Sent: 6/1/2022 3:00:55 PM
To: Wolder, Natalie L [ntaylor@usbr.gov]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
CC: King, Vanessa M [vking@usbr.gov]; Bader, Donald P [DBader@usbr.gov]; Hunt, Shane D [shunt@usbr.gov]; Heydinger, Erin [erin.heydinger@hdrinc.com]; JP Robinette [jrobinette@sitesproject.org]
Subject: RE: Warren Act Coverage in Sites RDEIR/SDEIS

Hi all – I totally lost track of this. Below are responses in red. I think some of these questions / responses might be best discussed on the phone. I am out of town for a few weeks, so not available until after June 16.

Alicia Forsythe | Environmental Planning and Permitting Manager | Sites Project Authority | 916.880.0676 | aforsythe@sitesproject.org | www.SitesProject.org

From: Wolder, Natalie L <ntaylor@usbr.gov>
Sent: Monday, April 25, 2022 2:59 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Cc: King, Vanessa M <vking@usbr.gov>; Bader, Donald P <DBader@usbr.gov>; Hunt, Shane D <shunt@usbr.gov>
Subject: Warren Act Coverage in Sites RDEIR/SDEIS

Ali: I'm reading Chapter 2 and I'm concerned that although it is stated the RDEIR/SDEIS is intended to cover the Warren Act contract(s), I did not find any mention of a Warren Act contract except in Section 2.5.1.1, Sacramento River Diversion and Conveyance to Regulating Reservoirs, i.e. Red Bluff Pumping Plant and the TC Canal upstream of Funks Reservoir.

I know Sites Project Water will be conveyed in the TC downstream of Funks Reservoir in order to get to the Dunnigan Pipeline, so we might want to add that text somewhere.

We can add this to the document. I wonder if we want to expand the description of Reclamation's actions (I cant remember what Chapter this is in). Really, we analyze the impacts of the Project throughout the document, but we don't specifically call out this is the impact of Reclamation issuing a Warren Act contract in any section. We might want to talk through this a bit more.

Is Sites Project Water going to be stored in Funks Reservoir or just going through Funks?

Let me check with the engineers, but I think generally just going through Funks. No storage in terms of water right storage (more than 30 days). Some daily, 2-day storage as we balance and level things out as water gets pumped in and out of Sites reservoir. Not sure how you define storage, and I will double check my answer here with the engineering team, but we are not envisioning any longer term storage – more just flow though and level things out.

Is Sites Project Water going to be pumped at Jones Pumping Plant?

Any water pum

Is Sites Project Water going to be stored in any other Federal Reservoir or just going through a Federal Reservoir (i.e. San Luis Res)?

Is Sites Project Water going to be conveyed in any federal conveyance facility south of Delta?

Or is it the intent to do site specific NEPA for each Warren Act Contract?

Thank you.

Natalie L. Taylor
Repayment Specialist
Northern California Area Office
Bureau of Reclamation

530-892-6275

Sites Reservoir Project - 3 Month Look Ahead

Primary	Assigned To	Governing Body
June 2022 (Joint Meeting)		
Consent Items		
Minutes	Sandra Yarbrough	Joint Authority Board & Reservoir Committee
Treasurer's Report	Joe Trapasso	Joint Authority Board & Reservoir Committee
Payment of Claims	Joe Trapasso	Joint Authority Board & Reservoir Committee
Approve Land Appraiser On Call List	Kevin Spesert	Joint Authority Board & Reservoir Committee
Action Items		
Authorize adjustment to A3 budget for real estate actions	Kevin Spesert	Joint Authority Board & Reservoir Committee
Eagle Short Term Geotech Permit - Approval to Submit	Ali Forsythe, John Spranza	Joint Authority Board & Reservoir Committee
Discussion and Informational Items		
Plan of Finance - Financing Action Plan Update and Next Steps for Plan of Finance (workshop series and schedule)	Cheyanne Harris, Jerry Brown, JP Robinette	Joint Authority Board & Reservoir Committee
Renew Governance Discussion. Concur with initiating the formation of an Ad Hoc Workgroup to evaluate Governance approaches for Phase 3	Jerry Brown	Joint Authority Board & Reservoir Committee
Review Formation of Public Engagement Working Groups	Kevin Spesert	Joint Authority Board & Reservoir Committee
Biological Assessment / Operations ITP - Aquatics Species Approach	Ali Forsythe	Joint Authority Board & Reservoir Committee
Monthly Reporting (Monthly Status Report, Work Plan, Action Items)	All	Joint Authority Board & Reservoir Committee
Closed Session		
Committees/Workgroups		
Payment of Claims	Joe Trapasso	Joint Budget & Finance Committee
Accounting Policy Discussion	Joe Trapasso	Joint Budget & Finance Committee
Plan of Finance - Financing Action Plan Update and Next Steps for Plan of Finance (including assigning ad-hoc subcommittee to develop the Master Resolution / Critical Terms)	Cheyanne Harris, JP Robinette	Joint Budget & Finance Committee
Geotech Update	Henry Luu	Reservoir Operations & Engineering Workgroup
Contract Strategy Update	Henry Luu	Reservoir Operations & Engineering Workgroup
Eagle Short Term and Nest Take Permit - Approval to Submit	Ali Forsythe, John Spranza	Environmental Planning & Permitting Workgroup
Biological Assessment - Aquatic Species Effects	Ali Forsythe, John Spranza	Environmental Planning & Permitting Workgroup
State ITP for Operations - Aquatic Species Effects	Ali Forsythe, John Spranza	Environmental Planning & Permitting Workgroup
State/Federal Updates	Kevin Spesert	Legislative & Outreach Committee
Formation of Public Engagement Working Groups	Kevin Spesert	Legislative & Outreach Committee
Consideration of Public Perception Research Efforts	Kevin Spesert	Legislative & Outreach Committee
July 2022		
Consent Items		
Minutes	Sandra Yarbrough	Authority Board & Reservoir Committee
Treasurer's Report	Joe Trapasso	Authority Board & Reservoir Committee
Payment of Claims	Joe Trapasso	Authority Board & Reservoir Committee
Action Items		
Recommend Contract Strategy Implementation: Project Contract Packages and Delivery Methods	Henry Luu, JP Robinette	Authority Board & Reservoir Committee
Biological Assessment - Delegate authority for release of permit application	Ali Forsythe, John Spranza	Authority Board & Reservoir Committee
State ITP for Operations - Delegate authority for release of permit application	Ali Forsythe, John Spranza	Authority Board & Reservoir Committee
Adopt an Accounting Policy	Joe Trapasso	Authority Board & Reservoir Committee
Geotech Work Package 1- 5 (except test pits and trenching) - Final Initial Study/Mitigated Neg Dec Release and Adopting the Project	Ali Forsythe, Laurie Warner Herson, Linda Fisher	Authority Board & Reservoir Committee
Discussion and Informational Items		Authority Board & Reservoir Committee
Water Right - Status Update Briefing	Ali Forsythe	Authority Board & Reservoir Committee
Placeholder - Review Status of Reclamation Federal Investment	Jerry Brown	Authority Board & Reservoir Committee

Primary	Assigned To	Governing Body
Placeholder - Authorize Real Estate Actions	Kevin Spesert	Authority Board & Reservoir Committee
WSIP Benefit Agreements - Format, Process	Ali Forsythe, Erin Heydinger	Authority Board & Reservoir Committee
Monthly Reporting (Monthly Status Report, Work Plan, Action Items)	All	Authority Board & Reservoir Committee
Closed Session		
Committees/Workgroups		
Payment of Claims	Joe Trapasso	Joint Authority Board & Reservoir Committee
Accounting Policy	Joe Trapasso	Joint Authority Board & Reservoir Committee
Recommend Contract Strategy Implementation: Project Contract Packages and Delivery Methods	Henry Luu, JP Robinette	O&E Ad Hoc Sub-Workgroup
Recommend Contract Strategy Implementation: Project Contract Packages and Delivery Methods	Henry Luu, JP Robinette	O&E Ad Hoc Sub-Workgroup
TRR Siting	Henry Luu	O&E Ad Hoc Sub-Workgroup
TRR Siting	Henry Luu	Land Management Committee
Water Rights - Status Update Briefing	Ali Forsythe	Environmental Planning & Permitting Workgroup
Biological Assessment - Delegate authority for release of permit application	Ali Forsythe, John Spranza	Environmental Planning & Permitting Workgroup
State ITP for Operations - Delegate authority for release of permit application	Ali Forsythe, John Spranza	Environmental Planning & Permitting Workgroup
Geotech Priority 1A and 1B - Final Initial Study/Mitigated Neg Dec Release	Ali Forsythe, Laurie Warner Herson, Linda Fisher	Environmental Planning & Permitting Workgroup
July 15, 2022 - Guiding Principles Workshop		
Guiding Principles Review and Kick-off for Contract Development	Cheyanne Harris, JP Robinette	Joint Authority Board & Reservoir Committee
Update on Financing Tracks based on results from June Two-Way Financing Check Ins	Cheyanne Harris, JP Robinette	Joint Authority Board & Reservoir Committee
Review Governance Ad Hoc Workgroup charter and membership.	Cheyanne Harris, JP Robinette	Joint Authority Board & Reservoir Committee
August 2022		
Consent Items		Joint Authority Board & Reservoir Committee
Minutes	Sandra Yarbrough	Authority Board & Reservoir Committee
Treasurer's Report	Joe Trapasso	Authority Board & Reservoir Committee
Payment of Claims	Joe Trapasso	Authority Board & Reservoir Committee
Approve revised conflict of interest code per FPPC	Kevin Spesert	RC & AB
Action Items		
Accept FY2021 Audit Results	Joe Trapasso	
Placeholder - Facility partner MOU & A3 Budget Adjustments	Cheyanne Harris, JP Robinette	Authority Board & Reservoir Committee
Placeholder: Approve Consulting Agreement with Mitigation Assistance Service Provider	Ali Forsythe, Joe Trapasso, John Spranza	Authority Board & Reservoir Committee
Discussion and Informational Items		
Placeholder - Final EIR/EIS Status Update	Ali Forsythe, Laurie Warner Herson	Authority Board & Reservoir Committee
Placeholder - Accept Final TRR Siting	Henry Luu, JP Robinette	Authority Board & Reservoir Committee
Monthly Reporting (Monthly Status Report, Work Plan, Action Items)	All	Joint Authority Board & Reservoir Committee
Closed Session		
Committees/Workgroups		
Approach to "rolling" cost estimate	Henry Luu, JP Robinette	Reservoir Operations & Engineering Workgroup
Approach to participant specific modeling	Erin Heydinger, JP Robinette	Reservoir Operations & Engineering Workgroup
Final EIR/EIS Status Update	Ali Forsythe, Laurie Warner Herson	Environmental Planning & Permitting Workgroup
Water Rights - Protests Status Update Briefing	aforsythe@sitesproject.org	Reservoir Committee
Water Rights - Protests Status Update Briefing		Environmental Planning & Permitting Workgroup

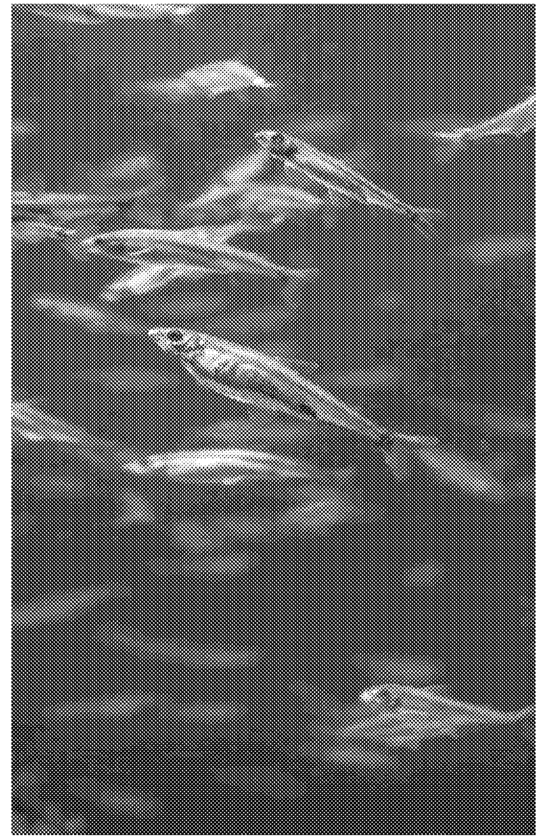
Sites Project Fishery Workshop

June 1, 2022

Sites

Agenda

- Review of Previous Action Items
- Diversion Criteria Update
- Exchanges Update
- Modeling Update
- Schedule
- Open Topics
- Adjourn



Diversion Criteria

John Spranza

Sites

Alternatives Considered in the Revised Draft EIR/Supplemental Draft EIS

Facilities / Operations	Alternative 1	Alternative 2	Alternative 3
Reservoir Size	1.5 MAF	1.3 MAF	1.5 MAF
Hydropower	Incidental upon release	Same as Alt 1	Same as Alt 1
Diversion Locations	Red Bluff Pumping Plant and Hamilton City	Same as Alt 1	Same as Alt 1
Conveyance Release / Dunnigan Release	1,000 cubic feet per second (cfs) into new Dunnigan Pipeline to Colusa Basin Drain	1,000 cfs into new Dunnigan Pipeline to Sacramento River. Partial release into the Colusa Basin Drain	Same as Alt 1
Reclamation Involvement	1. Funding Partner 2. Operational Exchanges a. Within Year Exchanges b. Real-time Exchanges	Operational Exchanges a. Within Year Exchanges b. Real-time Exchanges	Same as Alt 1, **but up to 25% investment**
DWR Involvement	Operational Exchanges with Oroville and storage in SWP facilities South-of-Delta	Same as Alt 1	Same as Alt 1
Route to West Side of Reservoir	Bridge across reservoir	Paved road around southern end of reservoir	Same as Alt 1

Sites Diversion Criteria Evolution

	2017 Draft EIR/EIS	2021 RDEIR/SDEIS	2022 Final EIR/EIS
Bend Bridge Pulse Protection	Protection of all qualified precipitation-generated pulse events (i.e., peaks in river flow rather than scheduled operational events) from October to May based on the detection of fish presence and migration during the beginning of the flow event. For each event where fish presence and migration is detected, diversions would cease for 7 days	Same as 2017 DEIR/EIS	Similar except the following: (1) a qualified precipitation-generated pulse event is determined based on forecasted flows and (2) pulse protection may cease earlier than 7 days if flows at Bend Bridge exceed 29,000 cfs and Project diversions subtracted from Bend Bridge flows continue to be at least 25,000 cfs.
Minimum Bypass Flows at Wilkins Slough	Diversions allowed when flows below Wilkins Slough are above 5,000 cfs	10,700 cfs in March through May; 5,000 cfs all other times	10,700 cfs October through June; 5,000 cfs September (not diverting from June 15 to end of August)
Minimum Bypass Flows in the Sacramento River	3,250 at RBDD and 4,000 cfs at Hamilton City; rate of diversion controlled by fish screen designs	No change	No change

Sites Diversion Criteria Evolution

	2017 Draft EIR/EIS	2021 RDEIR/SDEIS	2022 Final EIR/SEIR
Fremont Weir Notch Protections	No specific criteria	No more than 1% reduction in flow over weir when spill over the weir are less than 600 cfs. No more than a 10% reduction in flow over weir when spills over the weir are between 600 cfs and 6,000 cfs.	No longer included. Revised minimum bypass flows in the Sacramento River at Wilkins Slough and Bend Bridge Pulse Protection provide protections for Fremont Weir Notch
Sacramento River Fully Appropriated Stream and Delta Conditions	No specific criteria	Diversions allowed only when the Sacramento River is not fully appropriated (September 1 through June 14) and when Delta is in excess conditions as determined by DWR & Reclmation	No change
Freeport, Net Delta Outflow Index, X2, and Delta Water Quality	Diversions only be allowed when a Sacramento River flow of 15,000 cfs is present at Freeport in January; 13,000 cfs in December and February through June; and 11,000 cfs in other months.	Operations consistent with all applicable laws, regulations, biological opinions and incidental take permits, and court orders in place at the time that diversion occurs	No change

Diversion Criteria - Analyses Status

- Currently using these diversion criteria in analyses for BA and ITP
- Final EIR/EIS analyses are also beginning
- Further updates will be given when we have enough results
  - Salmonid-focused meeting
  - Non-salmonid meeting

Exchanges

Steve Micko

Sites

Operations Overview

- Diversions
  - Red Bluff Pumping Plant
  - Hamilton City Pump Station
- Releases
  - TC Canal
  - GCID Canal
  - North Delta (Yolo Bypass)
  - South of Delta
- **Exchanges**
  - **Reclamation**
  - **DWR**
- Exports through the Delta

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Shasta Exchanges

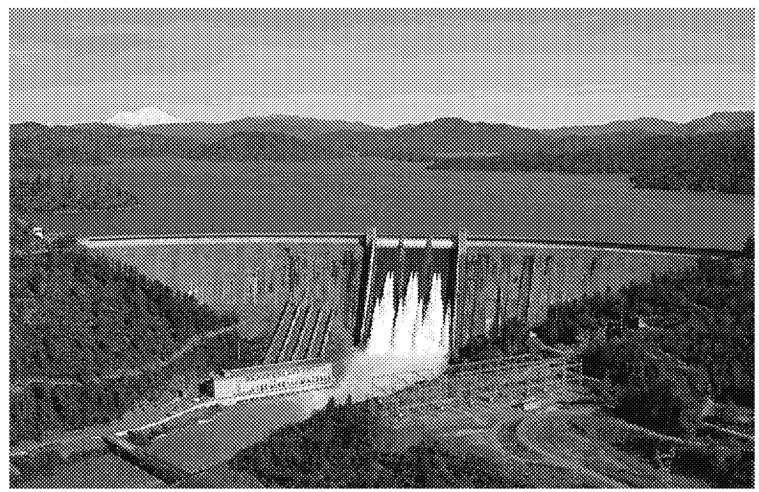
- Previous Modeling Focus:
  - Sites-Shasta exchanges focused on improving Shasta cold water pool management and incidentally improved Fall Flow Stability
- Revised Modeling Focus:
  - Shasta exchanges support Shasta cold water pool management, Fall Flow Stability and Spring Pulse Flow actions

Shasta Exchanges – Cold Water Pool Modeling Criteria

Criteria	RDEIR/SDEIS	Final EIR/EIS
Period	Dry: Apr – Jun Critical: Apr – May	Dry: Apr – Jun Critical: Apr – May
Water year types	Dry and Critical water years	Dry and Critical water years
Temperature Management Tier	Tier 2, 3 and 4 years	Tier 3 and 4 years
Min. flow at Sacramento River at Keswick	Apr – May: 6,000 cfs Jun: 10,000 cfs	No criteria
Temperature Criteria	Apr – Jun: Tiers 2 and 3: 53.5 deg F Tier 4: 56 deg F	No criteria
Sacramento Valley Conditions	Only occurs during Balanced conditions	Only occurs during Balanced conditions

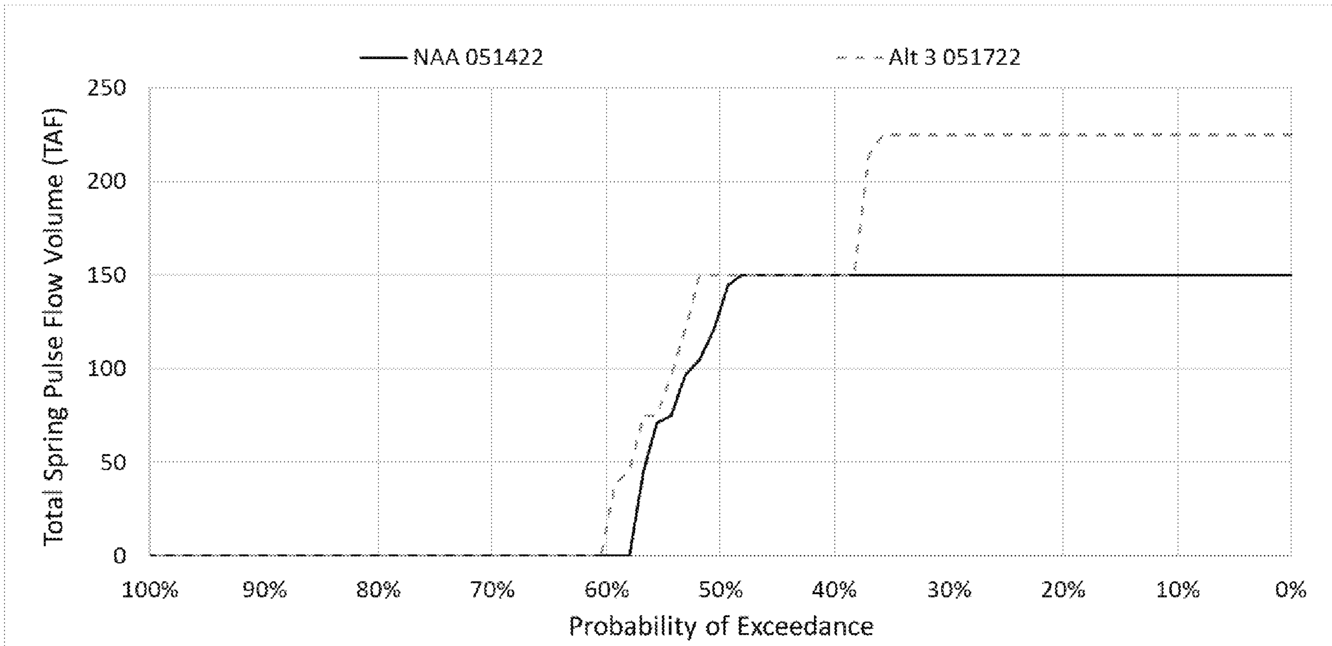
Shasta Exchanges – Fall Flow Stability Modeling Criteria

- Additional Fall Flow Stability may occur:
  - Between October through February
  - Sites storage is greater than 80% at the end of May
  - Previous month Shasta storage is greater than 3.2 MAF
  - Fall stability flows are already active



Shasta Exchanges – Spring Pulse Modeling Criteria

- Additional Spring Pulse may occur in May:
  - Sites storage is greater than 80% at the end of April
  - End of April Shasta storage is greater than 4.1 MAF



Modeling Update

Steve Micko/Erin Heydinger

Sites

Modeling Update - CalSim

- CalSim II simulations for Alternatives 1, 2 and 3 are complete

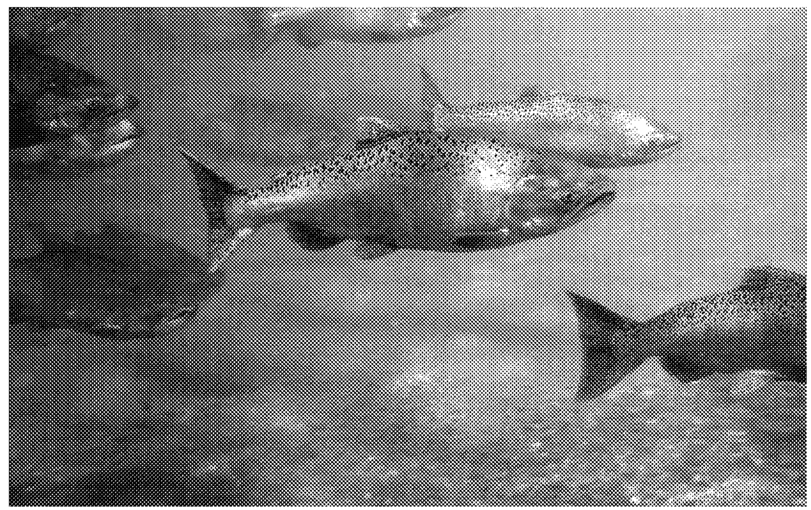
Parameter	Version	Alt 1 A		Alt 1B		Alt 2		Alt 3	
		Avg	D & C	Avg	D & C	Avg	D & C	Avg	D & C
Fills (TAF)	RDEIR/ SDEIS	240	101	255	104	229	99	279	105
	FEIR/EIS	236	98	246	96	229	98	276	103
Releases (TAF)	RDEIR/ SDEIS	217	402	234	404	209	374	260	383
	FEIR/EIS	208	361	221	372	205	345	256	369

Modeling Update - CalSim

EO Sep Storage (TAF)	Version	Alt 1 A		Alt 1B		Alt 2		Alt 3	
		Avg	D & C	Avg	D & C	Avg	D & C	Avg	D & C
Shasta	RDEIR/ SDEIS	12	23	28	39	10	18	73	107
	FEIR/EIS	20	26	36	51	21	27	102	135
Oroville	RDEIR/ SDEIS	13	24	12	21	12	19	13	15
	FEIR/EIS	14	34	12	37	13	31	11	30
Folsom	RDEIR/ SDEIS	3	5	9	12	5	9	24	21
	FEIR/EIS	1	1	2	3	1	3	11	4

Modeling Update – NMFS Lifecycle Model

- Requests to run Winter-run Lifecycle Model
  - NMFS
    - RDEIR/SDEIS comments
    - Biological Opinion analysis
  - CDFW
    - RDEIR/SDEIS comments
    - Operations ITP analysis
  - USEPA
    - RDEIR/SDEIS comments



Winter-run Lifecycle Model

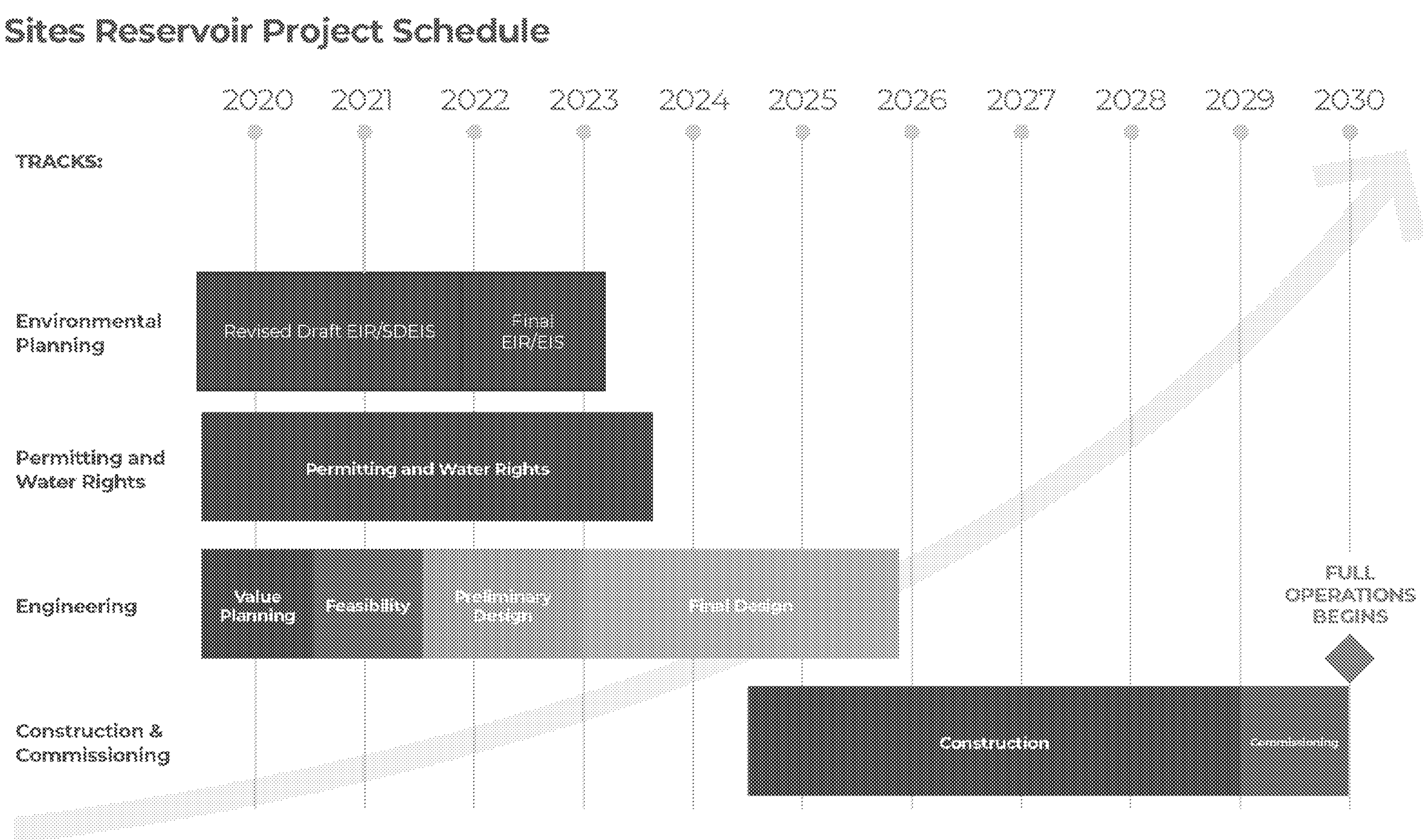
- Evaluates the effects of water operations on the population dynamics of Sacramento River winter-run Chinook salmon
  - Integrate effects across entire life-cycle and multiple environmental conditions
  - Sacramento River focused
- Will inform the Authority's state and federal ESA permits
  - Initial results in 4-6 mo
- Includes the lifecycle model and a series of sub-models

Schedule

John Spranza

Sites

Project Schedule



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Permitting Schedule

- State ESA Incidental Take Permit (ITP) – Construction
  - Application submitted Jan 2022
- State ESA Incidental Take Permit (ITP) – Operations
  - Application complete mid August 2022
- Biological Assessment
  - Submit to Reclamation July 2022
- Water Right
  - Submitted Application in May 2022
- Final EIR/EIS
  - February 2023

Open Topics and Agenda for Next Meeting

Sites

Thank you!

Sites

Sites

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 6/2/2022 8:21:35 AM
To: Jin, Hwaseong@Waterboards [Hwaseong.Jin@Waterboards.ca.gov]
CC: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: RE: Natural Resource Agencies Discussion of Sites Reservoir
Attachments: 20210407_Water Quality Discussion_Presentation_Final.pdf; 20210513_Water Quality Discussion_Presentation_Final.pdf; 2021214_RDEIR-SDEIS_Public Meeting_Dec. 16 Presentation_FINAL.pdf; 20210719_Water Quality Discussion_Presentation_Part 1_Final.pdf

Hi Hwaseong,
I've included some past PowerPoints that might help you get a bit more background on the project. The project has come a long way since 2017, and has continues to be updated based on public and agency comments on the CEQA/NEPA documents so you may see some differences in criteria and such in earlier PowerPoints. I would start with the December 2021 CEQA/NEPA presentation that was used for our public meetings.

I'd be happy to set a time up with you to talk through your questions.
John

John Spranza

D 916.679.8858 M 818.640.2487

From: Jin, Hwaseong@Waterboards <Hwaseong.Jin@Waterboards.ca.gov>
Sent: Wednesday, May 11, 2022 3:30 PM
To: Spranza, John <John.Spranza@hdrinc.com>
Subject: RE: Natural Resource Agencies Discussion of Sites Reservoir

Thanks!

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Wednesday, May 11, 2022 3:00 PM
To: Jin, Hwaseong@Waterboards <Hwaseong.Jin@Waterboards.ca.gov>
Subject: RE: Natural Resource Agencies Discussion of Sites Reservoir

Will do!

John Spranza

D 916.679.8858 M 818.640.2487

From: Jin, Hwaseong@Waterboards <Hwaseong.Jin@Waterboards.ca.gov>
Sent: Wednesday, May 11, 2022 2:41 PM
To: Spranza, John <john.spranza@hdrinc.com>
Subject: FW: Natural Resource Agencies Discussion of Sites Reservoir

CAUTION: [EXTERNAL] This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi John,

Please include me to the email list for the Sites aquatic resources meetings.

Thanks.

Hwaseong

From: Stephen Maurano - NOAA Federal <stephen.maurano@noaa.gov>
Sent: Wednesday, May 11, 2022 1:50 PM
To: Jin, Hwaseong@Waterboards <Hwaseong.Jin@Waterboards.ca.gov>
Subject: Re: Natural Resource Agencies Discussion of Sites Reservoir

EXTERNAL:

Hi Hwaseong,

I forwarded the doodle poll. You can request John Spranza include you in his future emails.

Best,

Stephen

On Wed, May 11, 2022 at 10:21 AM Jin, Hwaseong@Waterboards <Hwaseong.Jin@waterboards.ca.gov> wrote:

Stephen,

Please send me the Doodle Poll invite for the Sites aquatic resources meeting and include me to the future meetings.

Thanks.

Hwaseong

-----Original Appointment-----
From: stephen.maurano@noaa.gov <stephen.maurano@noaa.gov>
Sent: Tuesday, March 22, 2022 10:45 AM
To: stephen.maurano@noaa.gov; elif.wilkins@noaa.gov; gordon.stephanies@epa.gov; Sherrick, Robert@Wildlife; Rigby, Crystal@Wildlife; Williams, Craig@Waterboards; Davis-Fadtke, Kristal@Wildlife; Holland, Matthew@Waterboards; Louie, Stephen@Waterboards; Serup, Bjarni@Wildlife; La Luz, Felipe@Wildlife; Paccassi, Michael@Wildlife; evan.sawyer@noaa.gov; Wadsworth, Derek@Waterboards; Uttley, Paige@Wildlife; Ore, AnnMarie@Waterboards; Jin, Hwaseong@Waterboards; Williams, Jonathan@Wildlife; Foresman, Erin@Waterboards; Biondi, Oscar@Waterboards; Macon, Michael@Waterboards; morgan.joseph@epa.gov; Herrig, Justine@Waterboards; Kundargi, Kenneth@Wildlife; Riddle, Diane@Waterboards; steven_schoenberg@fws.gov; Ling, Jane@Waterboards
Subject: Natural Resource Agencies Discussion of Sites Reservoir
When: Wednesday, May 11, 2022 10:00 AM-11:00 AM America/Los_Angeles.
Where:

EXTERNAL:

This event has been changed.

Natural Resource Agencies Discussion of Sites Reservoir

When **Changed:** Monthly from 10am to 11am on the second Wednesday 9 times Pacific Time - Los Angeles

Joining info Join with Google Meet

meet.google.com/vuo-gcqb-oux

Join by phone

(US) +1 662-472-1431 (PIN: 362880644)

More phone numbers

Calendar hwaseong.jin@waterboards.ca.gov

Who

- stephen.maurano@noaa.gov - organizer
- elif.wilkins@noaa.gov
- gordon.stephanies@epa.gov
- robert.sherrick@wildlife.ca.gov
- crystal.rigby@wildlife.ca.gov
- craig.williams@waterboards.ca.gov
- kristal.davis-fadtke@wildlife.ca.gov
- matthew.holland@waterboards.ca.gov
- stephen.louie@waterboards.ca.gov
- bjarni.serup@wildlife.ca.gov
- felipe.laluz@wildlife.ca.gov
- michael.paccassi@wildlife.ca.gov
- evan.sawyer@noaa.gov
- derek.wadsworth@waterboards.ca.gov
- paige.uttley@wildlife.ca.gov
- annmarie.ore@waterboards.ca.gov

- hwaseong.jin@waterboards.ca.gov
- jonathan.williams@wildlife.ca.gov
- erin.foresman@waterboards.ca.gov
- oscar.biondi@waterboards.ca.gov
- michael.macon@waterboards.ca.gov
- morgan.joseph@epa.gov
- justine.herrig@waterboards.ca.gov
- kenneth.kundargi@wildlife.ca.gov
- diane.riddle@waterboards.ca.gov
- steven_schoenberg@fws.gov
- jane.ling@waterboards.ca.gov

more details »

- Doodle Poll said most people available 10am on Wed, Mon, Fri, so scheduled monthly meetings for 2022 on Mondays, will fall back to the other options as needed.

Going (hwaseong.jin@waterboards.ca.gov)? All events in this series: **Yes** - **Maybe** - **No** more options »

--

Stephen Maurano (he/him/his)
California Central Valley Office | NOAA Fisheries
(916) 214-2675
www.fisheries.noaa.gov

Sites Project Water Quality Group Discussion

April 7, 2021

Sites

Agenda

1. Introductions
2. Group Norms
3. Preferred Project
4. Approach to Analysis
   a. Qualitative
   b. Quantitative
5. Source Water
   a. Operations
   b. Data Sources
   c. Example Data
6. Schedule and Future Meeting Topics
7. Action Items and Next Steps

Group Norms

- Encourage everyone to be on video
- Mute yourself when others are speaking
- Respectful, professional dialogue
- Ask questions throughout, lets have a dialogue
  - Let the speaker finish their point
  - Use the raise your hand function in Teams if needed
- Topics for next meeting will be discussed and recorded

Sites' Preferred Project

Sites

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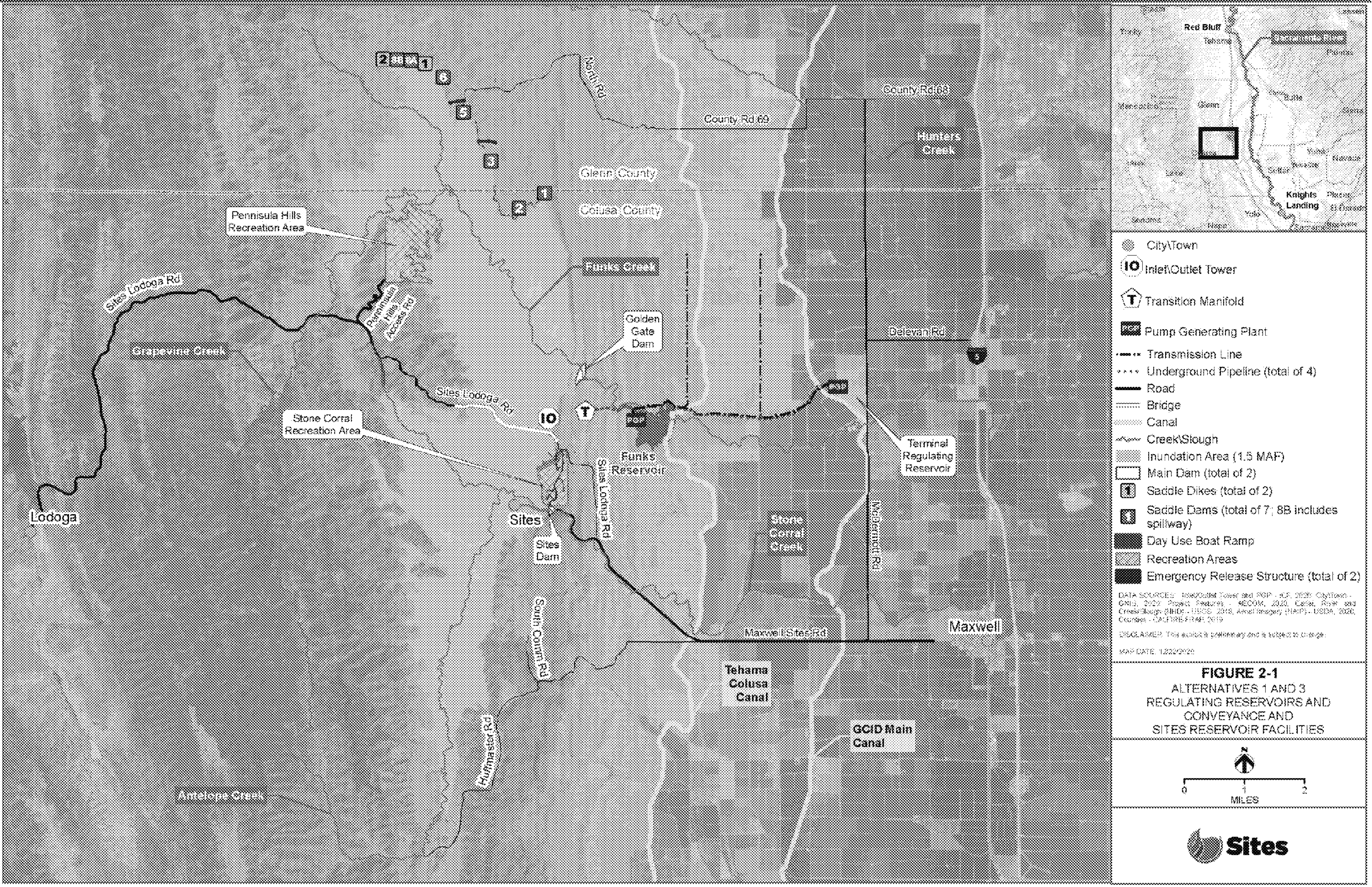
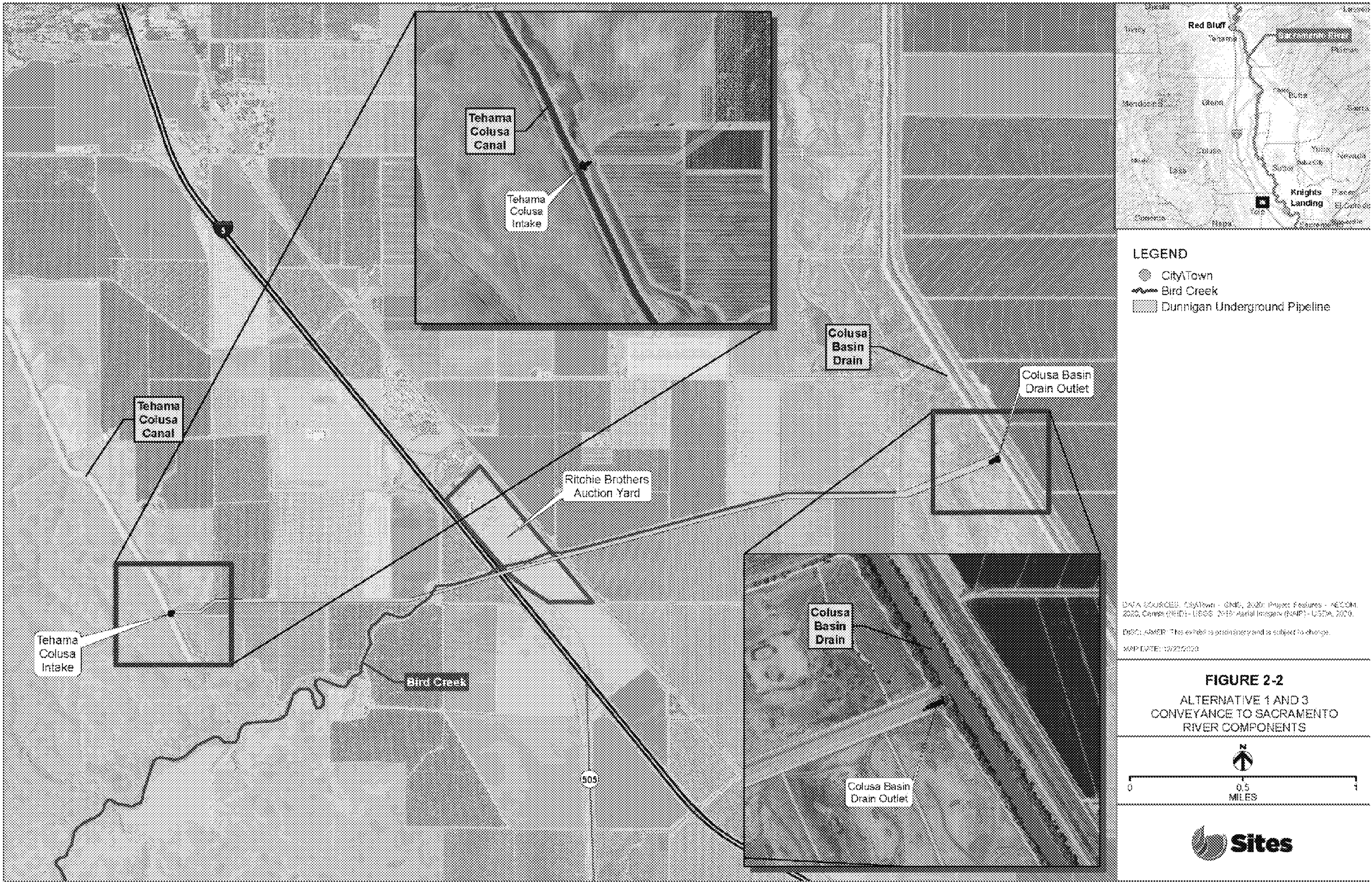
Major Revisions to Project

- Reservoir size reduced from 1.8 MAF to 1.5 MAF
- No Delevan diversion, pipeline or outfall
  - Utilize existing at Red Bluff and Hamilton City pumping plants
  - Releases to Tehama-Colusa Canal to the Colusa Basin Drain
  - New 1,000 cfs pipeline and release near Dunnigan
  - Alternative 2: a new 1,000 cfs outfall near Tyndall Landing
- Max diversion rate reduced from 5,900 cfs to 3,900 cfs
- Releases reduced from 1,500 cfs to 1,000 cfs

Alt 1 – Preferred Project



Alt 1 – Preferred Project



Approach to Analysis

Sites

Method Analysis Overview

Mechanisms by which Sites Reservoir Operations Could Affect Water Quality	Main Constituents Considered	Qualitative	Quantitative	Model Results Considered
Temporal Shift	Metals Pesticides Salinity	X	X	CalSim
Evapoconcentration	Metals Salinity		X	CalSim
In-Reservoir Processes	Mercury HABs Nutrients/OC/DO Temperature	X	X	Reservoir temperature modeling (CE QUAL W2)
Change in System Reservoir Operations	Temperature HABs Mercury	X	X	CalSim, HEC5Q and Reclamation temperature model
Change in Delta Operations	Salinity Chloride	X	X	CalSim and DSM2 QUAL
Redirection of CBD Flow to Yolo Bypass	Pesticides Nutrients/OC/DO HABs Mercury Temperature	X	X	CalSim

