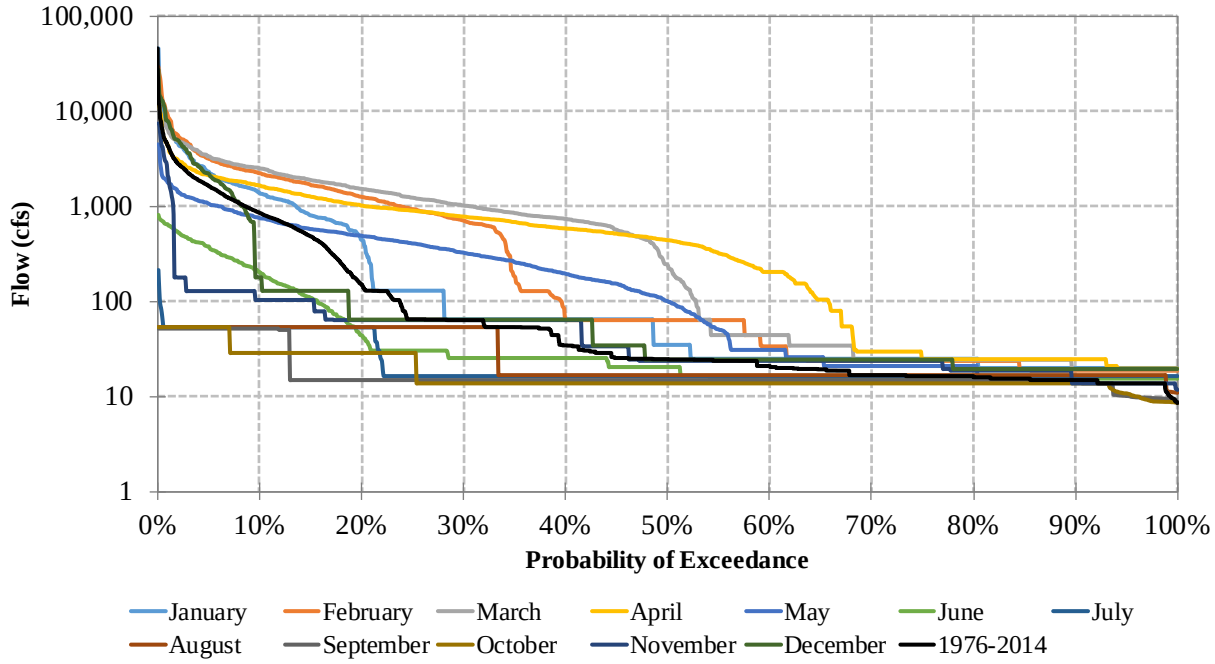

Figure 7.2-10. Modeled daily (by month and over the simulation period) flow duration curves for the Bear River near Wheatland from WY 1976 through WY 2014 under SSWD's Proposed Project (Near-Term Condition). Flow is plotted in logarithmic scale to better show both high and low values.

7.2.1.4.3 Bear River at Confluence with Feather River

Differences between flows in the Bear River at the Feather River confluence under the Proposed Project (Near-Term Condition), as compared to the No Action Alternative, are again noticeable. Changes in flow magnitude and timing are nearly identical to those seen in Figure 7.2-7 and Figure 7.2-9, although not as noticeable, given the influence from Dry Creek inflows.

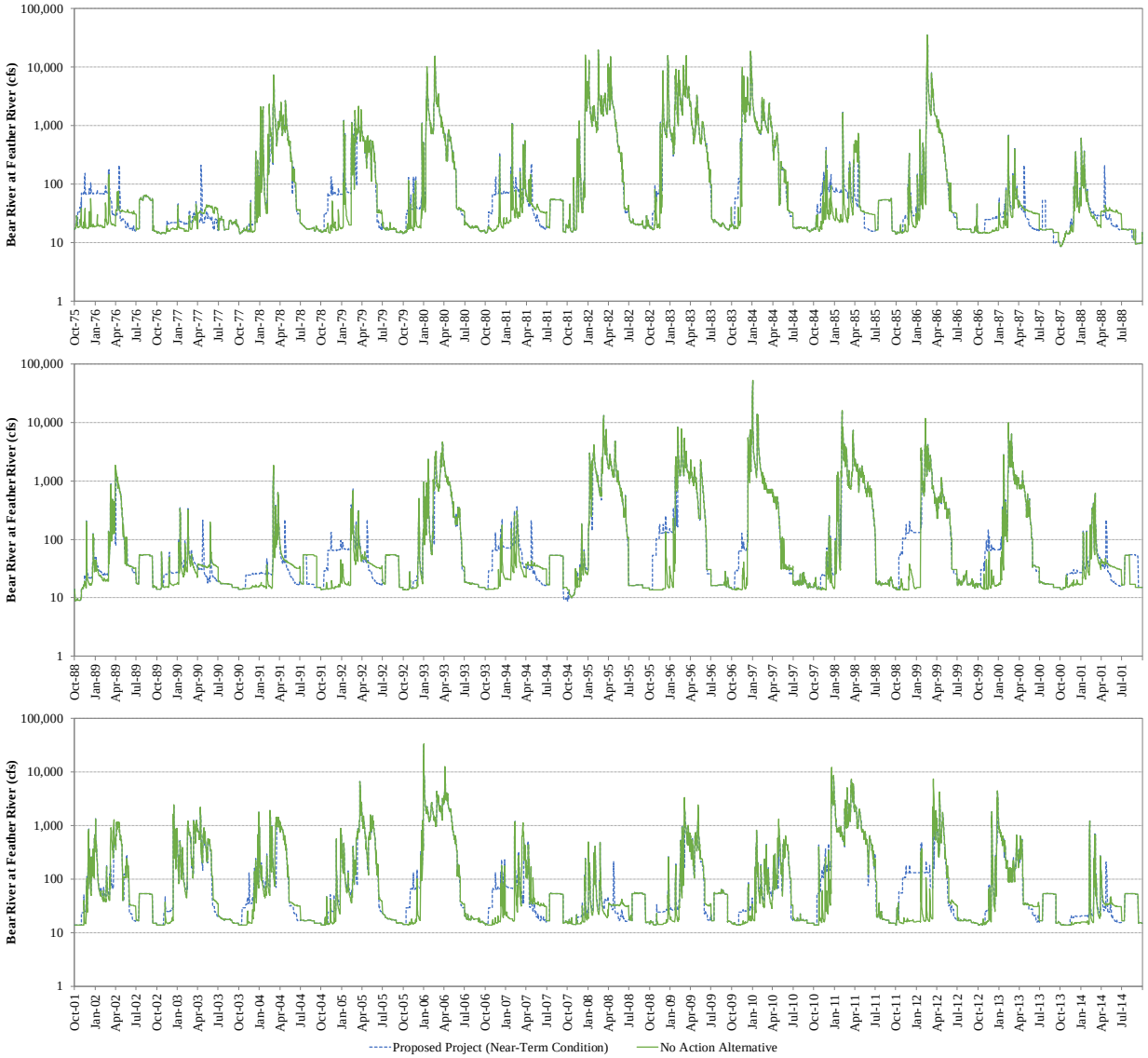

Figure 7.2-11. Comparison of flows in the Bear River at the Feather River confluence from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Near-Term Condition). Flow is plotted in logarithmic scale to better show both high and low values.

Figure 7.2-12 shows modeled flow exceedance curves of the average monthly streamflow for the Bear River at the Feather River confluence under the Proposed Project (Near-Term Condition).