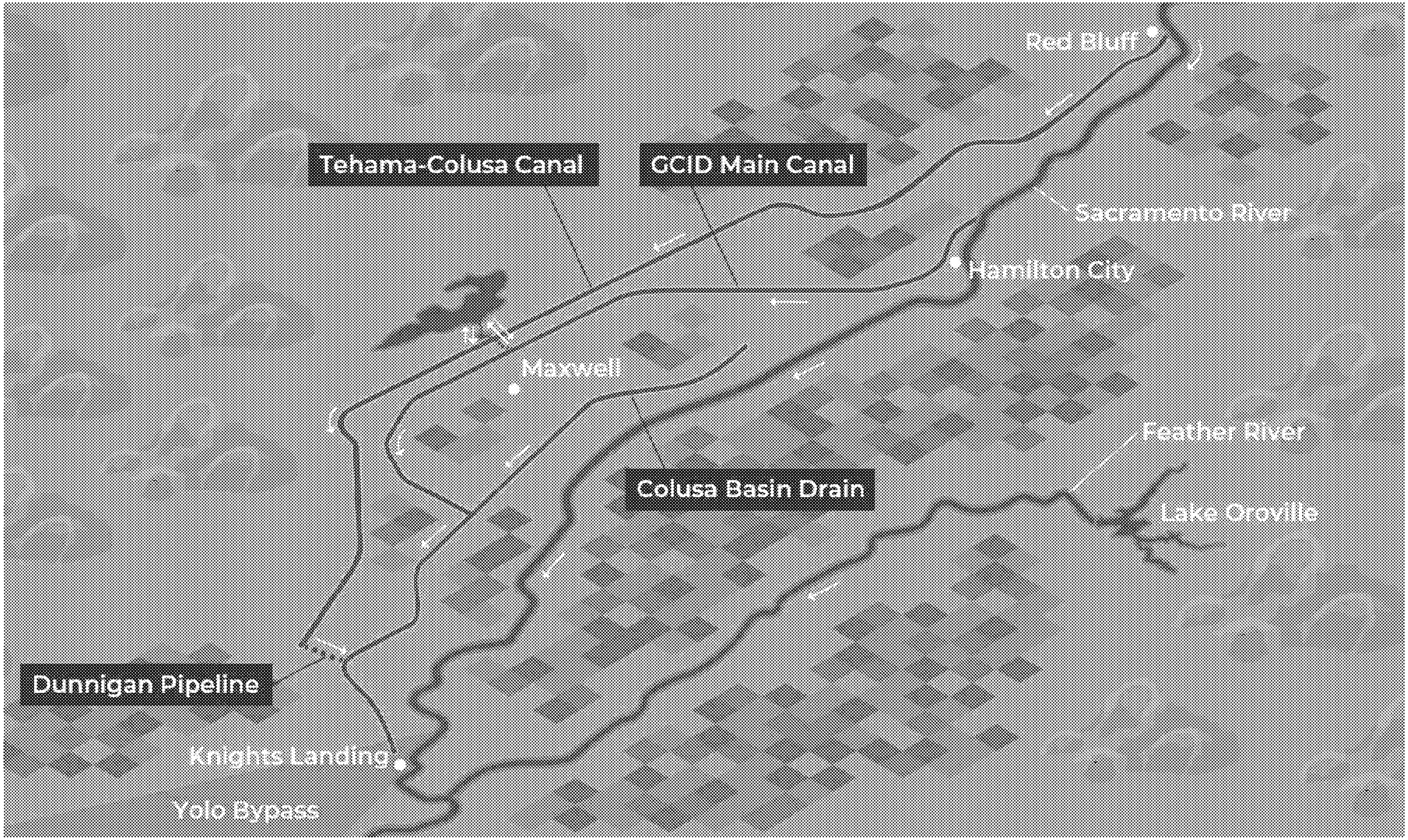
Quantitative Models

- CalSim II used for overall operations
  - Hydrological planning tool used to represent state-wide changes that would result from Sites
  - Monthly timestep
  - Results inform water quality models
  - Comparative analysis of results
- Water quality models
  - Reservoir Temperature: CE QUAL W2
  - River Temperature: HEC5Q, Reclamation Temperature Model
  - Delta salinity: DSM2 QUAL

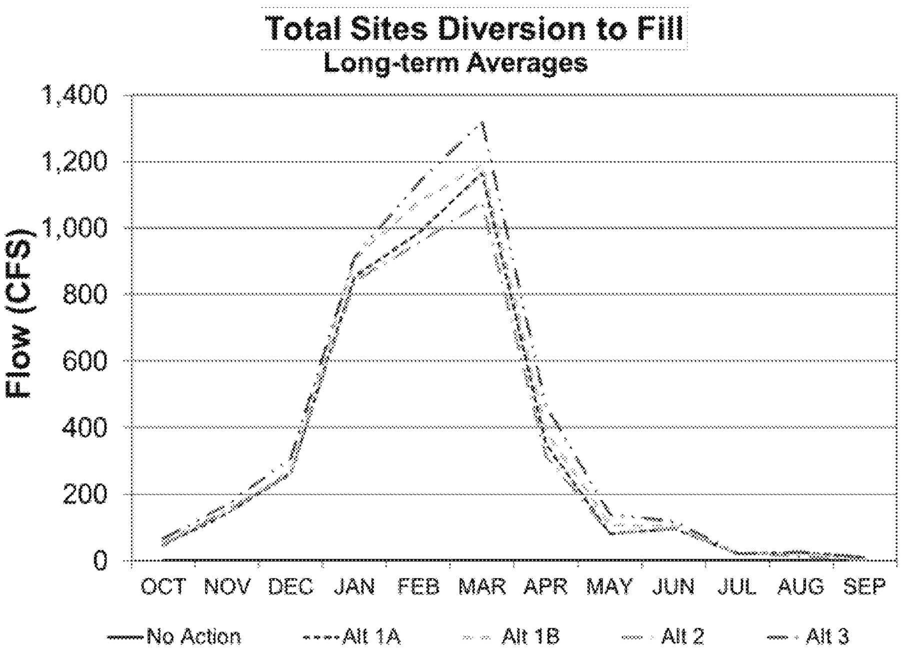
Source Water

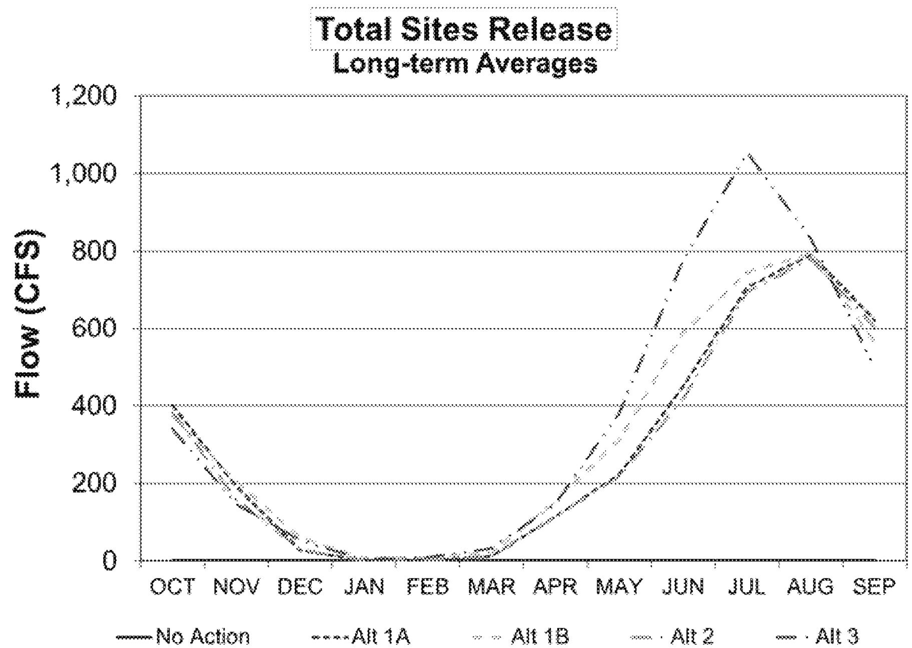
Sites

Project Water Operations



Diversions and Releases





Main Data Sources

Constituent Group	Data Source	Location
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Pesticides	CA Dept of Pesticide Regulation Surface Water Database (CDPR SURF)	Sacramento River near Hamilton City Sacramento River at Colusa CBD above Knights Landing Yolo Bypass Toe Drain near Babel Slough

Average Metal/Metalloid Concentrations

- Units are in micrograms per liter
- No available data for Funks Creek
- Source for Stone Corral Creek and Sacramento River = DWR Water Data Library. See Slide 14
- Source for groundwater is DWR NODOS study (2007)

Metal/Metalloid	Stone Corral Creek	Groundwater in Sites Reservoir Footprint	Sacramento River at Intake Locations
Dissolved Aluminum	149	3	94
Total Aluminum	562	12	359
Dissolved Arsenic	2.8	0.7	1.5
Total Arsenic	3.1	0.8	1.6
Dissolved Cadmium	0.05	0.02	0.04
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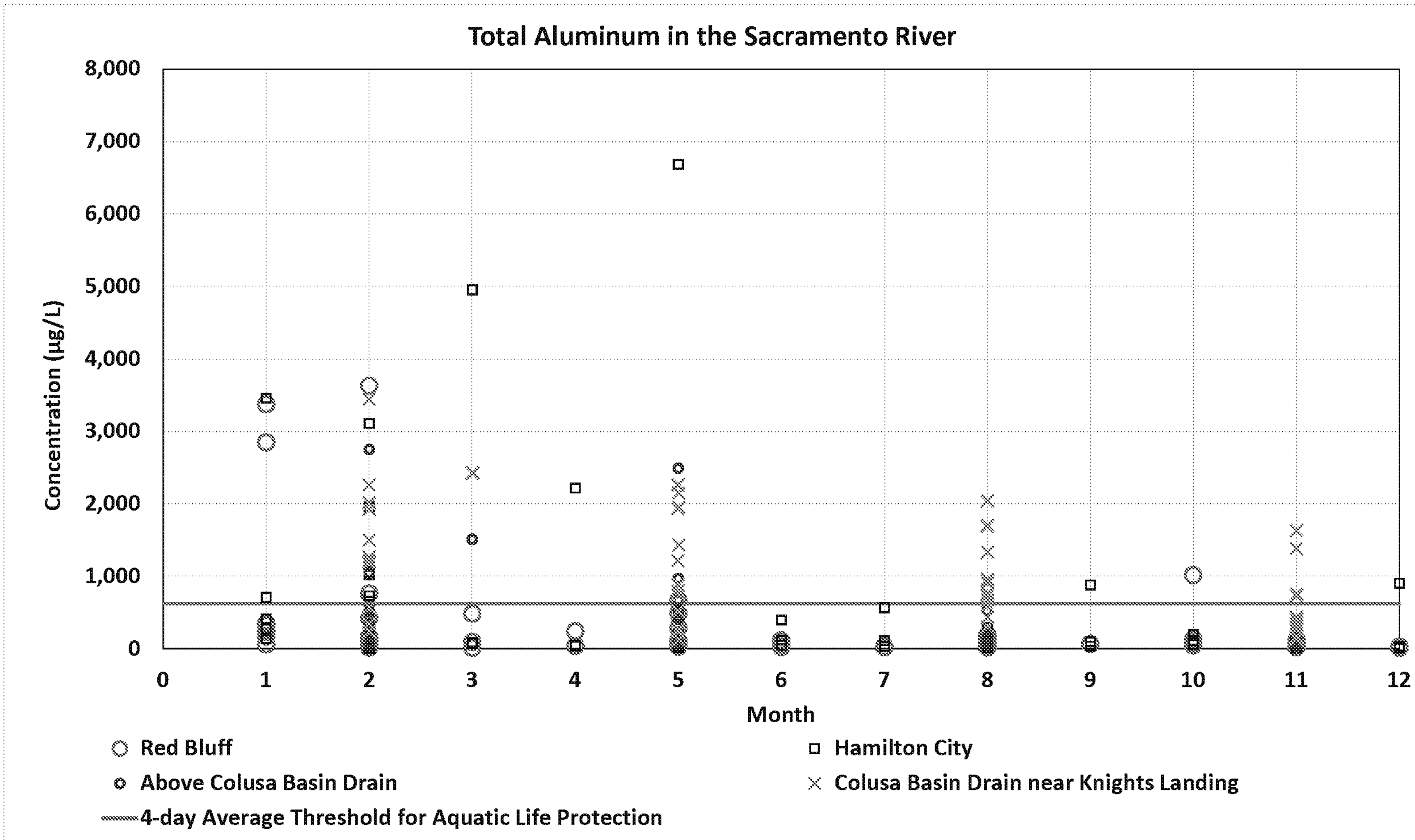
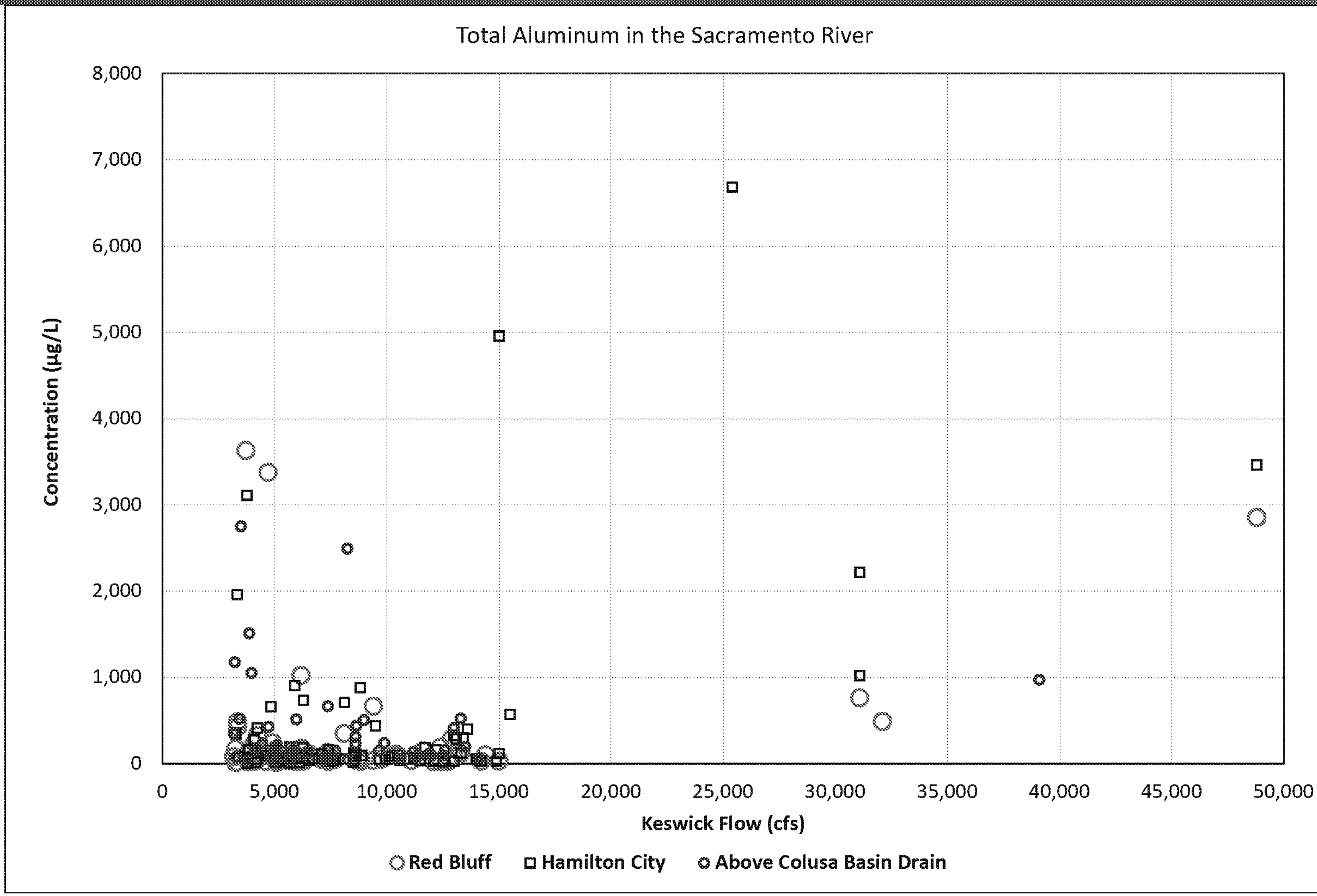
Metals – Aluminum Example



Compared to Flow



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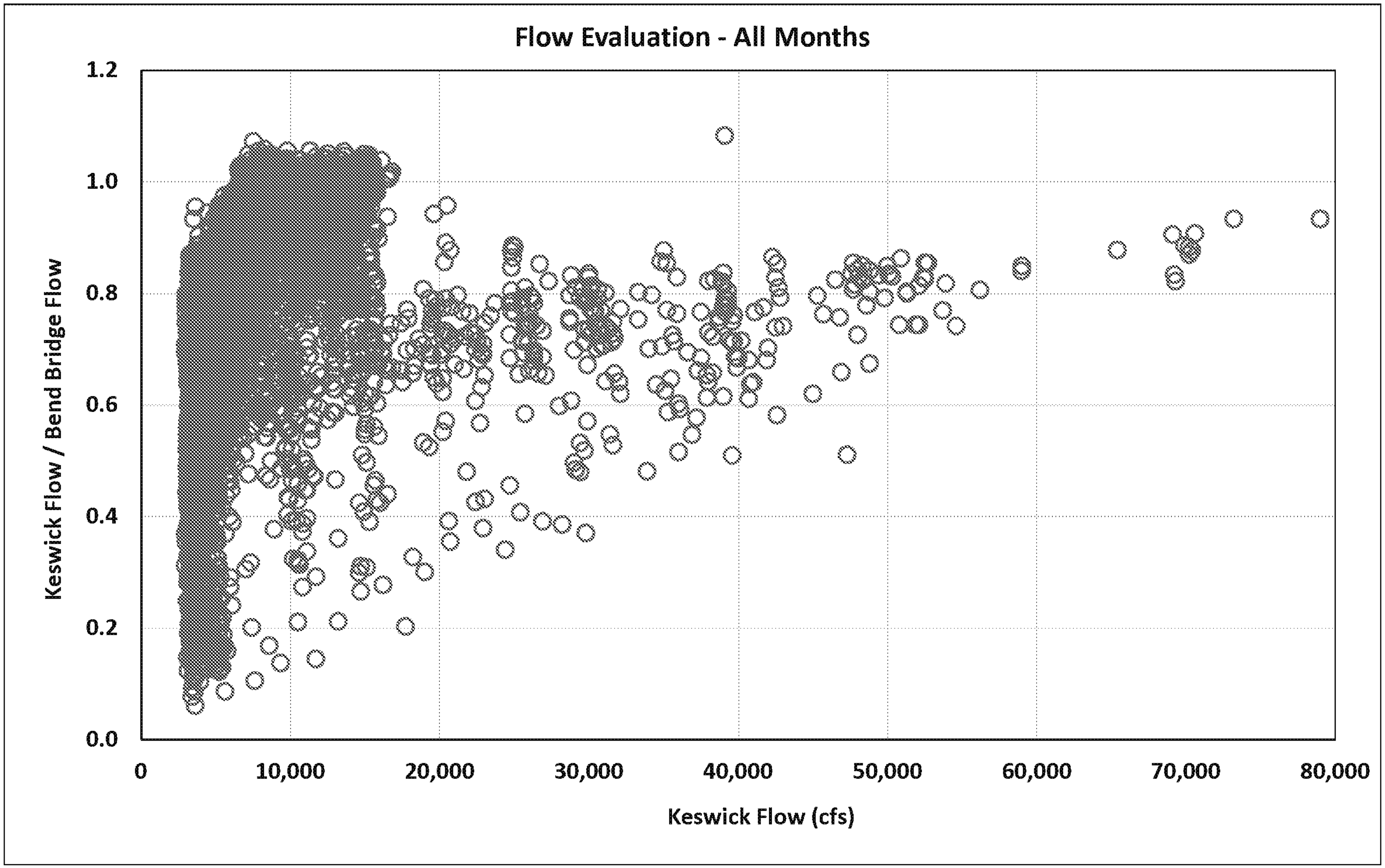
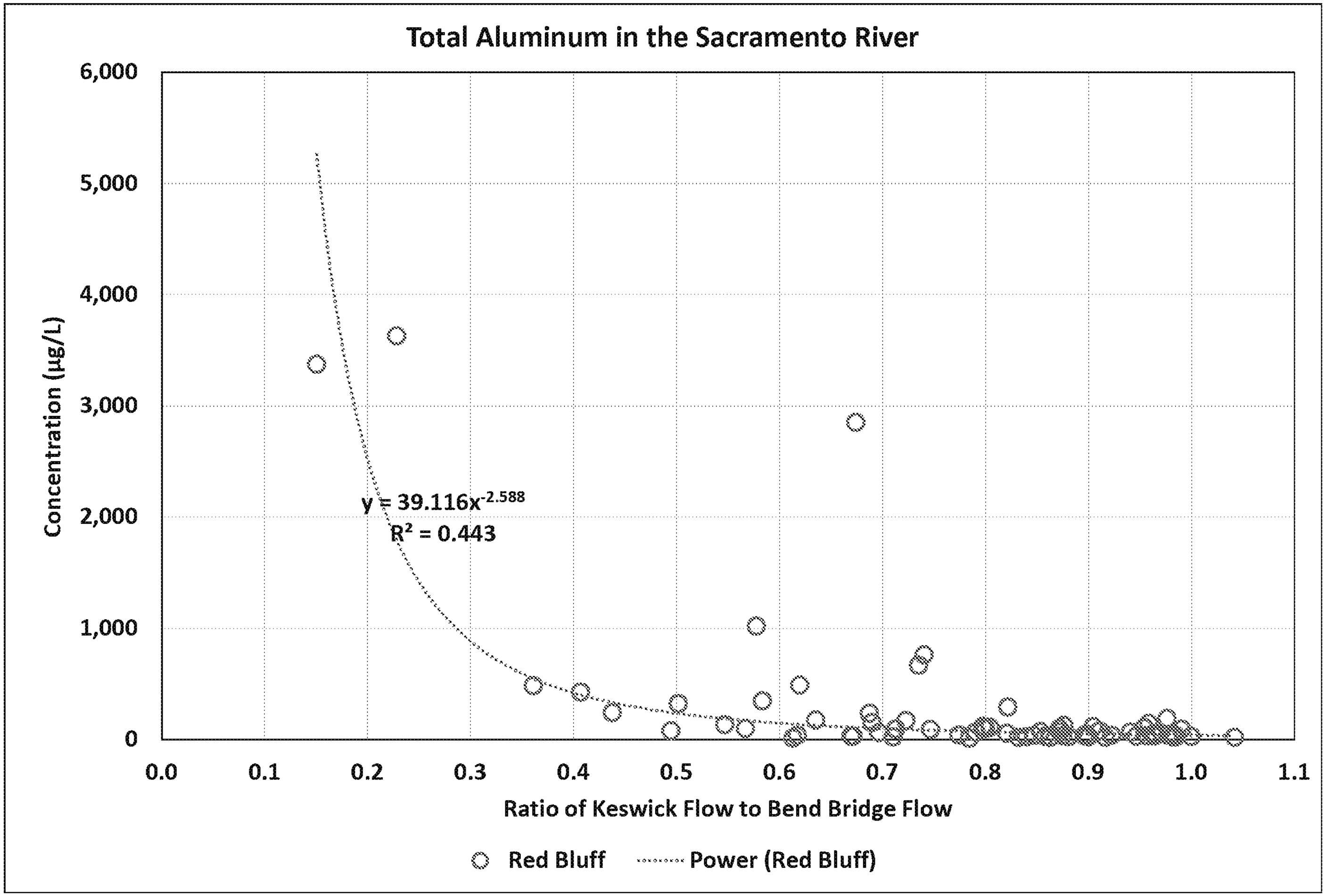


Example Quantitative Approach



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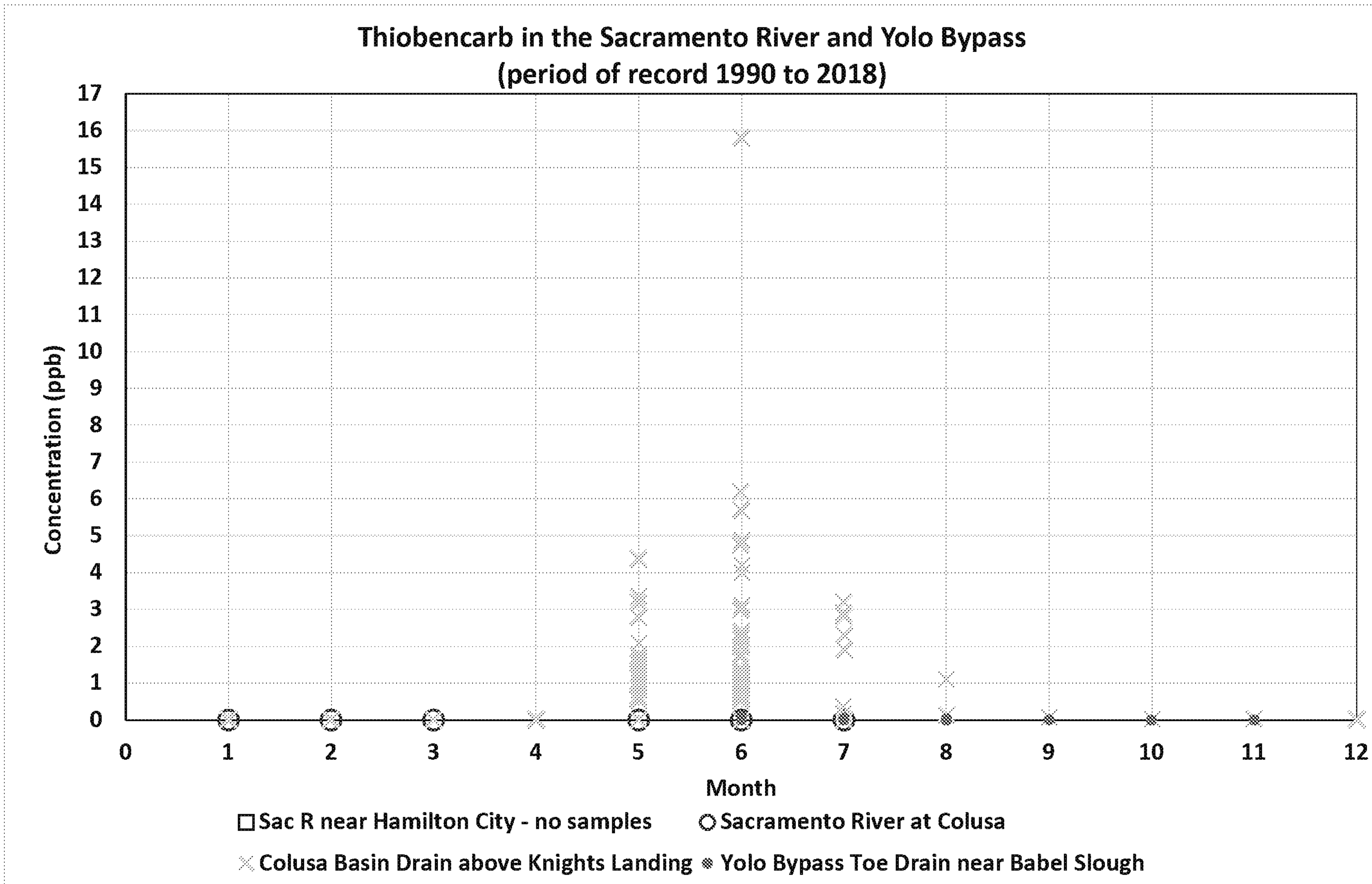

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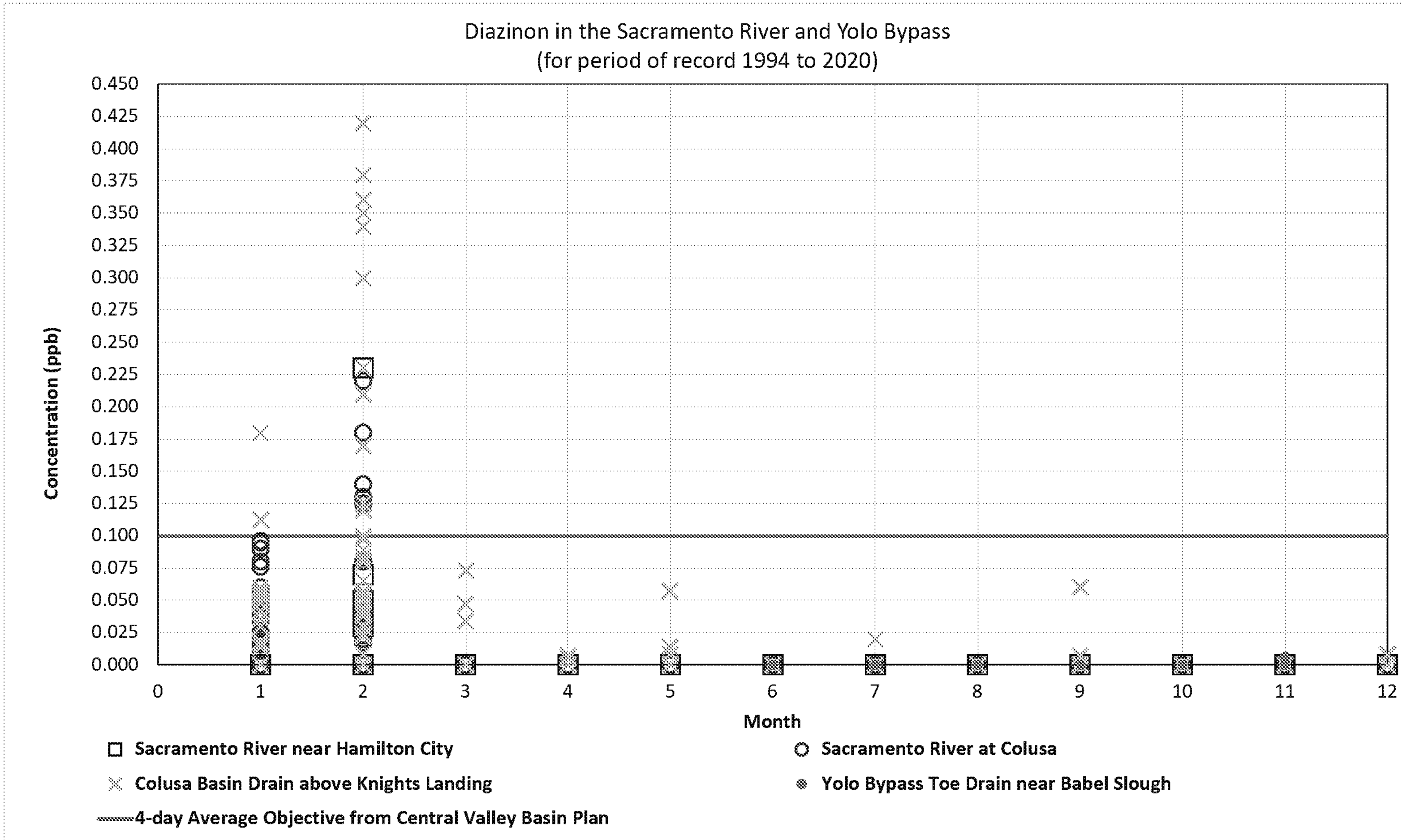
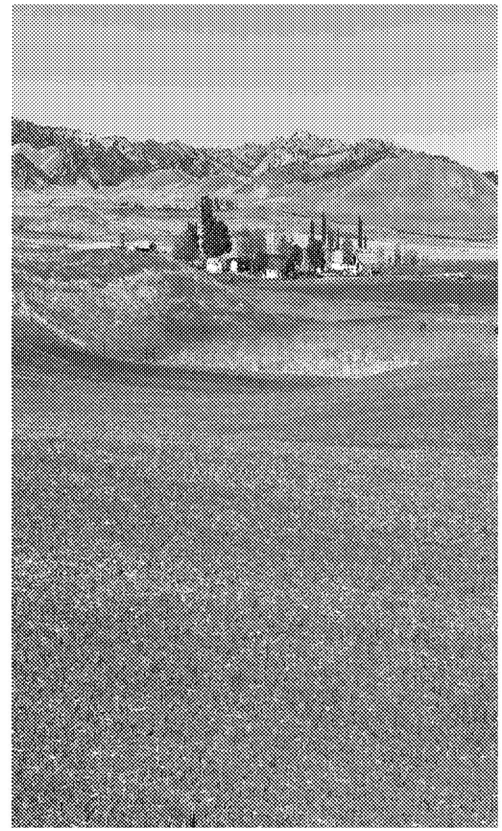


Schedule and Next Meeting

Sites

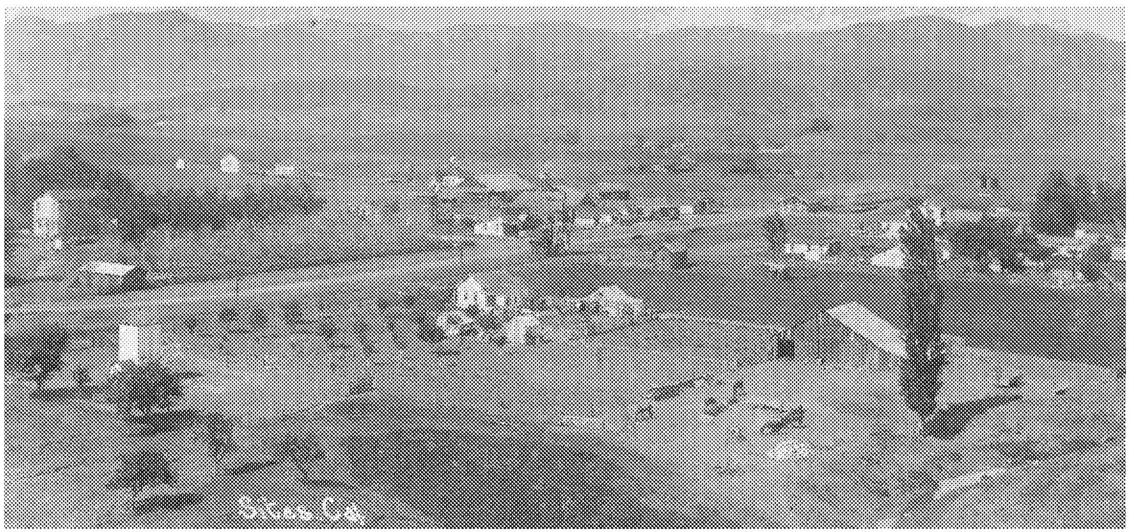
Schedule

- Summer 2021
  - Draft EIR and Supplemental EIS Released
- December 2021
  - Biological Assessment to Agencies
  - Submit State ITP Applications
- Spring 2022
  - Final EIR/Final EIS
- Spring 2023
  - All permits obtained
- Spring 2024 Construction Begins
- Topics for the next meeting?



Additional Topics from the Group

- Any additional questions or thoughts?
- Topics for the next meeting?



Action Items and Next Steps

Thank you!

Sites

Sites Project Water Quality Group Discussion

May 13, 2021

Sites

Agenda

1. Introductions
2. Group Norms
3. Action Item Follow-up
4. Key Concepts
   a) Reservoir Management Plan
   b) Temperature Model
   c) Evapoconcentration
5. In-Lake Analyses
6. Action Items and Next Steps

Group Norms

- Encourage everyone to be on video
- Mute yourself when others are speaking
- Respectful, professional dialogue
- Ask questions throughout, lets have a dialogue
  - Let the speaker finish their point
  - Use the raise your hand function in Teams if needed
- Topics for next meeting will be discussed and recorded

Action Item Follow-up

Action Item	Addressed	Pending	Notes
Specificity on years for data	X		
Distribute metals table	X		
Effects of release temperature on rice		X	Email out to Tim Johnson
Effects of Hg and As on rice		X	Email out to Tim Johnson
Effects of reservoir operations on water quality of Stone Corral and Funks creeks.		X	Next meeting
Anti-degradation policy and Sites		X	Next meeting
Synergistic effects of chemicals		X	Next meeting

Key Concepts

Sites

Reservoir Management Plan

- Part of the Project
- Purpose: describe the management of water resources in Sites Reservoir
  - Water Quality: describe metrics, standards, testing and monitoring protocols, and outcomes
- Constituents currently included:
  - HABs
  - Methylmercury
  - Metals
  - Water Temperature
  - Salt and Minerals (Salt Pond)

Temperature Model: CE QUAL W2

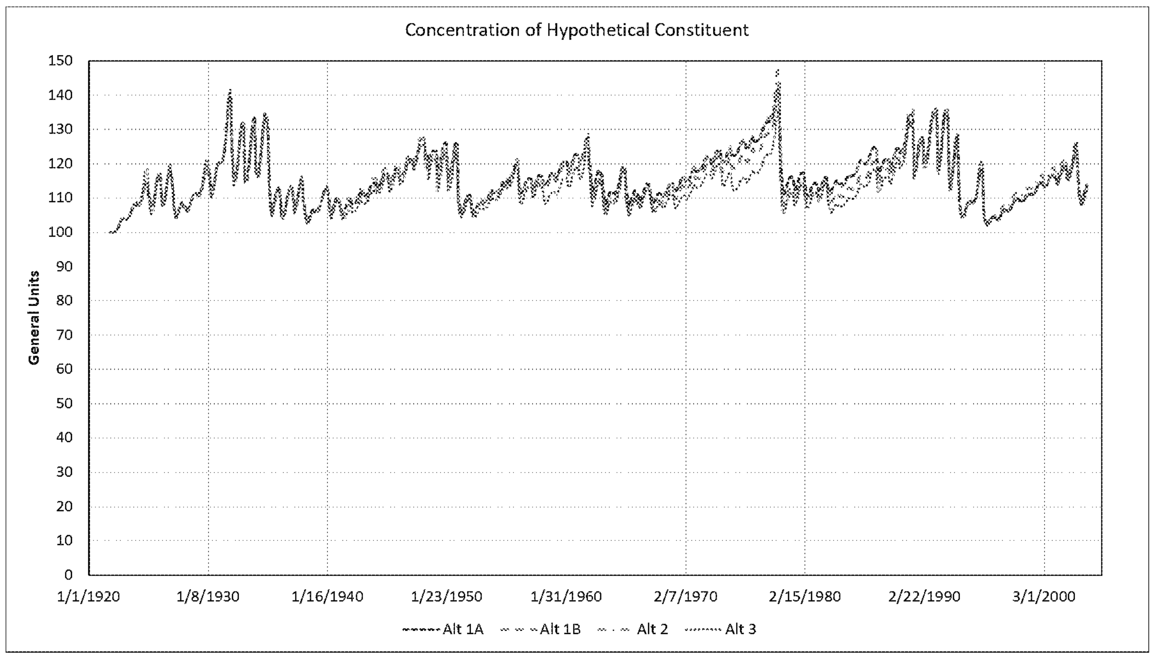
- CE QUAL W2
  - 2D Reservoir Temperature Model
  - Daily timestep
  - Version 4.1
- Assumptions:
  - Reservoir size
  - Estimates surface area with storage volume
  - Considers I/O Tower

Temperature Model: CE QUAL W2

- Inputs
  - Daily flows from operations model (USRDOM)
  - Daily temperature from Sacramento River temperature model (HEC5Q)
  - Daily net evaporation rate (consistent with CalSim II)
- Outputs
  - Surface water temperature
  - Release temperature

Evapoconcentration

- Calculations using water balance information from CALSIM
- Increase in concentration limited by freshening due to release and refilling
- Most relevant to conservative constituents
- Average concentration approximately 13-16 percent higher than the inflow concentration
- Maximum of 41 – 48 percent depending on alternative



In-Lake Analyses

Sites

Mercury

- Approach
  - Input sources
  - Transformation processes
  - Comparison with similar/nearby reservoirs
    - Concentrations in surface waters and in fish tissues
    - Annual reservoir water level fluctuation
- Key Data Sources
  - California Environmental Data Exchange Network (CEDEN)
  - DWR Water Data Library
  - SWRCB 2017 – Reservoir TMDL draft staff report

Mercury

- Long-term (~10 years after initial filling)
  - Comparable to existing reservoirs
  - 1.6 to 1.9 ng/L total mercury
  - 0.10 to 0.15 methylmercury
- Short-term (up to ~10 years after initial filling)
  - Conditions are conducive to mercury methylation
  - 3.2 to 3.8 ng/L total mercury
  - 0.2 to 0.3 ng/L methylmercury
- Total mercury concentrations would not exceed California Toxics Rule Objective (50 ng/L)
- Tissue concentrations among other reservoirs > CA sport fish objective (0.2 mg/kg ww in 350 mm largemouth bass)

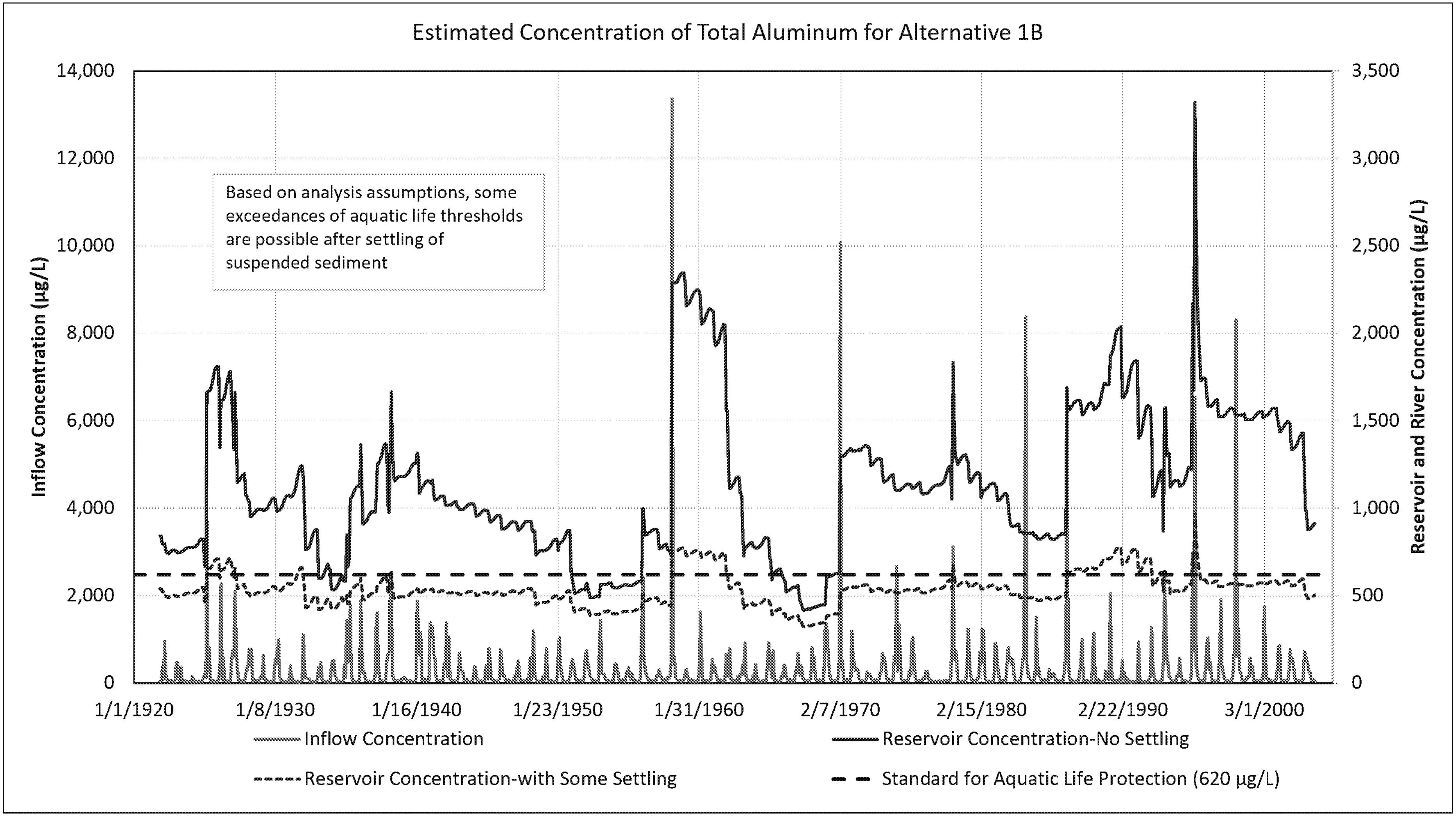
Mercury

- Reservoir Management Plan
  - Remove vegetation in inundation footprint prior to initial filling
  - Monitor reservoir fish tissue methylmercury
  - Post fish consumption warning signs if fish tissue methylmercury concentrations exceed CA sport fish objective
  - Adhere to the State Water Board TMDL for mercury in reservoirs, once adopted

Metals

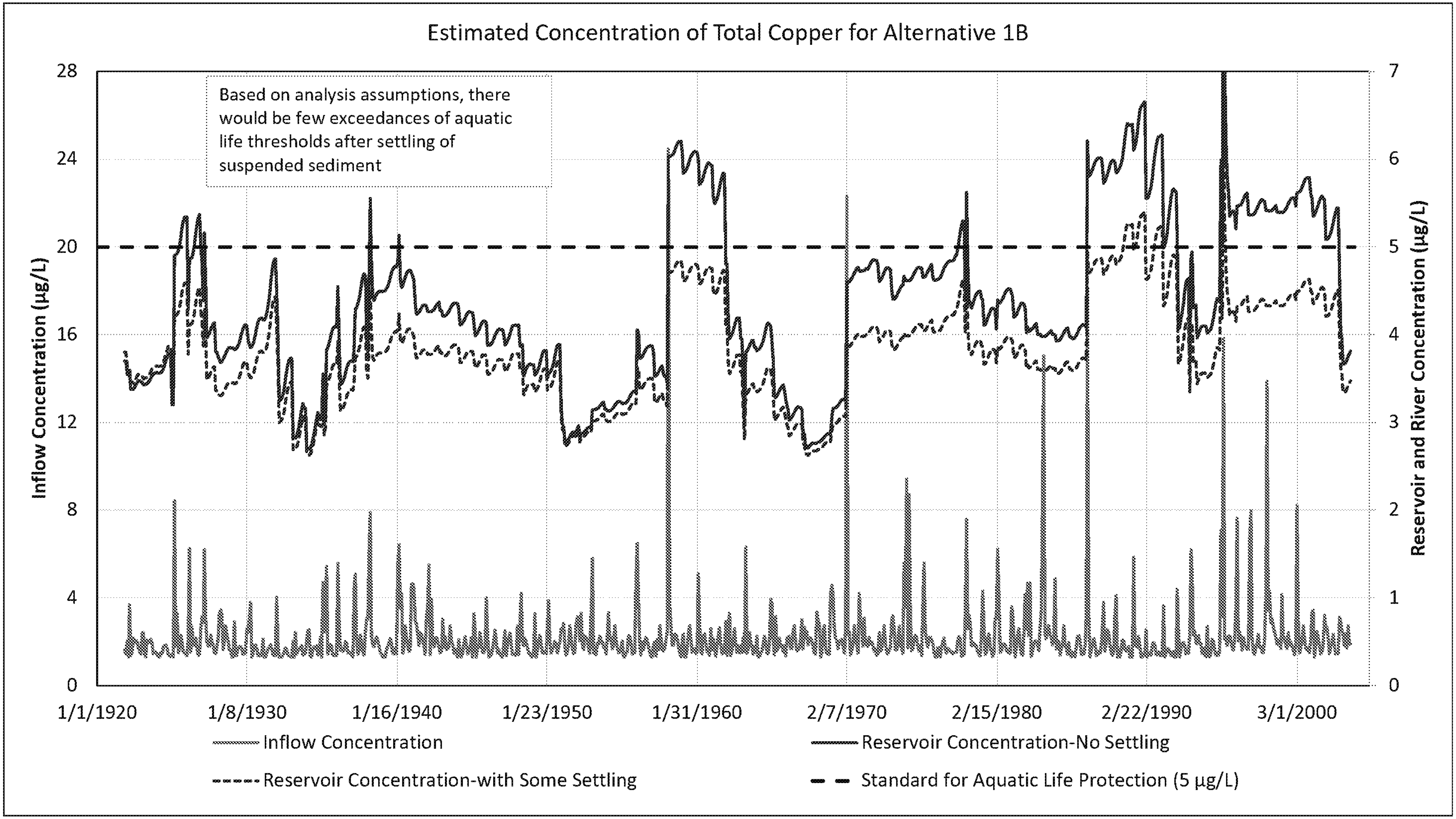
- Calculations include:
  - Improved estimation of inflow concentration (based on both flow at Keswick and Keswick/Bend Bridge)
  - Evapoconcentration
  - With and without settling of suspended sediment
- Reservoir Management Plan
  - Monitor concentrations of aluminum, copper, iron, and lead upstream of, in, and downstream of Sites Reservoir