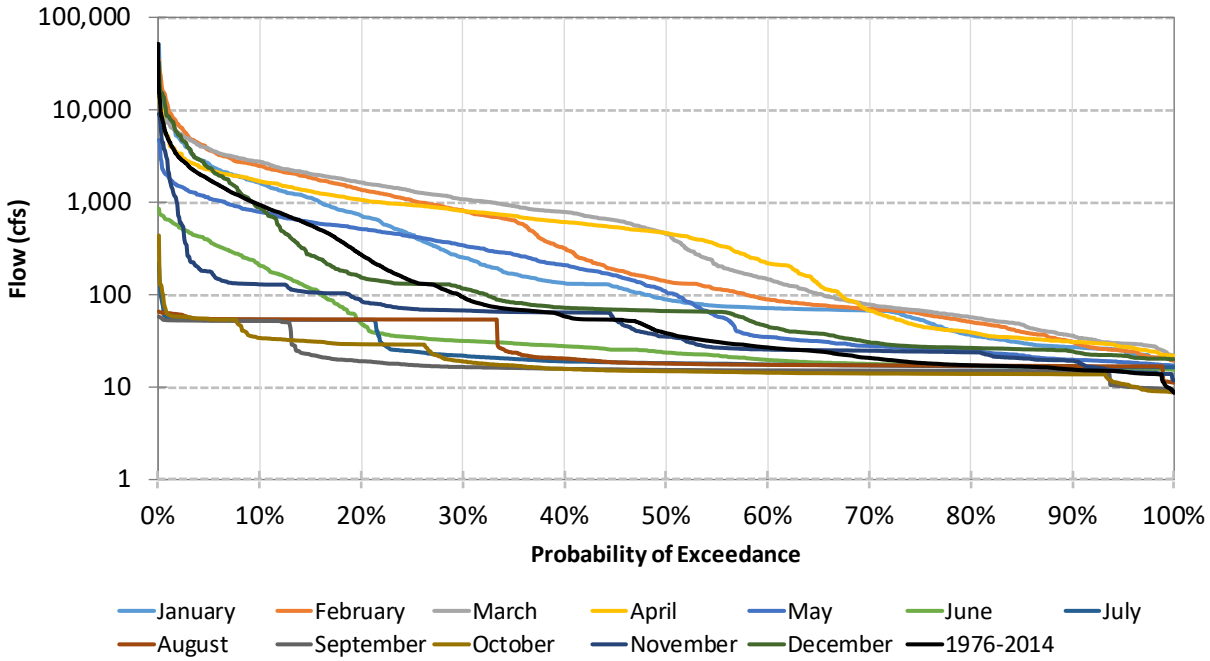

Figure 7.2-12. Modeled daily (by month and over the simulation period) flow duration curves for the Bear River at the Feather River confluence from WY 1976 through WY 2014 under SSWD's Proposed Project (Near-Term Condition). Flow is plotted in logarithmic scale to better show both high and low values.

7.2.2 Future Conditions

The following sections describe Project operations, water supply, and power generation results from the Ops Model under the Proposed Project (Future Condition). Results are presented as comparisons to the No Action Alternative (Baseline) Ops Model simulation.

Table 7.2-4. Average annual results from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Future Condition), and the difference between the two.

Water Year Type[1]	SSWD Diversions for Water Supply (ac-ft)	Camp Far West Reservoir Carryover Storage[2] (ac-ft)	Peak Project Energy Generation (MWhr)	Off-Peak Project Energy Generation (MWhr)	Total Project Energy Generation (MWhr)	Mean Flow Downstream of Non-Project Diversion Dam (cfs)
NO ACTION ALTERNATIVE (BASELINE CONDITION)						
Wet	109,600	39,700	14,375	22,780	37,155	826
Above Normal	109,000	23,600	11,722	18,584	30,306	365
Below Normal	100,500	14,500	8,321	13,164	21,485	178
Dry	53,700	13,000	2,138	3,378	5,515	42
Critical	19,200	5,400	412	650	1,062	15
All	**82,900**	**20,800**	**7,888**	**12,493**	**20,381**	**309**

Table 7.2-4. (continued)

Water Year Type[1]	SSWD Diversions for Water Supply (ac-ft)	Camp Far West Reservoir Carryover Storage[2] (ac-ft)	Peak Project Energy Generation (MWhr)	Off-Peak Project Energy Generation (MWhr)	Total Project Energy Generation (MWhr)	Mean Flow Downstream of Non-Project Diversion Dam (cfs)
PROPOSED PROJECT (FUTURE CONDITION)						
Wet	109,600	34,600	14,348	22,738	37,086	782
Above Normal	109,400	21,200	11,049	17,518	28,567	316
Below Normal	103,100	17,000	7,169	11,341	18,510	120
Dry	39,300	6,300	1,237	1,954	3,191	32
Critical	15,100	4,200	344	543	887	18
All	**79,700**	**18,100**	**7,278**	**11,529**	**18,807**	**274**
DIFFERENCE BETWEEN THE PROPOSED PROJECT AND NO ACTION ALTERNATIVE						
Wet	0	-5,100	-27	-42	-69	-44
Above Normal	400	-2,400	-673	-1,066	-1,739	-49
Below Normal	2,600	2,500	-1,152	-1,823	-2,975	-58
Dry	-14,400	-6,700	-901	-1,424	-2,324	-10
Critical	-4,100	-1,200	-68	-107	-175	3
All	**-3,200**	**-2,700**	**-610**	**-964**	**-1,574**	**-35**

[1] For this summary, SSWD used the WY types in FERC's FEIS for the YB/DS Projects. Simulated WY types were as described in SSWD Proposed Condition WR1 in Appendix E2 in Exhibit E of SSWD's Application for New License.

[2] Carryover storage is reservoir storage on October 31, carried over into the following year.

The Proposed Project creates additional storage space in Camp Far West Reservoir, which allows the reservoir to somewhat compensate for the decrease in available water supply to SSWD caused by the reduced reservoir inflow under the Future Condition hydrology.

The additional storage space created by the Proposed Project creates marginal effects to annual water supply diversions in Above and Below Normal WYs. However, average annual water supply is reduced by 3,200 ac-ft, largely a result of the reduced inflow in Dry and Critical WYs and the increase in required minimum flows and the addition of pulse flows downstream of the non-Project diversion dam in most WY types under the new license. The greatest water supply impact occurs in Dry WYs, when annual water supply diversions are reduced by more than 14,000 ac-ft .

The additional storage space reduces the average annual spill from the reservoir, which along with the increased minimum flow requirements and pulse flows, reduces the average annual flows below the non-Project diversion dam in all but the driest WYs. As compared to the No Action Alternative (Baseline Condition), average annual flows decrease by 35 cfs.

Average annual power generation decreases by 1,574 MWhrs as compared to the No Action Alternative (Baseline Condition). Power generation decreases in all WY types.

Each of these results is discussed in more detail below.

7.2.2.1 Camp Far West Reservoir

The existing Camp Far West Dam spillway-rating curve, shown in Figure 6.2-5, would not change under the Proposed Project (Future Conditions). The Proposed Project (Future Condition) would increase the NMWSE of Camp Far West Reservoir to 305 ft. The area-

capacity curve for Camp Far West Reservoir with a NMWSE of 305 ft was previously discussed in Section 7.1.1.1.

Figure 7.2-13 is a comparison of modeled storage in Camp Far West Reservoir throughout the simulation period under the No Action Alternative (Baseline) and the Proposed Project (Future Condition). The figure demonstrates that storage in Camp Far West is often greater under the Proposed Project, and that the maximum possible storage is 9,836 ac-ft greater. The reservoir is generally higher in years when inflow is enough to fill the reservoir, but often lower in Dry and Critical WYs, when inflow under the future condition is lower and downstream minimum flow requirements are higher as compared to the No Action Alternative.