Metals



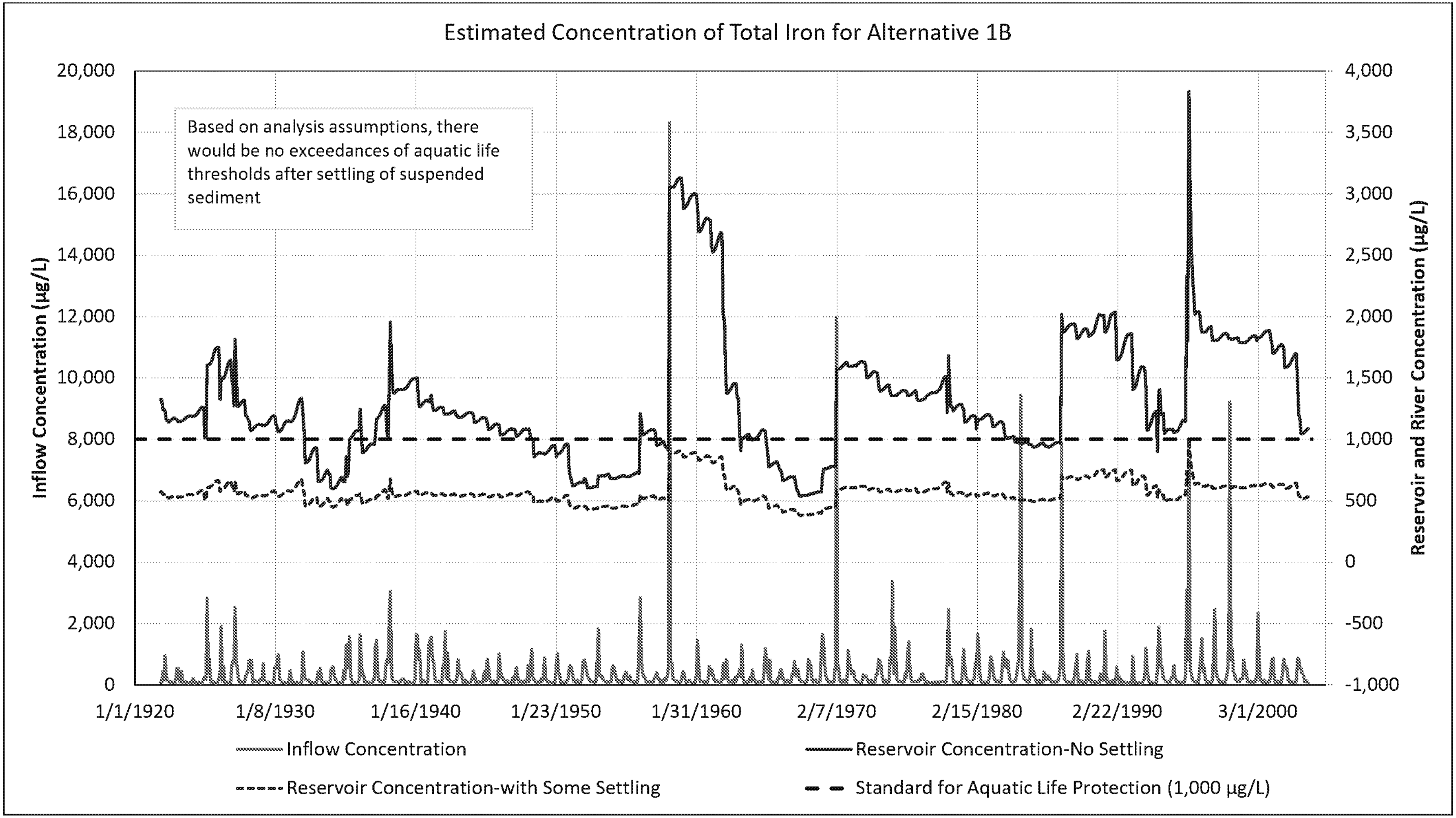
Estimated Concentration of Total Aluminum for Alternative 1B
Based on analysis assumptions, some exceedances of aquatic life thresholds are possible after settling of suspended sediment
Inflow Concentration (µg/L)
Reservoir and River Concentration (µg/L)
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1/1/1920
1/8/1930
1/16/1940
1/23/1950
1/31/1960
2/7/1970
2/15/1980
2/22/1990
3/1/2000
Inflow Concentration
Reservoir Concentration-No Settling
Reservoir Concentration-with Some Settling
Standard for Aquatic Life Protection (620 µg/L)

Metals



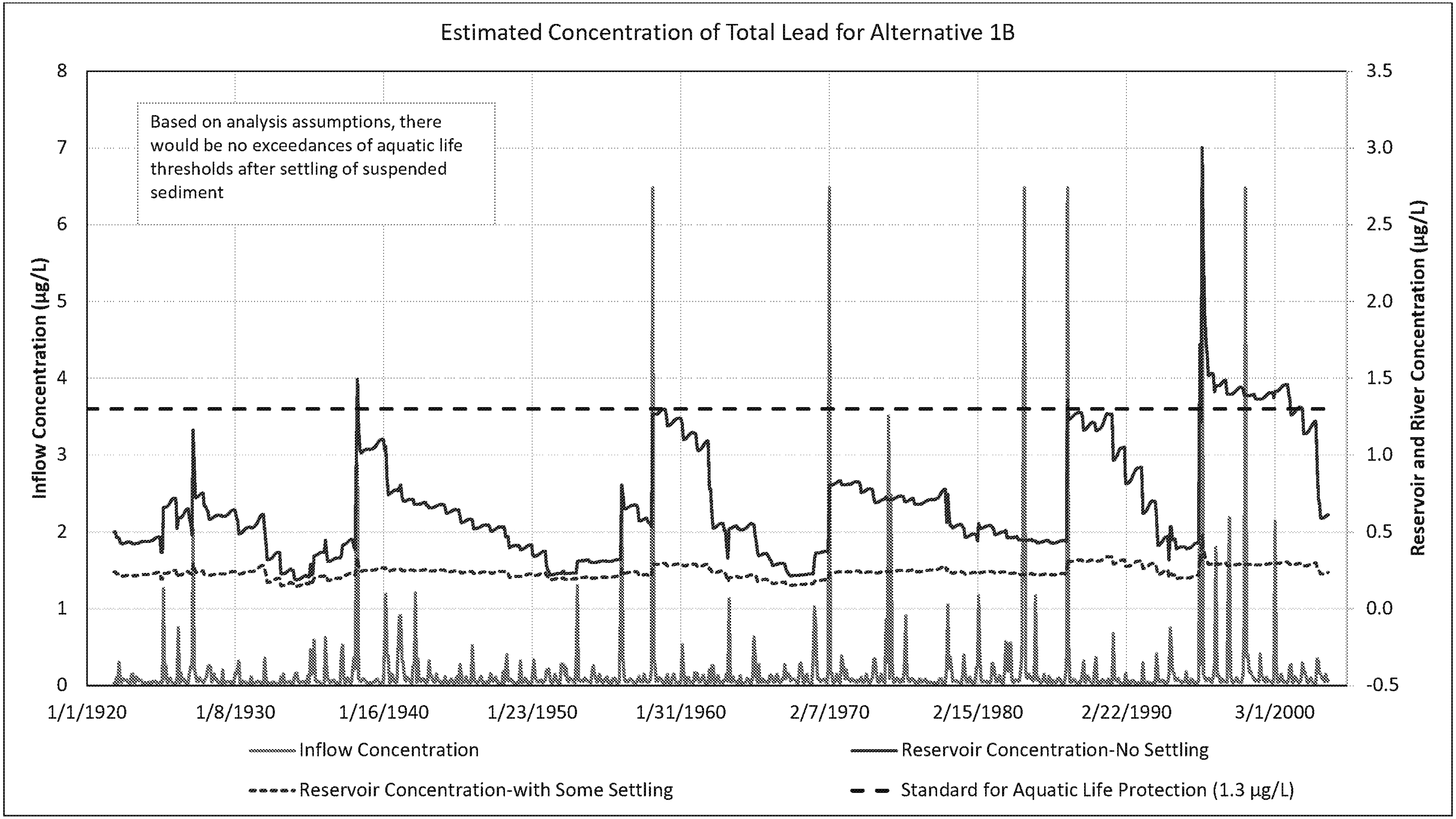
Estimated Concentration of Total Copper for Alternative 1B
Based on analysis assumptions, there would be few exceedances of aquatic life thresholds after settling of suspended sediment
Inflow Concentration (µg/L)
Reservoir and River Concentration (µg/L)
28
24
20
16
12
8
4
0
7
6
5
4
3
2
1
0
1/1/1920
1/8/1930
1/16/1940
1/23/1950
1/31/1960
2/7/1970
2/15/1980
2/22/1990
3/1/2000
Inflow Concentration
Reservoir Concentration-No Settling
Reservoir Concentration-with Some Settling
Standard for Aquatic Life Protection (5 µg/L)

Metals



Estimated Concentration of Total Iron for Alternative 1B
Based on analysis assumptions, there would be no exceedances of aquatic life thresholds after settling of suspended sediment
Inflow Concentration (µg/L)
Reservoir and River Concentration (µg/L)
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
-500
-1,000
1/1/1920
1/8/1930
1/16/1940
1/23/1950
1/31/1960
2/7/1970
2/15/1980
2/22/1990
3/1/2000
Inflow Concentration
Reservoir Concentration-No Settling
Reservoir Concentration-with Some Settling
Standard for Aquatic Life Protection (1,000 µg/L)

Metals


Estimated Concentration of Total Lead for Alternative 1B
Based on analysis assumptions, there would be no exceedances of aquatic life thresholds after settling of suspended sediment
Inflow Concentration (µg/L)
Reservoir and River Concentration (µg/L)
8
7
6
5
4
3
2
1
0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
1/1/1920
1/8/1930
1/16/1940
1/23/1950
1/31/1960
2/7/1970
2/15/1980
2/22/1990
3/1/2000
Inflow Concentration
Reservoir Concentration-No Settling
Reservoir Concentration-with Some Settling
Standard for Aquatic Life Protection (1.3 µg/L)

HABs

- HABs occur in many reservoirs including Black Butte
- Sufficient nutrients and higher water temperatures (≥66 °F) in Sites Reservoir in May through September could create conditions conducive to formation and maintenance of HABs
- Reservoir Management Plan
  - Monitor for presence of HABs and, if found, cyanotoxins. Add warning signage if warranted
  - Coordinate with Water Board
  - Operate inlet/outlet tower to reduce likelihood of cyanotoxins in release

Other Topics: Salt Pond

- Salt Pond Information
  - August 1997 – dry
  - September 1997 EC = 194,100 µS/cm
  - January 1998 EC = 7,200 µS/cm
  - Estimated flow = 0.1 cfs based on pond size and evaporation rate for region

Other Topics: Salt Pond

- Salt Pond Evaluation:
  - Not expected to have substantial water quality effects
  - Conservatively assumed no decrease in spring discharge
  - Fate of spring discharge:
    - Full mixing of 0.1 cfs for a year into a volume of 200 TAF would represent 0.04 percent of the total volume (EC increase from 130 µS/cm to between 133 – 208 µS/cm)
    - Accumulation at bottom of reservoir due to higher density (74 years to reach low-level intake)
- Reservoir Management Plan
  - Measure EC in springs before construction
  - Measure EC in reservoir after inundation

Other Topics Metals and Erosion

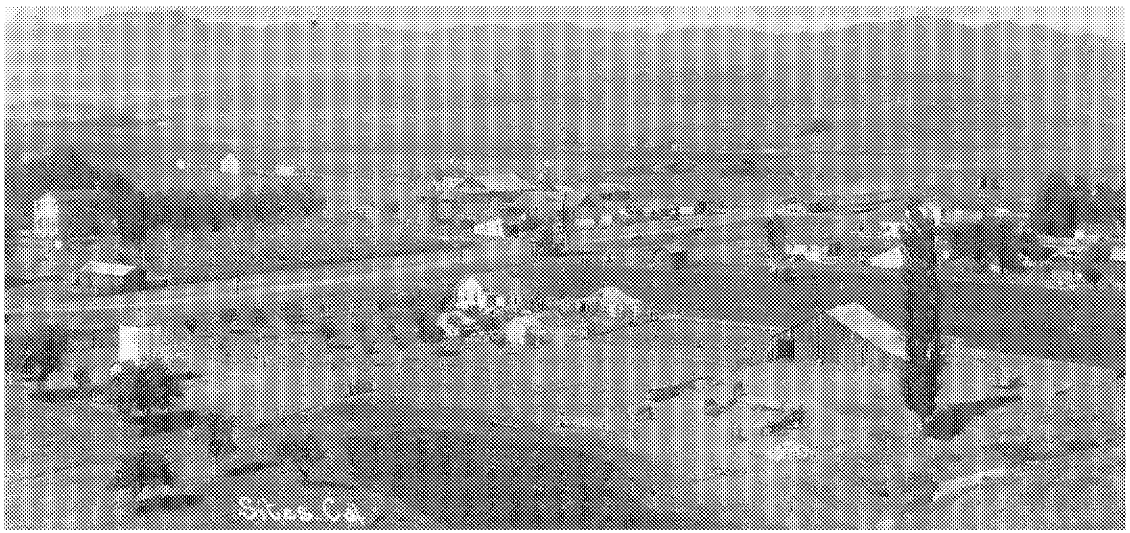
- Metal Leaching from Groundwater
  - Reservoir water expected to seep into ground
  - Groundwater does not have elevated metal concentrations
- Reservoir Bank Erosion
  - Temporary increase in turbidity common to many waterbodies
  - Activities in the reservoir footprint (ranching) unlikely to contaminate soil

Action Items and Future Topics

Sites

Additional Topics and Action Items

- Any additional questions, thoughts or topics for the next meeting?
- Action item review



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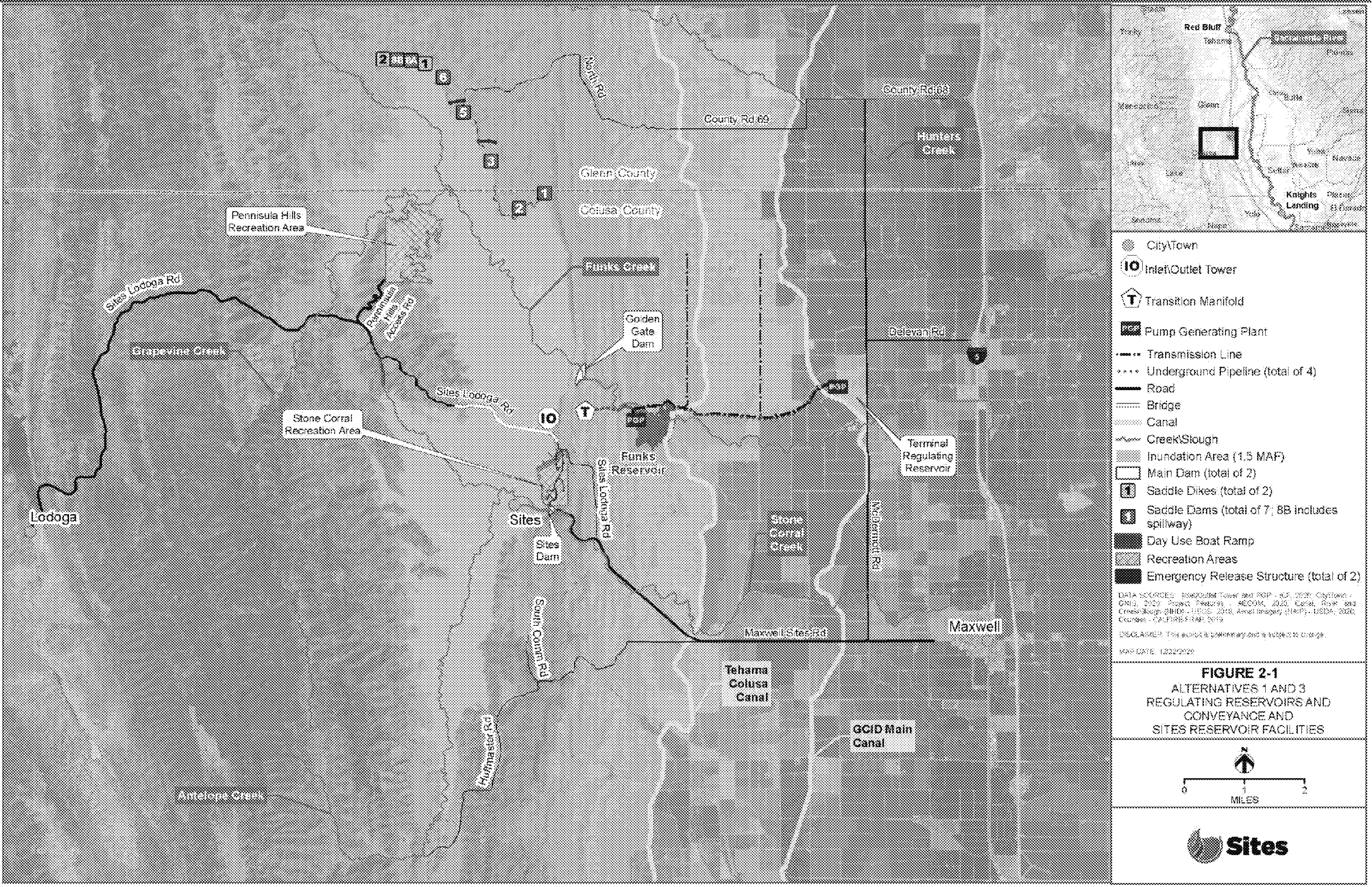
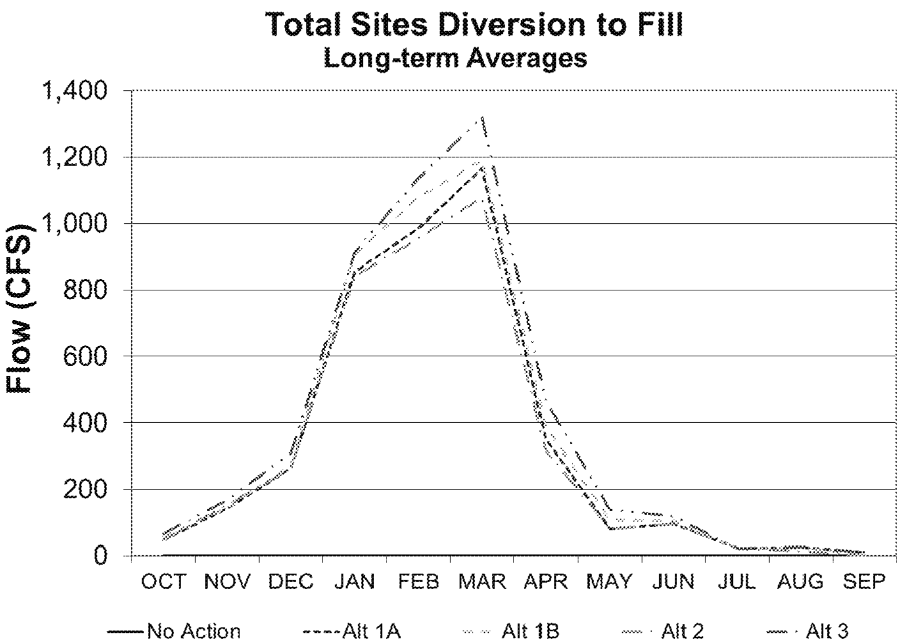
Alt 1 – Preferred Project

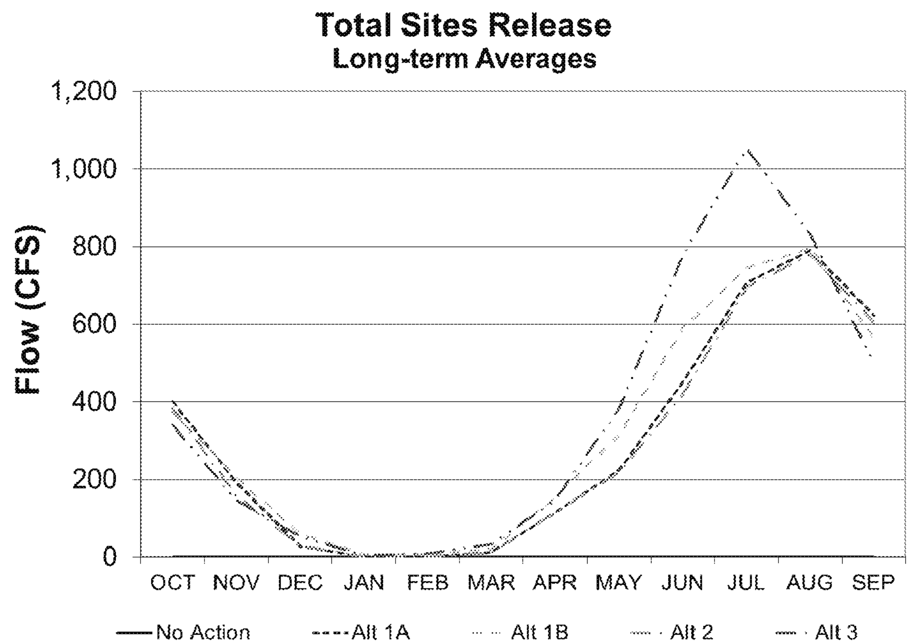


Total Mercury Concentrations (ug/L)

Location	Station	n	Mean Concentration	Maximum Concentration	75th Percentile	Data Range (years)	Source
Funks Creek	Golden Gate	2	0.35	1.2	0.93	2006-2007	DWR Data Library
Stone Coral Creek	-	3	0.85	2.3	1.61	2007	DWR Data Library
Colusa Basin Drain	Knights Landing	26	8.6	19.3	10.8	1996-1998	USGS 2000
Colusa Basin Drain	Knights Landing	66	4.5	75	5.9	1999-2007	CEDEN
Sacramento River	Red Bluff	66	1.3	14.4	1.6	1999-2007	CEDEN
Sacramento River	Hamilton City	66	2.2	54	2.6	1999-2016	CEDEN
Sacramento River	Freeport	217	4.5	89	8.8	1994-2015	CEDEN
Yolo Bypass	Prospect Slough	28	73.2	696	-	1995-2003	Central Valley RWQCB 2010

Diversions and Releases





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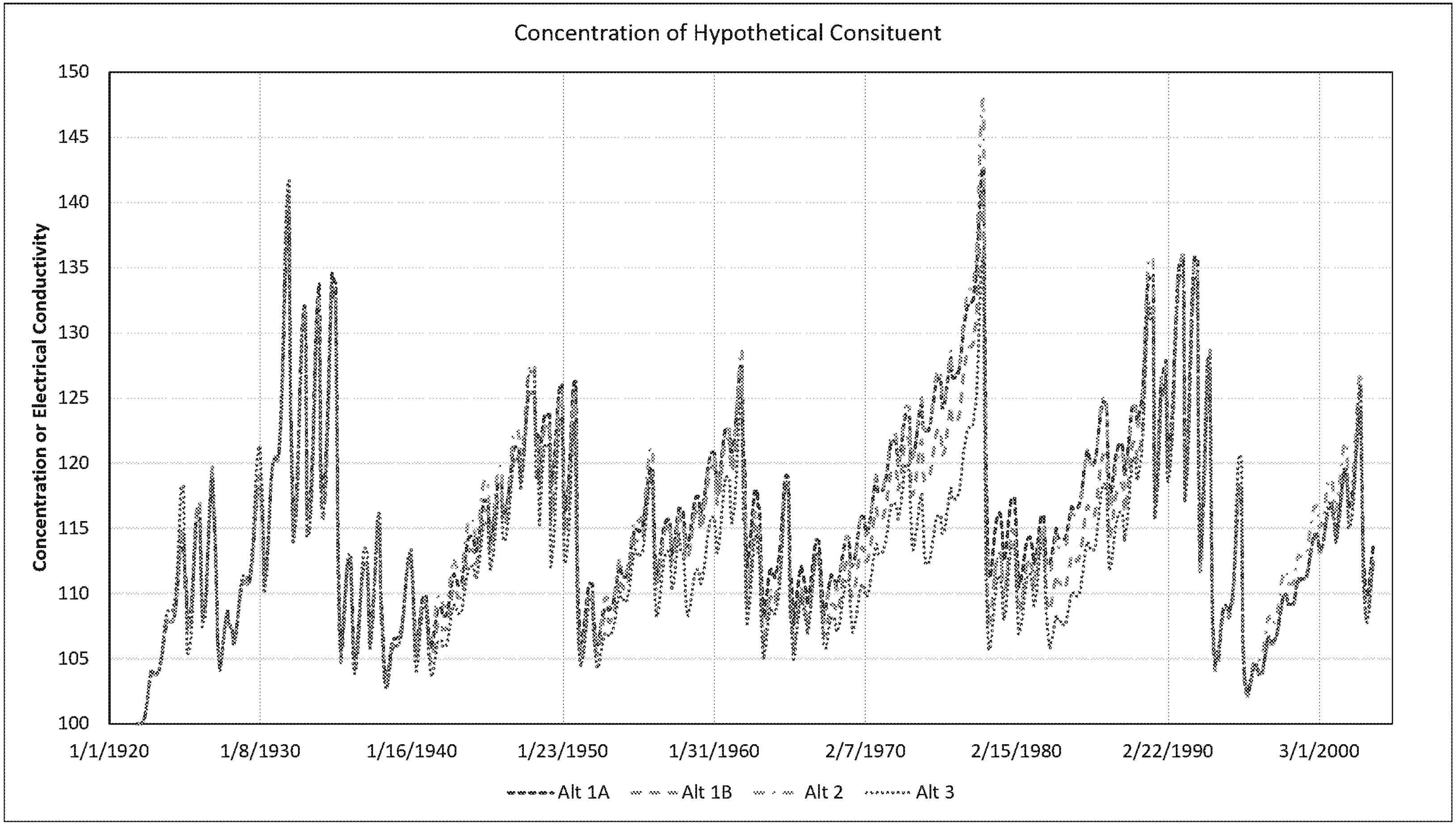
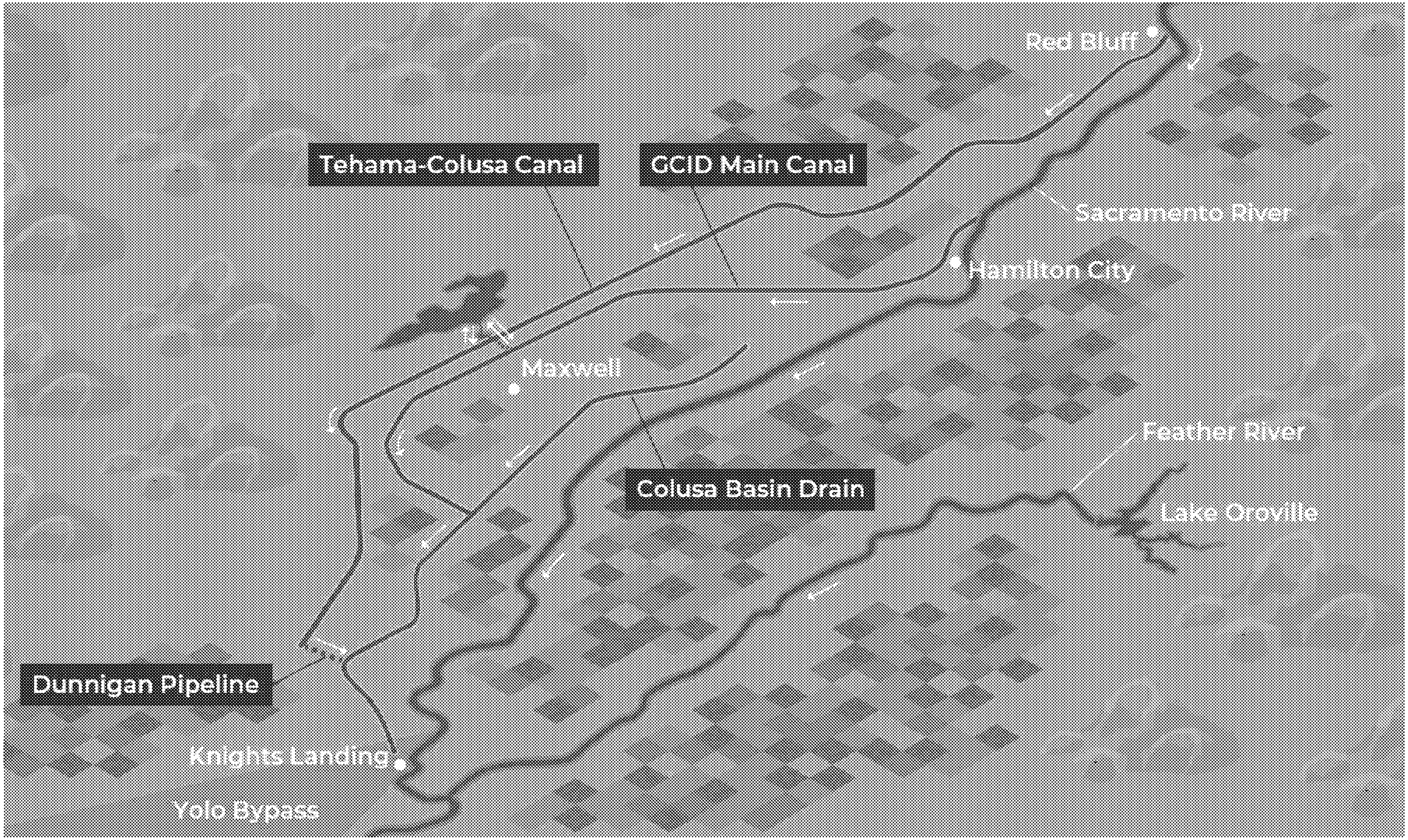


Project Water Operations



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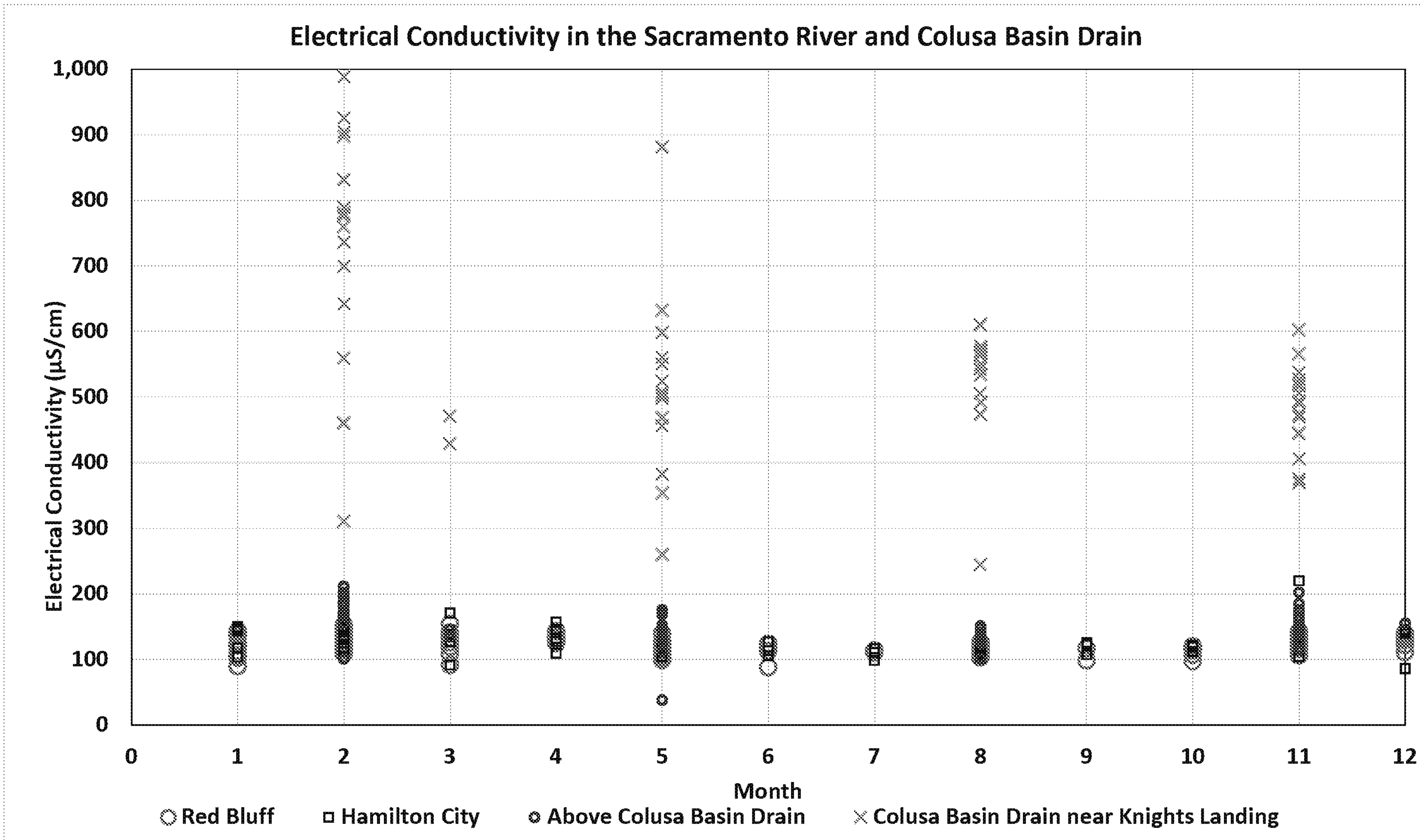
Electrical Conductivity



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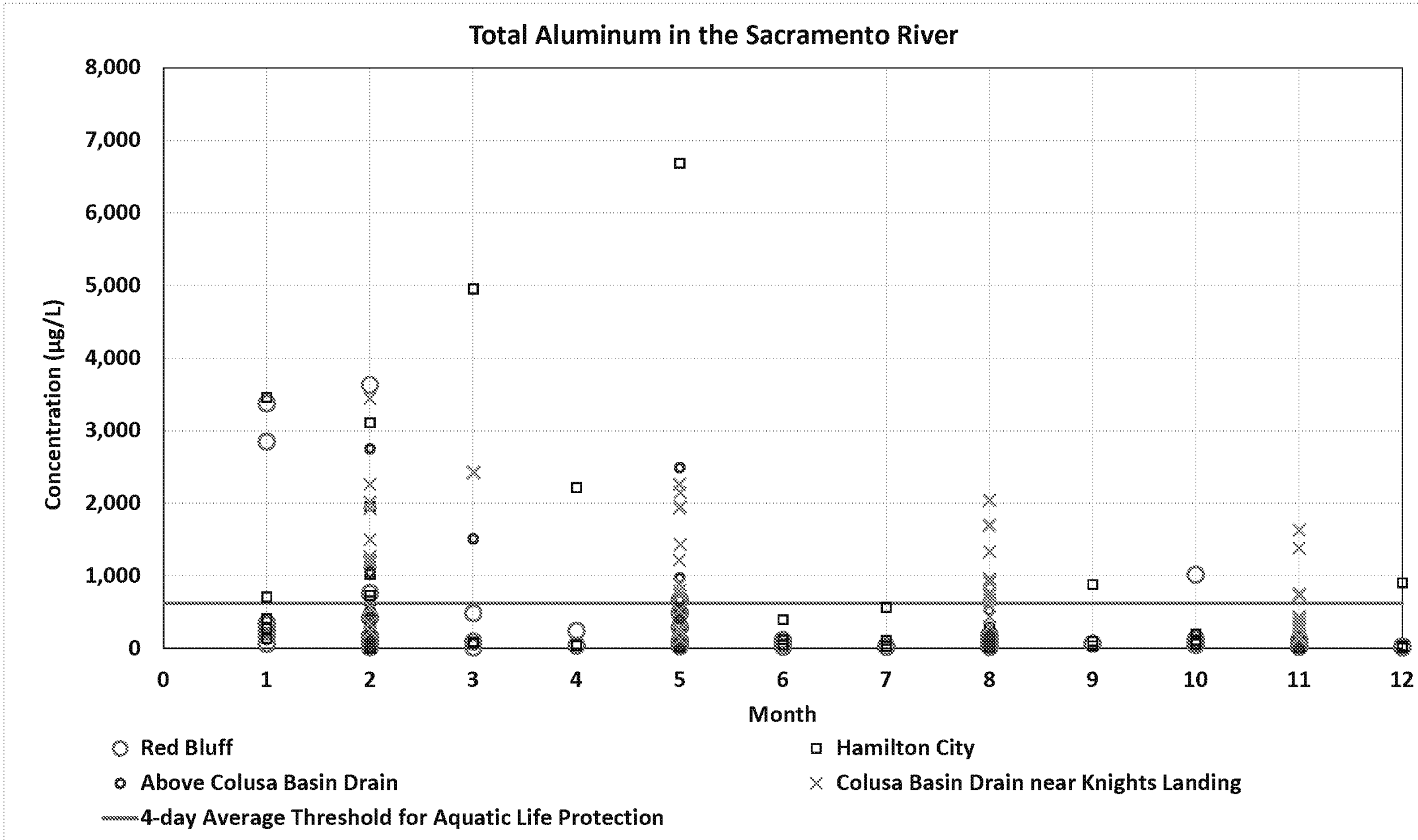
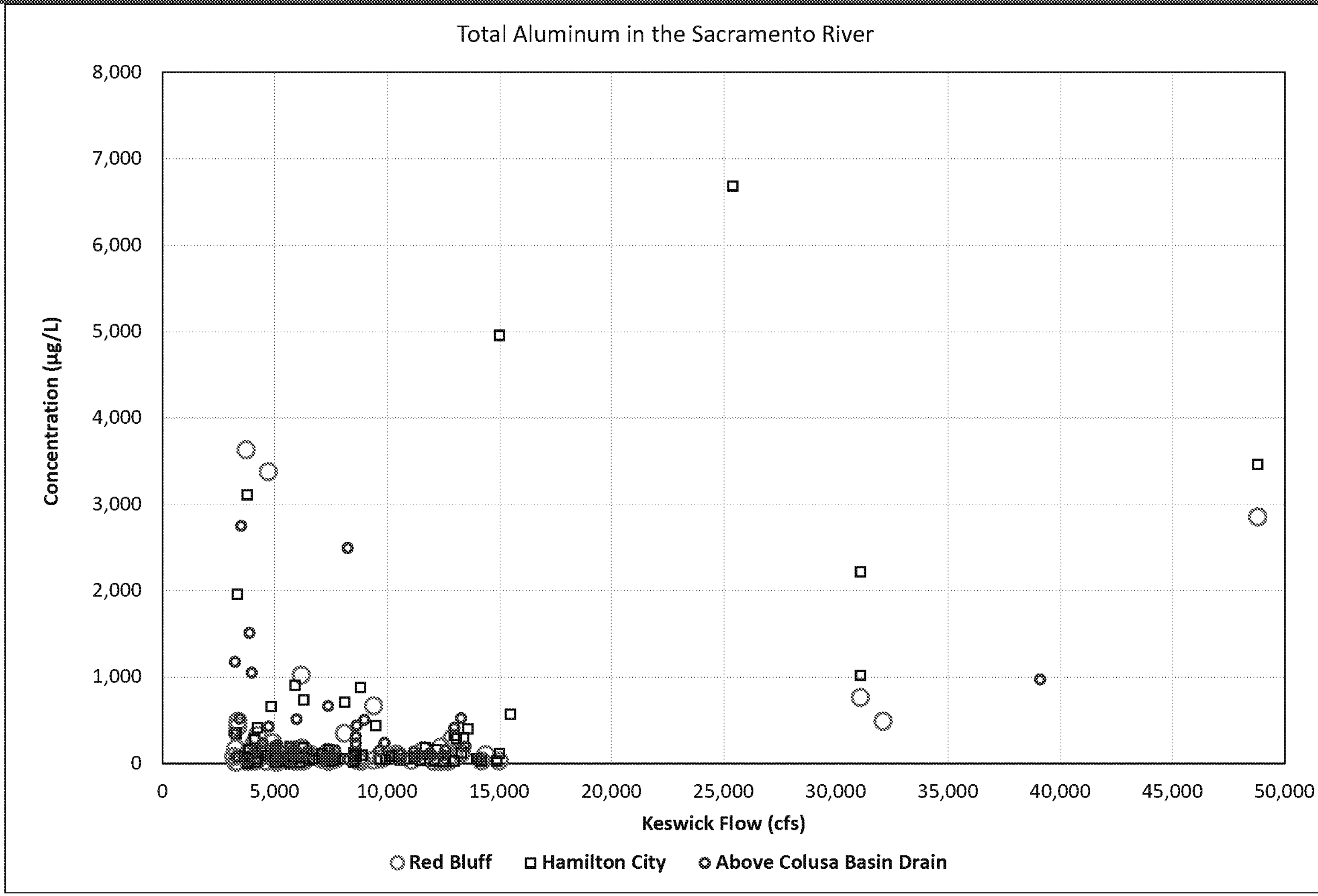


Compared to Flow



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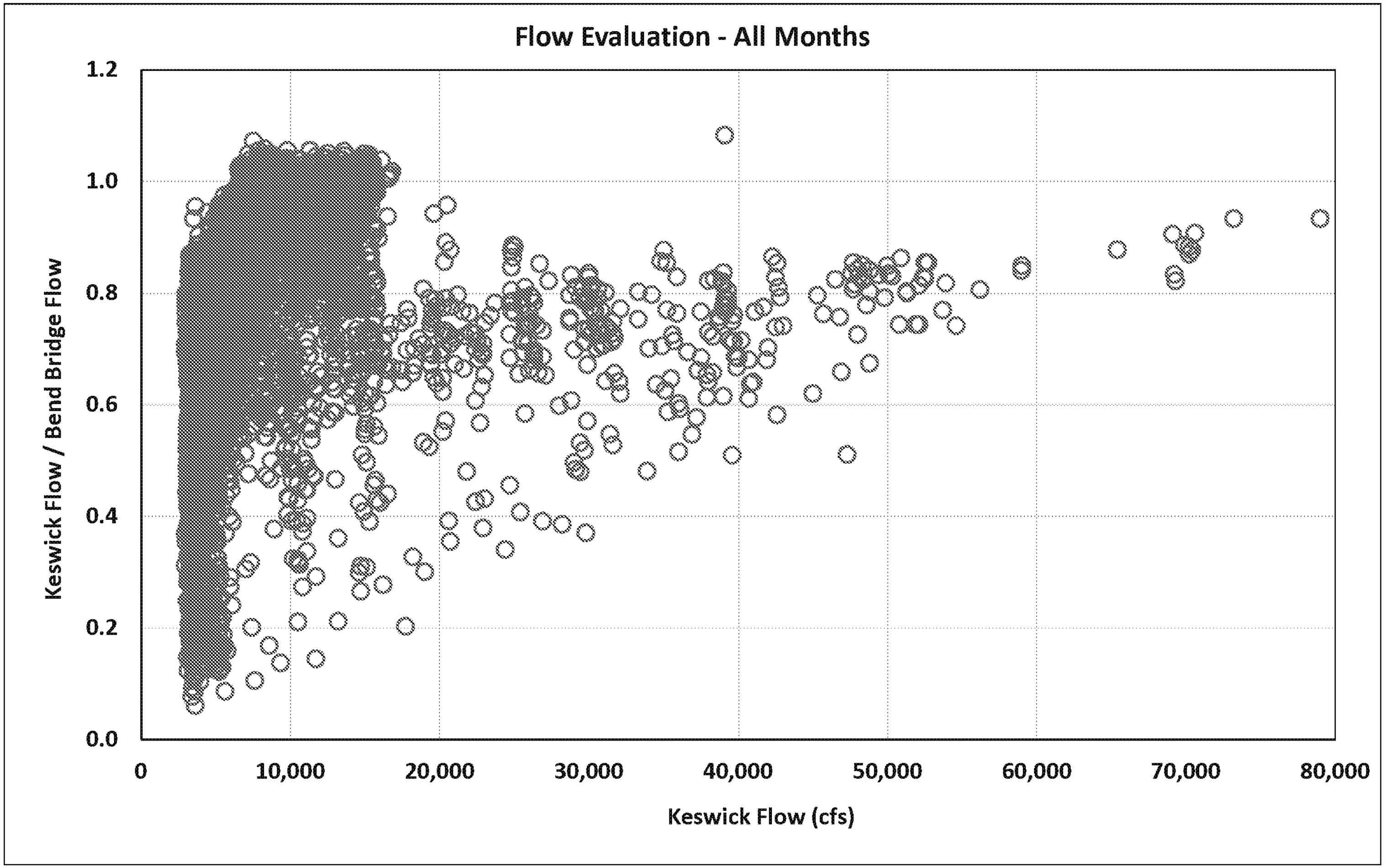

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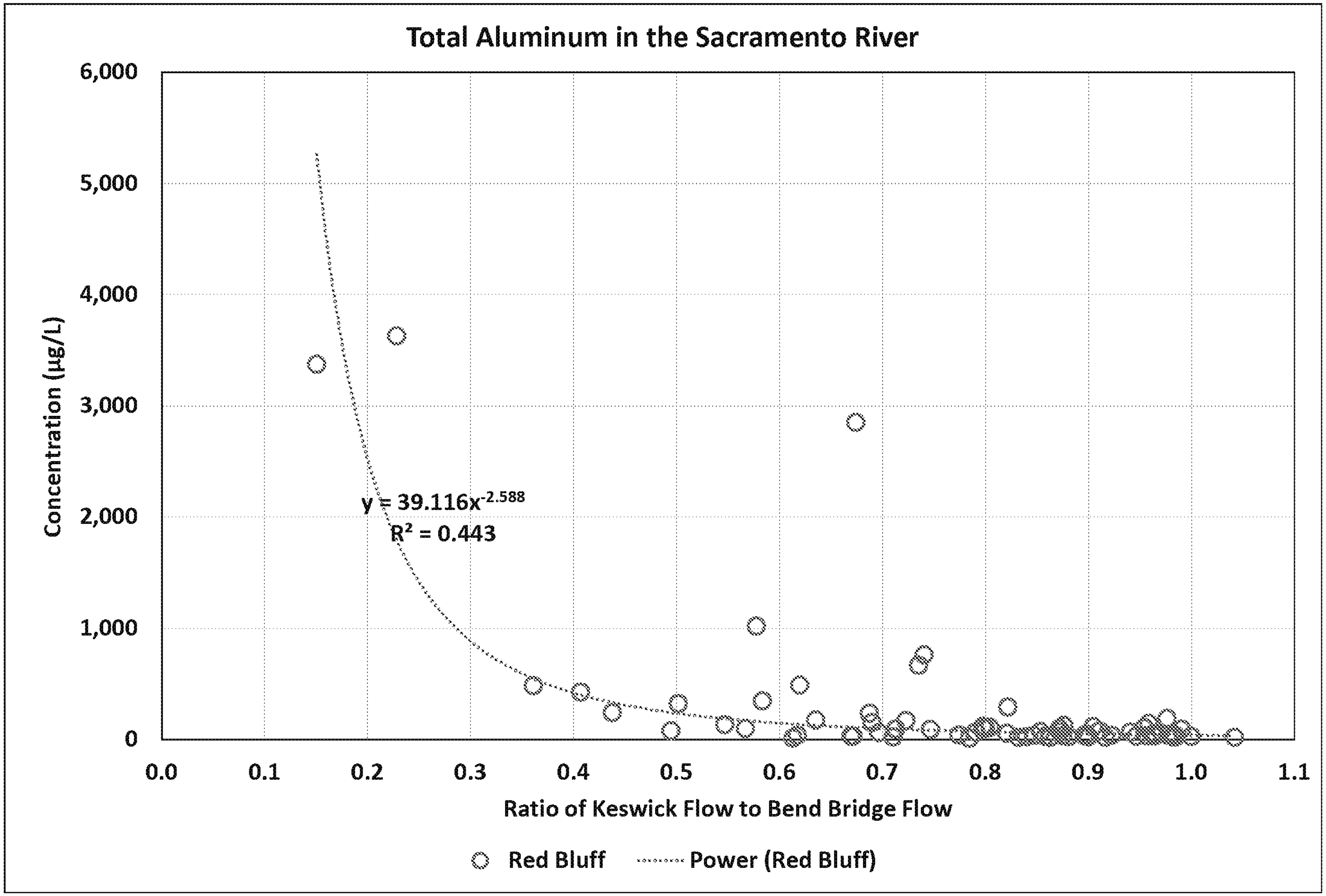