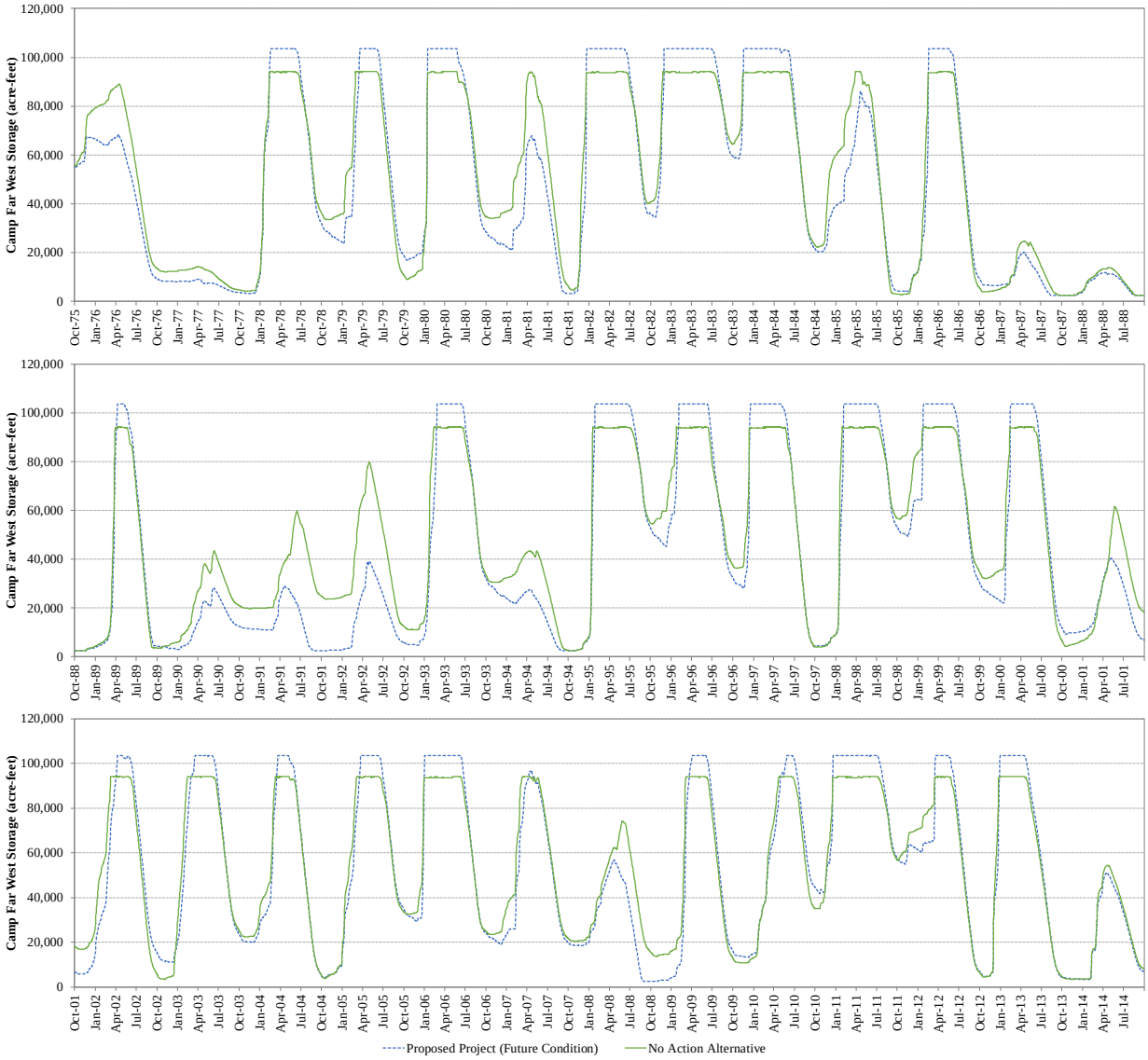

Figure 7.2-13. Comparison of Camp Far West Reservoir storage from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Future Condition).

Table 7.2-5 shows minimum, average, and maximum elevations in Camp Far West Reservoir under the Proposed Project (Future Condition) during the representative dry, normal, and wet WYs.

Table 7.2-5. Minimum and maximum elevations in Camp Far West Reservoir from WY 1976 through WY 2014 in the representative dry, normal and wet Water Years under SSWD's Proposed Project (Future Condition).

Water Year	Minimum Daily Elevation (ft)	Average Daily Elevation (ft)	Maximum Daily Elevation (ft)	Annual Elevation Fluctuation (ft)
2001 (Dry Year)	210.2	234.8	263.7	53.5
2003 (Normal Year)	222.4	270.0	305.0	82.6
1995 (Wet Year)	187.9	270.2	305.0	117.1

Carryover storage in the reservoir is lower in most years under the Proposed Project (Future Condition). Figure 7.2-14 shows an exceedance plot of modeled carryover storage under the Proposed Project (Future Condition) and the No Action Alternative (Baseline Condiiton). On average, carryover storage is 2,700 ac-ft lower. Under the Proposed Project (Future Condition), carryover storage reaches deadpool in approximately 10 percent of years.

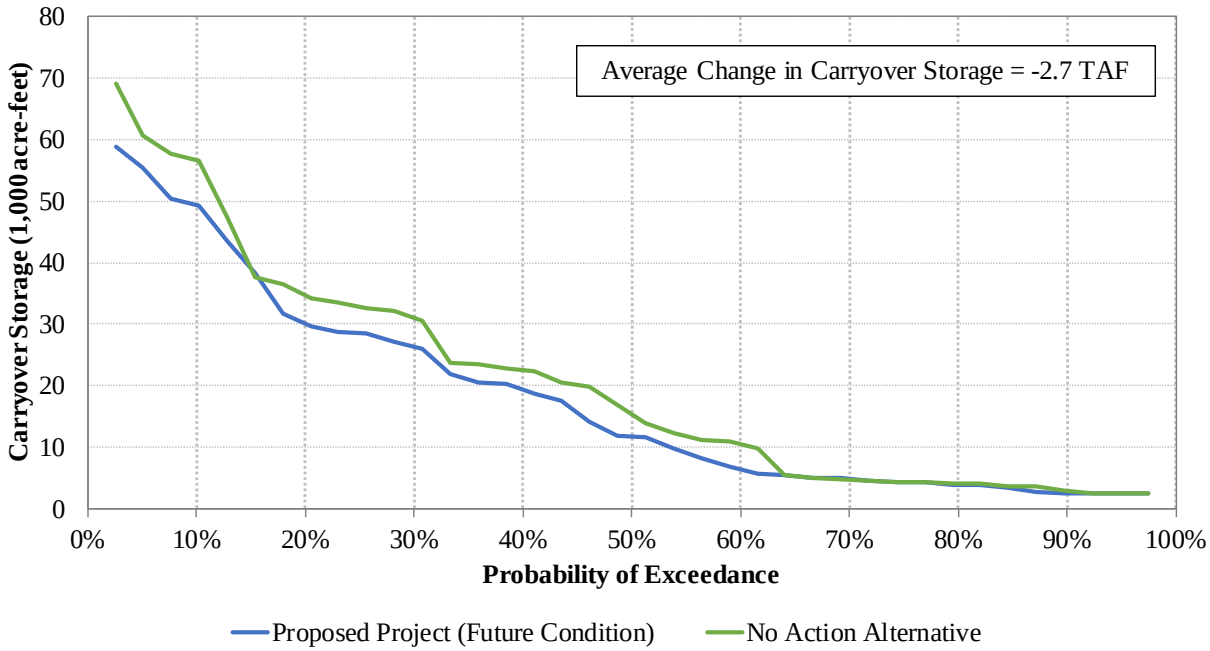

Figure 7.2-14. Comparison of Camp Far West Reservoir carryover storage probability of exceedance from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Future Condition).

Typical reservoir operations are largely unaffected by the increase in available storage under the Proposed Project (Future Condition). Reservoir storage is often higher in the spring months and lower in the fall months, largely a result of the reduced inflows under the Future Condition

hydrology and the increase in minimum flow requirements and required pulse flows below the non-Project diversion dam under the Proposed Project (Future Condition). However, the reservoir's fill and drawdown pattern is essentially identical to the No Action Alternative. Figure 7.2-15 shows maximum, mean, median, and minimum daily storage for Camp Far West under the Proposed Project (Future Condition) and the No Action Alternative (Baseline Condition).