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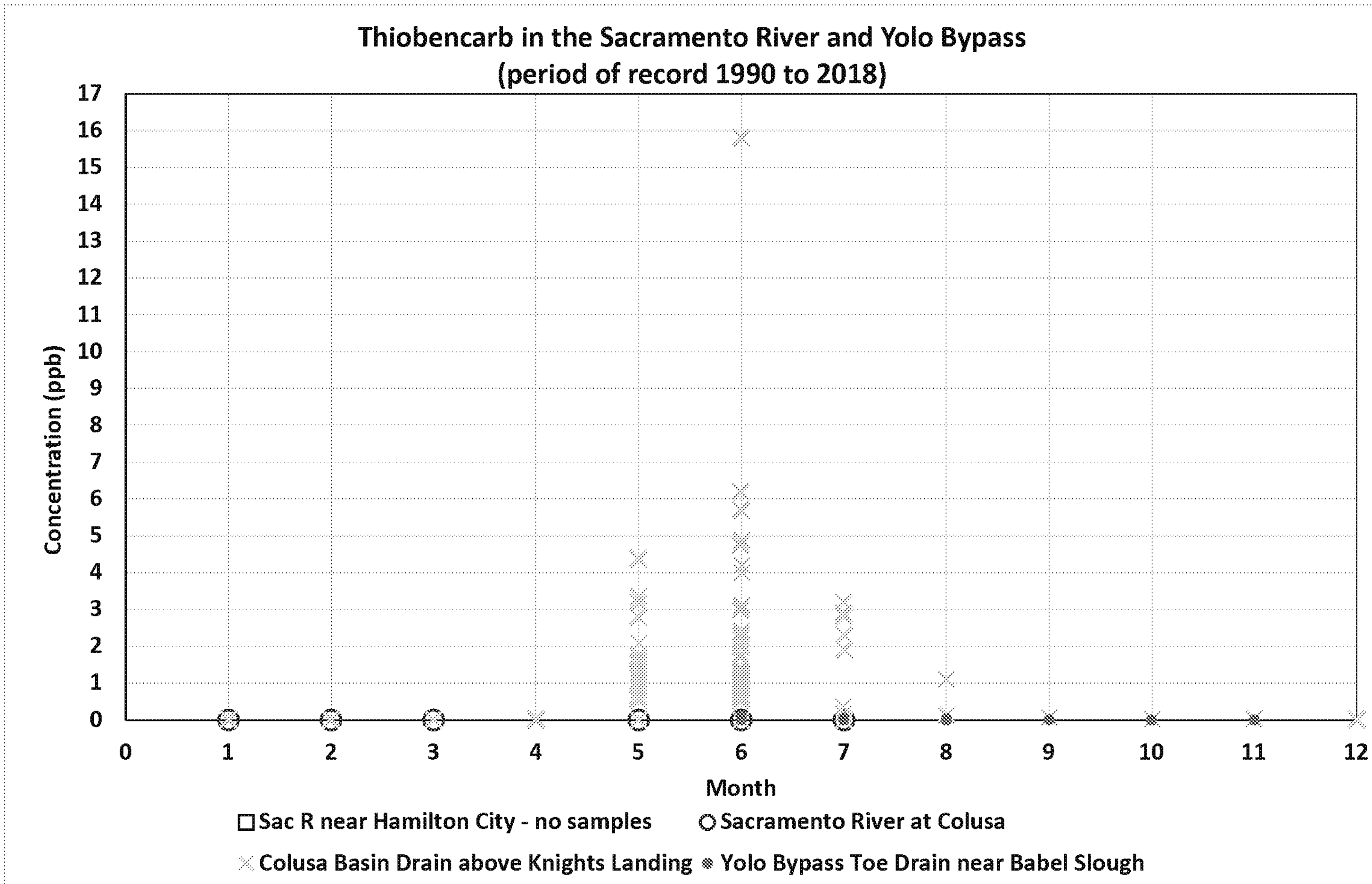

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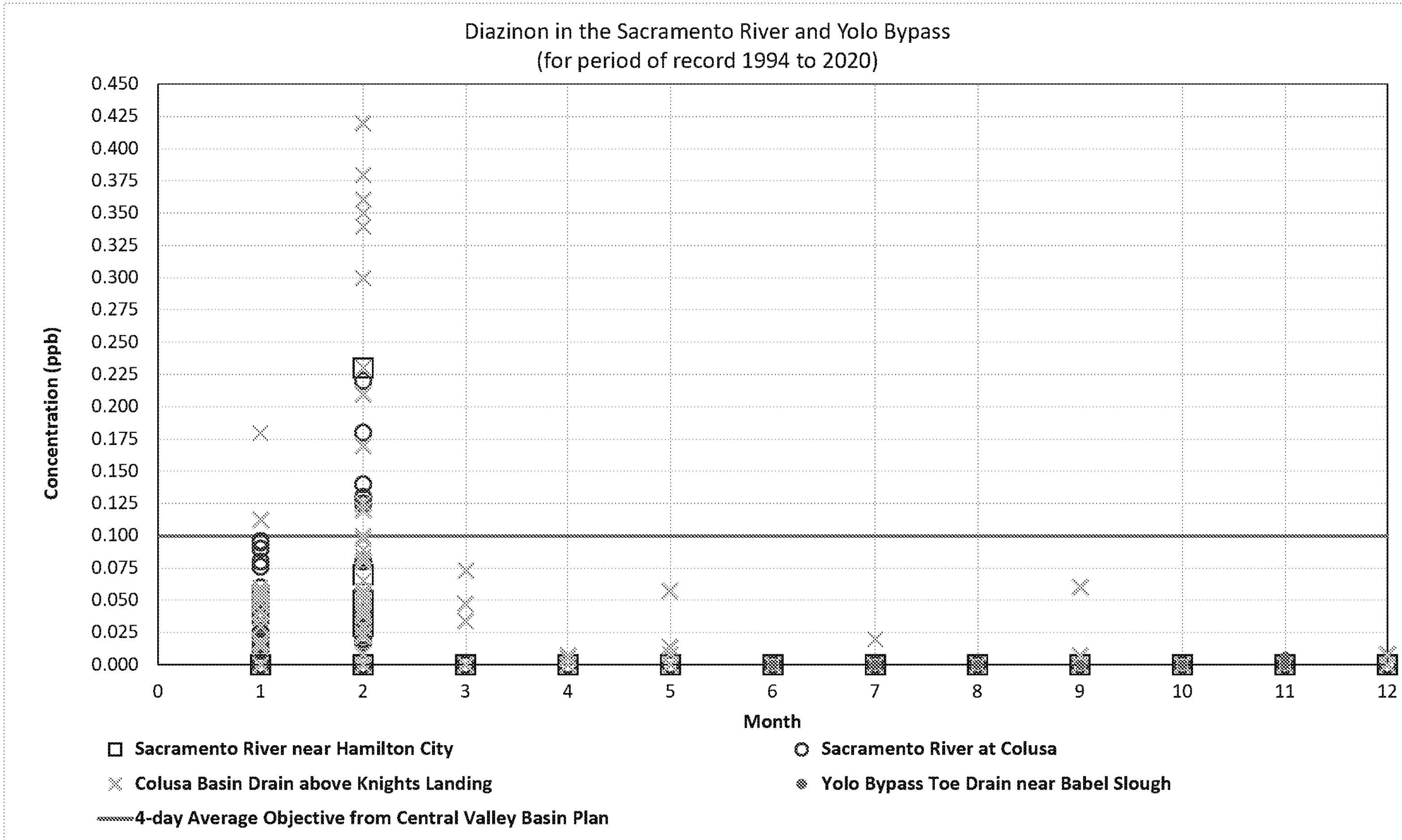

Other Topics: Salt Pond

- Salt Pond Evaluation:

Estimated Electrical Conductivity (EC in µS/cm) of reservoir release assuming 0.1 cfs salt spring flow is continually mixed with reservoir release and that Sacramento River EC is 130 µS/cm.

Spring EC	Reservoir Release (cfs)	
(µS/cm)[a]	10 cfs	1,200 cfs
7,200	201	131
194,100	2,070	146

[a] Spring EC between these two values.

Sites Reservoir Project

Virtual Public Meeting

Revised Draft Environmental Impact Report /Supplemental Draft Environmental Impact Statement

December 15, 2021, 6:00—8:00 PM
December 16, 2021, 9:00—11:00 AM

Sites

BUREAU OF RECLAMATION

Meeting Agenda

Project Presentation	9:00—9:30 AM
Questions and Answers	9:30—9:50 AM
RDEIR/SDEIS Public Comment	9:50—11:00 AM

This meeting is being recorded.

Project Presentation

Ali Forsythe, Sites Project Authority

Sites

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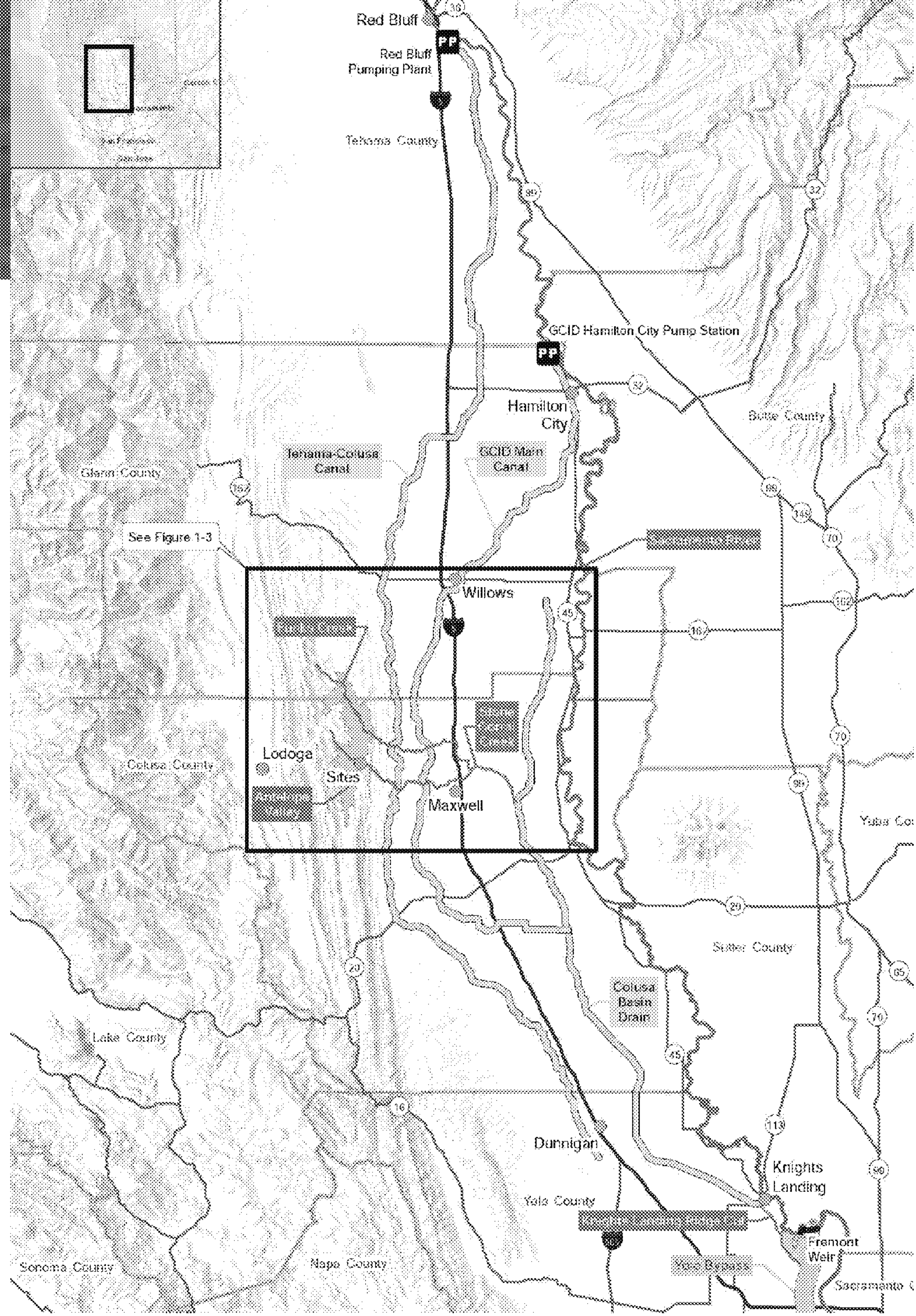
Presentation Agenda

- Sites Reservoir
  - Overview
  - Changes since 2017
  - Project today
- California Environmental Quality Act and National Environmental Policy Act
  - Purpose
  - Authority and Reclamation's role
- Revised Draft EIR/Supplemental Draft EIS
  - Preliminary findings
  - How to provide comments

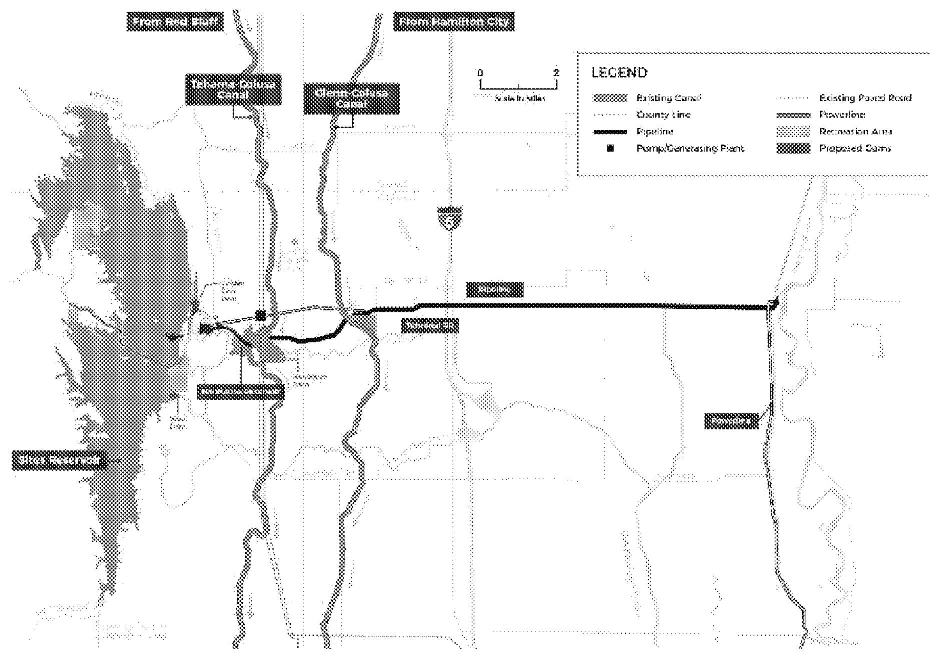
Sites Reservoir

- Proposed off-stream reservoir west of Maxwell, CA
- Divert water from the Sacramento River in higher flow conditions
- Store water in the new Sites Reservoir for later use by farms, cities, and the environment
- Funded by State and Federal governments and public water agencies
- A tool to help the state restore flexibility, reliability, and resilience to our statewide water supply



As Envisioned in 2017

- 2017 Project
  - 1.8 million acre-foot reservoir
  - 3 intakes (about 6,000 cfs diversion capacity in total)
  - New Delevan Pipeline and intake
  - Pump/generation facility
- 2017 Draft Environmental Impact Report (EIR)/ Environmental Impact Statement (EIS)
  - Released August 2017
  - 137 Comments Letters



Refinements in 2019/2020

- Cost considerations and environmental impacts lead to rethinking the Project in 2019/2020
  - 16 new / modified configurations considered
- Key changes to the Project
  - Changes in facility footprints and new footprint areas
  - Changes in operations
    - Changes in diversion criteria
    - Reduction in diversion ability from 6,000 cfs to 3,900 cfs
  - Changes in conveyance (removal of Delevan pipeline, addition of Dunnigan pipeline)
  - Full or partial release to the Colusa Basin Drain

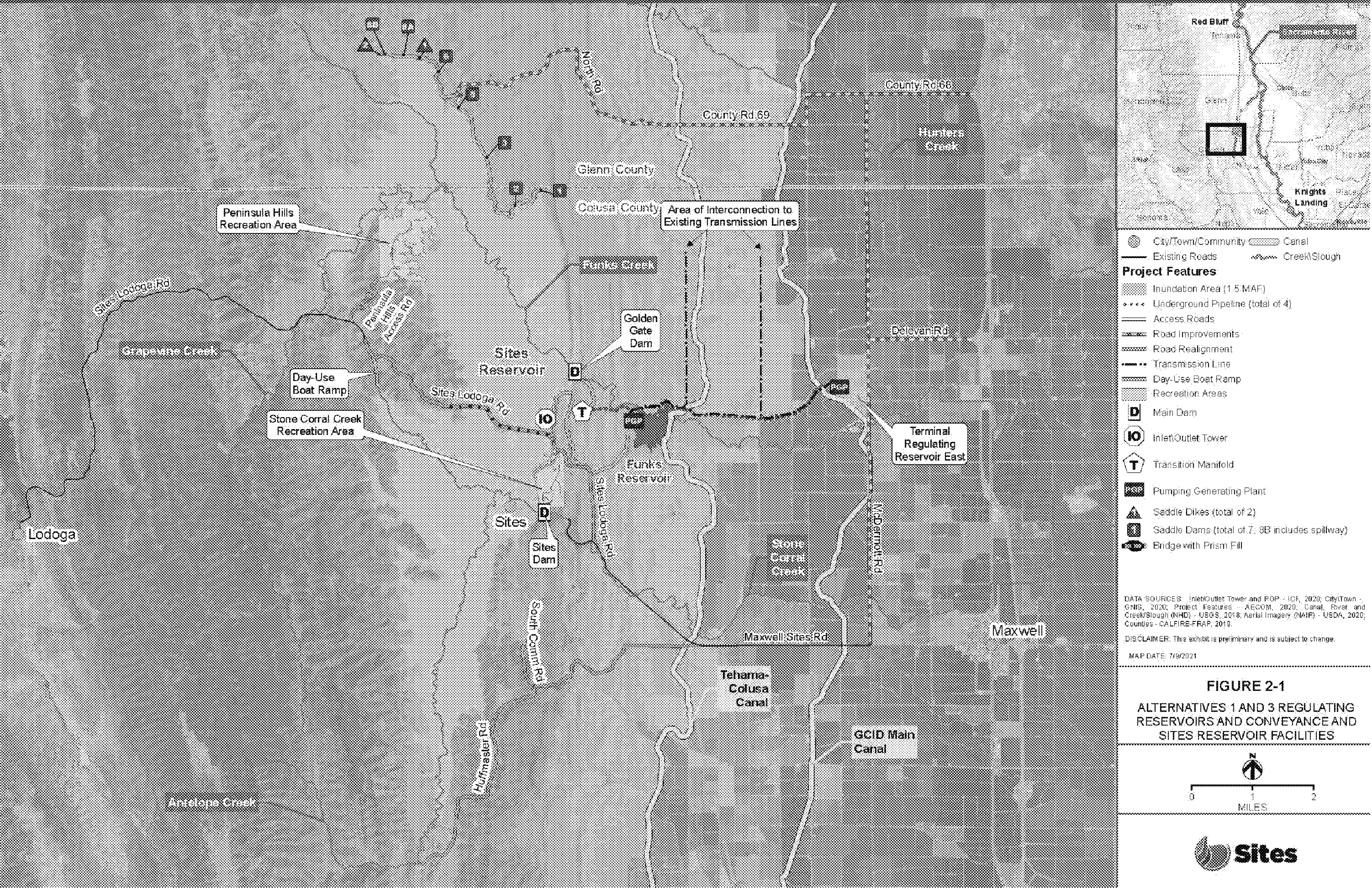
Decision to Revise and Recirculate Draft EIR and Supplement Draft EIS

- Revisions to the Project resulted in the identification of new alternatives not previously analyzed in the 2017 Draft EIR/EIS
- Preparation of a Revised Draft EIR/Supplemental Draft EIS allows the Authority and Reclamation ability to:
  - Address changes to the Project
  - Update modeling baseline
  - Update existing conditions and cumulative projects
  - Prepare an analysis that takes into consideration the comments received on the 2017 Draft EIR/EIS

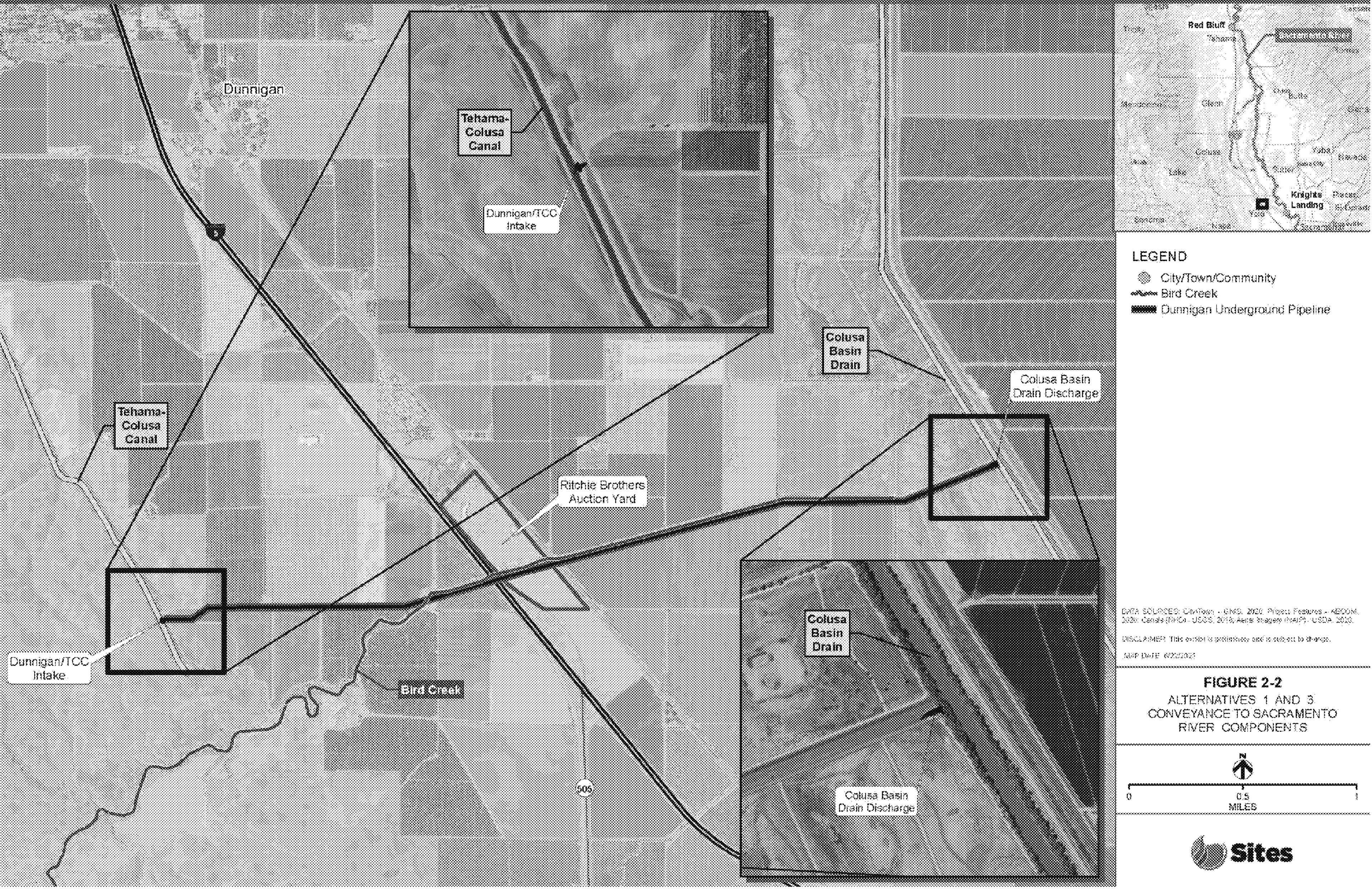
Alternatives Considered in the Revised Draft EIR/Supplemental Draft EIS

Facilities / Operations	Alternative 1 – Authority's Preferred Project	Alternative 2	Alternative 3
Reservoir Size	1.5 MAF	1.3 MAF	1.5 MAF
Hydropower	Incidental upon release	Same as Alt 1	Same as Alt 1
Diversion Locations	Red Bluff Pumping Plant and Hamilton City	Same as Alt 1	Same as Alt 1
Conveyance Release / Dunnigan Release	1,000 cubic feet per second (cfs) into new Dunnigan Pipeline to Colusa Basin Drain	1,000 cfs into new Dunnigan Pipeline to Sacramento River. Partial release into the Colusa Basin Drain	Same as Alt 2
Reclamation Involvement	1. Funding Partner 2. Operational Exchanges a. Within Year Exchanges b. Real-time Exchanges	Operational Exchanges a. Within Year Exchanges b. Real-time Exchanges	Same as Alt 1, but up to 25% investment
DWR Involvement	Operational Exchanges with Oroville and storage in SWP facilities South-of-Delta	Same as Alt 1	Same as Alt 1
Route to West Side of Reservoir	Bridge across reservoir	Paved road around southern end of reservoir	Same as Alt 1

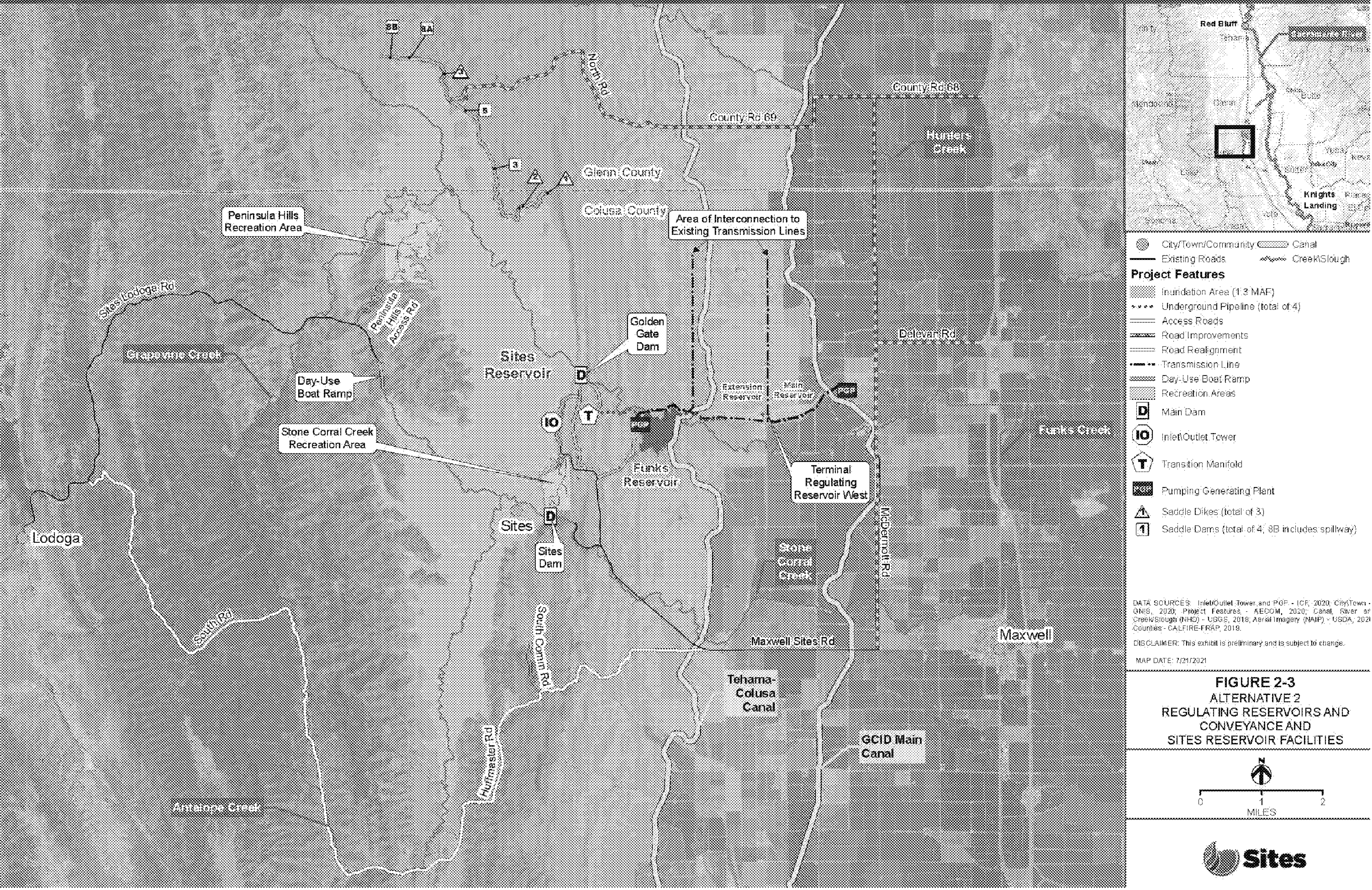
Alternative 1 and 3 Facilities



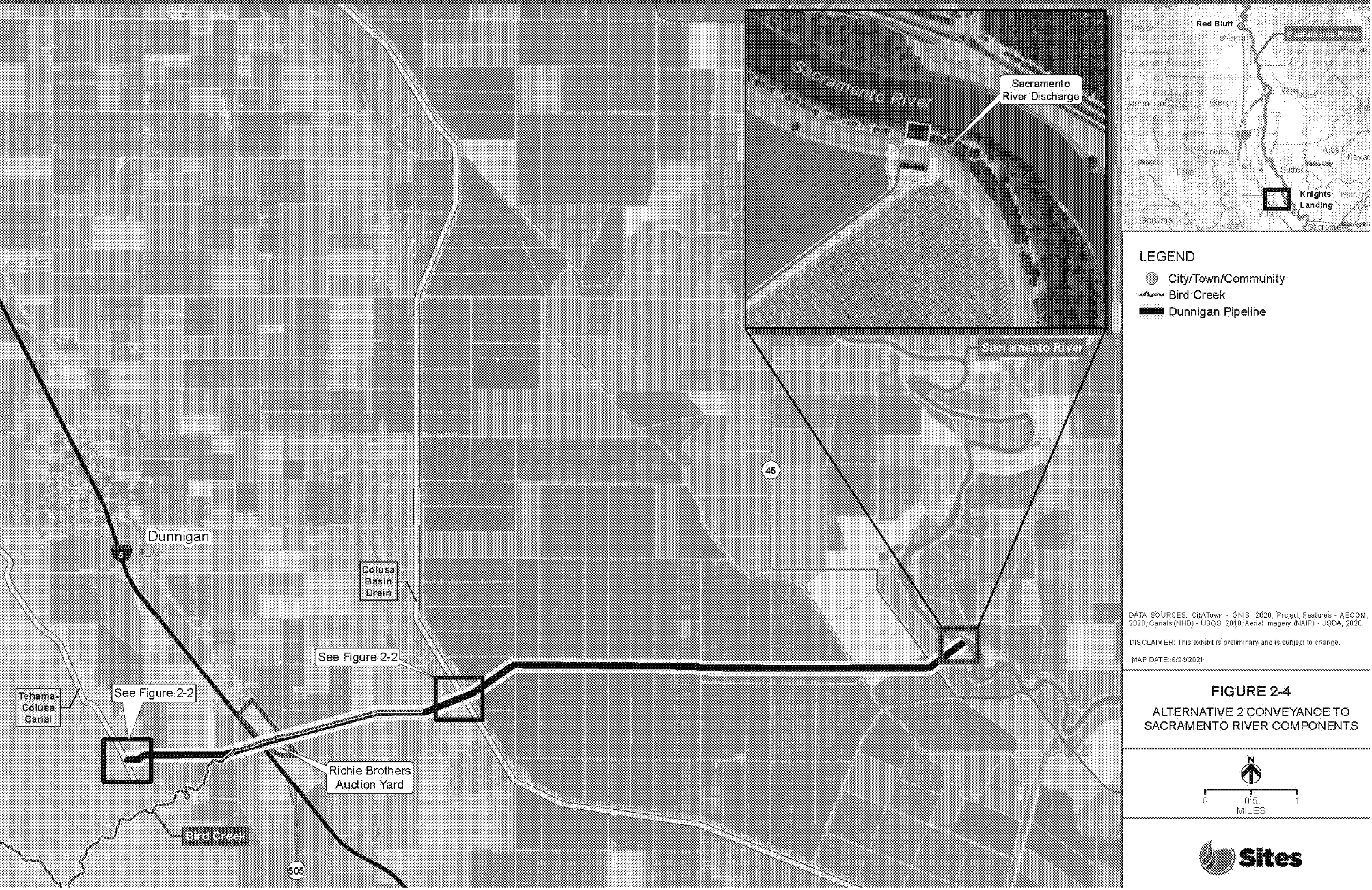
Alternative 1 and 3 Facilities (cont)



Alternative 2 Facilities



Alternative 2 Facilities (cont)

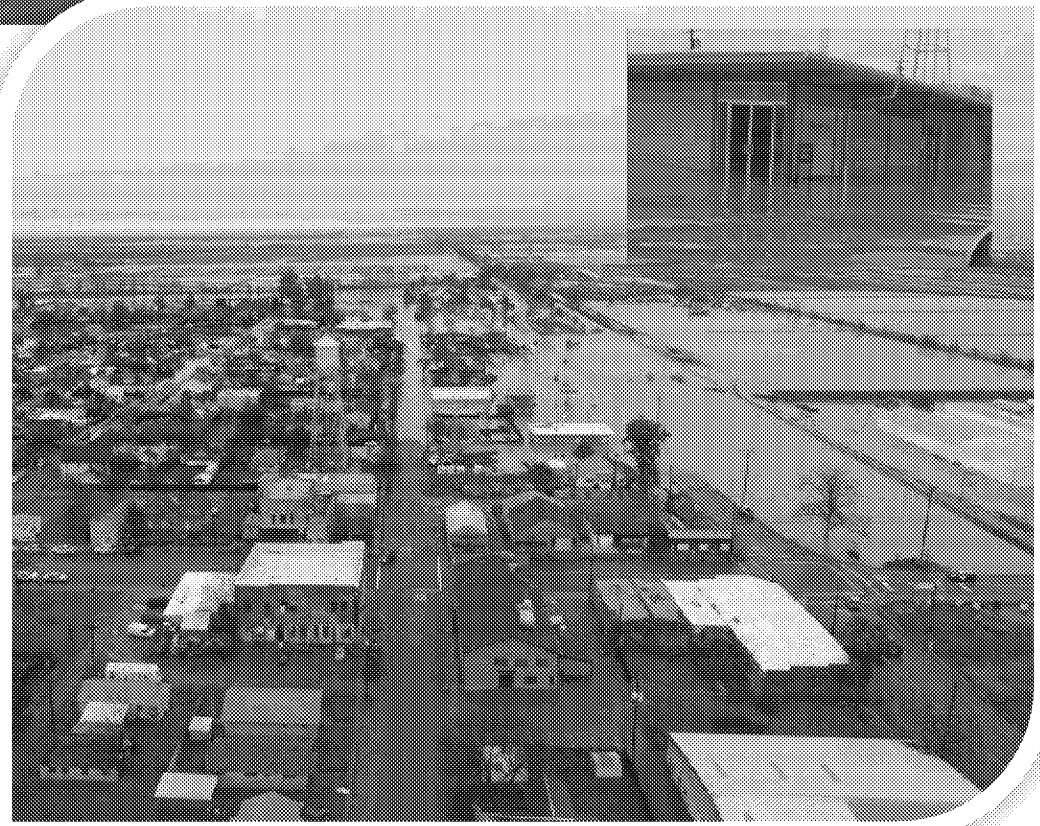


Recreation Components

- Water-related and water-based recreation at 3 new recreation areas
  - Stone Corral Recreation Area – 235 acres, east side of Sites
    - 50 camp sites
    - 10 picnic sites
    - Hiking trails
    - Boat launch
  - Peninsula Hills Recreation Area – 373 acres, west side of Sites
    - 200 camp sites, 1 group camp
    - 10 picnic sites
    - Hiking trails
  - Day Use Boat Ramp – 10 acres, west side of Sites
- Phased approach to match interest – Stone Corral and Day Use Boat Ramp constructed first

Flood Control Components

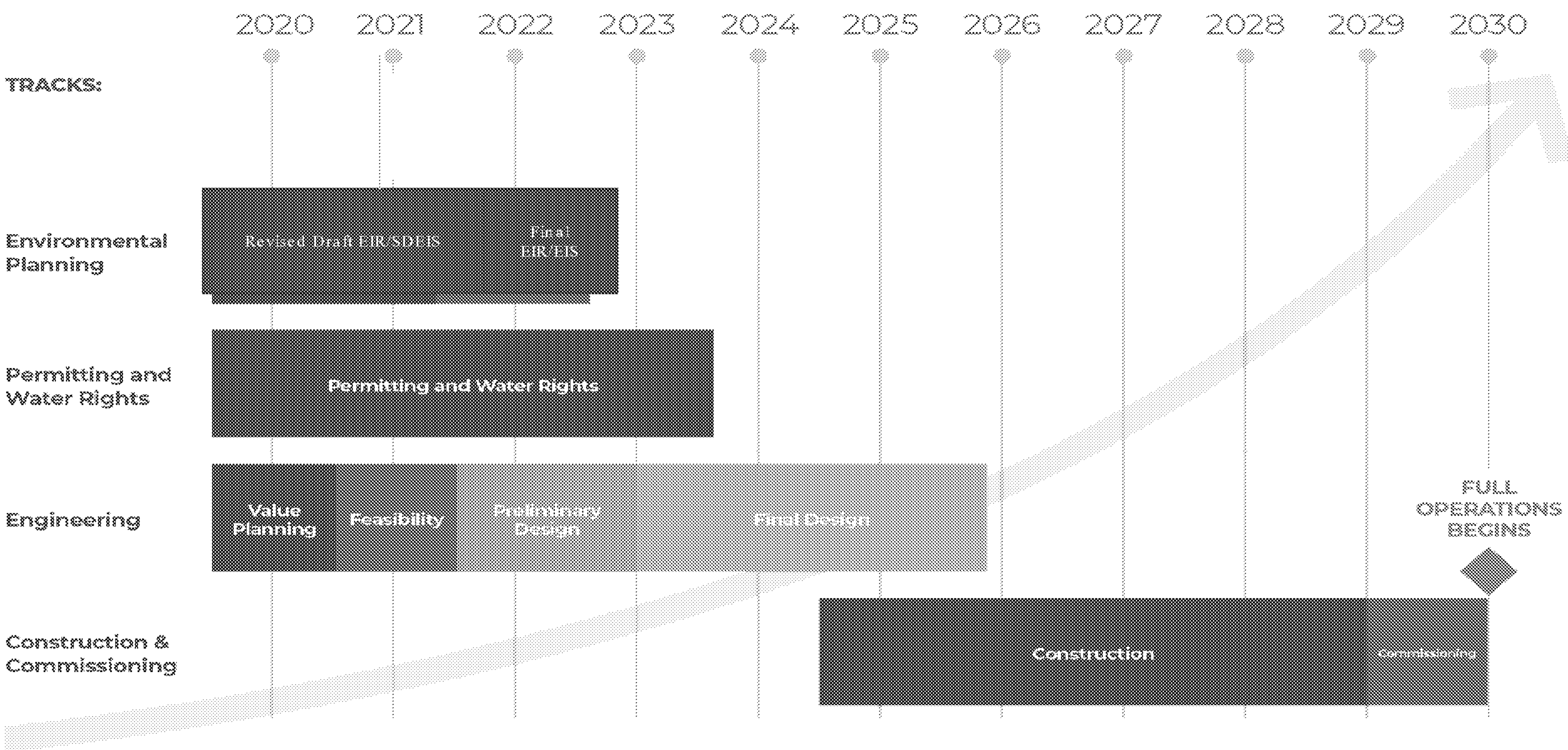
- Local flood control benefits to town of Maxwell and adjacent agricultural lands
- Provides 100-year flood protection to most of Maxwell and about 4,025 acres of agricultural land
- Reduce flooding of Interstate 5 in 100-year flood event



Flooding in Maxwell, CA in Feb 2017
Photo by Hector Iniguez, SF Gate

Project Schedule

Sites Reservoir Project Schedule



California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA)

- CEQA and NEPA are intended to provide decision makers and the public with information about a proposed project's effects on the environment and to:
  - Prevent avoidable damage to the environment
  - Foster informed public decision making
  - Ensure transparency in governmental decision-making process
  - Encourage public participation
- CEQA is the State law and applies to discretionary approvals by California governmental agencies
- NEPA is a Federal law and applies to discretionary approvals by Federal governmental agencies

Environmental Impact Report (EIR) / Environmental Impact Statement (EIS)

- Required when a proposed project would have one or more significant or adverse impacts on the environment
- Informational document which is intended to inform public agency decisionmakers and the public
  - Environmental effects of a project
  - Identify possible ways to minimize the effects
  - Describe reasonable alternatives to the project
- Authority is the Lead Agency for the EIR
- Reclamation is the Lead Agency for the EIS

EIR/EIS Process and Schedule

EIR/EIS Process	Schedule
Issue Notice of Preparation / Notice of Intent	November 2001
Issue Second Notice of Preparation	February 2017
Conduct Scoping	February 2017
Release Draft EIR/EIS	August 2017
Public and Agency Review	August 14, 2017 – January 15, 2018
Prepare and Recirculate Revised Draft EIR/Supplemental Draft EIS	November 2021
Public and Agency Review	November 2021 – January 2022
Prepare Final EIR/EIS	January – October 2022
Release Final EIR/EIS	October 2022
Agency Decision (No Earlier Than)	November 2022

Analyses in the Revised Draft EIR/ Supplemental Draft EIS

- Introductory Chapters
  - Ch. 1, Introduction
  - Ch. 2, Project Description and Alternatives
  - Ch. 3, Environmental Analysis
  - Ch. 4, Regulatory and Environmental Compliance
- Analysis of impacts to environmental resources in 26 chapters and 73 corresponding appendices
- Additional chapters address cumulative, growth-inducing and other required analyses

Determination of Impacts

- Agency must consider direct and indirect effects
- Impacts determined by comparison to baseline physical conditions
- Impact determinations:

CEQA Terminology	NEPA Terminology
✓ No Impact	✓ Beneficial
✓ Less than significant impact	✓ No effect
✓ Less than significant with mitigation	✓ No adverse effect
	✓ Adverse effect
✓ Significant impact	✓ Substantial adverse effect

Resources with No Effect, No Adverse Effect, or Less than Significant Impacts

- Fluvial Geomorphology
- Groundwater Resources
- Minerals
- Recreation
- Energy
- Noise
- Population and Housing
- Public Services and Utilities
- Public Health and Environmental Hazards

Resources with Impacts Requiring Mitigation

- Aquatic Biological Resources
- Greenhouse Gas Emissions
- Indian Trust Assets

Resources with Significant and Unavoidable Impacts / Adverse and Substantial Effects

- Surface Water Quality
- Vegetation and Wetland Resources
- Wildlife Resources
- Geology and Soils
- Land Use
- Agriculture and Forestry Resources
- Navigation, Transportation and Traffic
- Air Quality
- Cultural Resources
- Tribal Cultural Resources
- Visual Resources
- Environmental Justice and Socioeconomics

Highlight Area – Water Quality

- Analyzed inflows (Sacramento River, Funks and Stone Corral Creeks), in-reservoir processes, and outflows for metals, pesticides and temperature
- Less than significant / no adverse effects
  - No substantial increases in salinity or temperature in or downstream of the reservoir or violations of Delta or other water quality objectives
  - Levels of nutrients, organic carbon, and dissolved oxygen in releases would not violate water quality standards or waste discharge requirements
  - Harmful algal bloom occurrences are expected and would be addressed via monitoring and public notification
- Significant but reduced to less than significant with mitigation
  - Elevated concentrations of some metals and pesticides in Yolo Bypass as a result of redirection of some of the Colusa Basin Drain water from the Sacramento River to the Yolo Bypass
  - Elevated concentrations of some metals in Stone Corral Creek
- Significant and unavoidable / adverse and substantial effects
  - Increased methylmercury concentrations downstream of Sites Reservoir during the initial filling and for up to 10 years after

Highlight Area – Fisheries (Salmonids and Steelhead)

- Diversion criteria revised to be more protective
  - Wilkins Slough bypass flows
  - Pulse flow protection
  - Fremont Weir protection
  - When Sacramento River is not fully appropriated
  - During Delta "excess conditions"
  - Flows available above those needed to meet applicable laws, regulations, biological opinions, incidental take permits, and court orders in place at the time of diversion
- Significant operations effects to salmonids and steelhead
  - Reduced to less than significant with mitigation
    - Project diversions from Sacramento River in March through May of all water year types would not occur if flows in the River are or would be below 10,700 cfs at Wilkins Slough
    - Effectively modifies Project diversion criteria

Highlight Area – Trinity River

- No effect or changes in the operations of the Central Valley Project (CVP), Trinity River Division facilities (including Clear Creek)
- Reclamation would continue to operate consistent with all applicable statutory, legal and contractual obligations, including but not limited to:
  - Trinity River Record of Decision (ROD)
  - 2017 ROD for the Long-Term Plan for the Lower Klamath River
  - Provisions of the Trinity River Division CVP Act of 1955

Most Effective Comments

- Comments should focus on the substantive content of the RDEIR/SDEIS
- Comments should be limited to the environmental analysis in the RDEIR/SDEIS and not the prior 2017 Draft EIR/EIS
- All comments on the RDEIR/SDEIS must be postmarked or received by 5:00 PM PST on January 11, 2022
- Authority and Reclamation will respond to all substantive comments received in the comment period in the Final EIR/EIS

Submitting Comments

- Provide verbal comments at this meeting
  - After the question and answer session

- Submit written comments
  - Email comments to:
    - EIR-EIS-Comments@SitesProject.org
  - Mail written comments to:
    - Sites Project Authority, P.O. Box 517, Maxwell, CA 95955
    - Bureau of Reclamation, 2800 Cottage Way, W-2830, Sacramento, CA 95825

Question and Answer

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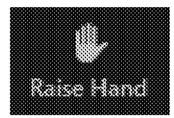
Question and Answer

- Questions will be answered in the order received
- Repeat questions will be consolidated

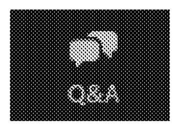
1. **Ask question verbally -** When called upon, unmute yourself and state your name and question

    Online:
    Click "raise hand" icon in Zoom



    Phone:
    Dial *9 to "raise hand"

2. **Type question into Q&A box**



Public Comments

Sites

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Public Comments

- Comments will be taken in the order hands are raised
- When called upon, unmute yourself
- State and spell your name before providing your comment
- All comments will be responded to in the Final EIR/EIS, and not verbally in the meeting

Verbal Comment

Online:
Click “raise hand” icon in Zoom

Phone:
Dial *9 to “raise hand”

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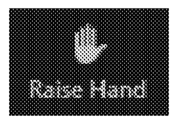

Phone:
Dial *9 to "raise hand"

*****No one is currently speaking. Comments will be accepted through the end of the meeting, 11:00 AM. Please raise your hand if you would like to provide a verbal comment.*****

Comments on the RDEIR/SDEIS must be postmarked or received by 5:00 PM PST on January 11, 2022

Email written comments to:

EIR-EIS-Comments@SitesProject.org

Mail written comments to the Sites Project Authority or Bureau of Reclamation:

Sites Project Authority	Bureau of Reclamation
P.O. Box 517	2800 Cottage Way, W-2830
Maxwell, CA 95955	Sacramento, CA 95825

Sites

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Thank you
for participating!