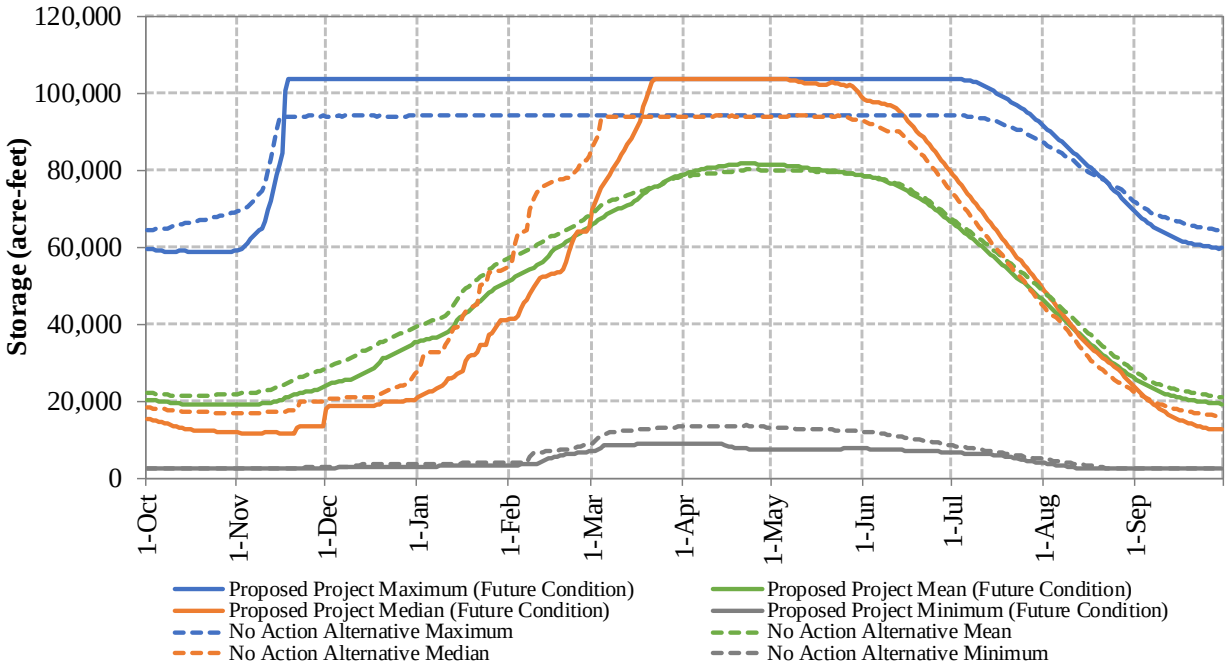

Figure 7.2-15. Maximum, mean, median, and minimum daily Camp Far West Reservoir storage levels from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Future Condition).

7.2.2.2 Water Supply

Figure 7.2-16 illustrates annual SSWD water supply diversions under the Proposed Project (Future Condition) and the No Action Alternative (Baseline Condition), along with annual SSWD canal demand. The figure shows decreases in SSWD diversions in many years, with increases in some Below Normal WYs. Under the Proposed Project (Future Condition), SSWD meets full canal demand in nearly the same percentage of years (i.e., approximately 40% of years) as the No Action Alternative (Baseline Condition). On average, annual SSWD diversions are reduced by 3,200 ac-ft.

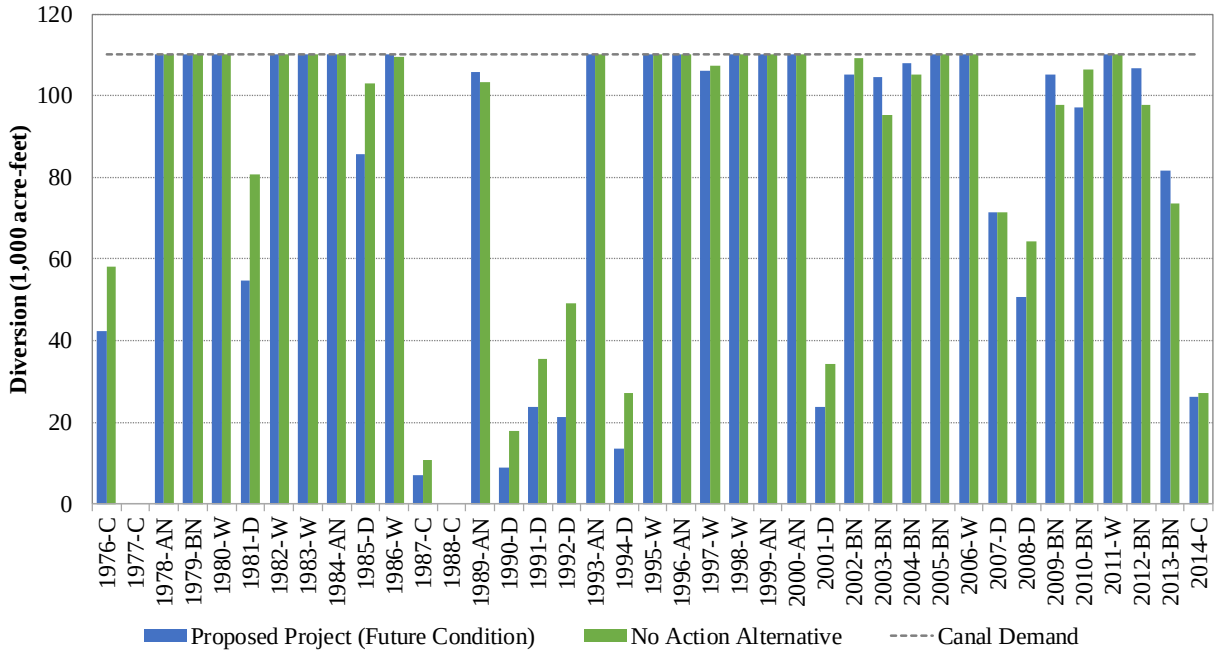

Figure 7.2-16. Comparison of annual water supply diversion to SSWD from WY 1976 through WY 2014 for the No Action Alternative (Baseline) and the Proposed Project (Future Condition).

7.2.2.3 Camp Far West Powerhouse

The Proposed Project (Future Condition) would not affect the existing Camp Far West Powerhouse capability curve, which is shown in Figure 6.2-7, or the Camp Far West Powerhouse tailwater-rating curve, which is shown in Figure 6.2-8. Figure 7.2-17 shows modeled daily, by month and over the simulation period, flow duration curves through the Camp Far West Powerhouse under the Proposed Project. Results indicate that flow is passed through the powerhouse in about 42 percent of days over the simulation period.

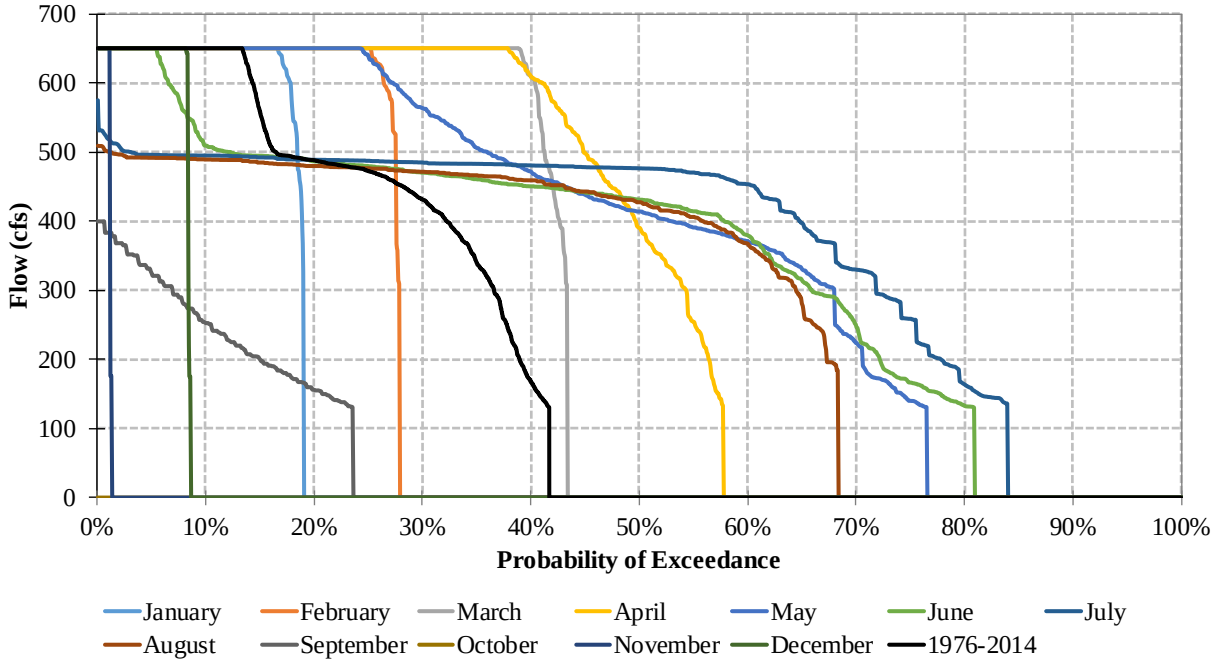

Figure 7.2-17. Modeled daily (by month and over the simulation period) flow duration curves for Camp Far West Powerhouse from WY 1976 through WY 2014 for SSWD's Proposed Project (Future Condition).

Camp Far West Powerhouse would have generated an average of 18,807 MWh/yr from 1976 to 2014 under SSWD's Proposed Project (Future Condition). The average annual plant factor for the powerhouse for this period is 0.32 based on the annual generation divided by the plant nameplate generating capability (6.8 MW) times the number of hours per year. Annual gross generation and plant factors for the powerhouse are provided in Table 7.2-6.

Table 7.2-6. Annual generation and plant factors for Camp Far West Powerhouse from WY 1976 through WY 2014 under SSWD's Proposed Project (Future Condition).

Water Year	Annual Generation (aMW)	Annual Generation (MWh)	Plant Capability (MWh)	Plant Factor
1976	0.3	2,652	59,731	0.04
1977	0.0	0	59,568	0.00
1978	3.2	28,361	59,568	0.48
1979	2.4	20,842	59,568	0.35
1980	3.8	33,368	59,731	0.56
1981	0.4	3,302	59,568	0.06
1982	4.6	40,587	59,568	0.68
1983	5.1	45,050	59,568	0.76
1984	4.8	41,748	59,731	0.70
1985	1.1	9,302	59,568	0.16
1986	3.1	27,193	59,568	0.46
1987	0.0	104	59,568	0.00
1988	0.0	0	59,731	0.00

Table 7.2-6. (continued)

Water Year	Annual Generation (aMW)	Annual Generation (MWh)	Plant Capability (MWh)	Plant Factor
1989	1.9	16,257	59,568	0.27
1990	0.0	89	59,568	0.00
1991	0.1	1,014	59,568	0.02
1992	0.1	761	59,731	0.01
1993	3.2	28,298	59,568	0.48
1994	0.0	123	59,568	0.00
1995	4.1	35,643	59,568	0.60
1996	3.7	32,149	59,731	0.54
1997	4.0	34,605	59,568	0.58
1998	4.0	35,070	59,568	0.59
1999	3.5	30,288	59,568	0.51
2000	3.2	28,517	59,731	0.48
2001	0.1	1,225	59,568	0.02
2002	2.0	17,091	59,568	0.29
2003	2.4	20,964	59,568	0.35
2004	2.2	19,422	59,731	0.33
2005	2.6	22,651	59,568	0.38
2006	4.4	38,461	59,568	0.65
2007	0.8	6,874	59,568	0.12
2008	0.5	4,020	59,731	0.07
2009	1.9	16,823	59,568	0.28
2010	1.6	14,033	59,568	0.24
2011	4.9	42,790	59,568	0.72
2012	2.2	18,909	59,731	0.32
2013	1.5	13,213	59,568	0.22
2014	0.2	1.677	59,568	0.03
Total	**83.7**	**733,478**	--	--
Minimum	**0.0**	**0**	--	**0.00**
Average	**2.1**	**18,807**	--	**0.32**
Median	**2.2**	**18,909**	--	**0.32**
Maximum	**5.1**	**45,050**	--	**0.76**

Key: aMW = annual megawatt; MWh = megawatt-hour

Average annual power generation decreases by 1,574 MWhrs under the Proposed Project (Future Condition), as shown in Figure 7.2-18. Most of this decrease occurs from January through May, as the reservoir takes longer to fill under the Proposed Project, and thus releases less water.

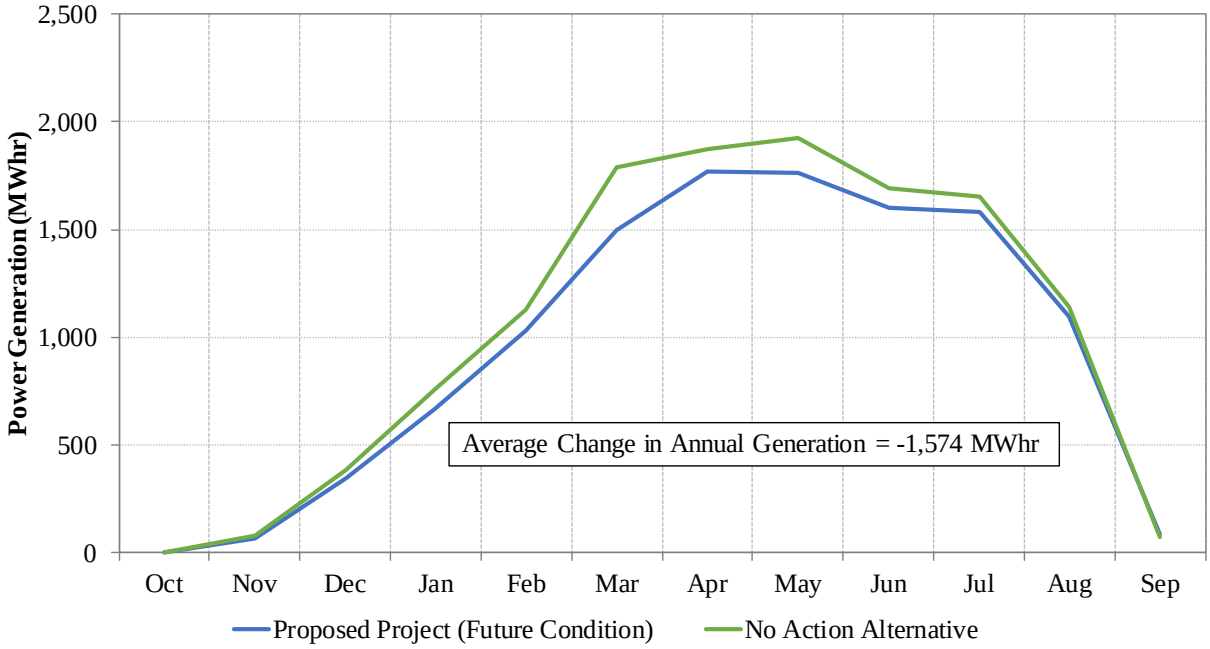

Figure 7.2-18. Comparison of average monthly power production from WY 1976 through WY 2014 for the No Action Alternative (Baseline) and the Proposed Project (Future Condition).

7.2.2.4 Flows in the Bear River Downstream of the Project

7.2.2.4.1 Bear River Fish Release below Camp Far West Reservoir

Figure 7.2-19 is a comparison of flow below the non-Project diversion dam throughout the simulation period under the Proposed Project (Future Condition) and the No Action Alternative (Baseline Condition). The difference in flow downstream of the non-Project diversion dam between the two alternatives can be substantial given the change in required minimum streamflows, the additional required pulse flows, the increase in storage capacity, and the reduced inflow under the Future Condition. The Proposed Project allows for increased capture of inflow and, thus, less spill from the reservoir, which is particularly impactful considering the reduced inflow volumes under the Future Condition hydrology. This causes a change to both the timing and volume of reservoir spills. Flow below the non-Project diversion dam is most noticeably different in the fall months of most years, and the winter and spring in Dry WYs. Overall, annual average flow below the non-Project diversion dam is 25,100 ac-ft less under the Proposed Project (Future Condition), due mostly to a reduction in inflow to Camp Far West Reservoir.