SitesProject.org

Sites

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Sites Project Water Quality Group Discussion

July 19, 2021

Sites

Agenda

1. Introductions
2. Group Norms
3. Action Item Follow-up
4. Flow Pathways and Discharge Effects
   a) Local Agricultural
   b) Colusa Basin Drain
   c) Sacramento River
   d) Stone Corral and Funks Creeks
   e) Yolo and Bay Delta
5. Open Topics and Discussion
6. Action Items and Adjourn

Group Norms

- Encourage everyone to be on video
- Mute yourself when others are speaking
- Respectful, professional dialogue
- Ask questions throughout, lets have a dialogue
  - Let the speaker finish their point
  - Use the raise your hand function in Teams if needed
- Topics for follow up will be recorded and followed up on

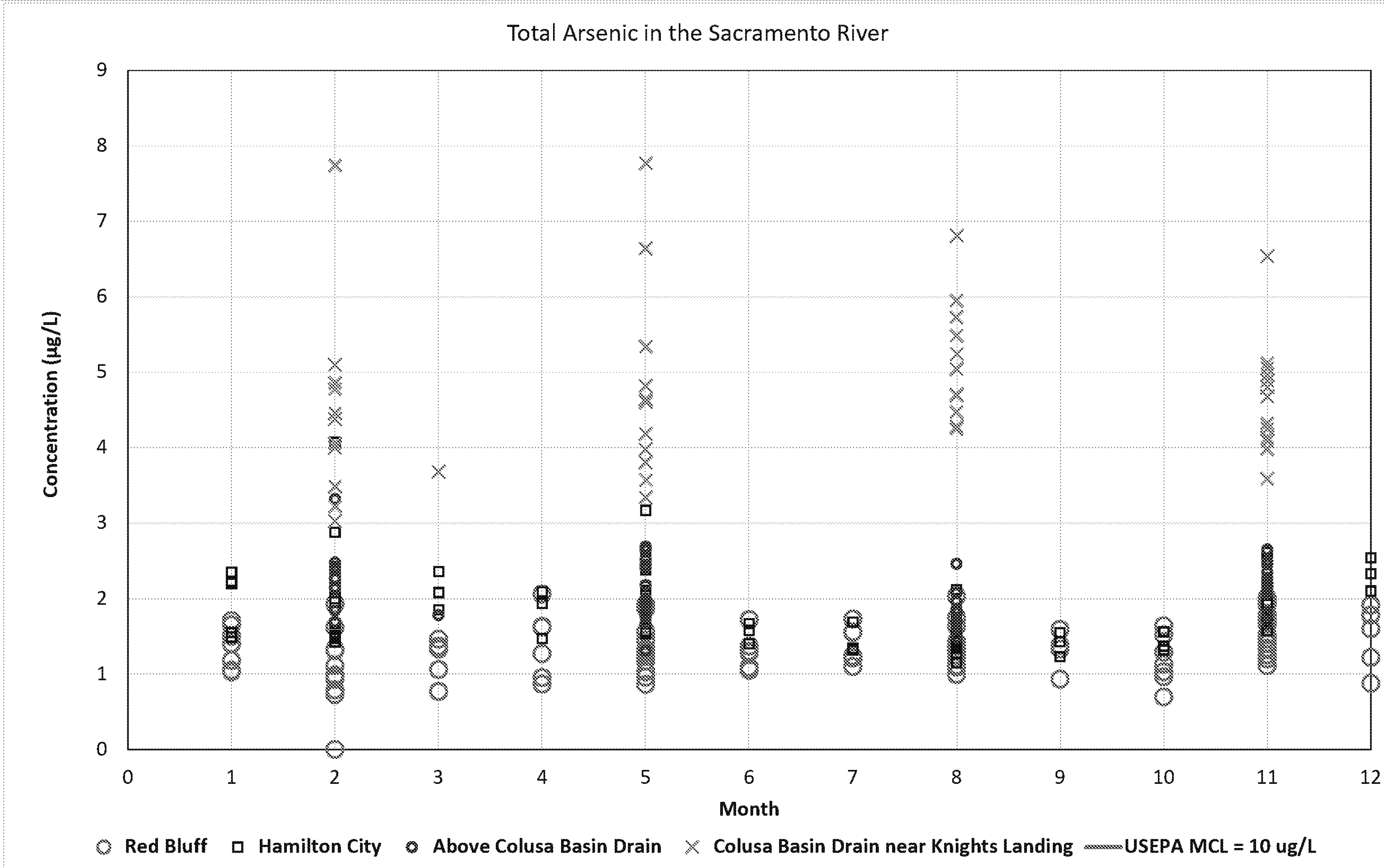
Action Item Follow-up

Action Item	Addressed	Pending	Notes
Specificity on years for data	X		
Distribute metals table	X		
Effects of release temperature on rice	X		
Effects of Hg and As on rice	X		
Effects of reservoir operations on water quality of Stone Corral and Funks creeks.	X		
Anti-degradation policy and Sites	X		
Synergistic effects of chemicals	X		

Flow Pathways

Sites

Discharge to Local Agriculture - Arsenic



Discharge to Local Agriculture - Arsenic

Parameter	Arsenic Concentration (µg/L)
Average total arsenic concentration measured in the Sacramento River below Red Bluff and at Hamilton City during January – March (Sites primary period for diversion to storage)	1.59
Estimated average total mercury concentration in Sites Reservoir after evapoconcentration[a]	1.84
Estimated maximum total arsenic concentration in Sites Reservoir after evapoconcentration[b]	2.35
Average measured total arsenic concentration in the Sacramento River above the CBD during May – September (Sites primary period for releases to the Sacramento River)	1.98
Average measured total arsenic concentration in the Sacramento River at Hamilton City during May – September (representing water used by GCID for rice irrigation).	1.71
Average measured total arsenic concentration in the CBD during May – September	4.91
MCL for drinking water	10.0
Dissolved arsenic 4-day average threshold for freshwater aquatic life	150.0
FAO recommended maximum concentration in irrigation water (Ayers and Westcot 1985:96)	100, but noted that toxicity to rice may occur at less than 50.
Arsenic concentration associated with toxicity to rice in Taiwan (Murphy et al. 2018a)	40
Dutch concentration requiring intervention or remediation (Murphy et al. 2018a)	55
For reference purposes: arsenic concentrations measured in Cambodian groundwater used for rice irrigation (Murphy et al. 2018b:4)	Up to 1,200

[a] 16% higher than inflow concentration based on the estimated average percent increases in concentration due to evapoconcentration (13%–16%, depending on alternative).
[b] 48% higher than inflow concentration based on the estimated maximum percent increase in concentration (41%–48%, depending on alternative), which represents one month out of the 984 months simulated by CALSIM.

Estimated Aqueous Methylmercury in Sites Reservoir

Estimated Concentrations of Aqueous Methylmercury in Sites Reservoir Releases

Estimated Methylmercury Concentration	Short-Term (1-10 y after filling) (ng/L)	Long-Term Average (>10 y after filling) (ng/L)
Expected	0.20	0.10
Reasonable Worst-Case	0.30	0.15

- Expected Concentrations
  - Long-term: aqueous methylmercury concentrations calculated by doubling estimated concentrations determined for imports from the Sacramento River (Red Bluff and Hamilton City fractions)
  - Short-term: Twice as high as long-term concentration
- Reasonable Worst-Case Concentrations:
  - "Reasonable worst-case" is not necessarily the maximum concentrations that could occur at Sites but instead is an estimated upper bound of expected average concentration based on published literature and site-specific conditions.
  - Long-term: Maximum measured concentration in Indian Valley Reservoir (2011)
  - Short-term: Twice as high as long-term concentration

Discharge to Colusa Basin Drain-Methylmercury

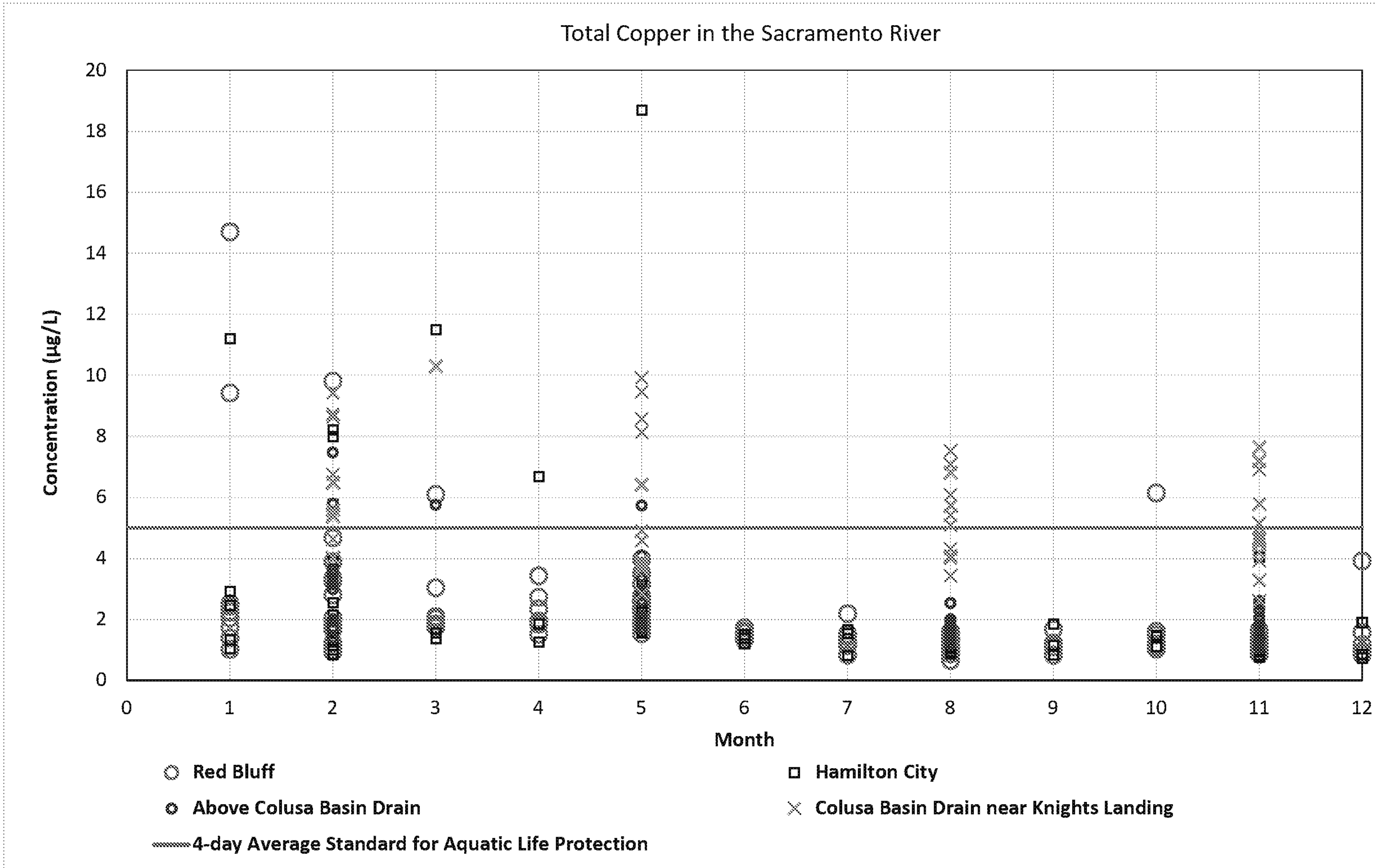
- Generally beneficial to CBD except for methylmercury
- Aqueous Methylmercury: All estimated concentrations in Sites Reservoir releases except expected long-term average (0.10 ng/L) would exceed average baseline concentrations in CBD (0.13 and 0.17 ng/L avg for 2 different data sets)
- Fish Tissue Methylmercury:
  - No long-term increases expected because releases would not occur year-round and the increase in aqueous methylmercury would be low.
  - Under short-term conditions, methylmercury in fish tissue may exceed the CA sport fish tissue objective (0.2 mg/kg, wet weight).

Mercury Mitigation and Management

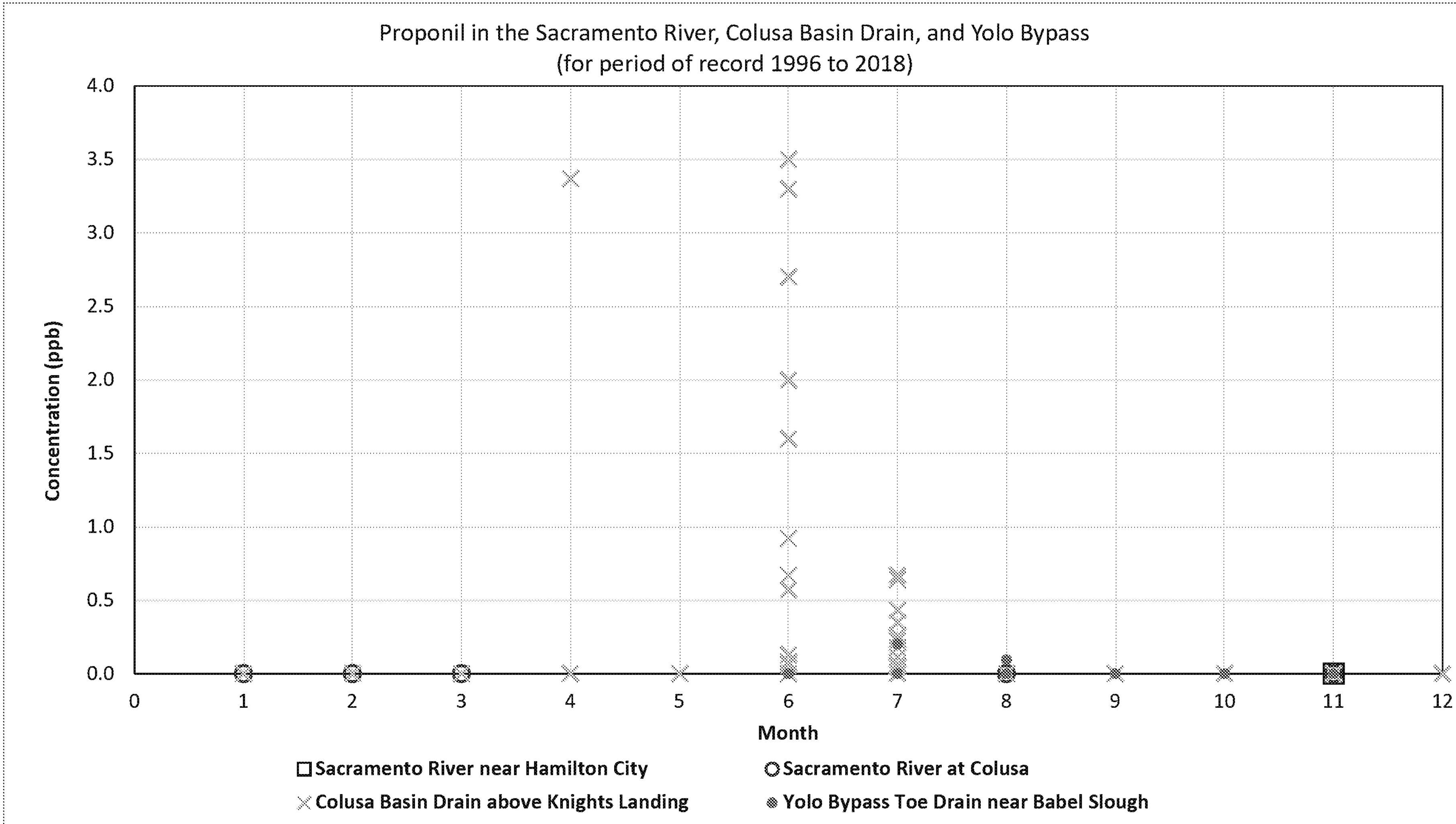
- RMP and Mitigation Measure WQ-1.1
  - Remove vegetation in inundation footprint prior to initial filling
  - Delay fish stocking- approx. 10 years after initial filling
  - Monitor reservoir fish tissue methylmercury
  - Post fish consumption warning signs if fish tissue methylmercury concentrations exceed CA sport fish objective
  - Implement methylmercury reduction actions for new reservoirs as identified in the implementation plan for Statewide Mercury Control Program for Reservoirs[a]

[a] SWRCB. 2017. *Draft Staff Report for Scientific Peer Review for the Amendment to the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California, Mercury Reservoir Provisions – Mercury TMDL and Implementation Program for Reservoirs*

Discharge to Colusa Basin Drain-Other Metals



Discharge to Colusa Basin Drain - Pesticides



Discharge to Sacramento River

- Locations
  - Sacramento River at Knights Landing for Alts 1 and 3
  - Dunnigan Pipeline for Alt 2 (near Tyndall Landing)
- Substantial dilution of Sites water in Sacramento River
- Quantitative evaluation for salinity, mercury, and other metals

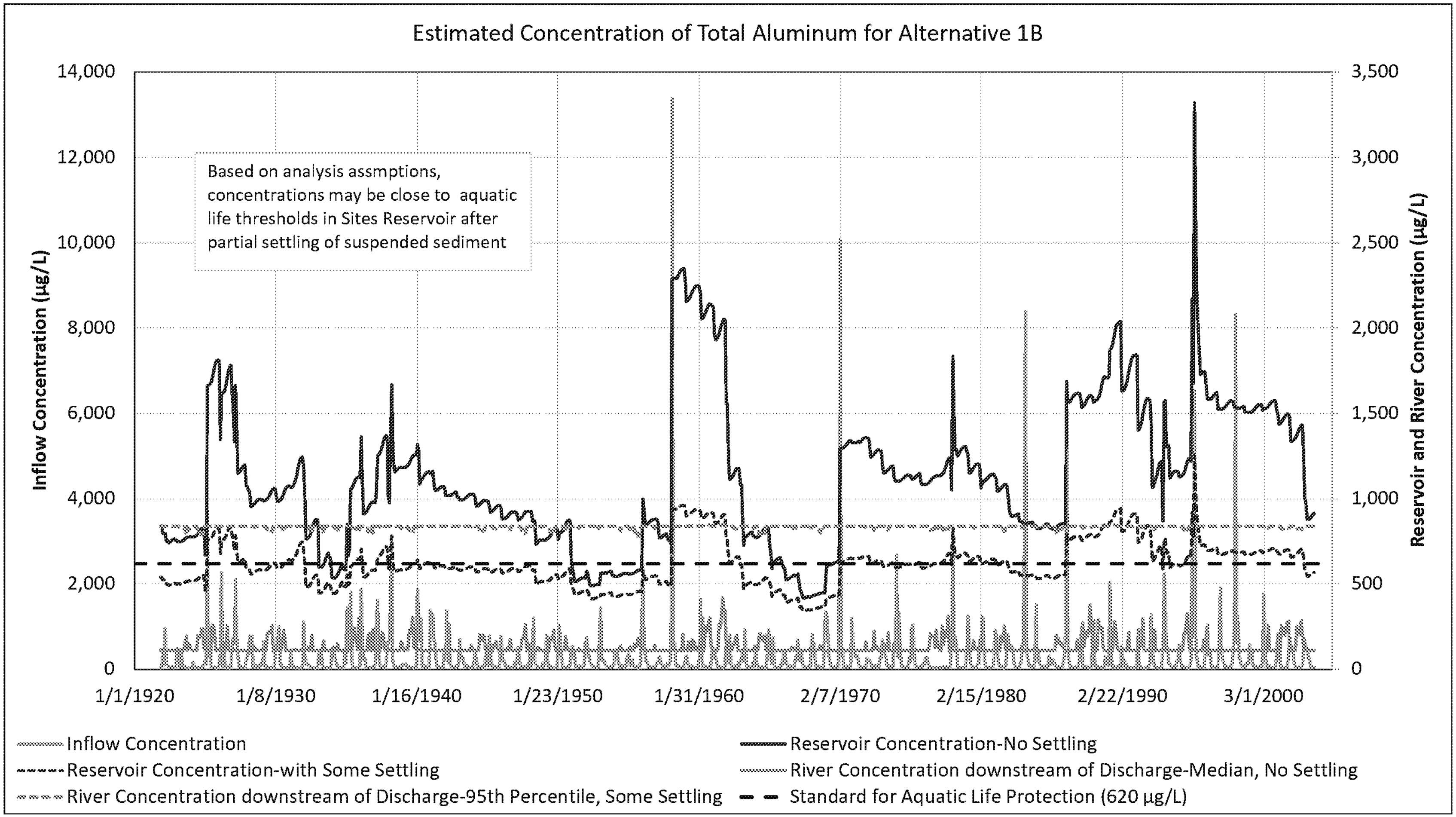
Discharge to Sacramento River-Dilution

- Simulated Sites Reservoir Release to Sacramento River (Release to Dunnigan Pipeline minus Release to Yolo Bypass) for All Alternatives (cfs)

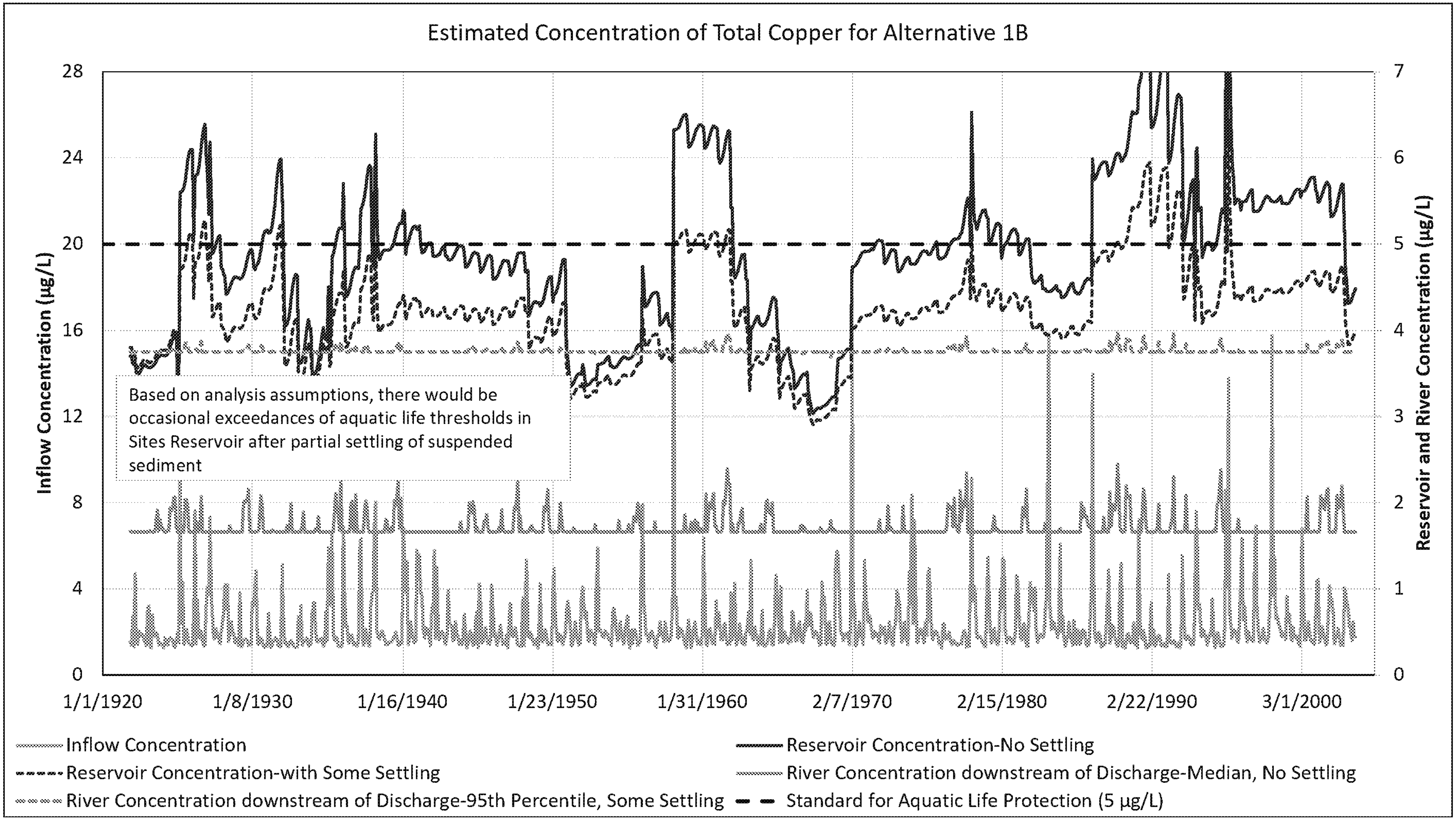
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Average for Critically Dry Water Years												
NAA	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1A	204	99	3	0	0	0	108	432	529	615	416	428
Alt 1B	127	96	10	15	0	13	123	417	520	621	435	373
Alt 2	131	100	3	0	0	0	109	425	497	605	346	319
Alt 3	80	83	10	19	21	78	148	396	464	593	379	179
Average for Dry Water Years												
NAA	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1A	325	364	23	0	0	0	58	111	794	970	609	572
Alt 1B	367	294	31	0	15	15	184	178	765	956	594	538
Alt 2	251	206	26	0	0	0	58	111	750	966	583	487
Alt 3	284	163	12	0	0	38	156	231	656	936	531	443
Average of All Water Year Types												
NAA	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1A	113	130	11	0	0	0	28	88	271	391	276	218
Alt 1B	107	139	43	5	5	7	60	100	314	385	275	191
Alt 2	87	102	13	0	0	0	29	87	257	388	254	184
Alt 3	99	91	39	3	8	21	57	109	307	397	271	147
Average for Wet Water Years												
NAA	0	0	0	0	0	0	0	0	0	0	0	0
Alt 1A	0	17	14	0	0	1	0	0	0	0	0	0
Alt 1B	0	93	102	0	3	6	0	0	0	0	0	0
Alt 2	0	15	17	0	0	1	0	0	0	0	0	0
Alt 3	0	81	102	0	4	5	0	0	0	0	0	0

- When Sites Reservoir would release water to the Sacramento River, it would constitute 6%–7% of the Sacramento River flow on average and 12%–13% when discharges are relatively high compared to river flow (i.e., 90th percentile values), depending on Alternative

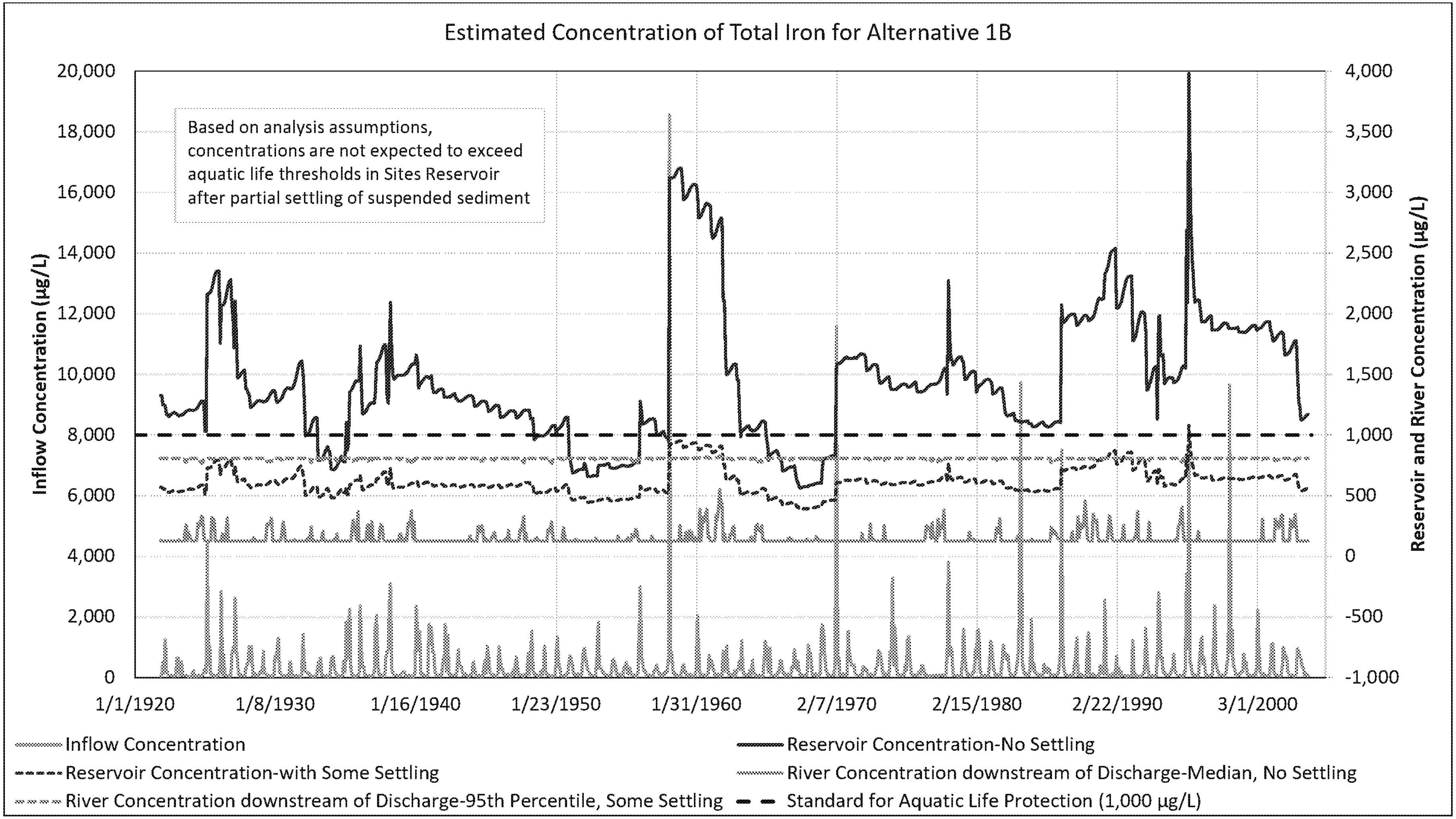
Discharge to Sacramento River-Total Aluminum



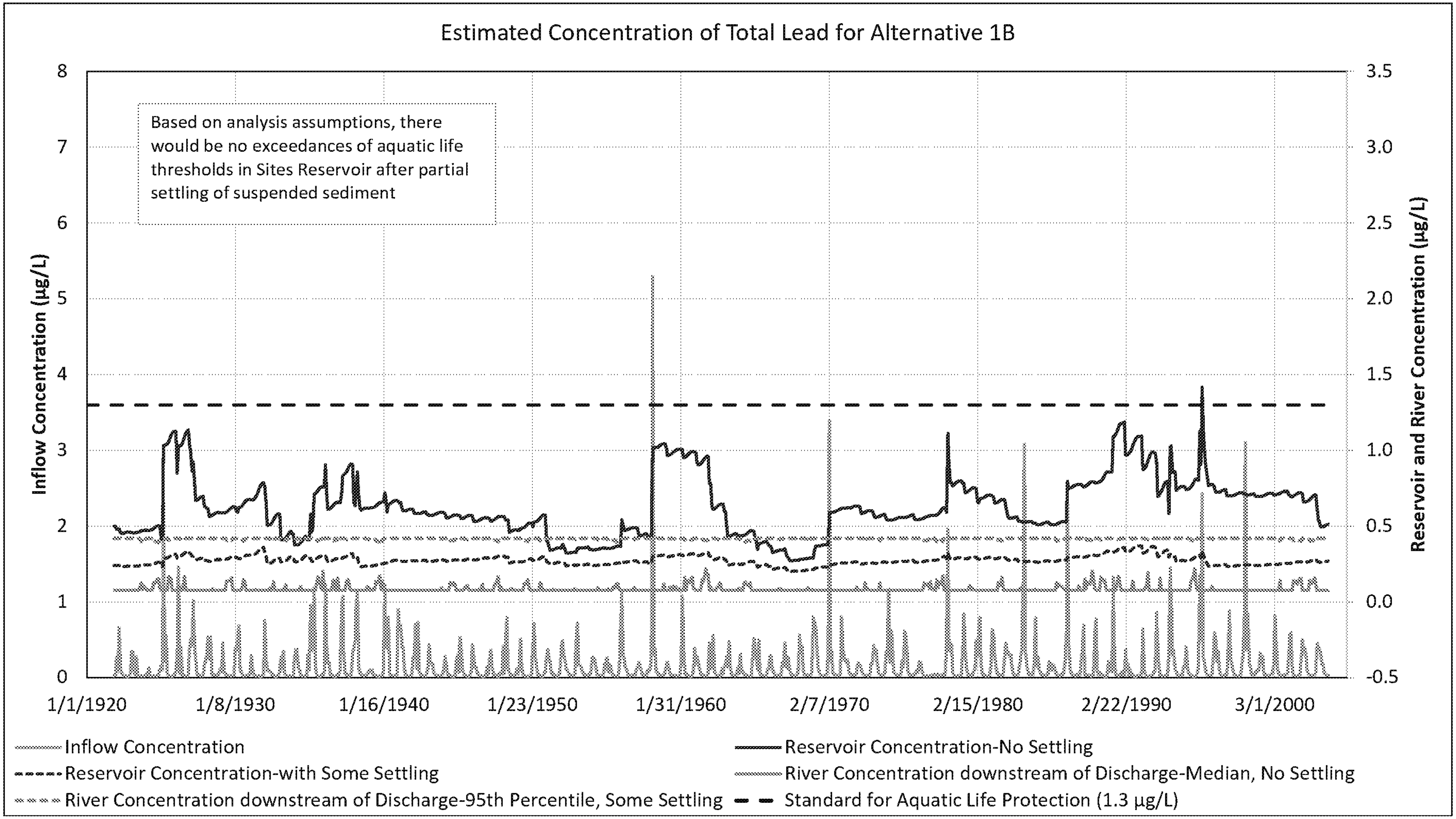
Discharge to Sacramento River-Total Copper



Discharge to Sacramento River-Total Iron



Discharge to Sacramento River-Total Lead



Discharge to Funks and Stone Corral Creeks

- Temperature studies – part of Technical Studies Plan and Adaptive Management for Funks and Stone Corral Creeks – for fish

- Stone Corral Creek – discharge from bottom of Sites Dam

- Funks Creek – discharge from I/O Tower

Discharge to Funks and Stone Corral Creeks-Methylmercury

- Total mercury concentrations in Sites Reservoir releases > Funks and Stone Corral Creeks
  - Sites Reservoir
    - Estimated short-term total mercury: 3.8 – 4.5 ng/L
    - Estimated long-term total mercury: 1.9 – 2.3 ng/L
  - Funks and Stone Corral Creeks total mercury: 0.35 ng/L and 0.85 ng/L, respectively
- Because most of the flow in Funks and Stone Corral Creeks would originate from Sites Reservoir releases, mercury and methylmercury concentrations in these creeks would increase and this would be reflected in fish tissue.
  - Effect greater in short term vs. long term
  - Effect may be larger for Stone Corral because releases would be made from lower in the reservoir where oxygen would be lower and methylmercury may be higher

Discharge to Stone Corral Creeks – Metals Impact

- Potentially significant during dry season due to bottom release from Sites Reservoir
- Mitigation Measure WQ-2.1 – possible actions:
  - Monitor metal concentrations to assess effect
  - Evaluate effect of modifying releases to Stone Corral Creek
  - Add vertical extension to reservoir at the withdrawal point
  - Pump water from the top of Sites Reservoir

Meeting: **Sites Reservoir Committee, Environmental Planning and Permitting Workgroup**

Locations: Maxwell Project Office, 122 Old Highway 99W, Maxwell, CA 95955
See below for alternate meeting locations.

Call in: **1-833-255-2803** Code: 678273256# Click here to join the meeting

Workgroup Chair: Thad Bettner (GCID)

Workgroup Vice-Chair: Heather Dyer (SBVMWD)

Staff Lead: Ali Forsythe, Environmental Planning and Permitting Manager

AGENDA

Thursday, June 9, 2022; 1:00 pm – 2:30 pm

NO ACTION or DECISION WILL BE TAKEN

ROLL CALL & CALL TO ORDER:

- Introductions.
- Period for Public Comment.

1. Discussion and Information Items:

1.1 Review and comment on the Authority's application for a Short-term Eagle Take Permit for geotechnical activities with the U.S. Fish and Wildlife Service

2. Environmental Planning and Permitting Manager Report

- Key Planning and Permitting Activities Report

3. Upcoming Meetings:

Joint Reservoir Committee and Authority Board
Friday, June 17, 2022 (9:00 am – 12:00 pm)

Environmental Planning and Permitting Workgroup
Thursday, July 14, 2022 (1:00 – 2:30 pm)

Virtual Information will be provided before all meetings at Sitesproject.org.

ADJOURN

PERIOD OF PUBLIC COMMENT: Any person may speak about any subject of concern, provided it is within the jurisdiction of the Reservoir Committee and is not already on today's agenda. The total amount of time allotted for receiving such public communication shall be limited to a total of 10 minutes per issue and each individual or group will be limited to no more than 3 minutes each within the 10 minutes allocated per issue. **Note:** No action shall be taken on comments made under this comment period.

ADA COMPLIANCE: Upon request, agendas will be made available in alternative formats to accommodate persons with disabilities. In addition, any person with a disability who requires a modification or accommodation to participate or attend this meeting may request necessary accommodation. Please make your request to the Board Clerk, specifying your disability, the format in which you would like to receive this Agenda and any other accommodation required no later than 24 hours before the start of the meeting.

Alternate Meeting Locations:

Glenn-Colusa Irrigation District, 344 East Laurel St, Willows, CA 95988

San Bernardino Valley Municipal WD, 380 E. Vanderbilt Way, San Bernardino, CA 92408

Colusa County, 1215 Market St., Colusa CA 95932

Coachella Valley Water District, 51501 Tyler Street, Coachella CA 92236

Reclamation District 108, 975 Wilson Bend Rd., Grimes, CA 95950

Wheeler Ridge-Maricopa Water Storage District, 12109 Hwy 166, Bakersfield, CA 93313

List of Water Right Holders Downstream from the Proposed Sites Reservoir Points of Diversion With Priority Date after State Filings (9/30/77)

Priority Date	Application Number	Owner	Season Start	Season End	Max Diversion Amount*
12/22/1977	A025616	City Of West Sacramento	1-Sep	31-Dec	18,350 AF
05/01/1978	A025727	Natomas Central Mutual Water Company	1-Oct	1-Apr	10,000 AF
09/07/1984	A028238	Willow Creek Mutual Water Company	1-Oct	15-Jan	5,000 AF
04/19/1994	A030358	Woodland-Davis Clean Water Agency	1-Jan	31-Dec	45,000 AF
11/02/1994	A030410	Pelger Mutual Water Company	15-Sep	31-Mar	5,000 AF
05/30/1995	A030445	Maxwell Irrigation District	1-Oct	31-Mar	13,630 AF
06/13/1995	A030454	Sacramento County Water Agency	1-Jan	31-Dec	71,000 AF
11/19/1998	A030812	Princeton-Codora-Glenn Irrigation District	1-Nov	31-Mar	24,370 AF
11/19/1998	A030813	Provident Irrigation District	1-Oct	31-Mar	26,747 AF
02/18/1999	A030838	Glenn-Colusa Irrigation District	1-Nov	31-Mar	182,900 AF
05/13/2003	A031436	Reclamation District #108	1-Nov	1-Feb	36,000 AF
01/20/2012	A031919	River Garden Farms	1-Nov	1-Mar	7,000 AF

Note: Some of the maximum diversion amounts are in combination with other water rights for the entity and/or include multiple sources of water.

From: Whittington, Chad/SAC [Chad.Whittington@jacobs.com]
Sent: 6/2/2022 5:38:17 PM
To: Briard, Monique [Monique.Briard@icf.com]; Hendrick, Mike [mike.hendrick@icf.com]; Williams, Nicole [Nicole.Williams@icf.com]; Anne.Huber@icf.com; Alicia Forsythe [aforsythe@sitesproject.org]; Heydinger, Erin [erin.heydinger@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
CC: steve.micko@jacobs.com; Leaf, Rob/SAC [Rob.Leaf@jacobs.com]; Thayer, Reed/SAC [Reed.Thayer@jacobs.com]
Subject: Daily Divertible Flow Tool for Final EIR/EIS (2022)
Attachments: Sites_DDFT_FEIRS2022_June2_2022.zip; Sites_DDFT_FEIRS2022_June2_2022.pdf

Hi all,

The Daily Divertible Flow Tool (DDFT) for the Final EIR/EIS modeling is posted to the Sites Project SharePoint: DDFT

The DDFT package and corresponding transmittal memo are attached.

This zip folder includes the following files:

- DDFT for the 2022 Final EIR/EIS
    - Divertible_Storable_Flow_for_Sites_Project_20220602.xlsm
- DDFT Documentation
    - Sites_Reservoir_Daily_Divertible_Flow_Tool_Documentation_20220602_v1.docx
- Sacramento River flows (Bend Bridge and upstream and downstream of the Project intakes) from the DDFT
    - DDFT_SacR_Flows_BB_RB_HC_FEIRS2022.xlsx
- Package contents document (describing the files included in the zip folder)
    - Package_Contents.docx

This DDFT is applicable to Alternatives 1A, 1B, 2, and 3 at historic climate.

Please let me know if you have any questions.

Best,
Chad Whittington
Jacobs
Water Resources Engineer
Chad.Whittington@jacobs.com

File Provided Natively

File Provided Natively

Daily Divertible & Storable Flow Tool (DDFT) for Sites Project Package (Final EIR/EIS 2022)

Files included in package:

- Sites Daily Divertible & Storable Flow Tool (version 20220602 at historic climate)
  - Divertible_Storable_Flow_for_Sites_Project_20220602 _FEIRS2022.xlsm
- Sacramento River Flows at Bend Bridge and upstream and downstream of Project intakes
  - DDFT_SacR_Flows_BB_RB_HC_FEIRS2022.xlsx
- Sites Daily Divertible & Storable Flow Tool Documentation (version 20220602)
  - Sites_Reservoir_Daily_Divertible_Flow_Tool_Documentation_20220602_v1.docx

The Daily Divertible & Storable Flow Tool (version 20220602) is setup with the assumptions for the Sites Project alternatives used in the 2022 Final EIR/EIS, which are provided in Table 1 and Table 2.

Table 1. Facility Assumptions used in the Daily Divertible & Storable Flow Tool (version 20220602) for analysis in the 2022 Final EIR/EIS.

Sites Facilities	
Sites Storage Capacity	1.5 MAF
Initial Sites Storage	60 TAF
Sites Diversion Season	November - May
Red Bluff Diversion Capacity	2,100 CFS
Red Bluff Bypass Flow	3,250 CFS
TCC Minimum Pumping Level	125 CFS
Hamilton City Diversion Capacity	1,800 CFS
Hamilton City Bypass Flow	4,000 CFS
GCC Minimum Pumping Level	100 CFS
GCC Maintenance Window	January 25th – February 7th
Facilities (Not Sites Specific)	
Fremont Weir	Fremont Weir Notch

Table 2. Regulatory Assumptions used in the Daily Divertible & Storable Flow Tool (version 20220602) for 2022 Final EIR/EIS analysis.

Regulations	
Bend Bridge Pulse Protection	
Bend Bridge Pulse Protection Season	October - May
Bend Bridge Pulse Protection Initiation Criteria	3-day average Sacramento River must exceed 8,000 cfs; 3-day average tributary flow must exceed 2,500 cfs
Bend Bridge Pulse Protection Duration	7 days upon initiation, or exceedance of 25,000 cfs at Sacramento River at Bend Bridge
Bend Bridge Pulse Protection Re-setting Criteria	After completion of pulse protection period, resetting criteria must be met for another pulse protection period to commence: 3-day Sacramento River flow must go below 7,500 cfs for 7 consecutive days; 3-day moving average tributary flow must go below 2,500 cfs for 7 consecutive days
Wilkins Slough Bypass Flow	10,700 cfs October - June; all other times, 5,000 cfs

Fremont Weir Notch Criteria	None
Flows into the Sutter Bypass System	None
Freeport Bypass Flow	None
Surplus Delta Outflow	7 days of flow availability in February – March is required before diversions can be made in those months
SWP ITP Delta Outflow	44,500 cfs April - May

*Bend Bridge pulse protection may initiate in October, which is earlier than the diversion season of November through May that is specified in the Divertible Flow Tool. This protection criterion is consistent with the logic employed by CalSim II, which simulates October diversions in 9% of the years. Pulse protection initiated in October may also affect Sites diversions in the Divertible Flow Tool by carrying over into November and/or changing the timing of the next pulse initiation.

Sites Reservoir Daily Divertible & Storable Flow Tool

1. Objective

The Daily Divertible & Storable Flow Tool (Divertible Flow Tool/Daily Modeling Tool) has been developed to evaluate and test diversion criteria in a real-time operations context. The Tool determine daily divertible and storable flow for Sites Project in October 1st, 2008 – May 31st, 2018 based on water availability and user specified conveyance constraints and diversion criteria. The spreadsheet generates timeseries of diverted and stored flow at three intake locations – Red Bluff, Hamilton City, and Delevan (by default, diversions through Delevan are set to zero in version 2022-06-02). Furthermore, the Divertible Flow Tool can be used to supplement CalSim II by:

- Representing the effects of operations criteria on a daily timestep
- Allowing for relative comparisons between monthly and daily approaches
- Providing results for more recent years (WY 2009 – 2018)

Several differences between CalSim II and the daily Divertible Flow Tool should be considered when both models are used in conjunction to evaluate Sites operations. Firstly, CalSim II yields results on a monthly timestep and the Divertible Flow Tool operates on a daily timestep. Different approaches are sometimes necessary to simulate monthly conditions as opposed to daily conditions, and implementing operation criteria on a daily timestep tends to be more conservative. Additionally, the two modeling tools include different simulation periods. CalSim II includes WY 1922 – 2003 while the Divertible Flow Tool includes WY 2009 – 2018. Table 1-1 shows the difference in proportion of Water Year Types (WYTs) for each modeling tool. As shown, the Divertible Flow Tool includes a drier period than does CalSim II.

Table 1-1. Proportion of Water Year Types in CalSim II and the Daily Divertible Flow Tool

WYT	CalSim II (1922-2003)	Divertible Flow Tool (2009-2018)
Wet	32%	20%
Above Normal	15%	0%
Below Normal	17%	40%
Dry	22%	20%
Critical	15%	20%

Another key difference is that CalSim II provides a continuous simulation over an 82-year period, while the Divertible Flow Tool simulates each year as a separate event. Furthermore, the daily modeling tool only provides estimated fill volumes, whereas CalSim II also includes release operations.

With the above considerations in mind, the daily Divertible Flow Tool serves as a valuable resource that can supplement CalSim II by evaluating Sites operations in real-time.

2. Available, Divertible, and Storable Flow

The Divertible Flow Tool uses outputs from the Flow Availability Tool, which estimates flow available for potential diversion to Sites Reservoir, subject to hydrology and regulations outside the scope of Sites Project operations (i.e., Delta Outflow standards, downstream water quality regulations, and other criteria from D-1641). The Divertible Flow Tool can then be used to evaluate various combinations of hydrology and Sites-related operations criteria. Divertible and storable flow are defined as follows:

- Divertible Flow = Flow available for potential diversion to Sites Reservoir subject to flow requirements and conveyance constraints associated with Sites Project.

- Storable Flow = “Divertible Flow” subject to storable capacity.

3. User Specifications and Input Assumptions

Figure 3-1 shows a snapshot of the Tool’s dashboard, where users can specify various regulations and constraints corresponding to project operations. The table situated in the top-center displays monthly available, divertible, and storable flows associated with user specifications. The charts show daily hydrographs for the Sacramento River and the divertible and storable flow available at each intake.