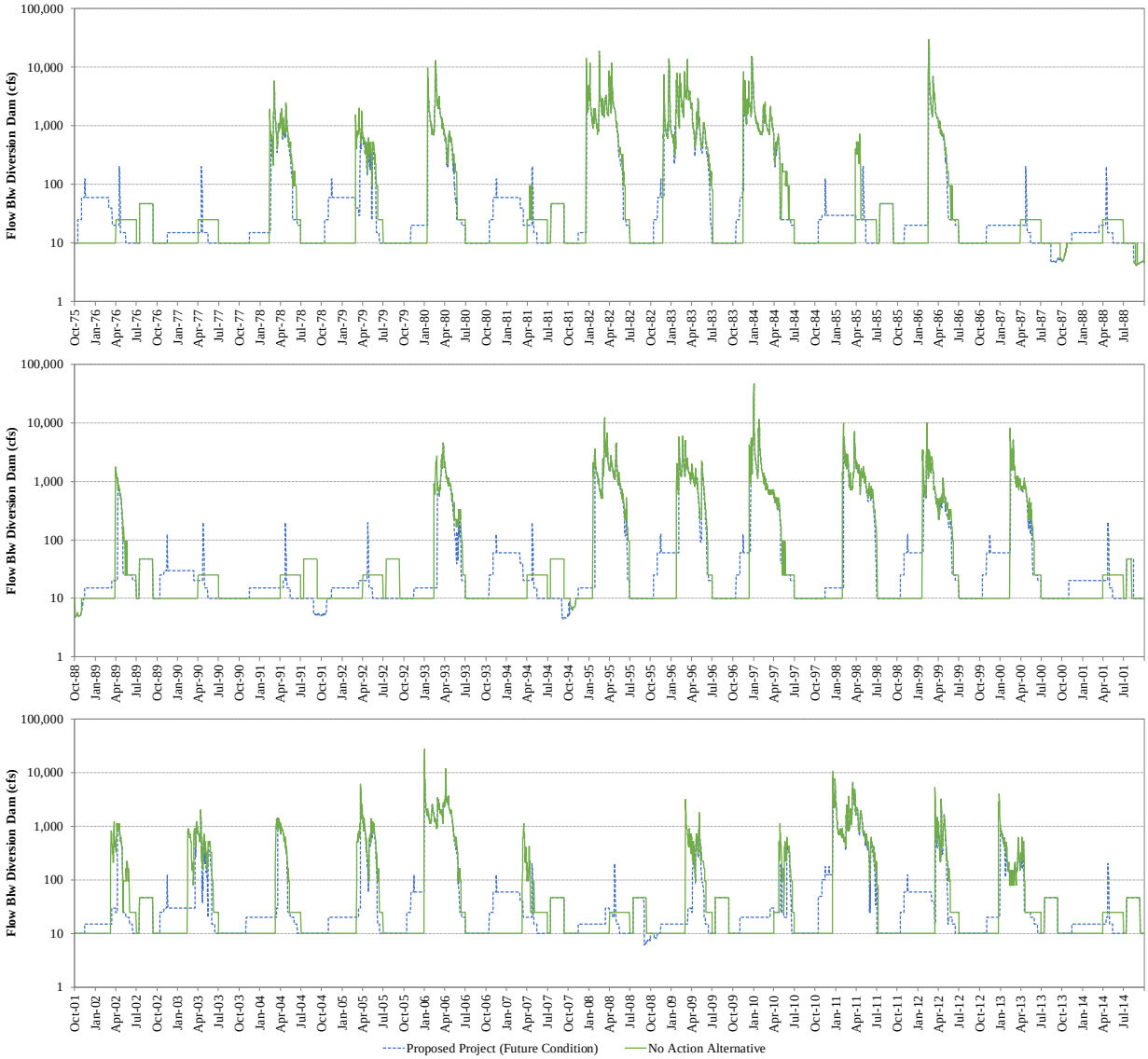

Figure 7.2-19. Comparison of flows in the Bear River downstream of the non-Project diversion dam from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Future Condition). Flow is plotted in logarithmic scale to better show both high and low values.

Figure 7.2-14 shows modeled daily, by month and over the simulation period, flow duration curves for the Bear River below the non-Project diversion dam under the Proposed Project (Future Condition). Results are different as compared to the No Action Alternative (Baseline Condiiton), which is primarily the result of the change in required minimum flow, addition of pulse flows, increased reservoir capacity, and reduced reservoir inflow.

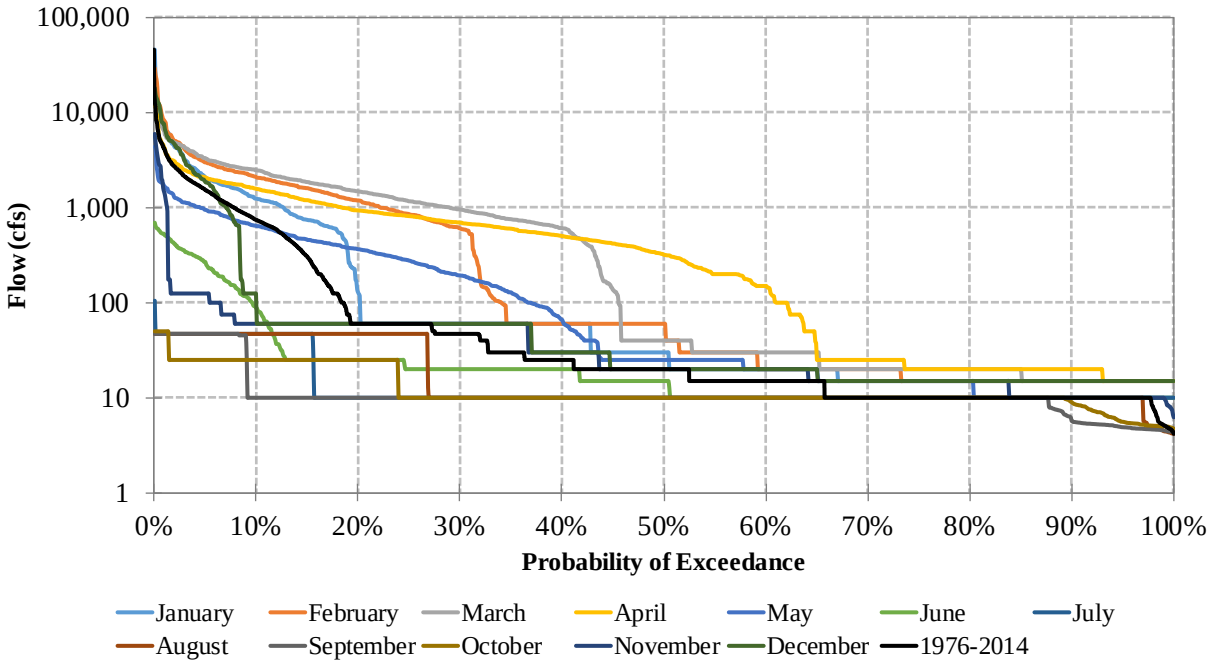

Figure 7.2-20. Modeled daily (by month and over the simulation period) flow duration curves below the non-Project diversion dam from WYs 1976 through 2014 under SSWD's Proposed Project (Future Condition). Flow is plotted in logarithmic scale to better show both high and low values.

7.2.2.4.2 Bear River Near Wheatland

The differences in Bear River streamflow near Wheatland between the No Action Alternative (Baseline) and the Proposed Project (Future Condition) are similar to those described in Section 7.2.2.4.1. Figure 7.2-21 shows a comparison of daily-modeled streamflow for the Bear River near Wheatland between the No Action Alternative and the Proposed Project (Future Condition).