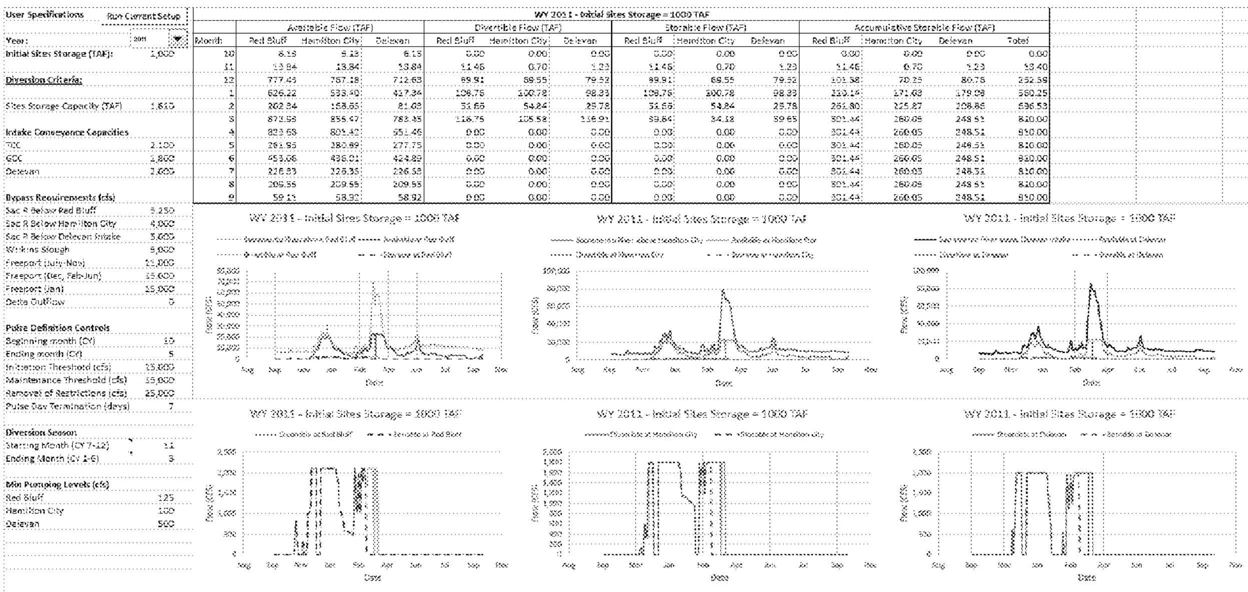


Figure 3-1. Snapshot of the Divertible Flow Tools User Dashboard.

The dashboard gives users the ability to specify the following:

- Year (hydrology) (WY 2009 – 2018)

- Initial Sites Storage (end of September storage)

- Climate Conditions (Historic or 2035CT)

- Sites Storage Capacity (TAF)

- Intake Conveyance Capacity (cfs)

    - Red Bluff (TCC)

- Hamilton City (GCC)
- Delevan

- Bypass Flow Requirements (cfs)
    - Sacramento River at Red Bluff
    - Sacramento River at Hamilton City
    - Sacramento River at Delevan
    - Sacramento River at Wilkins Slough
    - Sacramento River at Freeport
- Pulse Flow Criteria at Bend Bridge
    - Initiation Flow Threshold
    - Maintenance Flow Threshold
    - Pulse Duration Limit
- Delta Outflow Criteria
- Fremont Weir Notch (on/off switch)
- Weir Spill Protection
    - Fremont Weir Spills
    - Aggregate Weir Spills to Sutter Bypass (from Moulton Weir, Colusa Weir, & Tisdale Weir)
- Minimum Pumping Level (cfs)
    - Red Bluff (TCC)
    - Hamilton City (GCC)
    - Delevan
- Low Level Pumping (diversion rate at each intake when Sacramento River flow at a certain location is less than its associated bypass flow requirement) (cfs)
    - Wilkins Slough Bypass override
    - Freeport override
    - Bend Bridge pulse protection override
- Intake Prioritization
- Diversion Season (range of months)
- Intake Season (specify when diversions are permitted at each intake) (range of months)

- Surplus Outflow (February – March)

3.1 Year (Hydrology)

Users can toggle through 10 different Water Years (WYs) – 2009 through 2018. However, WY 2018 only includes information up to May 31st. Each year provides a different hydrologic condition. The water year hydrologic classifications associated with each year are provided in Table 3-1. Water Year Hydrologic Classification Index (CDEC, 2019).Table 3-1. Each year is associated with flow availabilities that were estimated in the Flow Availability Tool.

Table 3-1. Water Year Hydrologic Classification Index (CDEC, 2019).

Water Year	Water Year Type
2009	D
2010	BN
2011	W
2012	BN
2013	D
2014	C
2015	C
2016	BN
2017	W
2018	BN

3.2 Initial Sites Storage (End of September)

Initial Sites storage has potential to affect the quantity of flow that is stored in the reservoir. Through a range of initial Sites storages, users can evaluate the duration for the reservoir to reach capacity, which occurs when storable flow no longer equals divertible flow. In drier years, storage capacity may never be reached even when initial storage is set relatively high. The default initial storage is 60 TAF.

3.3 Initial Sites Storage (End of September)

Flow inputs to the Divertible Flow Tool can be adjusted for historic conditions or 2035CT conditions using the climate switch in Cell B5 of the User_Specifications sheet. The flow inputs effected by climate change can be found in the "Divertible_Flows_Calcs" sheet.

3.4 Sites Storage Capacity

The default Sites storage capacity is 1.5 MAF. However, users can enter any desired value.

3.5 Intake Capacity

The default intake capacities of the Tehama Colusa Canal (Red Bluff intake), Glenn Colusa Canal (Hamilton City intake) are 2,100 cfs and 1,800 cfs, and respectively. However, users can enter any desired value.

3.6 Bypass Flow Requirements

A bypass flow requirement can be specified along the Sacramento River at five locations:

1. Red Bluff (default = 3,250 cfs)
2. Hamilton City (default = 4,000 cfs)
3. Delevan (default = none)
4. Wilkins Slough (default = 8,000 cfs in April – May)
5. Freeport (default = none)

Furthermore, users can specify a range of months at which the Wilkins Slough and Freeport bypass requirements are implemented (by entering the starting month in column C and entering the ending month in column D). Freeport includes four different cells at which bypass criteria can be entered. The first cell ("B22") dictates bypass criteria over a user-specified range of months. The next three cells ("B23:B25") dictate bypass criteria that persist under the primary Freeport bypass criteria for various times of the year.

3.7 Pulse Flow Criteria at Bend Bridge

The pulse flow criteria at Bend Bridge was developed to protect fish migration during naturally occurring, storm-induced, pulse flow events in the Sacramento River. Pulse flows are defined as extended peak river flows at Bend Bridge that originate from storm event tributary inflows downstream of Keswick Dam. A pulse is initiated once the three-day running average flow at Bend Bridge exceeds the "Initiation Threshold". The pulse persists as long as the three-day running average flow at Bend Bridge remains above the "Maintenance Threshold". If the three-day running average flow at Bend Bridge exceeds the "Removal of Restrictions Threshold", then Sites diversions are permitted if flow at Bend Bridge remains above the Maintenance Threshold. The "Reset Threshold" represents the value at which the 3-day moving average flow at Bend Bridge must not exceed for a given number of days before another pulse protected event can be triggered. The "Pulse Protection Duration" can be used to set the number of consecutive days that a pulse period can last before the protection criteria is removed. For example, if the Pulse Duration Limit is set to 7 days, then diversions to Sites are permitted after flow at Bend Bridge exceeds the pulse flow threshold for over 7 consecutive days. The Bend Bridge pulse protection criteria can be further modified in the "BB_Pulse_Definitions" tab. The current set of criteria assumes the following:

1. Season:
    a. Pulse protection can be initiated in October through May
2. Initiation:
    a. 3-day moving average Sacramento River flow at Bend Bridge must exceed 8,000 cfs,
    b. And the 3-day moving average tributary flow upstream of Bend Bridge (Cow Creek, Cottonwood Creek, and Battle Creek) must exceed 2,500 cfs
3. Duration:
    a. Pulse protection lasts for 7 days upon initiation
4. Re-setting condition:
    a. After completion of a pulse protection period, the following conditions must occur before another pulse event is triggered:

i. 3-day moving average of Bend Bridge flow was less than 7,500 cfs for 7 consecutive days,
ii. 3-day moving average tributary flow up upstream of Bend Bridge (Cow Creek, Cottonwood Creek, and Battle Creek) was less than 2,500 cfs for 7 consecutive days

3.8 Delta Outflow Criteria

The Divertible Flow Tool includes a few options to constrain Sites diversion based on Delta Outflow requirements. "Delta Outflow (SWP ITP) is intended to represent the 44,500 cfs flow requirement included in the 2020 SWP ITP. "Delta Outflow (Additional) is intended for any supplemental delta outflow constraints.

Users can also turn on or off NDOI criteria, which implements Delta Outflow targets for a specified period (default of March 1st through May 31st) based on WaterFix longfin smelt protection criteria (Incidental Take Permit No 2081-2016-055-03, WaterFix, CDFW, page 186). Outflow targets are determined based on a table derived from a linear relationship between the 50% exceedance forecast for the current month's Eight River Index (8RI) and recent historic Delta outflow (1980 – 2016). These tables have been stored in the "Ref. Tables" tab. The NDOI criteria is set off by default.

3.9 Fremont Weir Notch Spill Protection

The Fremont Weir Notch and its associated flow protection criteria can be turned on or off in the Divertible Flow Tool. Spills over the Fremont Weir Notch are based on a rule curve used in CalSim II. Furthermore, the Sites diversion criteria protects spills of up to 6,000 cfs from November 1st through March 15th. Figure 3-2 and Figure 3-3 demonstrate the effect of the Fremont Weir notch and its associated protection criteria on spills and diversions to Sites in an example scenario for WY 2010. The notch protection criteria cause a reduction in diversions to Sites, most notably in February when nearly all diversions are restricted because notch spills range from 0 – 6,000 cfs for most of the month.

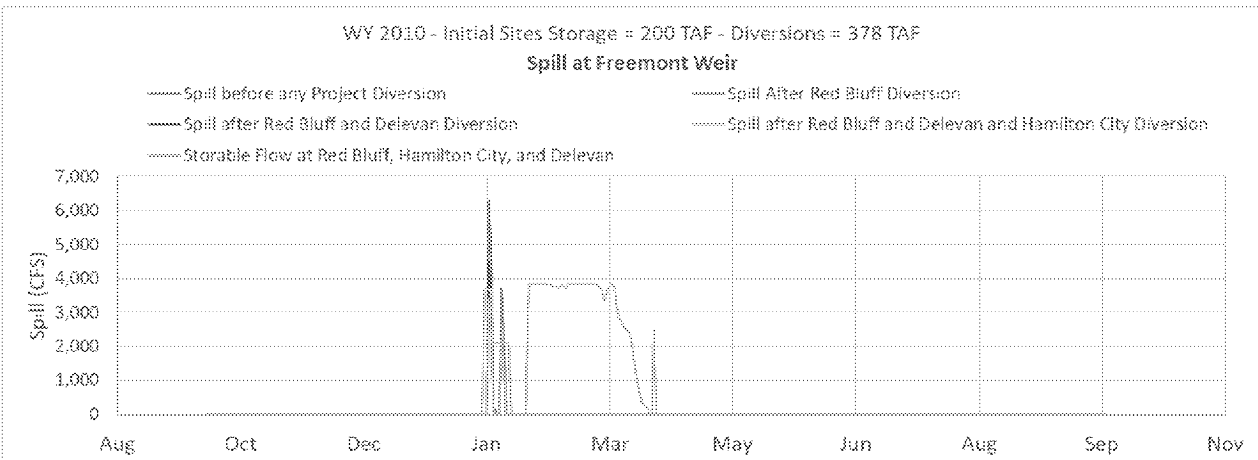


Figure 3-2. Spill at Fremont Weir vs Storable Flow – Without the Fremont Weir Notch.

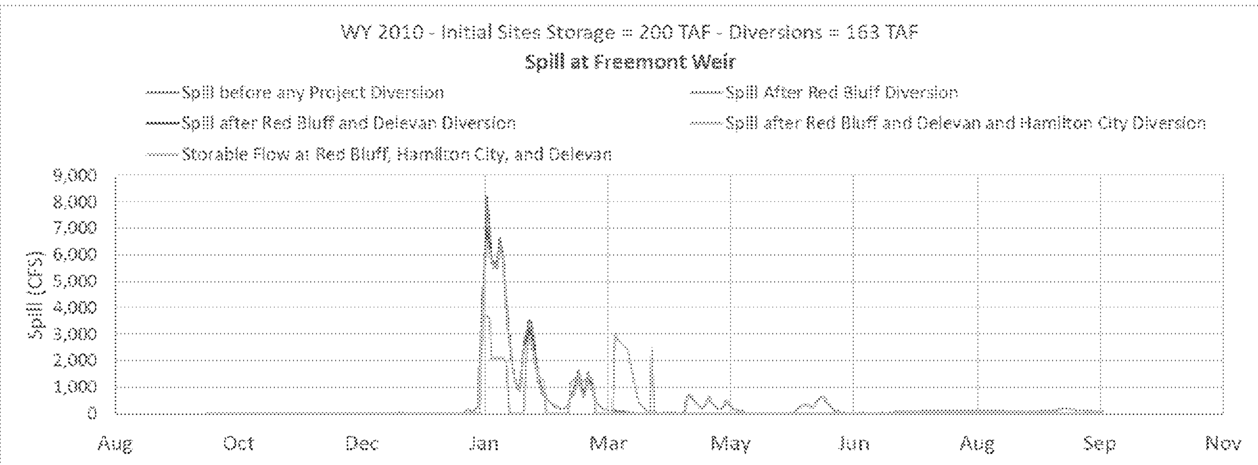


Figure 3-3. Spill at Fremont Weir vs Storable Flow – With the Fremont Weir Notch (and associated protection criteria).

In the daily modeling tool, users may specify buffer values for Fremont Weir notch protection. Two buffer values may be specified – one for spills between 0 and 600 cfs (low-spill buffer), and one for spills between 600 and 6,000 cfs (high-spill buffer). The buffer values are entered as percentages of flow above certain thresholds that may be diverted to Sites. For example, consider a case where the user enters a low-spill buffer of 1% and a high-spill buffer of 10%. The following would take effect:

- November 1 – March 15
  - When spills range between 0 – 600 cfs, 1% of the spill may be impacted for Sites diversion
  - When spills range between 600 – 6,000 cfs, 10% of the of the spill may be impacted for Sites diversion

3.10 Protection of Aggregate Weir Spills to the Sutter Bypass

The Tool provides users the ability to implement protection of spills into the Sutter Bypass via Colusa Weir, Moulton Weir, and Tisdale Weir. Users can specify the upper bound of the total spill range that must be protected, a buffer on the specified spill range, and the percent of spill that can be diverted to Sites in the specified spill range. Aggregate Sutter Bypass weir spill protection is set off by default.

3.11 Minimum Pumping Level

Each intake is assigned a minimum level of flow that can be diverted into Sites Reservoir. If flow availability is below an intake's minimum pumping level, then the intake will not be utilized. The smallest pumps at Red Bluff and Hamilton City have capacities of 125 cfs and 100 cfs, respectively.

3.12 Low Level Pumping

Users can specify low level pumping rates when Sacramento River flow at a certain location is less than its associated bypass flow requirement and above the user specified “low level pumping initiation flow”. For example, if the low level pumping rate at Red Bluff is set to 300 cfs, the initiation flow rate at Wilkins Slough is 5,000 cfs, the bypass flow rate at Wilkins Slough is 10,000 cfs, and the actual flow rate at Wilkins Slough is 8,000 cfs, then the Red Bluff intake can divert up to 300 cfs from the river. Low level pumping rates can be used to override three bypass flow criteria: Bend Bridge pulse protection, Wilkins Slough bypass flows, and Freeport bypass flows. Low level pumping is set off by default.

3.13 Intake Prioritization

Intake prioritization is not modifiable in this version of the Divertible & Storable Flow Tool. The current setup prioritizes diversions at Red Bluff and then at Hamilton City (by default, Delevan is not used in version 2022-06-02).

3.14 Diversion Season

A diversion window can be defined to constrain the months in which the Divertible Flow Tool will attempt to allocate water into Sites Reservoir. Users can enter a starting month (from July through December) and ending month (from January through June). The default diversion season is November through May. Diversions to Sites would not be expected in June through October, as this is the period coincides with the season of Sites deliveries.

3.15 Intake Season

The Intake Season refers to the months in which diversions are permitted at each intake. For example, if the Red Bluff starting month is set to 1 and its ending month is set to 6, then diversion through the Red Bluff intake can only be made from January through June. By default, the Red Bluff and Hamilton City intakes are only limited by the diversion season (default = November through May), while the intake season for Delevan is turned off.

3.16 Freeport Pulse and Post Pulse Protective Criteria

Pulse & Post-Pulse criteria based on the 2016 CWF ITP have been integrated into the Daily Divertible Flow Tool. These criteria are set off by default. If specified by users, Sites intakes can be operated within a range of pulse protection and post-pulse protection levels (1 through 3) in place when winter run chinook salmon (CHNWR) and spring run chinook salmon (CHNSR) migration is occurring. The post-pulse protection operations are defined in Sub Table A of the CWF ITP. In the daily modeling tool, two interpretations of the criteria for transition among pulse-protection levels are included:

- Fish presence (Knights Landing Catch Index (KLCI)) (CWF ITP)
- Sacramento River flow at Freemont (CalSim II based logic)

Table 3-2 identifies the assumptions implemented in the CWF ITP (criteria based on fish presence) and the assumptions implemented in CalSim II.

Table 3-2. Pulse and Post-Pulse Assumptions of CWF ITP vs CalSim II.

Pulse and Post-Pulse Assumptions	
CWF ITP	**CalSim II**
• **All pulses** of CHNWR and CHNSR shall be protected from October 1 – June 30.	• **One or two pulses** shall be protected from October 1 – June 30 (depending on whether a pulse ends before December 1).
• Beginning October 1st, whenever the initial pulse begins, low level pumping takes effect.	• Beginning October 1st, whenever the initial Sacramento River pulse begins, low level pumping takes effect.
• A Sacramento River pulse is determined based on real-time monitoring of juvenile fish movement (see Condition of Approval 9.9.5.1). A fish pulse is defined as a **Knights Landing Catch**	• The initiation of the pulse is defined by the following criteria: (1) **Wilkins Slough flow changing by more than 45% within a five day**

Index (KLCI) ≥ 5 where KLCI = (# of CHNWR + # of CHNSR)/(Total Hours Fished/24). • Pulse protection operations shall be implemented within 24 hours of detection of a fish pulse.	**period** and (2) **Wilkins Slough flow becomes greater than 12,000 cfs**.
• Pulse protection ends after **five consecutive days of daily KLCI < 5**.	• The pulse protection and the low level pumping continues until (1) **Wilkins Slough returns to pre-pulse flows** (flow on first day of the within-5 day increase), (2) **Wilkins Slough flows decrease for five consecutive days**, or (3) **Wilkins Slough flows are greater than 20,000 cfs for 10 consecutive days**.
• Number of allowable pulses is not specified; ASSUME ALL ELIGIBLE PULSES (KLCI ≥ 5) ARE PROTECTED.	• Number of allowable pulses in unlimited; ASSUME ALL ELIGIBLE PULSES ARE PROTECTED.
• Once the pulse protection ends, **post-pulse bypass flow operations may remain at Level 1 diversion depending on fish presence, abundance, and movement in the north Delta**; however, the exact levels will be determined through initial operating studies evaluating the level of protection provided at various levels of diversions.	• After a pulse has ended, the allowable diversion will go to post-pulse operations through June that can transition through three levels of protection.
• The criteria for transitioning between and among pulse-protection, **Level 1, Level 2, and/or Level 3 operations are based on real-time fish monitoring** and hydrologic/ behavioral cues upstream of and in the Delta that will be studied as part of the Project's Adaptive Management Program. Based on the outcome of the studies pursued under that program, additional information about appropriate triggers, off-ramps, and other RTO management of NDD intake operations may be integrated into the Test Period Operations Plan and the Full Project Operations Plan.	• After the initial pulse(s), **Level I post-pulse bypass rules are applied until 15 days of bypass flows above 20,000 cfs have accrued since the pulse ended**. Then **Level II post-pulse bypass rules are applied until 30 days of bypass flows above 20,000 cfs have accrued** since the pulse ended. Then Level III post-pulse bypass rules are applied.
• **The NDDTT shall develop criteria for transitioning between and among pulse protection, Levels 1, 2 and 3 based on best available science**. The NDDTT shall recommend transitional criteria to the TOT and IICG for consideration through the Adaptive Management Program, to ensure that the Project will achieve the objectives of Biological Criteria 1 and 2.	• Under the post-pulse operations allowable diversion will be greater of the low-level pumping or the diversion allowed by the following post-pulse bypass flow rules.

Taken from the "Pulse_Post-Pulse_Figs" tab of the daily modeling tool, Figure 3-4. Fish-based Pulse and Post-Pulse Protection Levels in WY 2016. Figure 3-4 and Figure 3-5 demonstrate the difference in pulse and post-pulse protection levels under the two interpretations. In Figure 3-4, the purple dots represent the KCLI for winter run and spring run chinook salmon. Whenever the KCLI exceeds 4, pulse protection operations are initiated, as represented by the red shading. In the daily modeling tool, users may specify KCLI thresholds to determine pulse and post-pulse conditions. In this example, post-pulse Levels 1 and Level 2 have KCLI thresholds of 3 and 1, respectively. Thus, if the KCLI for a given day is between 3 and

5, Level 1 is implemented. If the KCLI is between 1 and 3, Level 2 is implemented. Finally, if the KCLI is 0, Level 3 operations take effect.

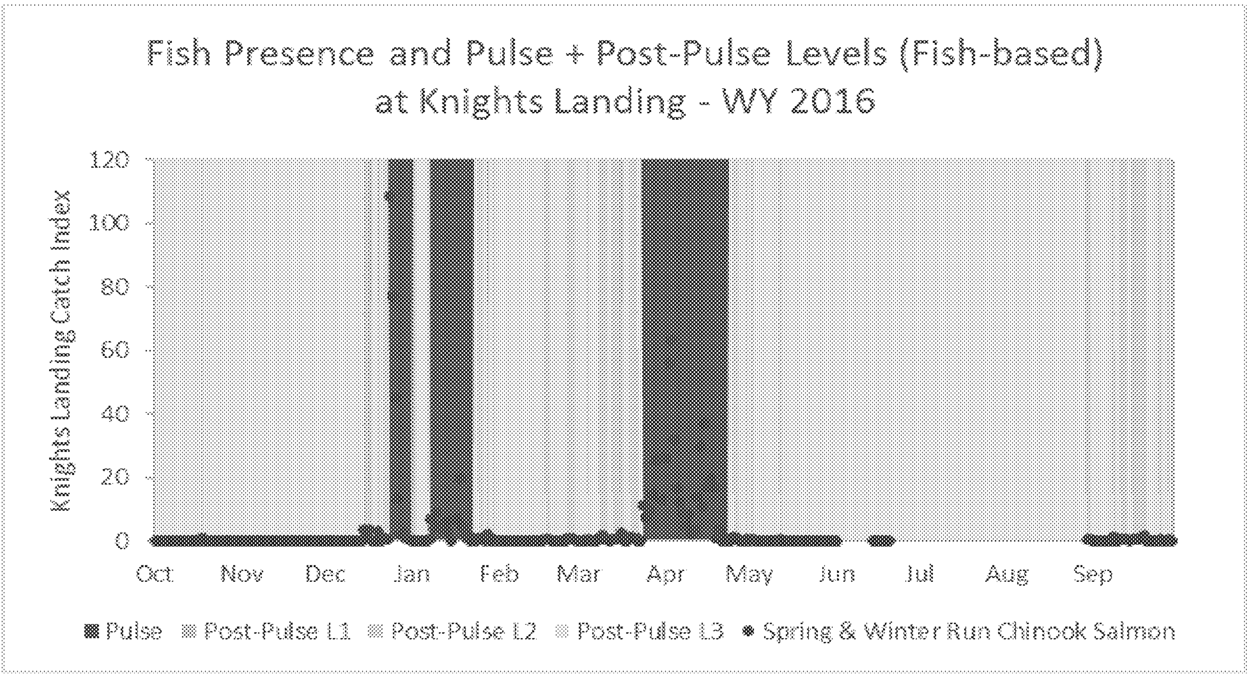


Figure 3-4. Fish-based Pulse and Post-Pulse Protection Levels in WY 2016.

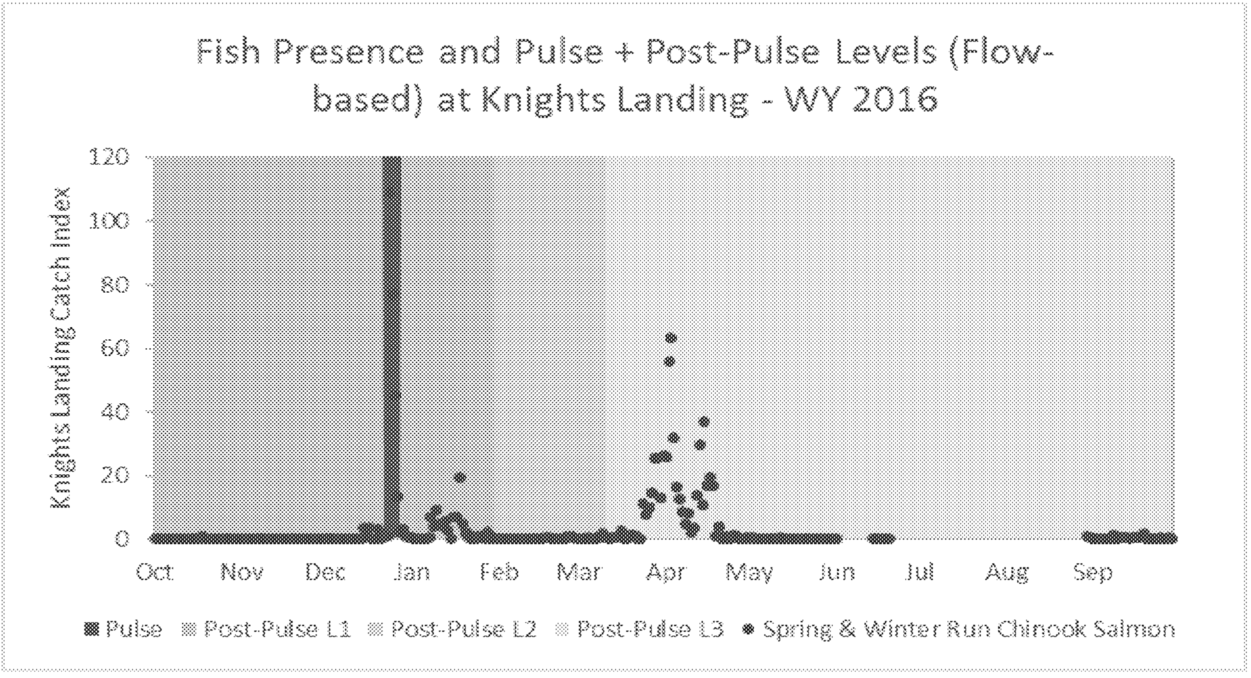


Figure 3-5. Flow-based (CalSim II) Pulse and Post-Pulse Protection Levels in WY 2016.

In the daily modeling tool, users may specify starting and ending months of the pulse and post-pulse protection periods (i.e., the October through June period defined in the CWF ITP may be modified).

3.17 Surplus Outflow (Feb-Mar)

This criterion provides a margin of safety to prevent shifting the regulatory burden of X2 onto SWP or CVP operations. It is only applied to February and March. Diversions are only permitted after a specified number of days that flow is available in February through March (default = 7 days).

3.18 Additional Protective Criteria

The "Table1" and "ProtectiveCrit" tabs includes additional protective criteria to limit project diversions under user-specified flow conditions and time periods. The table in "Table1" can be used to implement a set of rules to limit diversion at each intake to a certain percentage of total Sacramento River flow, based on local conditions. Inputs to this table can be specified in the "Protective Criteria & Ramp Down Specs" section of the "User_Specifications" tab.

The tables in "ProtectiveCrit" perform similar functions; however, diversions are instead limited to a proportion of total intake conveyance capacity.

The additional protective criteria set off by default and are only activated if Cell B91 in the "User_Specifications" tab is set to "Yes".

4. Results

The Divertible Flow Tool evaluates various combinations of hydrographs, diversion regulations, and initial storage conditions. For example, users can manipulate pulse flow protection criteria, minimum pumping levels, or intake diversion seasons to generate different divertible and storable flow results under a range of hydrologic conditions. Consequently, the tool may be useful in evaluating the effects of varying operations criteria on diversions to Sites Reservoir.

4.1 Sacramento River Flow, Delta Outflow, and X2

Monthly available, divertible, and storable flow results for a given water year are displayed in the table and figures of the "User_Specifications" tab. The table also includes accumulated storage, representing the total amount of water diverted into Sites throughout the year.

The "Hydrographs" tab includes figures that show Sacramento River flows before and after project diversions at the following locations:

- Red Bluff
- Hamilton City
- Delevan
- Wilkins Slough
- Knights Landing
- Spill at Fremont Weir
- Freeport

The "Hydrographs" tab also includes the figures demonstrating the effect of Sites diversions on Delta Outflow and X2 position. Figure 4-1 through Figure 4-9 demonstrate example charts from the "Hydrographs" tab.

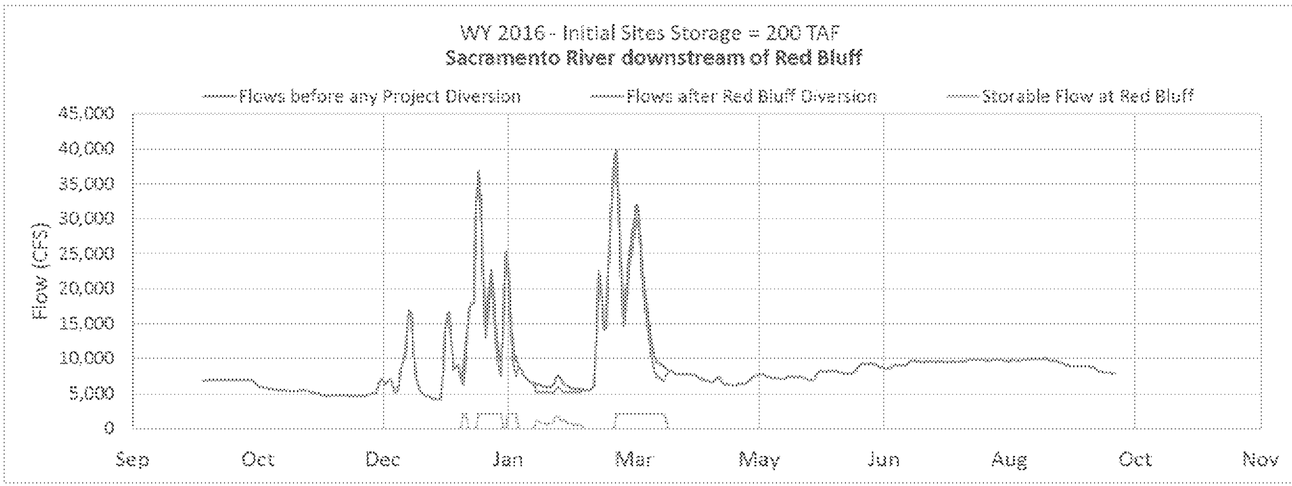


Figure 4-1. Sites Storable Flow Effect on Sacramento River Flow at Red Bluff – WY 2016.

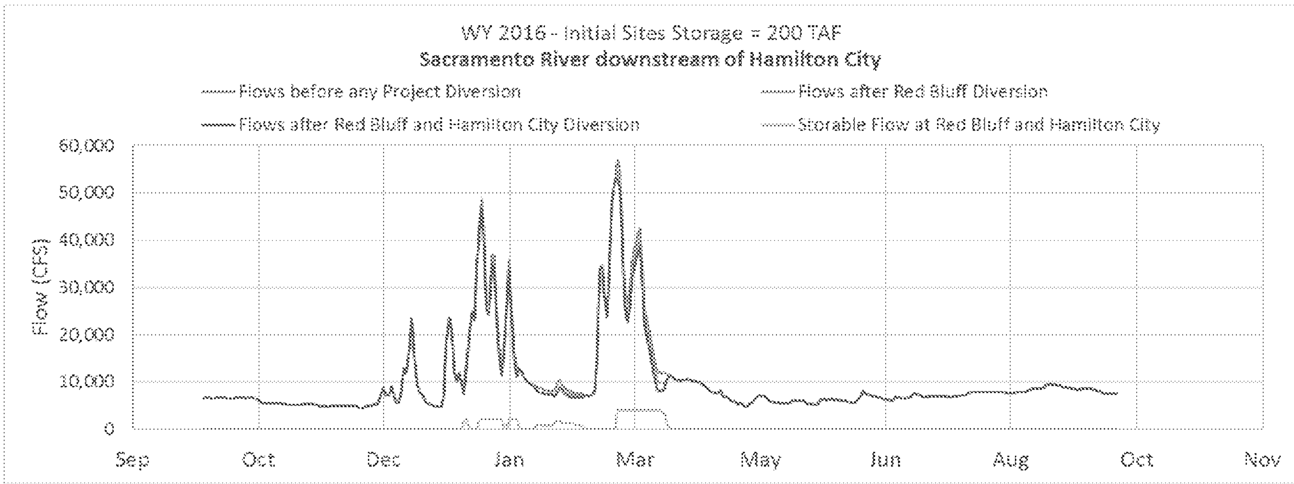


Figure 4-2. Sites Storable Flow Effect on Sacramento River Flow at Hamilton City – WY 2016.

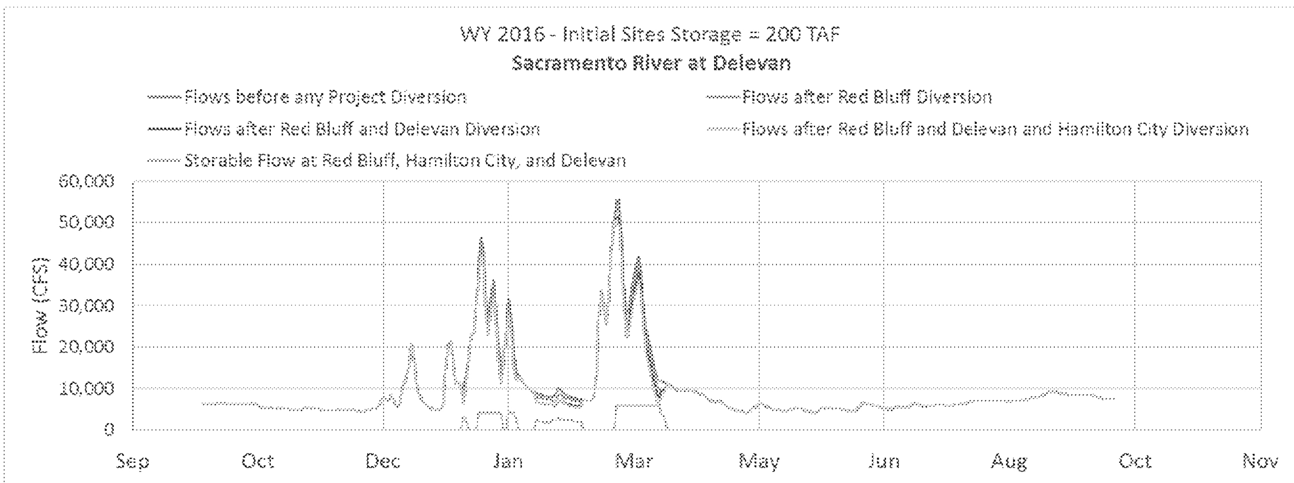


Figure 4-3. Sites Storable Flow Effect on Sacramento River Flow at Delevan – WY 2016.

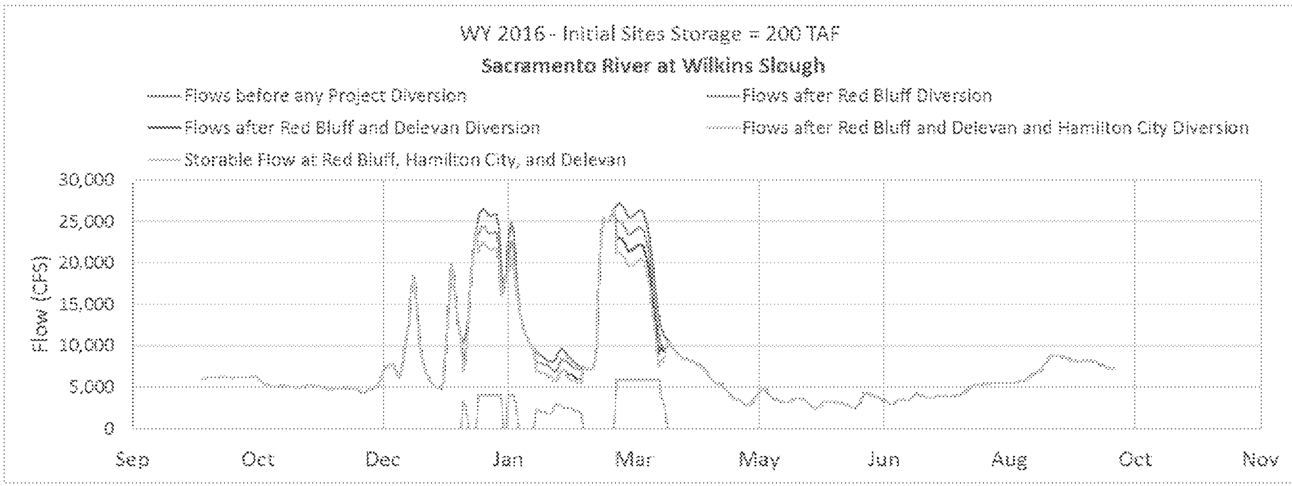


Figure 4-4. Sites Storable Flow Effect on Sacramento River Flow at Wilkins Slough – WY 2016.

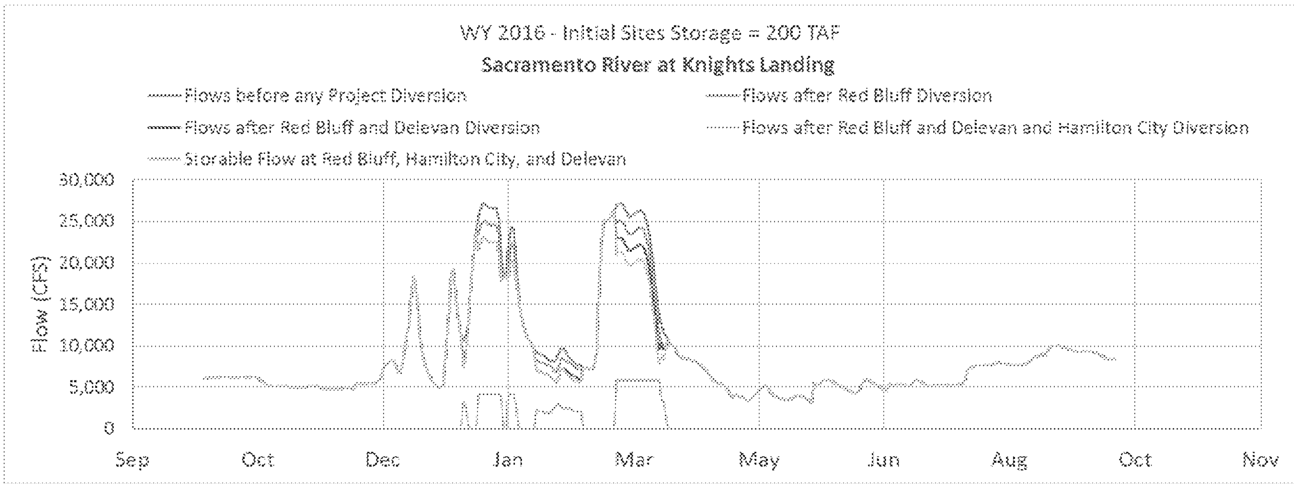


Figure 4-5. Sites Storable Flow Effect on Sacramento River Flow at Knights Landing – WY 2016.

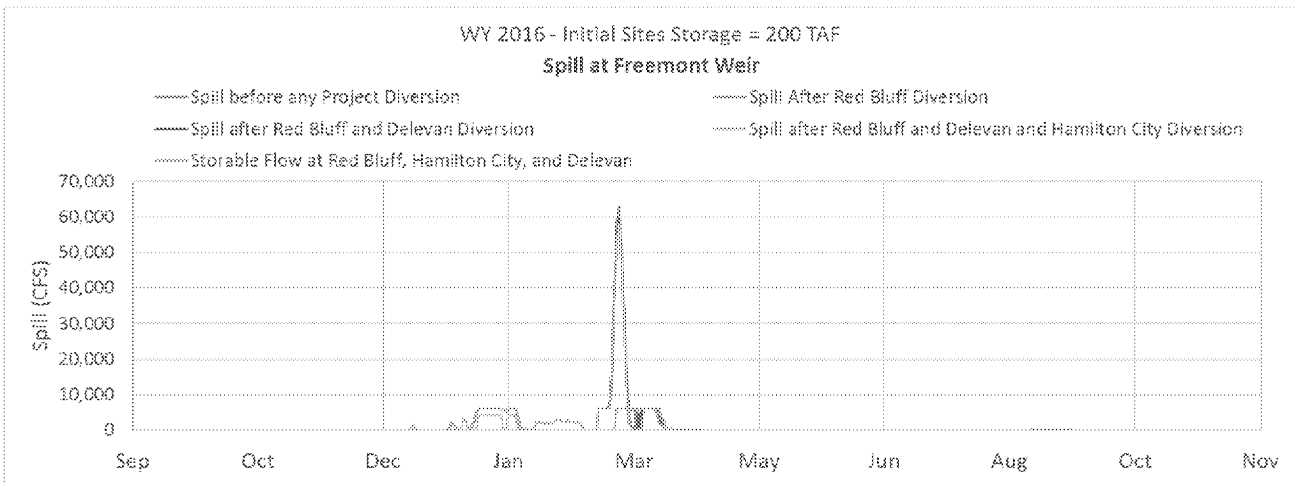


Figure 4-6. Sites Storable Flow Effect on Fremont Weir Spills – WY 2016.

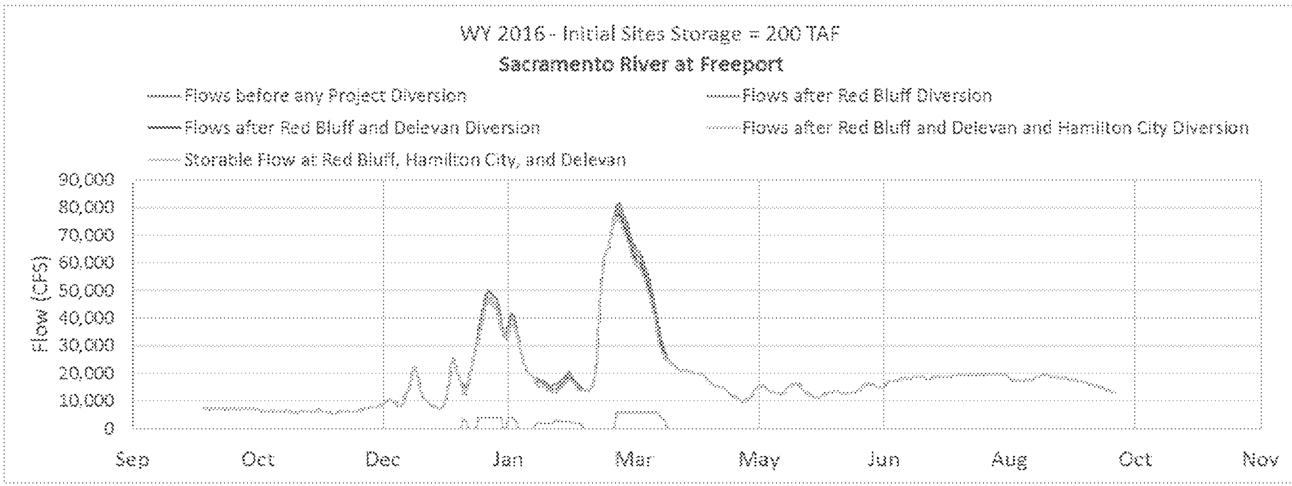


Figure 4-7. Sites Storable Flow Effect on Sacramento River Flow at Freeport – WY 2016.

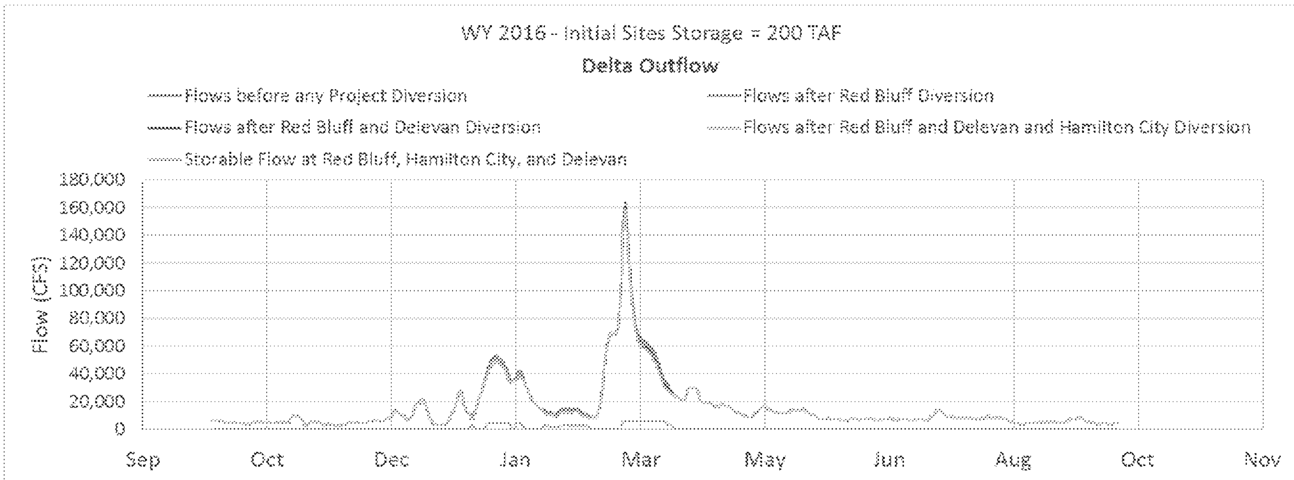


Figure 4-8. Sites Storable Flow Effect on Delta Outflow – WY 2016.

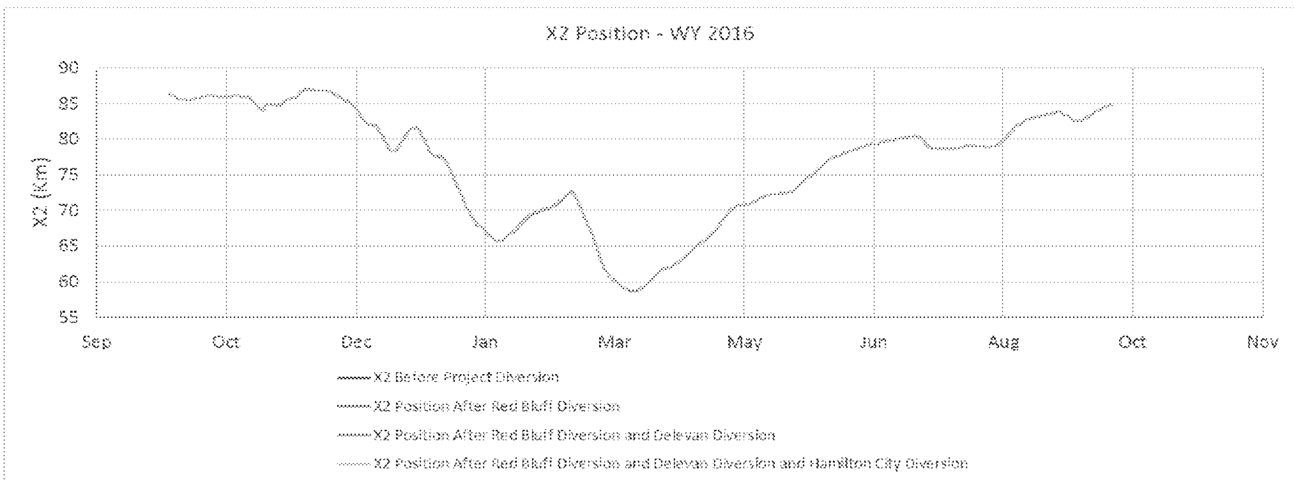


Figure 4-9. Sites Storable Flow Effect on X2 – WY 2016.

4.2 Fish Presence

Sacramento River fish data has been collected and integrated into the Divertible Flow Tool at the following locations:

- **Red Bluff Dam** (October 1st 2008 – May 31st 2018)
    - Source: Red Bluff Fish & Wildlife Office, USFWS (collated into a spreadsheet by LeAnne Rojas, 4/15/2019, using data from: http://www.cbr.washington.edu/sacramento/data/query_redbluff_daily.html)
- **Hamilton City** (March 2nd 2013 – May 31st 2018)
    - Source: GCID (collated into a spreadsheet by LeAnne Rojas on 4/16/2019, based on data provided by GCID (Josef Loera) via John Spranza (HDR) on 4/1/2019)
- **Tisdale** (July 7th 2010 – May 31st 2018)
    - Source: CDFW (collated into a spreadsheet by LeAnne Rojas on 4/18/2019, from data provided by Diane Coulon (DFW) on 4/11/2019)
- **Knights Landing** (October 1st 2008 – May 31st 2018)
    - Source: CDFW (collated into a spreadsheet by LeAnne Rojas based on workbooks provided by Jason Julienne (DFW) on 4/24/2019)

The relationship between flows and fish presence can be evaluated in several tabs towards the back of the spreadsheet. The "Fish_Count_OneYr" tab include figures of Sacramento River flow and storable flow vs fish count at the four locations listed above. Figure 4-10 demonstrates an example figure from this tab. At Red Bluff, the term "fish count" is defined as the estimated daily number of fish passage through the Sacramento River at Red Bluff. At Hamilton City, Tisdale, and Knights Landing, "fish count" is defined as the estimated daily number of fish caught in rotary screw traps at each location.

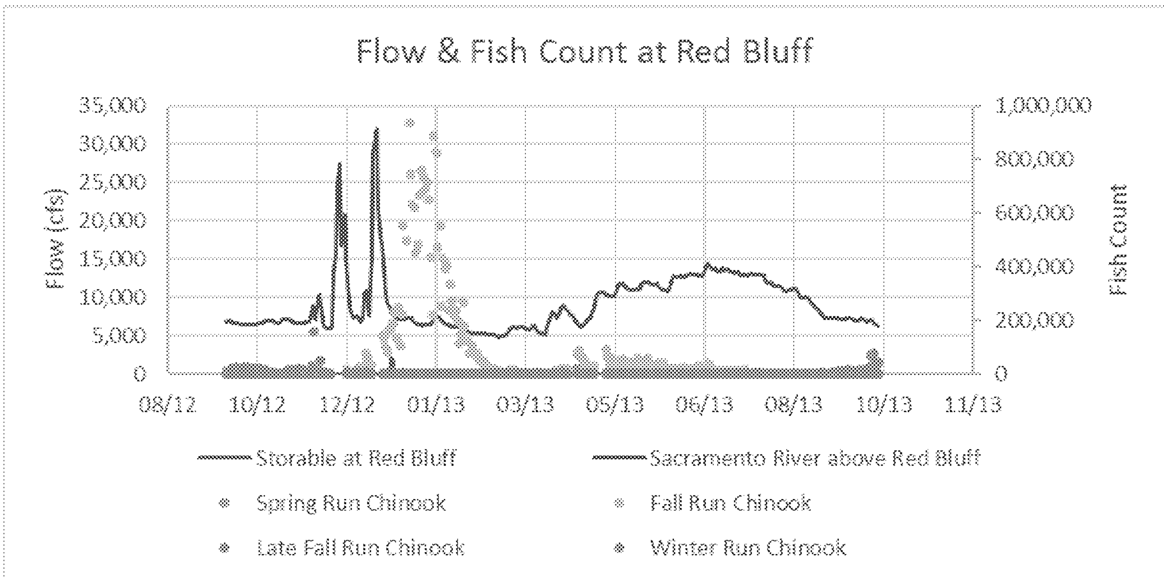


Figure 4-10. Sacramento River Flow vs Fish Presence at Red Bluff in WY 2013.

4.3 Controlling Constraints

The "Controls" tab includes tables displaying the number of instances each constraint controls the quantity of storable flow in each month of the selected year. A controlling constraint is defined as the primary limiter of storable flow to Sites Reservoir. For example, if no flow is available for the project because the river is in "Balanced Conditions", then the controlling constraint is identified as "Balance" in the Divertible Flow Tool. A table of controls has been developed for each intake location (Red Bluff, Hamilton City, and Delevan) in the "Controls" tab. Additionally, daily timeseries of controlling constraints can be viewed in columns "BG:BH" of the "Divertible_Flow_OneYr" tab.

4.4 Annual Simulations

On the "User_Specification" tab, users can generate results for all 10 years (WY 2009 – 2018) by clicking on the "Run Current Setup" button at the top of the page. This button will simulate available flow, divertible flow, and storable flow for each year under current user specifications. Furthermore, the initial Sites storage will be reset at the start of each year. Daily inputs and outputs will be copied into the "ScenID_Main" tab, monthly results are populated in the "Monthly_Report" tab, and annual inputs and outputs are populated in the "Ann_Fills" tab.

The Excel spreadsheet includes several macros to iterate through multiple combinations of years and input conditions (user-specified constraints). Before running one of these macros using the "Run Full Simulation Period" button on the "User_Specifications" tab, the macros should be updated to accommodate for whatever analysis is desired. The daily, monthly, and annual results will be copied into the "ScenID_Main" tab, "Monthly_Report" tab, and "Ann_fills" tab. Each 10-year period will be assigned a Scenario ID number corresponding to a particular set of inputs.

5. Limitations

5.1 Exclusion of Release Operations, Evaporation, and Losses

The Divertible Flow Tool does not include full operations of Sites Project. Fill volumes are estimated each year without the consideration of Sites Reservoir releases. The storage level is only dependent on the user-specified initial storage condition and diversions to the reservoir. Evaporation and losses are not explicitly considered. In addition, the storage level is re-set to the user-defined initial storage condition at the beginning of each year.

5.2 Simulation Period

The Divertible Flow Tool is limited to 10/1/2008 – 5/31/2018, a period that is quite dry relative to the years simulated by CalSim II (WY 1922 – 2002). The Divertible Flow Tool lacks Above Normal years, as determined by DWR's Water Year Hydrologic Classification Indices. Extending the Divertible Flow Tool's simulation period would allow it to provide more insight on the daily effects of Sites Project and its corresponding operations criteria by including greater hydrologic variability.

5.3 2035CT Climate Adjustment

The 2035CT flow inputs were calculated using scaling ratios between historic and 2035CT average monthly flows from recorded and simulated data. Operational conditions, such as reservoir releases, are not explicitly modified in the adjustment from historic to 2035CT conditions. Flow availability inputs (from the Flow Availability Tool) are not adjusted when users select 2035CT climate conditions. Sacramento River flow at Freeport is also not updated with the 2035CT adjustment.

JACOBS

Memorandum

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Project Name	Sites Reservoir Project
Subject	Daily Divertible Flow Tool for the 2022 Final EIR/EIS
Attention	Ali Forsythe/Sites Project Authority; Erin Heydinger/HDR; Laurie Warner Herson/Phenix; Monique Briard/ICF; Mike Hendrick /ICF; Nicole Williams/ICF; Anne Huber/ICF
From	Robert Leaf/JACOBS; Chad Whittington/JACOBS; Steve Micko/JACOBS
Date	June 2, 2022

1. Introduction

The Sites Reservoir Project team has updated the Daily Divertible Flow Tool (DDFT) to be consistent with modeling assumptions used in the 2022 Final EIR/EIS for the Sites Reservoir Project.

The DDFT and documentation of the DDFT are provided for informational and review purposes. If there are any questions regarding the DDFT and its results, please contact the modeling team.

2. Daily Divertible Flow Tool (DDFT)

File Name	**Description**
Divertible_Storable_Flow_for_Sites_Project_20220602_FEIRS2022.xlsm	1.5 MAF Reservoir with operational assumptions consistent with Alternative 1A, Alternative 1B, Alternative 2, and Alternative 3 of the 2022 Final EIR/EIS at historic climate conditions

3. Documentation

Documentation of the DDFT, Sites_Reservoir_Daily_Divertible_Flow_Tool_Documentation_20220602_v1.docx, is provided.

The documentation is consistent with the version of the DDFT provided in this package.

4. Sacramento River Flows from the DDFT

DDFT_SacR_Flows_BB_RB_HC_FEIRS2022.xlsx includes daily outputs from the DDFT for the following parameters:

- Sacramento River flow at Bend Bridge
- Sacramento River flow upstream of Red Bluff
- Sacramento River flow downstream of Red Bluff (after Sites diversions)
- Sacramento River flow upstream of Hamilton City (after Sites diversions)
- Sacramento River flow downstream of Hamilton City (after Sites diversions)

5. Package Contents

Package_Contents.docx summarizes the contents of the DDFT package and provide an overview of the modeling assumptions employed by the DDFT to represent the Sites Project alternatives used in the Final EIR/EIS.

File Provided Natively

From: Micko, Steve/SAC [Steve.Micko@jacobs.com]
Sent: 6/5/2022 9:17:08 AM
To: Williams, Nicole [Nicole.Williams@icf.com]; Huber, Anne [Anne.Huber@icf.com]; Hendrick, Mike [mike.hendrick@icf.com]; Briard, Monique [Monique.Briard@icf.com]
CC: Alicia Forsythe [aforsythe@sitesproject.org]; Heydinger, Erin [erin.heydinger@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Leaf, Rob/SAC [Rob.Leaf@jacobs.com]; Thayer, Reed/SAC [Reed.Thayer@jacobs.com]; Saadat, Samaneh [Samaneh.Saadat@jacobs.com]
Subject: Sites Final EIR/EIS Modeling Results: River Temperature and Delta Water Quality
Attachments: NODOS_Trend_Reporting_rev06cye_DV6_HistClim_HEC5Q_RecTemp__NAA_051422_ALT1A_051722_ALT1B_051722_ALT3_051722.xlsm; NODOS_Trend_Reporting_rev06cye_DV5_HistClim_DSM2__NAA_051422_ALT1A_051722_ALT1B_051722_ALT3_051722.xlsm; Sites_ModelResultsPackage_HEC5Q_DSM2_RecTemp_Jun5_2022.pdf

Hi all,

The following model results files are attached:

- **NODOS_Trend_Reporting_rev06cye_DV6_HistClim_HEC5Q_RecTemp__NAA_051422_ALT1A_051722_ALT1B_051722_ALT3_051722.xlsm**
  - Trend reporting spreadsheet with Sacramento, Feather and American River temperature results for:
    - NAA 051422,
    - ALT1A 051722,
    - ALT1B 051722
    - ALT3 051722.
- **NODOS_Trend_Reporting_rev06cye_DV5_HistClim_DSM2__NAA_051422_ALT1A_051722_ALT1B_051722_ALT3_051722.xslm**
  - Trend reporting spreadsheet with Delta water quality results for:
    - NAA 051422,
    - ALT1A 051722,
    - ALT1B 051722
    - ALT3 051722.

I've posted all attached material, HEC5Q models, and post-processed DSM2 results to the SharePoint as well.

Attached pdf briefly describes modeled alternatives, models, and a trend reporting spreadsheet user guide.

Please let me know if you have any questions.

Best,
Steve

Steve Micko, PE | Jacobs | Project Manager and Water Group Leader

O:916.286.0358 | M:408.834.6614 | Steve.Micko@jacobs.com
2485 Natomas Park Drive Suite 600 | Sacramento, CA 95833

File Provided Natively

File Provided Natively

STATEMENT OF WORK (SOW)

1. **Public Law**, *including Section and Sub-section verbatim, which provides Reclamation authority to award Financial Assistance for this project. Provide a statement that directly relates the activities to be funded to the referenced authority.*

The Sites Reservoir Project is administered in accordance with Section 4007 of the Water Infrastructure Improvements for the Nation Act (WIIN Act; P.L. 114-322, Dec 16, 2016) from Department of the Interior, Bureau of Reclamation which provides federal support for the construction of state-led surface water storage projects in the 17 arid reclamation states.

2. **Background**: *Clear background for program and project.*

The Sites Reservoir is a proposed off-stream reservoir that will be filled by pumping water from the Sacramento River. The project includes the Sites Reservoir and new facilities to integrate with both the existing Tehama-Colusa Canal (TC Canal) and Glenn-Colusa Irrigation District (GCID) Main Canal. Once constructed, the Sites Reservoir will be one of the state's largest reservoirs and will substantially increase surface water storage in the Sacramento Valley. The project's facilities will be independently owned and operated by the Sites Project Authority (Authority) under its own water rights and other regulatory requirements, in cooperation with the U.S. Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR)—operators of the Central Valley Project (CVP) and State Water Project (SWP), respectively.

Water Infrastructure Improvements for the Nation (WIIN) Act funding will allow the project to progress by incorporating necessary services including engineering design and conveyance design advancement, geological and geotechnical engineering functions, project permitting and environment planning support, mitigation, operations simulation modeling, real estate functions, communication efforts, program operations support, and program support. The project scope is funding-limited, and deliverables are identified based on the level of funding available to the project. The scope outlined in the following sections will allow the Authority to update and complete the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) and further the development of feasibility- and preliminary-level designs. It will provide needed staffing resources to augment Authority staffing and further the communication and real estate needs of the project.

3. **Non-Competitive Selection** ***(if applicable Per ACM 01-02):*** *The merit based selection of a recipient for a financial assistance agreement through any means other than a competition must follow the noncompetitive selection process. A non-competitive selection may be made* *as either a discretionary or non-discretionary selection.*

(1) Mandatory/Non-Discretionary. Selection of a recipient for a financial assistance agreement may be made without competition if Reclamation has no discretion in regards to the selection of the recipient for the proposed award. Non-discretionary selection must be based on either a statutorily mandated recipient or on other preexisting agreements or arrangements which remove Reclamation's discretion in the selection process.

(2) Discretionary Selection. Non-competitive selection of a financial assistance recipient may be made on a discretionary basis when circumstances would limit selection to a single entity. The justification must include how the selection is both based upon merit and in the best interest of the government. The allowable justifications for a non-competitive discretionary selection are as follows.

(a) Unsolicited Proposal. The proposed recipient submitted an unsolicited application for funding for a project or activity which represents a unique or innovative idea, method, or approach which is not the subject of a current or planned contract, financial assistance agreement, or funding opportunity, but is deemed advantageous to the funding program's objectives.

(b) Continuation. The activity to be funded is necessary for the satisfactory completion of, or is a continuation of an activity currently being funded, and for which competition would have a significant adverse effect on the continuity of the activity.

(c) Unique Qualifications. The proposed recipient is uniquely qualified to perform the activity based upon a variety of demonstrable factors such as location, property ownership, technical expertise, or other factors which preclude other entities from performing the proposed activities.

(d) Legislative Intent. The language in the applicable authorizing legislation or legislative history clearly indicates Congress' intent to restrict the award to a particular recipient.

(e) Emergencies. There is insufficient time available for an adequate competitive process due to a compelling or urgent circumstance such as a substantial danger to health or safety.

Congress approved funding for the Sites Reservoir Project under Section 4007 of the WIIN Act, authorizing funding from 2017-2021. Pursuant to Reclamation's Directives and Standard ACM 01-02 Section 5 A. (2)(b), Reclamation's Discretionary Selection of Sites Reservoir Authority is based on the continuation of funding under Agreement R20AC00105 providing funding through June 30, 2022. The proposed Agreement will continue the work Reclamation has previously funded, furthering the development of the Sites Reservoir Project.

4. **<u>Public Purpose</u>** ***<u>(grants and cooperative agreements must have this)</u>***: *Prove sufficient explanation as to how the project will assist the recipient in accomplishing its public purpose/needs, which are authorized by the public law. Demonstrate that the project is not primarily for the direct benefit of Reclamation or other Federal government agencies.*

The Authority has requested funding to apply towards engineering, geotechnical, planning/permitting, mitigation, operations modeling, real estate services, communications efforts, program operations, and program support. These services provide the foundation by which the Sites Reservoir Authority can accomplish its ultimate vision, to provide affordable water that is sustainably managed for California's farms, cities, and environment for generations to come. Funding moves the Sites Project closer to providing California the benefits the reservoir project is being designed to provide. These benefits include improved water supply, improved water supply reliability, incremental Level 4 water supply for refuges, improved survival of anadromous fish, enhance the Delta ecosystem, provide opportunities for recreation, and provide flood damage reduction. These benefits reach the general public, the environment, the economy, as well as local, state and federal agencies.

5. **<u>Objectives</u>**: *Describe specifically what the agreement will be accomplishing; demonstrating that it is an undertaking of a clearly defined objective that supports the purpose.*

The agreement will accomplish 8 objectives that directly support the purpose and progress of the Sites Reservoir Project.

Objective 1: Engineering
The Engineering tasks performed under this agreement will advance the design of the Sites Reservoir Service Area facilities from feasibility design through preliminary design.

Objective 2: Geology/Geotechnical Engineering
The geology and geotechnical tasks performed under this agreement involves work associated with planning, permitting and execution of field data collection efforts at locations which have received environmental permitting and right of access clearance.

Objective 3: Planning and Permitting
The work performed under this agreement includes the planning and permitting work required to finalize the EIR/EIS and obtain key permits and environmental clearances.

Objective 4: Compensatory Natural Resource Mitigation
This task will provide for the development of a comprehensive mitigation plan and begin the planning process for the mitigation needed for the Project.

Objective 5: Operations Simulation Modeling

The operations modeling performed under this agreement will provide analysis, modeling and documentation needed to support the Authority with environmental planning, operational agreements, permitting and water rights applications. This includes the EIR/EIS, Biological Assessment/Incidental Take Permit and WSIP benefits agreements. This objective will also support the development of Version 2 of the Sites Reservoir Operations Plan.

Objective 6: Real Estate
The real estate tasks performed under this agreement involves Landowner engagement, Geotech Right-of-Entry and preparation of a Right-of -Way manual.

Objective 7: Communications
The communication efforts performed under this agreement will support the operational needs of the Authority as well as the environmental review and permitting process. Support will include outreach, strategic counsel and communication guidance, information materials, and media relations.

Objective 8: Program Operations
Program operations support is required to provide the Authority the additional support needed to establish and manage reservoir operations. This includes project management, project controls, project funding tasks, quality management, coordination, project administrative support and risk management functions.

Objective 9: Program Support
Program support is required to provide the Authority the additional staffing needed to perform needed support functions such as document management, GIS functions, IT support and staffing support.

6. **Benefits:** *Explain the benefits to be derived from the performance of the project. Demonstrate that the activity to be undertaken is of a public benefit and is in furtherance of Reclamation mission.*

The Sites Reservoir Project will offer several benefits to California on the state, regional, and local level.

Improve Water Supply and Water Supply Reliability. The water stored and released from Sites Reservoir will allow for improved water supply and reliability for participants in the project and California on the state, regional, and local level.

Provide Incremental Level 4 Water Supply for Refuges. The State has committed to invest in incremental Level 4 water supply for refuges at an undetermined level. Level 4 refuge demand is located primarily south of the Sacramento-San Joaquin Delta (Delta).

Improve the Survival of Anadromous Fish. The Authority is supportive of actions that benefit salmon, steelhead, and other anadromous fish species of concern in the Sacramento River watershed. Exchanges with Reclamation enable the conservation of the coldwater pool in Shasta and Folsom Lakes. The species benefit from improved coldwater pool management, lower river water temperatures, and supplemental flows to prevent the dewatering of redds.

Enhance the Delta Ecosystem. Water released from Sites Reservoir would be conveyed to the Yolo Bypass toe drain to convey biomass to the Delta to help supply food for Delta smelt.

Provide Opportunities for Recreation. State funding will support the construction of new recreation facilities, including the Stone Corral Creek Recreation Area on the east side of the reservoir, a boat ramp on the west side of the reservoir, and the Peninsula Hills Recreation Area on the west side of the reservoir.

Provide Flood Damage Reduction. Once completed, Sites Dam will reduce the likelihood of flooding in the Stone Corral Creek watershed, and Golden Gate Dam will improve flood damage reduction for extreme events on Funks Creek.

7. **Period of Performance:** *(date of execution through month/date/year). Agreements and/or modifications* ***will not*** *exceed a total of 5 years.*

   January 1, 2022 through December 31, 2024

8. **Scope of Work**: *MUST have detailed descriptions of project objectives. The project plan must describe, in detail, the activities to be undertaken, including the proposed work, reporting, major tasks, and project milestones including the identification of the anticipated start and ending dates of all major stages/objectives of the project proposal.*

Descriptions of the objectives of the project activities funded under this agreement are provided below.

Objective 1: Engineering
This scope of work covers advancing the design of the Sites Reservoir facilities from the Feasibility Design (10-15%) undertaken in Task Order No. 2 through Preliminary Engineering (20-30%) Design. The major activities under Preliminary Engineering Design include (1) coordinating with the Authority, California Department of Water Resources Division of Safety of Dams (DSOD) and other jurisdictional agencies; (2) coordinating with the Environmental, Permitting, Real Estate, Geology/Geotechnical and Engineering teams; (3) geotechnical data monitoring during the field investigations and data interpretation for use in design analyses; (4) value engineering; (5) updating the project schedule; (6) engineering analyses and Basis of Design Report; (7) Preliminary Engineering Design drawings and specification list; (8) updating the construction cost estimates to reflect the Preliminary Engineering design; and (9) developing contract procurement strategies/project delivery methods.

Major Tasks:

- Survey & Topo Mapping
- Geology/Geotechnical Field Investigations Data Monitoring and Interpretation Reports
- Preliminary Engineering Basis of Design Report
- Preliminary Design Engineering Analysis
- Preliminary Design Drawings and Specifications List
- Value Engineering
- Coordination with jurisdictional Agencies
- Utility Coordination
- DSOD fees
- Identify and Initiate Procurement Strategies
- Project Construction Schedule
- Project Coordination and Management
- Project Risk Management
- Support Real Estate Activities

Objective 1 Outcome: Advances the design from Feasibility Design (10-15%) to Preliminary Engineering Design (20-30%).

Objective 2: Geology/Geotechnical Engineering

The geology and geotechnical tasks performed under this agreement involves work associated with planning, permitting and execution of field data collection efforts at locations which have received environmental permitting and right of access clearance.

Major Tasks:

- Environmental Permitting Document Review
- Field investigation activities scheduled between 2022 and 2024
- Geology/Geotechnical Data Reports

Objective 2 Outcome: Provides supporting data and development of the Preliminary Engineering Design.

Objective 3: Planning and Permitting

The work performed under this agreement includes the planning and permitting work required to finalize the EIR/EIS and obtain key permits and environmental clearances.

Major Tasks:

- 401 Permit
- 404 Permit

- Aquatic Resources Management Plan
- BA - Draft and Final
- Biological Survey Plan
- Cultural Resources
- Eagle Permit & Surveys
- EIR/EIS – Admin Draft Final
- EIR/EIS – Admin Record
- EIR/EIS – Final
- EIR/EIS – MMRP, Findings, SOC
- EIR/EIS – Responses to Comments
- EIR/EIS – ROD Support
- Geotech
- Invasive Species Plan
- ITP
- LSAA
- Reservoir Management Plan
- Stone & Funks Creek Flow Plan & Survey
- Antelope Valley Hydrology Assessment and Monitoring
- Surveys (Plant-Wildlife-Wetland)
- Water Rights
- Worker Environmental Awareness Program (WEAP)

Objective 3 Outcome: Provides required work to complete the EIR/EIS.

Objective 4: Mitigation
This task will provide for the development of a comprehensive mitigation plan and begin the planning process for the mitigation needed for the Project.

Major Tasks:

- Mitigation Plan & AMP
- Mitigation Planning

Objective 4 Outcome: Mitigation Plan.

Objective 5: Operations Simulation Modeling
The operations modeling performed under this agreement will provide analysis, modeling and documentation needed to support the Authority with environmental planning, operational agreements, permitting and water rights applications. This includes the EIR/EIS, Biological

Assessment/Incidental Take Permit and WSIP benefits agreement. This objective will also support the development of Version 2 of the Sites Reservoir Operations Plan.

Major Tasks:

- BA/ITP Modeling Support
- Operations Analysis for Final EIR/EIS
- Operations Plan, Version 2
- Support for operational agreements
- Modeling for water Rights
- WSIP Benefits Agreements

Objective 5 Outcome: Modeling will support the EIR/EIS.

Objective 6: Real Estate

The real estate task involves work associated with land, real estate, right-of-way, interagency coordination, and public/landowner engagement considerations in support of the engineering, environmental, permitting, geotechnical, and communications efforts for the Sites Reservoir Project, in addition to programmatic real estate development for near-term land access, future land needs, land acquisition, and land management, in support of the Authority's objectives.

Major Tasks:

- Landowner Engagement
- Geotech Right-of-Entry
- Right-of-Way Manual
- Real Estate ROE Fees

Objective 6 Outcome: Coordination with landowners regarding project developments

Objective 7: Communications

The communication efforts performed under this agreement will support the operational needs of the Authority as well as the environmental review and permitting process. Support will include outreach, strategic counsel and communication guidance, information materials, and media relations.

Major Tasks:

- Authority Board/Reservoir Committee Engagement/Public Affairs Support
- Environmental Public Involvement
- Informational Materials and Media
- Communications for Permitting and Agency Outreach
- Strategic Communications and Message Development

Objective 7 Outcome: Supports the operational needs of the Authority regarding communications and outreach.

Objective 8: Program Operations

Project operations support is required to provide Authority staff assistance with project funding, project controls, project management, risk management, coordination, quality management and business management functions.

Major Tasks:

- Accounts Payable and Receivable
- Business Management
- Contract Administration, Compliance, and Contract Strategy
- Administration of Local, State, and Federal Funding
- Health & Safety
- Policies & Procedures
- Project Administrative Support
- Project Controls
- Project Financing and Agreements Support
- Project Management
- Quality Management
- Reclamation Coordination
- Risk Management
- Work Planning and Scheduling

Objective 8 Outcome: Provides Authority staffing assistance to coordinate, respond, and provide quality control on tasks necessary to further the Authority's goal.

Objective 9: Program support

Program support includes document management, GIS data management, Information Technology and Staff support.

Major Tasks:

- Document Management
- GIS
- IT
- Staff Support

Objective 9 Outcome: Provides supplemental staffing and resources needed by the Authority to manage reservoir operations.

9. **<u>Milestones/Timeline/Schedule</u>**: *The project plan must describe, in detail, the activities to be undertaken, including the proposed work, reporting, major tasks, and project milestones including the identification of the anticipated start and ending dates of all major stages/tasks of the project proposal. It is highly recommended that the milestones within the SOW are constructed around the reporting frequency. For example, if the reporting frequency is semi-annual, then there would be milestones for each semi-annual period.*

A schedule with tasks and deliverables is presented below:

Task No.	Task	Deliverable	Estimated Start Date	Estimated Completion Date
01	Engineering	Geology/Geotechnical Field Investigations Data Monitoring	01/03/2022	12/27/2024
01	Engineering	Geology/Geotechnical Investigations Interpretation Reports	03/06/2023	12/27/2024
01	Engineering	Project Coordination and Management	01/03/2022	12/27/2024
01	Engineering	Preliminary Engineering Design	07/28/2022	12/27/2024
01	Engineering	Survey & Topo Mapping	01/03/2022	08/31/2022
01	Engineering	Risk Management	01/03/2022	12/27/2024
01	Engineering	Project Delivery/Procurement Strategy	01/03/2022	12/27/2024
01	Engineering	Preliminary Design Value Engineering	01/02/2023	07/05/2024
01	Engineering	Preliminary Engineering Cost Estimate	07/28/2022	07/05/2024
01	Engineering	Project Construction Schedule	05/22/2022	01/05/2024
01	Engineering	Preliminary Design Engineering Analysis	07/28/2022	01/05/2024
01	Engineering	Preliminary Engineering Drawings and Specifications List	07/28/2022	01/05/2024
02	Geotechnical	Env Planning Document Review	01/01/2022	12/31/2023
02	Geotechnical	Project Management	01/01/2022	12/31/2024
02	Geotechnical	Geotech Work Package #1	07/28/2022	02/02/2023

02	Geotechnical	Geotech Work Package #2	12/30/2022	07/03/2023
02	Geotechnical	Geotech Work Package #3	06/20/2023	12/22/2023
02	Geotechnical	Geotech Work Package #4	12/11/2023	06/13/2024
02	Geotechnical	Geotech Work Package #5	05/31/2024	12/04/2024
03	Planning/Permitting	401	01/01/2022	12/30/2023
03	Planning/Permitting	404	02/24/2021	12/30/2023
03	Planning/Permitting	Aquatic Resources Management Plan	09/01/2022	12/30/2023
03	Planning/Permitting	BA	01/02/2022	12/30/2022
03	Planning/Permitting	Eagle Permit & Surveys	01/02/2022	12/30/2023
03	Planning/Permitting	EIR/EIS	04/01/2022	12/30/2022
03	Planning/Permitting	Invasive Species Plan	07/01/2024	12/30/2024
03	Planning/Permitting	ITP	01/01/2022	12/30/2022
03	Planning/Permitting	Geotech	01/03/2022	12/30/2024
03	Planning/Permitting	Water Rights	01/01/2023	06/30/2023
03	Planning/Permitting	Surveys	04/01/2022	12/30/2024
04	Mitigation Planning	Mitigation Master Plan	08/17/2022	02/15/2023
05	Operations Modeling	BA/ITP Modeling Support	01/02/2022	12/30/2023
05	Operations Modeling	Operations Analysis	01/02/2022	12/30/2024
05	Operations Modeling	Operations Plan Version 2	01/02/2023	12/30/2023
05	Operations Modeling	Project Management	01/02/2022	12/30/2024
05	Operations Modeling	Support Operational Agreements	01/02/2022	01/31/2022
05	Operations Modeling	Water Rights	01/03/2022	12/30/2024
05	Operations Modeling	WSIP Benefit Agreements	01/03/2022	12/30/2023
06	Real Estate	Real Estate	01/03/2022	12/30/2024
07	Communications	Communications	01/03/2022	12/30/2024
08	Program Operations	Coordination and Management Support	06/01/2021	12/30/2024

09	Program Support	Document management, IT/GIS Support	01/03/2022	12/30/2024

10. <u>Recipient Responsibilities:</u> *If the SOW contains construction activities, the Recipient is responsible for construction inspection, oversight, and acceptance. If applicable, the Recipient shall also coordinate and obtain approvals from site owners and operators.*

<u>Responsibilities of Sites Project Authority</u>:

The responsibilities of Sites Project Authority are described below and incorporated as part of this Agreement.

1. Perform all tasks specified in the proposal.

2. Ensure that project activities are in compliance with all relevant local, State, and Federal regulations.

3. Recognize the contribution of Reclamation through documents and in any public statements, publications, or signage relevant to the project.

4. Comply with the reporting and distribution requirements of this Agreement. Submit reports and correspondence to:

Vanessa King

Grants Officer Technical Representative

Bureau of Reclamation

2800 Cottage Way

Sacramento CA 95825

5. Provide Reclamation with manuscripts published in scientific journals, as data warrant. Promptly provide to Reclamation, at the Recipient's sole cost, electronic files of all field data, photographs, and research products including reports, analyses, databases, and models, as applicable, that are produced by the Recipient in connection with the investigations undertaken through this Agreement, whether published or not.

If the agreement is a Cooperative Agreement, the proposal must include both the responsibilities of the recipient and of Reclamation. Please review the information below:

11. **Reclamation Responsibilities**: (**REQUIRED IF COOPERATIVE AGREEMENT**)

Must clearly state as to how Reclamation's responsibilities constitute *"substantial involvement."* in which the GOTR participates and collaborates jointly with the recipient partner, volunteer, scientist, technician, or other personnel, in carrying out the scope of work, trains recipient personnel, or details federal personnel to work on the project effort.

If Substantial involvement between Reclamation and the Recipient is anticipated during the performance of this Agreement, then add the following statement and outline the activities and responsibilities that Reclamation will perform in support of the agreement that constitute substantial involvement:

Substantial involvement by Reclamation is anticipated during the performance of activities funded under this cooperative agreement. In support of this Agreement, Reclamation will be responsible for the following:

Cooperative Agreements must include the responsibilities of the recipient and of Reclamation:

Responsibilities of Reclamation:

1. Act as Federal liaison in the conveyance of funding from Reclamation to the Regents of the University of California, Oakland.

2. Assist in the preparation of project reports submitted by Sites Project Authority and coordinate and attend meetings with stakeholders to analyze and synthesize data.

3. Actively participate in restoration work in order to ensure compliance with the National Environmental Policy Act and Endangered Species Act. Sites Project Authority and the Bureau of Reclamation Area Office will work together to obtain all applicable state and local permits for work to be performed under this grant.

12. **Budget:** *As an Attachment, must provide a DETAILED budget (including Reclamation, Recipients and other entity contribution) using the Recommended Budget Table Format. Budget documents must include supporting documents for each line items (with justification), an approved indirect cost rate, if applicable. Budget must be reviewed and approved by GOTR before submitting to MP-3800.*

Detailed budget is attached.

13. **Pre-Award Incurrence of Costs:** *Provide date with justification. Incurrence of costs is authorized (if approved by the GO) if the cost was incurred after the agreement was entered into, and would have been allowable, allocable, and reasonable under the terms and conditions of the agreement.*

The Applicant will submit a request for approval of the pre-award incurrence of costs effective from January 1, 2021.

14. **Cost Sharing Requirement:** *(List of participants/collaborators (including type of recipient and amount). If program authority requires a cost share/match, provide a copy of the Public Law, section and sub-section, verbatim.*

At least 50% non-Federal cost-share is required for costs incurred under this Agreement. If pre-award costs are authorized, reimbursement of these costs is limited to federal cost share percentage identified in this agreement.

Funding Source	Original Funding Amount ($)	Amendment 1	Total Funding Amount ($)
Non-federal entities	—	—	—
Participation partners funding	42,562,810	—	42,562,810
Subtotal (non-federal)	**42,562,810**	**—**	**42,562,810**
Requested Reclamation funding	42,000,000	—	42,000,000
Total	**84,562,810**	**—**	**84,562,810**

15. **Reporting:** *Any type of special reporting beyond Reclamation's requirement.*

Reports and Deliverables

In compliance with the terms of the Authority's Financial Assistance Agreement with Reclamation, the Authority will submit performance and financial reports describing the progress completed during the previous quarter. The performance reports include a summary of percent complete, deliverable status, and work anticipated for the next period whereas the financial report includes a budget status reported in the form of the appropriate federal template (SF-425). Separate from the FAA reporting, the Authority will also continue to provide quarterly financial reports to Reclamation in compliance with cost share reporting requirements.

Financial Status Report	Interim	Final
Format	Hard copy	Hard copy
Form	SF-425	SF-425
Reporting Frequency	Quarterly	Due upon completion of agreement period of performance
Reporting Period	3/31, 6/30, 9/30, 12/31	Entire period of performance

Due Date	Within 30 days after the end of the Reporting Period	Within 90 days after the completion date of the agreement
Send one original to each:	GO and GOTR	GO and GOTR

16. **<u>Recipient Key Personnel:</u>** *(contact information) Name of person Project/Program Manager, Title, Address, Phone, Email and etc.*

<u>Recipient</u>
Sites Project Authority
112 Old Highway 99 West
Maxwell, CA 95955
530-438-2309

DUNS # 0812668150000
TIN # 90-0635251
Special District Government

<u>Points of Contact (POC)</u>
Joe A. Trapasso
112 Old Highway 99 West
Maxwell, CA 95955
Program Operations Manager
530-387-1102
jtrapasso@sitesproject.org

Jerry Brown
112 Old Highway 99 West
Maxwell, CA 95955
Executive Director
925-260-7417
jbrown@sitesproject.org

17. **<u>GOTR</u>**: *(contact information) Name of person, Title, Address, Phone, Email and etc.*

Bureau of Reclamation, Interior Region 10, California-Great Basin, Division of Planning
Vanessa King
Bureau of Reclamation
2800 Cottage Way
Sacramento CA 95825
(916) 978-5077

18. <u>Post-Award Monitoring Plan:</u> *A completed and signed post-award monitoring plan for agreement's with a total estimated federal amount in excess of $500,000.00.*

The Sites Project Authority is responsible for oversight of the completion of activities supported under this agreement. Sites Project Authority must monitor activities to ensure compliance with applicable Federal requirements and performance expectations are being achieved. Monitoring by the non-Federal entity must cover each program, function, or activity.

Performance progress reports will be submitted quarterly as described in the reporting section above.

19. <u>Government-Furnished Property:</u> *Must clearly state if government furnished property is provided.*

N/A

20. <u>Real Property:</u> *Must clearly state if real property is acquired.*

No real property is being acquired as part of this request.

21. <u>Research Agreement:</u> *Include a statement if the agreement will result in Patents and Inventions.*

The agreement will not result in Patents and Inventions being created.

22. <u>Recipient Signature</u>

Joe Trapasso

Joe A. Trapasso
Program Operations Manager

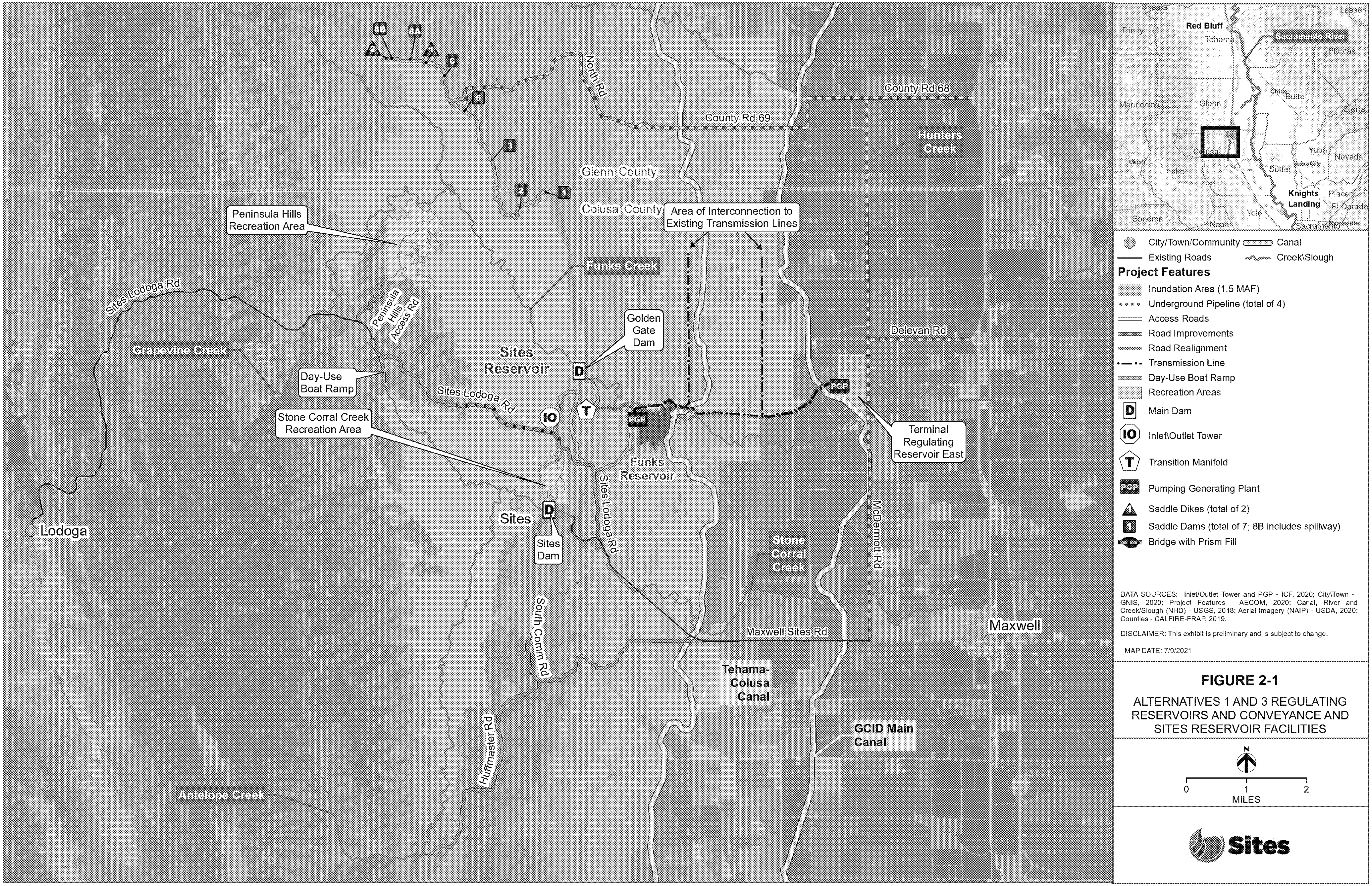


FIGURE 2-1

ALTERNATIVES 1 AND 3 REGULATING RESERVOIRS AND CONVEYANCE AND SITES RESERVOIR FACILITIES

PATH: \\PDCCITRDSGIS1\PROJECTS_1\SITES_PA\00528_20\FIGURES\DOC\EREIS\1_DEIR\01_ADEIR\CHAPTER2\FIG2-1_ALT1_3_REGRESERVOIRS_CONV.MXD - USER: 24991 - DATE: 7/9/2021

STATEMENT OF WORK (SOW)

1. **Public Law**, *including Section and Sub-section verbatim, which provides Reclamation authority to award Financial Assistance for this project. Provide a statement that directly relates the activities to be funded to the referenced authority.*

This Financial Assistance Agreement (Agreement) is entered into between the United States of America, acting through the Department of the Interior, Bureau of Reclamation (Reclamation) and Sites Project Authority (Recipient), pursuant to PL 114-322; Water Infrastructure Improvements for the Nation (WIIN) Act Section 4007. Storage. (a)(1)(c)(d)(e)(g)(h)(i)(k). The following section, provided in full text, authorizes Reclamation to award this financial assistance agreement:

PL 114-322; Water Infrastructure Improvements for the Nation (WIIN) Act
Section 4007. Storage. (a)(1)(c)(d)(e)(g)(h)(i)(k)
(a) Definitions. --In this subtitle:

(1) Federally owned storage project. --The term ``federally owned storage project'' means any project involving a surface water storage facility in a Reclamation State--

(A) to which the United States holds title; and

(B) that was authorized to be constructed, operated, and maintained pursuant to the reclamation laws.

(2) State-led storage project.--The term ``State-led storage project'' means any project in a Reclamation State that--

(A) involves a groundwater or surface water storage facility constructed, operated,
and maintained by any State, department of a State, subdivision of a State, or public
agency organized pursuant to State law; and

(B) provides a benefit in meeting any obligation under Federal law (including regulations).

(c) State-Led Storage Projects.—

(1) In General.—Subject to the requirements of this subsection, the Secretary of the Interior may participate in a State-led storage project in an amount equal to not more than 25 percent of the total cost of the State-led storage project.

(2) Request by Governor.—Participation by the Secretary of the Interior in a State-led storage project under this subsection shall not occur unless— (A) the participation has been requested by the Governor of the State in which the State-led storage project is located; (B) the State or local sponsor determines, and the Secretary of the Interior concurs, that— (i) the State-led storage project is technically and financially feasible and provides a Federal benefit in accordance with the reclamation laws; (ii) sufficient

non-Federal funding is available to complete the State-led storage project; and (iii) the State-led storage project sponsors are financially solvent; (C) the Secretary of the Interior determines that, in return for the Federal cost-share investment in the State led storage project, at least a proportional share of the project benefits are the Federal benefits, including water supplies dedicated to specific purposes such as environmental enhancement and wildlife refuges; and(D) the Secretary of the Interior submits to Congress a written notification of these determinations within 30 days of making such determinations.

(3) Environmental Laws.—When participating in a State led storage project under this subsection, the Secretary shall comply with all applicable environmental laws, including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(4) Information.—When participating in a State-led storage project under this subsection, the Secretary of the Interior— (A) may rely on reports prepared by the sponsor of the State-led storage project, including feasibility (or equivalent) studies, environmental analyses, and other pertinent reports and analyses; but (B) shall retain responsibility for making the independent determinations described in paragraph (2).

(d) Authority To Provide Assistance.--The Secretary of the Interior may provide financial assistance under this subtitle to carry out projects within any Reclamation State.

(e) Rights To Use Capacity.--Subject to compliance with State water rights laws, the right to use the capacity of a federally owned storage project or State-led storage project for which the Secretary of the Interior has entered into an agreement under this subsection shall be allocated in such manner as may be mutually agreed to by the Secretary of the Interior and each other party to the agreement.

(g) Partnership and Agreements.--The Secretary of the Interior, acting through the Commissioner, may partner or enter into an agreement regarding the water storage projects identified in section 103(d)(1) of the Water Supply, Reliability, and Environmental Improvement Act (Public Law 108-361; 118 Stat. 1688) with local joint powers authorities formed pursuant to State law by irrigation districts and other local water districts and local governments within the applicable hydrologic region, to advance those projects.

(h) Authorization of Appropriations.--

(1) $335,000,000 of funding in section 4011(e) is authorized to remain available until expended.

(2) Projects can only receive funding if enacted appropriations legislation designates funding to them by name, after the Secretary recommends specific projects for funding pursuant to this section and transmits such recommendations to the appropriate committees of Congress.

(i) Sunset.--This section shall apply only to federally owned storage projects and State led storage projects that the Secretary of the Interior determines to be feasible before January 1, 2021.

(j) Consistency With State Law.--Nothing in this section preempts or modifies any obligation of the United States to act in conformance with applicable State law.

(k) Calfed Authorization.--Title I of Public Law 108-361 (the Calfed Bay-Delta Authorization Act) (118 Stat. 1681; 123 Stat. 2860; 128 Stat. 164; 128 Stat. 2312) (as amended by section 207 of Public Law 114-113) is amended by striking ``2017'' each place it appears and inserting ``2019''. Public Law 116-94, H. R. 1865—132 "That in accordance with section 4007 of Public Law 114–322, and as recommended by the Secretary in a letter dated February 13, 2019, funding provided for such purpose in fiscal years 2017 and 2018 shall be made available to…the North-of-the Delta Off stream Storage (Sites Reservoir Project)"

2. **Background**: *Clear background for program and project.*

The Sites Reservoir is a proposed off-stream reservoir that will be filled by pumping water from the Sacramento River. The project includes the Sites Reservoir and new facilities to integrate with both the existing Tehama-Colusa Canal (TC Canal) and Glenn-Colusa Irrigation District (GCID) Main Canal. Once constructed, the Sites Reservoir will be one of the state's largest reservoirs and will substantially increase surface water storage in the Sacramento Valley. The project's facilities will be independently owned and operated by the Sites Project Authority (Authority) under its own water rights and other regulatory requirements, in cooperation with the U.S. Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR)—operators of the Central Valley Project (CVP) and State Water Project (SWP), respectively.