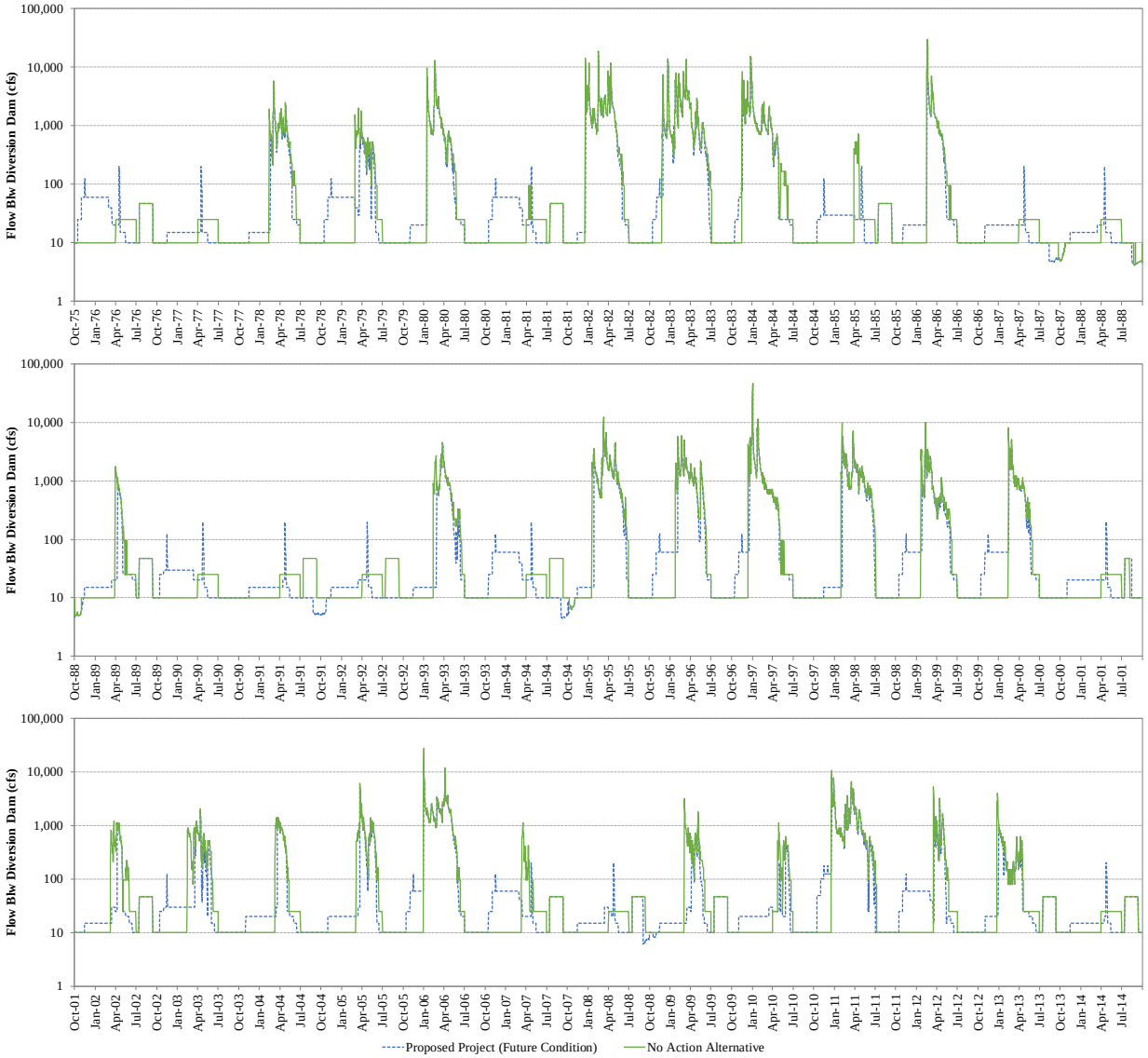

Figure 7.2-21. Comparison of flows in the Bear River near Wheatland from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Future Condition). Flow is plotted in logarithmic scale to better show both high and low values.

Figure 7.2-22 shows modeled daily, by month and over the simulation period, flow duration curves for the Bear River near Wheatland under the Proposed Project (Future Condition). Results are nearly identical in magnitude and probability to average monthly streamflow below the non-Project diversion dam under the Proposed Project (Future Condition).

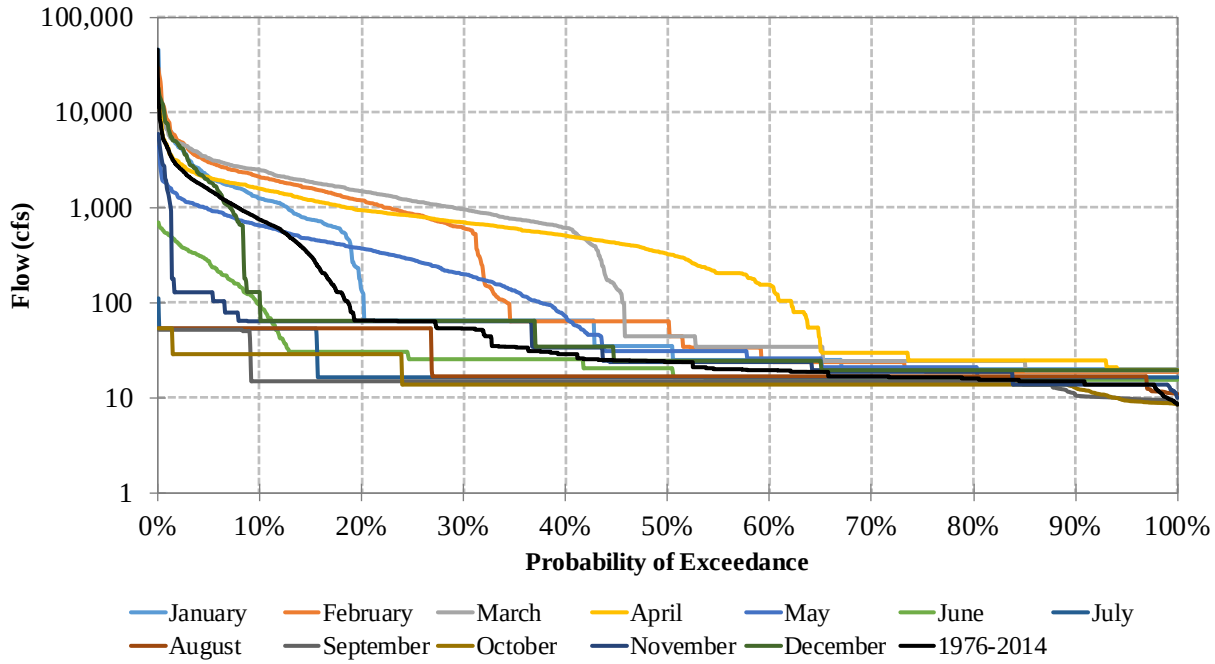

Figure 7.2-22. Modeled daily (by month and over the simulation period) flow duration curves for the Bear River near Wheatland from WY 1976 through WY 2014 under SSWD's Proposed Project (Future Condition). Flow is plotted in logarithmic scale to better show both high and low values.

7.2.2.4.3 Bear River at the Confluence with Feather River

Differences between flow in the Bear River at the Feather River confluence and flow in the Bear River near Wheatland under the Proposed Project (Future Condition) are similar. Changes in flow magnitude and timing between the Proposed Project and the No Action Alternative are nearly identical to those seen in Figure 7.2-19 and Figure 7.2-21, although not as noticeable given the influence from Dry Creek inflows.

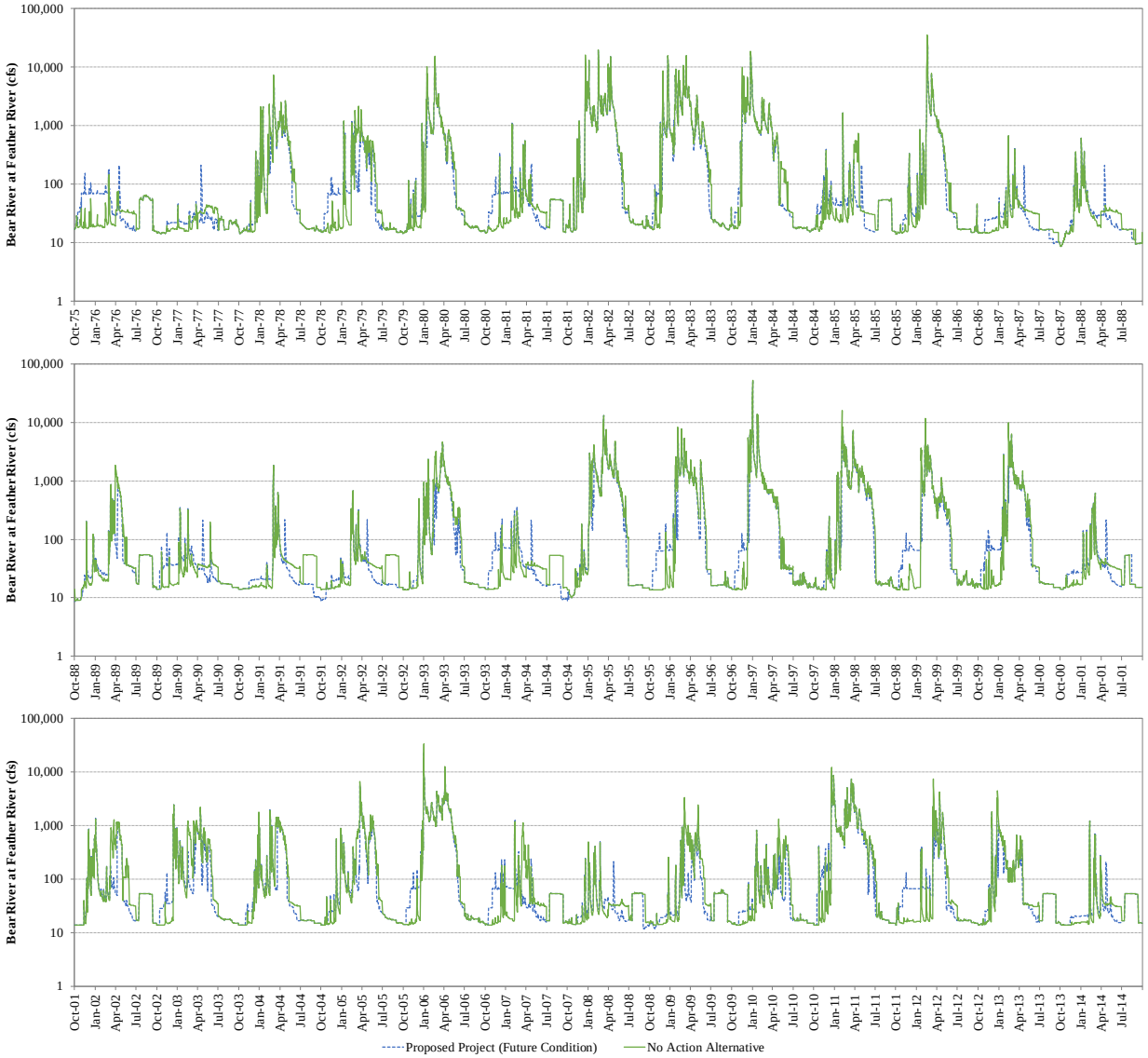

Figure 7.2-23. Comparison of flows in the Bear River at the Feather River confluence from WY 1976 through WY 2014 for the No Action Alternative (Baseline Condition) and the Proposed Project (Future Condition). Flow is plotted in logarithmic scale to better show both high and low values.

Figure 7.2-24 shows modeled daily, by month and over the simulation period, flow duration curves for the Bear River at the Feather River confluence under the Proposed Project (Future Condition). Results are similar in magnitude and probability to modeled daily streamflow below the non-Project diversion dam, albeit with some influence from Dry Creek inflows.

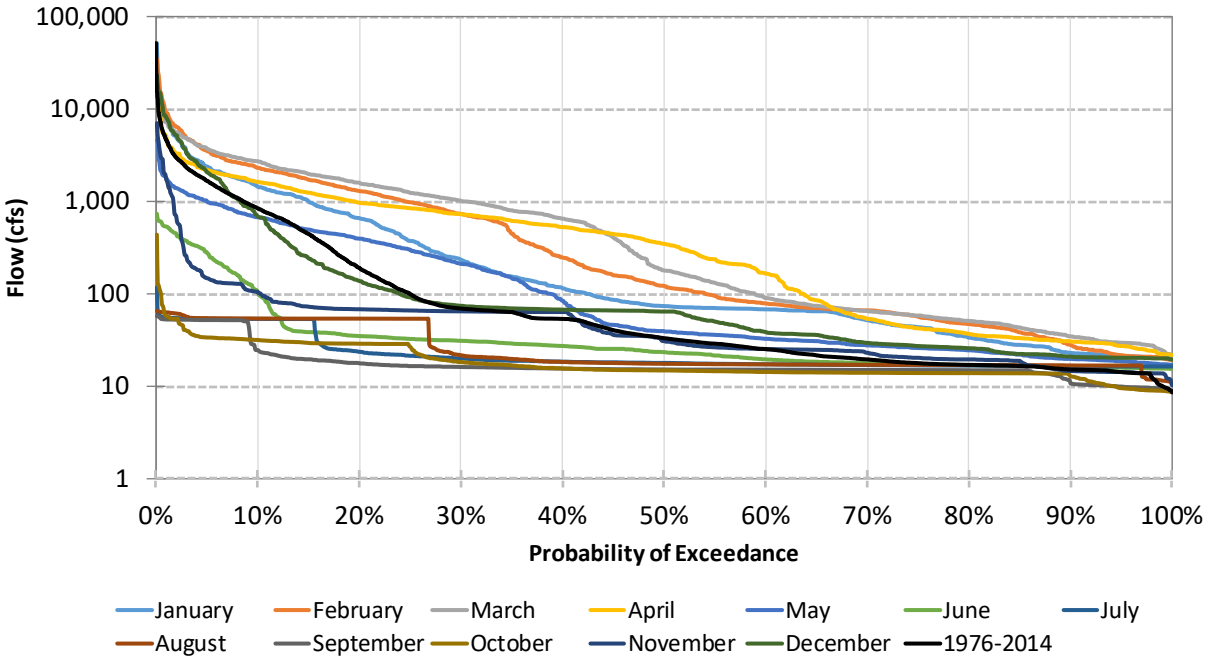

Figure 7.2-24. Modeled daily (by month and over the simulation period) flow duration curves for the Bear River at the Feather River confluence from WY 1976 through WY 2014 under SSWD's Proposed Project (Future Condition). Flow is plotted in logarithmic scale to better show both high and low values.

8.0 Use of Power

Unless the SSWD/SMUD contract is terminated sooner, SSWD will continue to lease the Camp Far West Powerhouse to SMUD through 2032, when the existing SSWD/SMUD Contract expires on July 1, 2031. SMUD will obtain all power produced at the Project.

Upon termination of the existing SSWD/SMUD Contract, SSWD plans to negotiate a new lease/power purchase contract or multiple contracts with, at this time, an unknown third party, which could be SMUD, or parties, and assumes the third party(ies) will sell the Project power into the market.

9.0 Plans for Future Development of the Project and in the Watershed

At this time, SSWD has no plans to expand the Project, other than those described in the Application for New License, or to develop other water projects in the Bear River watershed.

10.0 List of Attachments

None.

11.0 References Cited

Department of Water Resources (DWR), South Sutter Water District (SSWD) and Camp Far West Irrigation District (CFWID). 2000. Bay-Delta Settlement Agreement Between The Department of Water Resources of the State of California, South Sutter Water District and Camp Far West Irrigation District. Available online: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/SVG/

Elliott, T. C., Chen, K., and Swanekamp, R. C. 1997. Standard Handbook of Powerplant Engineering, Second Edition. McGraw-Hill October 1, 1997

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