Water Infrastructure Improvements for the Nation (WIIN) Act funding will allow the project to progress by incorporating necessary services including engineering design and conveyance design advancement, geological and geotechnical engineering functions, project permitting and environment planning support, mitigation, operations simulation modeling, real estate functions, communication efforts, program operations support, and program support. The project scope is funding-limited, and deliverables are identified based on the level of funding available to the project. The scope outlined in the following sections will allow the Authority to update and complete the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) and further the development of feasibility- and preliminary-level designs. It will provide needed staffing resources to augment Authority staffing and further the communication and real estate needs of the project.

3. **Non-Competitive Selection** ***(if applicable Per ACM 01-02):*** *The merit based selection of a recipient for a financial assistance agreement through any means other than a competition must follow the noncompetitive selection process. A non-competitive selection may be made as either a discretionary or non-discretionary selection.*

(1) Mandatory/Non-Discretionary. Selection of a recipient for a financial assistance agreement may be made without competition if Reclamation has no discretion in regards to the selection of the recipient for the proposed award. Non-discretionary selection must be based on either a statutorily mandated recipient or on other preexisting agreements or arrangements which remove Reclamation's discretion in the selection process.

(2) Discretionary Selection. Non-competitive selection of a financial assistance recipient may be made on a discretionary basis when circumstances would limit selection to a single entity. The justification must include how the selection is both

based upon merit and in the best interest of the government. The allowable justifications for a non-competitive discretionary selection are as follows.

(a) Unsolicited Proposal. The proposed recipient submitted an unsolicited application for funding for a project or activity which represents a unique or innovative idea, method, or approach which is not the subject of a current or planned contract, financial assistance agreement, or funding opportunity, but is deemed advantageous to the funding program's objectives.

(b) Continuation. The activity to be funded is necessary for the satisfactory completion of, or is a continuation of an activity currently being funded, and for which competition would have a significant adverse effect on the continuity of the activity.

(c) Unique Qualifications. The proposed recipient is uniquely qualified to perform the activity based upon a variety of demonstrable factors such as location, property ownership, technical expertise, or other factors which preclude other entities from performing the proposed activities.

(d) Legislative Intent. The language in the applicable authorizing legislation or legislative history clearly indicates Congress' intent to restrict the award to a particular recipient.

(e) Emergencies. There is insufficient time available for an adequate competitive process due to a compelling or urgent circumstance such as a substantial danger to health or safety.

Congress approved funding for the Sites Reservoir Project under Section 4007 of the WIIN Act, authorizing funding from 2017-2021. Pursuant to Reclamation's Directives and Standard ACM 01-02 Section 5 A. (2)(b), Reclamation's Discretionary Selection of Sites Reservoir Authority is based on the continuation of funding under Agreement R20AC00105 providing funding through June 30, 2022. The proposed Agreement will continue the work Reclamation has previously funded, furthering the development of the Sites Reservoir Project.

4. **Public Purpose *(grants and cooperative agreements must have this)***: *Prove sufficient explanation as to how the project will assist the recipient in accomplishing its public purpose/needs, which are authorized by the public law. Demonstrate that the project is not primarily for the direct benefit of Reclamation or other Federal government agencies.*

The Authority has requested funding to apply towards engineering, geotechnical, planning/permitting, mitigation, operations modeling, real estate services, communications efforts, program operations, and program support. These services provide the foundation by which the Sites Reservoir Authority can accomplish its ultimate vision, to provide affordable water that is sustainably managed for California's farms, cities, and environment for generations to come. Funding moves the Sites Project closer to providing California the benefits the reservoir project is being designed to provide. These benefits include improved water supply, improved water supply reliability, incremental Level 4 water supply for refuges, improved survival of anadromous fish, enhance the Delta ecosystem, provide opportunities for recreation, and provide flood damage reduction. These benefits reach the general public, the environment, the economy, as well as local, state and federal agencies.

5. **Objectives**: *Describe specifically what the agreement will be accomplishing; demonstrating that it is an undertaking of a clearly defined objective that supports the purpose.*

The agreement will accomplish 8 objectives that directly support the purpose and progress of the Sites Reservoir Project.

Objective 1: Engineering
The Engineering tasks performed under this agreement will advance the design of the Sites Reservoir Service Area facilities from feasibility design through preliminary design.

Objective 2: Geology/Geotechnical Engineering
The geology and geotechnical tasks performed under this agreement involves work associated with planning, permitting and execution of field data collection efforts at locations which have received environmental permitting and right of access clearance.

Objective 3: Planning and Permitting
The work performed under this agreement includes the planning and permitting work required to finalize the EIR/EIS and obtain key permits and environmental clearances.

Objective 4: Compensatory Natural Resource Mitigation
This task will provide for the development of a comprehensive mitigation plan and begin the planning process for the mitigation needed for the Project.

Objective 5: Operations Simulation Modeling
The operations modeling performed under this agreement will provide analysis, modeling and documentation needed to support the Authority with environmental planning, operational agreements, permitting and water rights applications. This includes the EIR/EIS, Biological Assessment/Incidental Take Permit and WSIP benefits agreements. This objective will also support the development of Version 2 of the Sites Reservoir Operations Plan.

Objective 6: Real Estate
The real estate tasks performed under this agreement involves Landowner engagement, Geotech Right-of-Entry and preparation of a Right-of -Way manual.

Objective 7: Communications

The communication efforts performed under this agreement will support the operational needs of the Authority as well as the environmental review and permitting process. Support will include outreach, strategic counsel and communication guidance, information materials, and media relations.

Objective 8: Program Operations

Program operations support is required to provide the Authority the additional support needed to establish and manage reservoir operations. This includes project management, project controls, project funding tasks, quality management, coordination, project administrative support and risk management functions.

Objective 9: Program Support

Program support is required to provide the Authority the additional staffing needed to perform needed support functions such as document management, GIS functions, IT support and staffing support.

6. **Benefits:** *Explain the benefits to be derived from the performance of the project. Demonstrate that the activity to be undertaken is of a public benefit and is in furtherance of Reclamation mission.*

The Sites Reservoir Project will offer several benefits to California on the state, regional, and local level.

Improve Water Supply and Water Supply Reliability. The water stored and released from Sites Reservoir will allow for improved water supply and reliability for participants in the project and California on the state, regional, and local level.

Provide Incremental Level 4 Water Supply for Refuges. The State has committed to invest in incremental Level 4 water supply for refuges at an undetermined level. Level 4 refuge demand is located primarily south of the Sacramento-San Joaquin Delta (Delta).

Improve the Survival of Anadromous Fish. The Authority is supportive of actions that benefit salmon, steelhead, and other anadromous fish species of concern in the Sacramento River watershed. Exchanges with Reclamation enable the conservation of the coldwater pool in Shasta and Folsom Lakes. The species benefit from improved coldwater pool management, lower river water temperatures, and supplemental flows to prevent the dewatering of redds.

Enhance the Delta Ecosystem. Water released from Sites Reservoir would be conveyed to the Yolo Bypass toe drain to convey biomass to the Delta to help supply food for Delta smelt.

Provide Opportunities for Recreation. State funding will support the construction of new recreation facilities, including the Stone Corral Creek Recreation Area on the east side of the reservoir, a boat ramp on the west side of the reservoir, and the Peninsula Hills Recreation Area on the west side of the reservoir.

Provide Flood Damage Reduction. Once completed, Sites Dam will reduce the likelihood of flooding in the Stone Corral Creek watershed, and Golden Gate Dam will improve flood damage reduction for extreme events on Funks Creek.

7. **Period of Performance:** *(date of execution through month/date/year). Agreements and/or modifications* ***will not*** *exceed a total of 5 years.*

   January 1, 2022 through December 31, 2024

8. **Scope of Work**: *MUST have detailed descriptions of project objectives. The project plan must describe, in detail, the activities to be undertaken, including the proposed work, reporting, major tasks, and project milestones including the identification of the anticipated start and ending dates of all major stages/objectives of the project proposal.*

Descriptions of the objectives of the project activities funded under this agreement are provided below.

Task 1: Engineering
This scope of work covers advancing the design of the Sites Reservoir facilities from the Feasibility Design (10-15%) undertaken in Task Order No. 2 through Preliminary Engineering (20-30%) Design. The major activities under Preliminary Engineering Design include (1) coordinating with the Authority, California Department of Water Resources Division of Safety of Dams (DSOD) and other jurisdictional agencies; (2) coordinating with the Environmental, Permitting, Real Estate, Geology/Geotechnical and Engineering teams; (3) geotechnical data monitoring during the field investigations and data interpretation for use in design analyses; (4) value engineering; (5) updating the project schedule; (6) engineering analyses and Basis of Design Report; (7) Preliminary Engineering Design drawings and specification list; (8) updating the construction cost estimates to reflect the Preliminary Engineering design; and (9) developing contract procurement strategies/project delivery methods.

Major Tasks:

- Survey & Topo Mapping
- Geology/Geotechnical Field Investigations Data Monitoring and Interpretation Reports
- Preliminary Engineering Basis of Design Report
- Preliminary Design Engineering Analysis
- Preliminary Design Drawings and Specifications List
- Value Engineering
- Coordination with jurisdictional Agencies

- Utility Coordination
- DSOD fees
- Identify and Initiate Procurement Strategies
- Project Construction Schedule
- Project Coordination and Management
- Project Risk Management
- Support Real Estate Activities

Task 2: Geology/Geotechnical Engineering
The geology and geotechnical tasks performed under this agreement involves work associated with planning, permitting and execution of field data collection efforts at locations which have received environmental permitting and right of access clearance.

Major Tasks:
- Environmental Permitting Document Review
- Field investigation activities scheduled between 2022 and 2024
- Geology/Geotechnical Data Reports

Task 3: Planning and Permitting
The work performed under this agreement includes the planning and permitting work required to finalize the EIR/EIS and obtain key permits and environmental clearances.

Major Tasks:
- 401 Permit
- 404 Permit
- Aquatic Resources Management Plan
- BA - Draft and Final
- Biological Survey Plan
- Cultural Resources
- Eagle Permit & Surveys
- EIR/EIS – Admin Draft Final
- EIR/EIS – Admin Record
- EIR/EIS – Final
- EIR/EIS – MMRP, Findings, SOC
- EIR/EIS – Responses to Comments
- EIR/EIS – ROD Support
- Geotech
- Invasive Species Plan
- ITP

- LSAA
- Reservoir Management Plan
- Stone & Funks Creek Flow Plan & Survey
- Antelope Valley Hydrology Assessment and Monitoring
- Surveys (Plant-Wildlife-Wetland)
- Water Rights
- Worker Environmental Awareness Program (WEAP)

Task 4: Mitigation
This task will provide for the development of a comprehensive mitigation plan and begin the planning process for the mitigation needed for the Project.

Major Tasks:

- Mitigation Plan & AMP
- Mitigation Planning

Task 5: Operations Simulation Modeling
The operations modeling performed under this agreement will provide analysis, modeling and documentation needed to support the Authority with environmental planning, operational agreements, permitting and water rights applications. This includes the EIR/EIS, Biological Assessment/Incidental Take Permit and WSIP benefits agreement. This objective will also support the development of Version 2 of the Sites Reservoir Operations Plan.

Major Tasks:

- BA/ITP Modeling Support
- Operations Analysis for Final EIR/EIS
- Operations Plan, Version 2
- Support for operational agreements
- Modeling for water Rights
- WSIP Benefits Agreements

Task 6: Real Estate
The real estate task involves work associated with land, real estate, right-of-way, interagency coordination, and public/landowner engagement considerations in support of the engineering, environmental, permitting, geotechnical, and communications efforts for the Sites Reservoir Project, in addition to programmatic real estate development for near-term land access, future land needs, land acquisition, and land management, in support of the Authority's objectives.

Major Tasks:

- Landowner Engagement
- Geotech Right-of-Entry
- Right-of-Way Manual
- Real Estate ROE Fees

Task 7: Communications

The communication efforts performed under this agreement will support the operational needs of the Authority as well as the environmental review and permitting process. Support will include outreach, strategic counsel and communication guidance, information materials, and media relations.

Major Tasks:

- Authority Board/Reservoir Committee Engagement/Public Affairs Support
- Environmental Public Involvement
- Informational Materials and Media
- Communications for Permitting and Agency Outreach
- Strategic Communications and Message Development

Task 8: Program Operations

Project operations support is required to provide Authority staff assistance with project funding, project controls, project management, risk management, coordination, quality management and business management functions.

Major Tasks:

- Accounts Payable and Receivable
- Business Management
- Contract Administration, Compliance, and Contract Strategy
- Administration of Local, State, and Federal Funding
- Health & Safety
- Policies & Procedures
- Project Administrative Support
- Project Controls
- Project Financing and Agreements Support
- Project Management
- Quality Management
- Reclamation Coordination
- Risk Management
- Work Planning and Scheduling

Task 9: Program support

Program support includes document management, GIS data management, Information Technology and Staff support.

Major Tasks:

- Document Management
- GIS
- IT
- Staff Support

9. **Milestones/Timeline/Schedule**: *The project plan must describe, in detail, the activities to be undertaken, including the proposed work, reporting, major tasks, and project milestones including the identification of the anticipated start and ending dates of all major stages/tasks of the project proposal. It is highly recommended that the milestones within the SOW are constructed around the reporting frequency. For example, if the reporting frequency is semi-annual, then there would be milestones for each semi-annual period.*

A schedule with tasks and deliverables is presented below:

Task No.	Task	Deliverable	Estimated Start Date	Estimated Completion Date
01	Engineering	Geology/Geotechnical Field Investigations Data Monitoring	01/03/2022	12/27/2024
01	Engineering	Geology/Geotechnical Investigations Interpretation Reports	03/06/2023	12/27/2024
01	Engineering	Project Coordination and Management	01/03/2022	12/27/2024
01	Engineering	Preliminary Engineering Design	07/28/2022	12/27/2024
01	Engineering	Survey & Topo Mapping	01/03/2022	08/31/2022
01	Engineering	Risk Management	01/03/2022	12/27/2024
01	Engineering	Project Delivery/Procurement Strategy	01/03/2022	12/27/2024
01	Engineering	Preliminary Design Value Engineering	01/02/2023	07/05/2024
01	Engineering	Preliminary Engineering Cost Estimate	07/28/2022	07/05/2024

01	Engineering	Project Construction Schedule	05/22/2022	01/05/2024
01	Engineering	Preliminary Design Engineering Analysis	07/28/2022	01/05/2024
01	Engineering	Preliminary Engineering Drawings and Specifications List	07/28/2022	01/05/2024
02	Geotechnical	Env Planning Document Review	01/01/2022	12/31/2023
02	Geotechnical	Project Management	01/01/2022	12/31/2024
02	Geotechnical	Geotech Work Package #1	07/28/2022	02/02/2023
02	Geotechnical	Geotech Work Package #2	12/30/2022	07/03/2023
02	Geotechnical	Geotech Work Package #3	06/20/2023	12/22/2023
02	Geotechnical	Geotech Work Package #4	12/11/2023	06/13/2024
02	Geotechnical	Geotech Work Package #5	05/31/2024	12/04/2024
03	Planning/Permitting	401	01/01/2022	12/30/2023
03	Planning/Permitting	404	02/24/2021	12/30/2023
03	Planning/Permitting	Aquatic Resources Management Plan	09/01/2022	12/30/2023
03	Planning/Permitting	BA	01/02/2022	12/30/2022
03	Planning/Permitting	Eagle Permit & Surveys	01/02/2022	12/30/2023
03	Planning/Permitting	EIR/EIS	04/01/2022	12/30/2022
03	Planning/Permitting	Invasive Species Plan	07/01/2024	12/30/2024
03	Planning/Permitting	ITP	01/01/2022	12/30/2022
03	Planning/Permitting	Geotech	01/03/2022	12/30/2024
03	Planning/Permitting	Water Rights	01/01/2023	06/30/2023
03	Planning/Permitting	Surveys	04/01/2022	12/30/2024
04	Mitigation Planning	Mitigation Master Plan	08/17/2022	02/15/2023
05	Operations Modeling	BA/ITP Modeling Support	01/02/2022	12/30/2023
05	Operations Modeling	Operations Analysis	01/02/2022	12/30/2024
05	Operations Modeling	Operations Plan Version 2	01/02/2023	12/30/2023
05	Operations Modeling	Project Management	01/02/2022	12/30/2024

05	Operations Modeling	Support Operational Agreements	01/02/2022	01/31/2022
05	Operations Modeling	Water Rights	01/03/2022	12/30/2024
05	Operations Modeling	WSIP Benefit Agreements	01/03/2022	12/30/2023
06	Real Estate	Real Estate	01/03/2022	12/30/2024
07	Communications	Communications	01/03/2022	12/30/2024
08	Program Operations	Coordination and Management Support	06/01/2021	12/30/2024
09	Program Support	Document management, IT/GIS Support	01/03/2022	12/30/2024

10. Recipient Responsibilities: *If the SOW contains construction activities, the Recipient is responsible for construction inspection, oversight, and acceptance. If applicable, the Recipient shall also coordinate and obtain approvals from site owners and operators.*

Responsibilities of Sites Project Authority:

The responsibilities of Sites Project Authority are described below and incorporated as part of this Agreement.

1. Perform all tasks specified in the proposal.

2. Ensure that project activities are in compliance with all relevant local, State, and Federal regulations.

3. Recognize the contribution of Reclamation through documents and in any public statements, publications, or signage relevant to the project.

4. Comply with the reporting and distribution requirements of this Agreement. Submit reports and correspondence to:

Vanessa King

Grants Officer Technical Representative

Bureau of Reclamation

2800 Cottage Way

Sacramento CA 95825

5. Provide Reclamation with manuscripts published in scientific journals, as data warrant. Promptly provide to Reclamation, at the Recipient's sole cost, electronic files of all field data, photographs, and research products including reports, analyses, databases, and models, as applicable, that are produced by the Recipient in connection with the investigations undertaken through this Agreement, whether published or not.

If the agreement is a Cooperative Agreement, the proposal must include both the responsibilities of the recipient and of Reclamation. Please review the information below:

11. **Reclamation Responsibilities**: (**REQUIRED IF COOPERATIVE AGREEMENT**)

Must clearly state as to how Reclamation's responsibilities constitute *"substantial involvement."* in which the GOTR participates and collaborates jointly with the recipient partner, volunteer, scientist, technician, or other personnel, in carrying out the scope of work, trains recipient personnel, or details federal personnel to work on the project effort.

If Substantial involvement between Reclamation and the Recipient is anticipated during the performance of this Agreement, then add the following statement and outline the activities and responsibilities that Reclamation will perform in support of the agreement that constitute substantial involvement:

Substantial involvement by Reclamation is anticipated during the performance of activities funded under this cooperative agreement. In support of this Agreement, Reclamation will be responsible for the following:

Cooperative Agreements must include the responsibilities of the recipient and of Reclamation:

Responsibilities of Reclamation:

1. Act as Federal liaison in the conveyance of funding from Reclamation to the Regents of the University of California, Oakland.

2. Assist in the preparation of project reports submitted by Sites Project Authority and coordinate and attend meetings with stakeholders to analyze and synthesize data.

3. Actively participate in restoration work in order to ensure compliance with the National Environmental Policy Act and Endangered Species Act. Sites Project Authority and the Bureau of Reclamation Area Office will work together to obtain all applicable state and local permits for work to be performed under this grant.

12. **<u>Budget:</u>** *As an Attachment, must provide a DETAILED budget (including Reclamation, Recipients and other entity contribution) using the Recommended Budget Table Format. Budget documents must include supporting documents for <u>each</u> line items (with justification), an approved indirect cost rate, if applicable. Budget must be reviewed and approved by GOTR before submitting to MP-3800.* Detailed budget is attached.

13. **<u>Pre-Award Incurrence of Costs:</u>** *Provide date with justification. Incurrence of costs is authorized (if approved by the GO) if the cost was incurred after the agreement was entered into, and would have been allowable, allocable, and reasonable under the terms and conditions of the agreement.*

    The Applicant will submit a request for approval of the pre-award incurrence of costs effective from January 1, 2021.

14. **<u>Cost Sharing Requirement:</u>** *(List of participants/collaborators (including type of recipient and amount). If program authority requires a cost share/match, provide a copy of the Public Law, section and sub-section, verbatim.*

    At least 50% non-Federal cost-share is required for costs incurred under this Agreement. If pre-award costs are authorized, reimbursement of these costs is limited to federal cost share percentage identified in this agreement.

Funding Source	**Original Funding Amount ($)**	**Amendment 1**	**Total Funding Amount ($)**
Non-federal entities	—	—	—
Participation partners funding	42,562,810	—	42,562,810
Subtotal (non-federal)	**42,562,810**	**—**	**42,562,810**
Requested Reclamation funding	42,000,000	—	42,000,000
Total	**84,562,810**	**—**	**84,562,810**

15. **<u>Reporting:</u>** *Any type of special reporting beyond Reclamation's requirement.*

<u>Reports and Deliverables</u>

In compliance with the terms of the Authority's Financial Assistance Agreement with Reclamation, the Authority will submit performance and financial reports describing the progress completed during the previous quarter. The performance reports include a summary of percent complete, deliverable status, and work anticipated for the next period whereas the financial report includes a budget status reported in the form of the appropriate federal template (SF-425). Separate from the FAA reporting, the Authority will also continue to provide quarterly financial reports to Reclamation in compliance with cost share reporting requirements.

Financial Status Report	Interim	Final
Format	Hard copy	Hard copy
Form	SF-425	SF-425
Reporting Frequency	Quarterly	Due upon completion of agreement period of performance
Reporting Period	3/31, 6/30, 9/30, 12/31	Entire period of performance
Due Date	Within 30 days after the end of the Reporting Period	Within 90 days after the completion date of the agreement
Send one original to each:	GO and GOTR	GO and GOTR

Recipient Key Personnel: *(contact information) Name of person Project/Program Manager, Title, Address, Phone, Email and etc.*

Recipient
Sites Project Authority
112 Old Highway 99 West
Maxwell, CA 95955
530-438-2309

DUNS # 0812668150000
TIN # 90-0635251
Special District Government

Points of Contact (POC)
Joe A. Trapasso
112 Old Highway 99 West
Maxwell, CA 95955
Program Operations Manager
530-387-1102
jtrapasso@sitesproject.org
Jerry Brown
112 Old Highway 99 West
Maxwell, CA 95955
Executive Director
925-260-7417
jbrown@sitesproject.org

16. **GOTR**: *(contact information) Name of person, Title, Address, Phone, Email and etc.*

Bureau of Reclamation, Interior Region 10, California-Great Basin, Division of Planning
Vanessa King
Bureau of Reclamation
2800 Cottage Way
Sacramento CA 95825
(916) 978-5077

17. **Post-Award Monitoring Plan:** *A completed and signed post-award monitoring plan for agreement's with a total estimated federal amount in excess of $500,000.00.*

The Sites Project Authority is responsible for oversight of the completion of activities supported under this agreement. Sites Project Authority must monitor activities to ensure compliance with applicable Federal requirements and performance expectations are being achieved. Monitoring by the non-Federal entity must cover each program, function, or activity.

Performance progress reports will be submitted quarterly as described in the reporting section above.

18. **Government-Furnished Property:** *Must clearly state if government furnished property is provided.*

N/A

19. **Real Property:** *Must clearly state if real property is acquired.*

No real property is being acquired as part of this request.

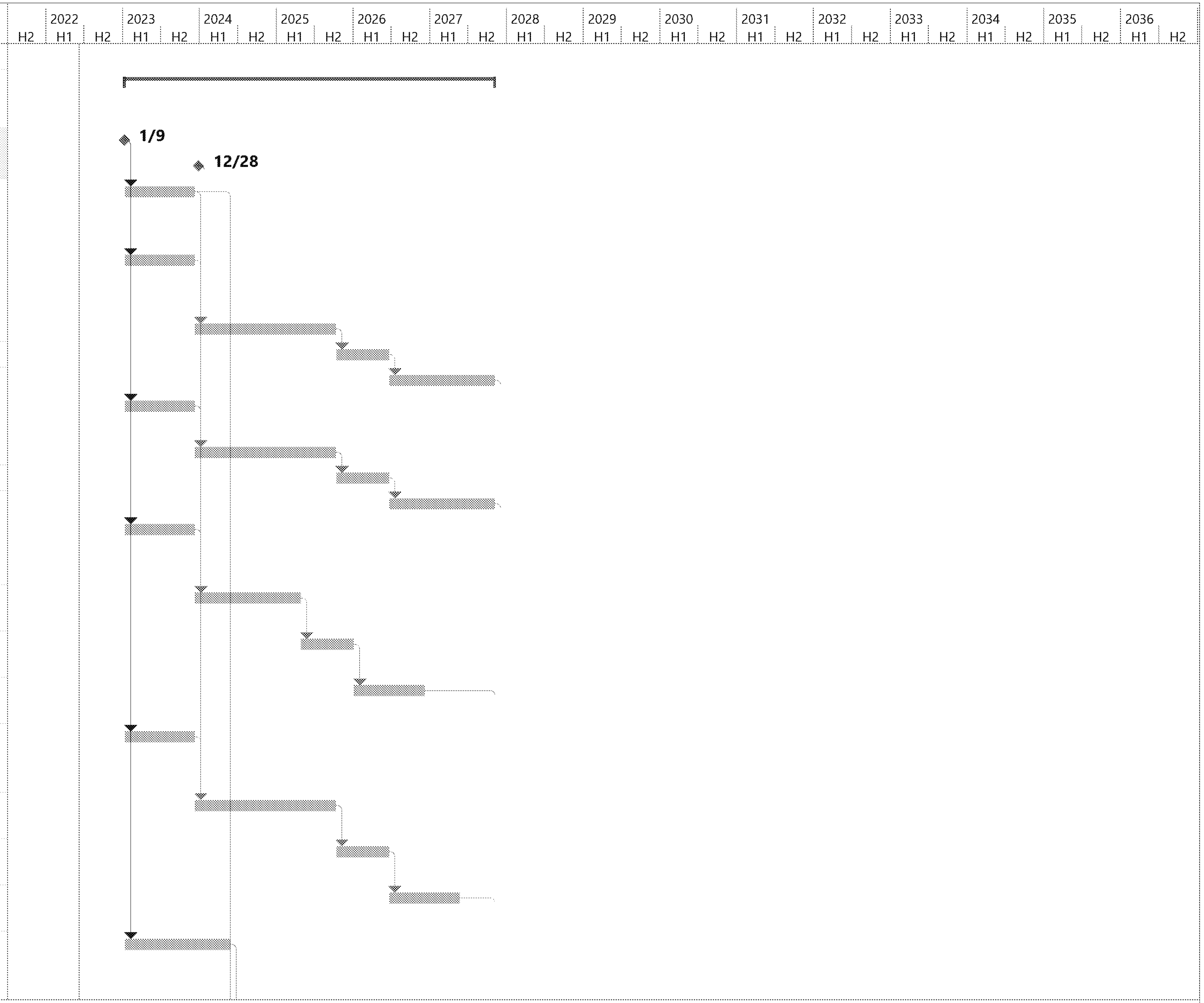
20. **Research Agreement:** *Include a statement if the agreement will result in Patents and Inventions.*

The agreement will not result in Patents and Inventions being created.

21. **Recipient Signature**

Joe Trapasso
Joe A. Trapasso
Program Operations Manager

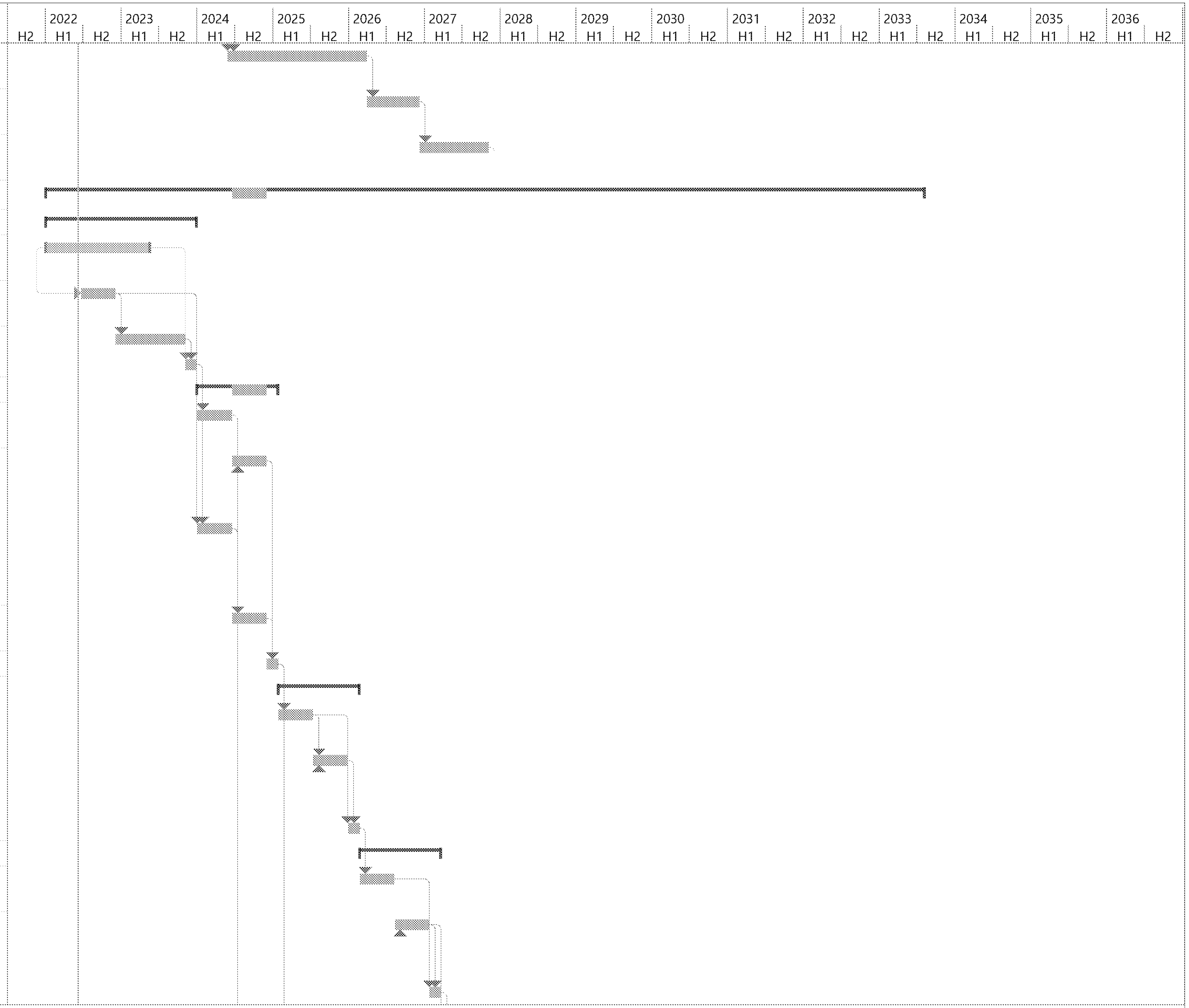
ID	Task Name	Duration	Start	Finish
1				
2	**Environmental Permitting**	**1260 days**	**Mon 1/9/23**	**Fri 11/5/27**
3	CEQA Certification	0 days	Mon 1/9/23	Mon 1/9/23
4	Obtain Water Right	0 days	Thu 12/28/23	Thu 12/28/23
5	General Permits for ESA; 404/401; Cultural Resources	12 mons	Mon 1/9/23	Fri 12/8/23
6	Property Access for Bio/CR Field Surveys Dams	12 mons	Mon 1/9/23	Fri 12/8/23
7	Enviro Surveys Dams	24 mons	Mon 12/11/23	Fri 10/10/25
8	Regulatory Reviews Dams	9 mons	Mon 10/13/25	Fri 6/19/26
9	Mitigation for Dams	18 mons	Mon 6/22/26	Fri 11/5/27
10	Property Access for Bio/CR Field Surveys I/O	12 mons	Mon 1/9/23	Fri 12/8/23
11	Enviro Surveys I/O	24 mons	Mon 12/11/23	Fri 10/10/25
12	Regulatory Reviews I/O	9 mons	Mon 10/13/25	Fri 6/19/26
13	Mitigation for I/O	18 mons	Mon 6/22/26	Fri 11/5/27
14	Property Access for Bio/CR Field Surveys Road/Bridge	12 mons	Mon 1/9/23	Fri 12/8/23
15	Enviro Surveys Road/Bridge	18 mons	Mon 12/11/23	Fri 4/25/25
16	Regulatory Reviews Road/Bridge	9 mons	Mon 4/28/25	Fri 1/2/26
17	Mitigation for Road/Bridge	12 mons	Mon 1/5/26	Fri 12/4/26
18	Property Access for Bio/CR Field Surveys Conveyance	12 mons	Mon 1/9/23	Fri 12/8/23
19	Enviro Surveys Conveyance	24 mons	Mon 12/11/23	Fri 10/10/25
20	Regulatory Reviews for Conveyance	9 mons	Mon 10/13/25	Fri 6/19/26
21	Mitigation for Conveyance	12 mons	Mon 6/22/26	Fri 5/21/27
22	Property Access for Enviro Surveys for Reservoir Clearing	18 mons	Mon 1/9/23	Fri 5/24/24



Project: Sites - Contract Strateg
Date: Wed 6/8/22

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	

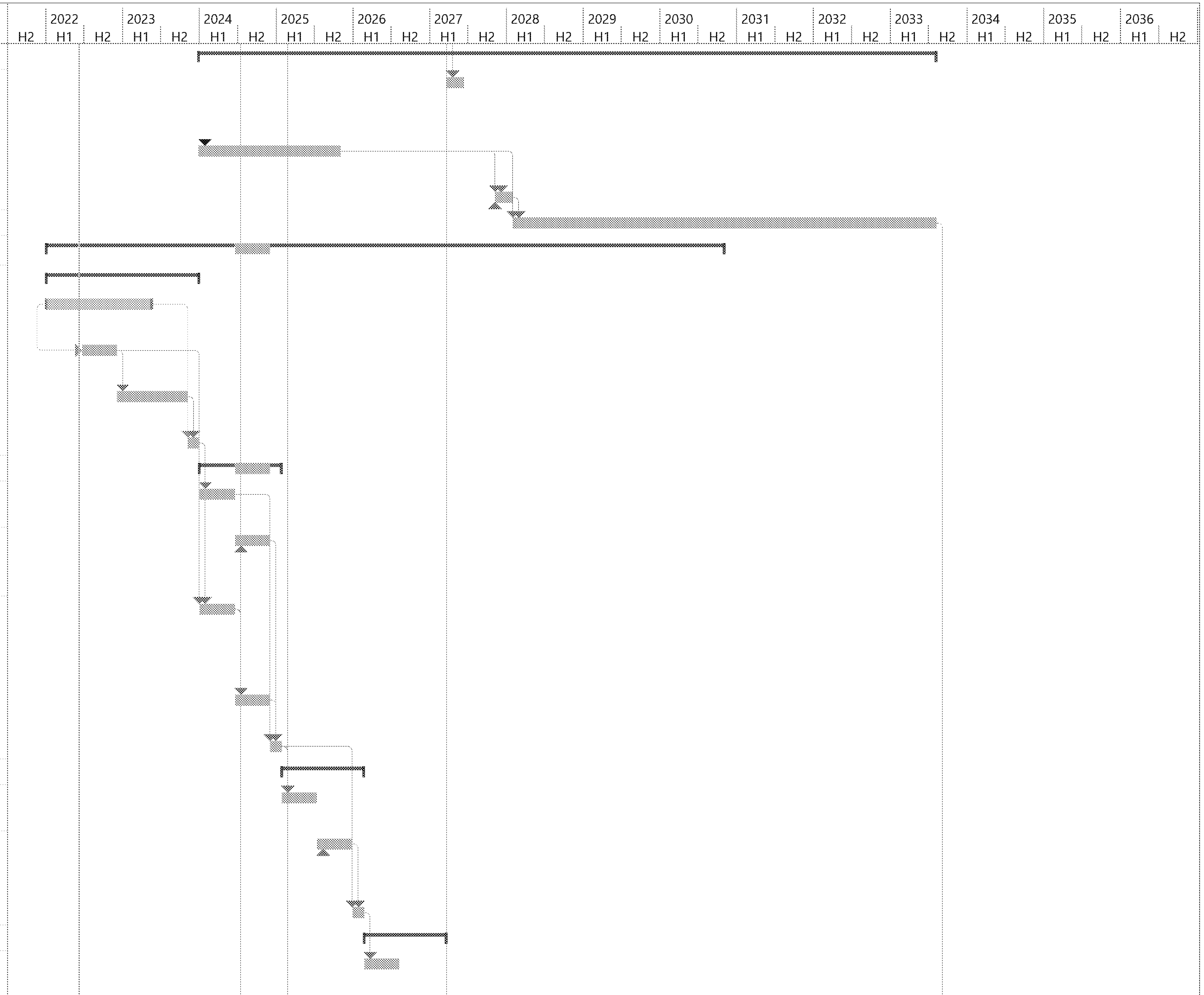
ID	Task Name	Duration	Start	Finish
23	Enviro Surveys for Reservoir Clearing	24 mons	Mon 5/27/24	Fri 3/27/26
24	Regulatory Reviews for Reservoir Clearing	9 mons	Mon 3/30/26	Fri 12/4/26
25	Mitigation for Reservoir Clearing	12 mons	Mon 12/7/26	Fri 11/5/27
26	**Dams**	**3025 days**	**Mon 1/3/22**	**Fri 8/5/33**
27	**30% Design**	**520 days**	**Mon 1/3/22**	**Fri 12/29/23**
28	Initiate and progress 30% Design	18 mons	Mon 1/3/22	Fri 5/19/23
29	Access rights for dam geotech explorations	6 mons	Mon 6/20/22	Fri 12/2/22
30	Geotech exploration	12 mons	Mon 12/5/22	Fri 11/3/23
31	Complete 30% design	2 mons	Mon 11/6/23	Fri 12/29/23
32	**60% Design**	**280 days**	**Mon 1/1/24**	**Fri 1/24/25**
33	Initiate and progress 60% Design	6 mons	Mon 1/1/24	Fri 6/14/24
34	Address DSOD Comments on 30% design	6 mons	Mon 6/17/24	Fri 11/29/24
35	Additional Property Access for 60% Geotech Explorations (as needed)	6 mons	Mon 1/1/24	Fri 6/14/24
36	60% Geotech exploration	6 mons	Mon 6/17/24	Fri 11/29/24
37	Complete 60% Design	2 mons	Mon 12/2/24	Fri 1/24/25
38	**90% Design**	**280 days**	**Mon 1/27/25**	**Fri 2/20/26**
39	Initiate and progress 90% Design	6 mons	Mon 1/27/25	Fri 7/11/25
40	Address DSOD Comments on 60% Design	6 mons	Mon 7/14/25	Fri 12/26/25
41	Complete 90% Design	2 mons	Mon 12/29/25	Fri 2/20/26
42	**100% Design**	**280 days**	**Mon 2/23/26**	**Fri 3/19/27**
43	Initiate and progress 100% Design	6 mons	Mon 2/23/26	Fri 8/7/26
44	Address DSOD Comments on 90% Design	6 mons	Mon 8/10/26	Fri 1/22/27
45	Complete 100% Design	2 mons	Mon 1/25/27	Fri 3/19/27



Project: Sites - Contract Strateg
Date: Wed 6/8/22

Task		Project Summary		Manual Task		Start-only		Deadline	
Split		Inactive Task		Duration-only		Finish-only		Progress	
Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
Summary		Inactive Summary		Manual Summary		External Milestone			

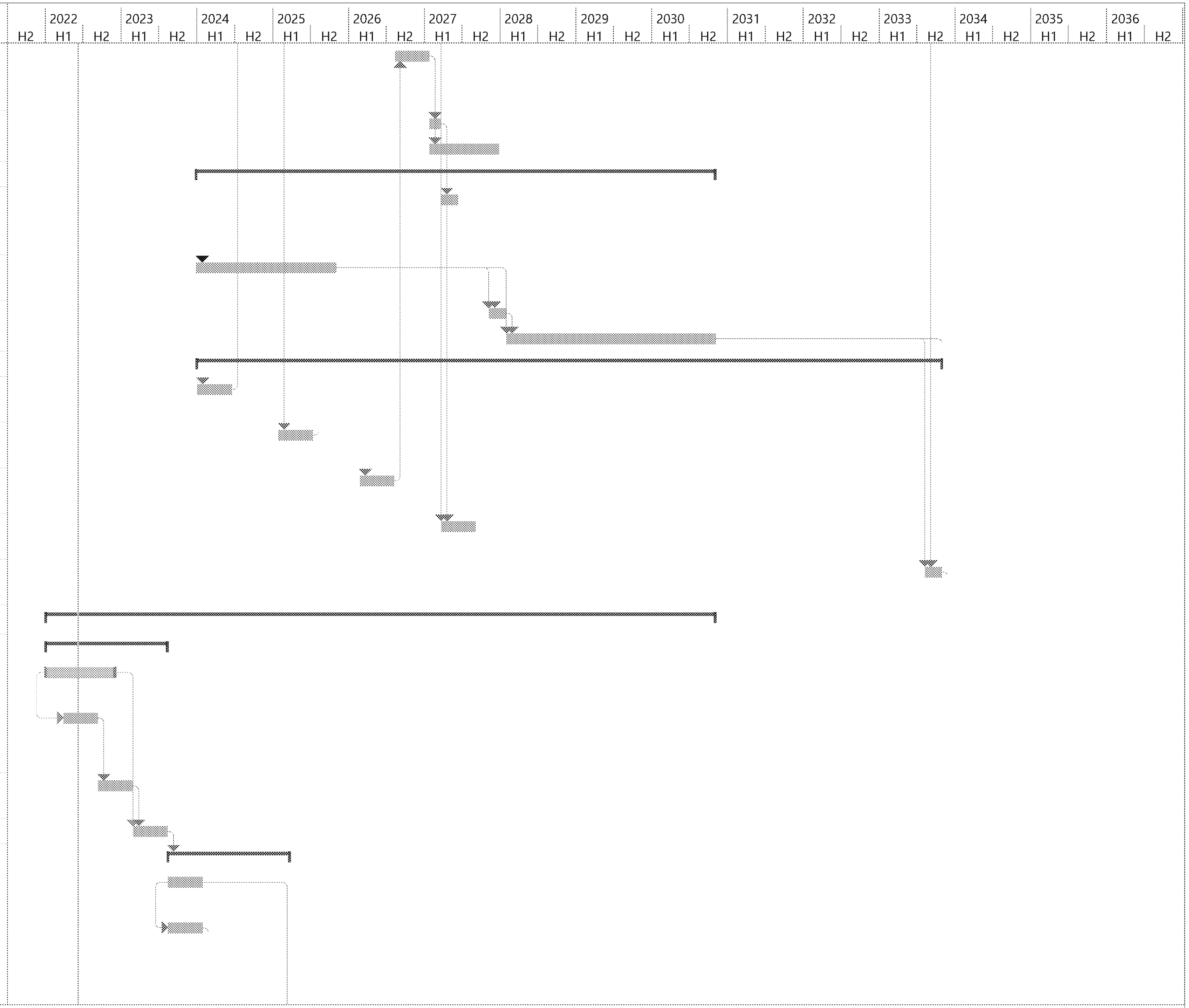
ID	Task Name	Duration	Start	Finish
46	**Dam Construction**	**2507 days**	**Thu 12/28/23**	**Fri 8/5/33**
47	Bidding and Contract Execution for Dam Package	3 mons	Mon 3/22/27	Fri 6/11/27
48	Obtain Property Rights for Dam Construction	24 mons	Thu 12/28/23	Wed 10/29/25
49	Dam Mobilization	3 mons	Mon 11/8/27	Fri 1/28/28
50	Dam Construction	72 mons	Mon 1/31/28	Fri 8/5/33
51	**I/O**	**2305 days**	**Mon 1/3/22**	**Fri 11/1/30**
52	**30% Design**	**520 days**	**Mon 1/3/22**	**Fri 12/29/23**
53	Initiate and progress 30% Design	18 mons	Mon 1/3/22	Fri 5/19/23
54	Access rights for I/O geotech explorations	6 mons	Mon 6/20/22	Fri 12/2/22
55	30% Geotech exploration	12 mons	Mon 12/5/22	Fri 11/3/23
56	Complete 30% design	2 mons	Mon 11/6/23	Fri 12/29/23
57	**60% Design**	**280 days**	**Mon 1/1/24**	**Fri 1/24/25**
58	Initiate and progress 60% Design	6 mons	Mon 1/1/24	Fri 6/14/24
59	Address DSOD Comments on 30% design	6 mons	Mon 6/17/24	Fri 11/29/24
60	Additional Property Access for 60% Geotech Explorations (as needed)	6 mons	Mon 1/1/24	Fri 6/14/24
61	60% Geotech exploration	6 mons	Mon 6/17/24	Fri 11/29/24
62	Complete 60% Design	2 mons	Mon 12/2/24	Fri 1/24/25
63	**90% Design**	**280 days**	**Mon 1/27/25**	**Fri 2/20/26**
64	Initiate and progress 60% Design	6 mons	Mon 1/27/25	Fri 7/11/25
65	Address DSOD Comments on 60% Design	6 mons	Mon 7/14/25	Fri 12/26/25
66	Complete 90% Design	2 mons	Mon 12/29/25	Fri 2/20/26
67	**100% Design**	**280 days**	**Mon 2/23/26**	**Fri 3/19/27**
68	Initiate and progress 100% Design	6 mons	Mon 2/23/26	Fri 8/7/26



Project: Sites - Contract Strateg
Date: Wed 6/8/22

Task		Project Summary		Manual Task		Start-only		Deadline	
Split		Inactive Task		Duration-only		Finish-only		Progress	
Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
Summary		Inactive Summary		Manual Summary		External Milestone			

ID	Task Name	Duration	Start	Finish
69	Address DSOD Comments on 90% Design	6 mons	Mon 8/10/26	Fri 1/22/27
70	Complete 100% Design	2 mons	Mon 1/25/27	Fri 3/19/27
71	TBM Ordered	12 mons	Mon 1/25/27	Fri 12/24/27
72	**I/O Construction**	**1787 days**	**Thu 12/28/23**	**Fri 11/1/30**
73	Bidding and Contract Execution for I/O Package	3 mons	Mon 3/22/27	Fri 6/11/27
74	Obtain Property Rights for I/O Construction	24 mons	Thu 12/28/23	Wed 10/29/25
75	I/O Mobilization	3 mons	Mon 11/8/27	Fri 1/28/28
76	I/O Construction	36 mons	Mon 1/31/28	Fri 11/1/30
77	**DSOD Reviews**	**2565 days**	**Mon 1/1/24**	**Fri 10/28/33**
78	DSOD Review of 30% Design	6 mons	Mon 1/1/24	Fri 6/14/24
79	DSOD Review of 60% Design	6 mons	Mon 1/27/25	Fri 7/11/25
80	DSOD Review of 90% Design	6 mons	Mon 2/23/26	Fri 8/7/26
81	DSOD Approval of 100% Design	6 mons	Mon 3/22/27	Fri 9/3/27
82	DSOD Approves Completed Construction	3 mons	Mon 8/8/33	Fri 10/28/33
83	**Conveyance**	**2305 days**	**Mon 1/3/22**	**Fri 11/1/30**
84	**30% Design**	**420 days**	**Mon 1/3/22**	**Fri 8/11/23**
85	Initiate and progress 30% Design	12 mons	Mon 1/3/22	Fri 12/2/22
86	Access rights for conveyance geotech explorations	6 mons	Mon 3/28/22	Fri 9/9/22
87	Geotech exploration for 30%	6 mons	Mon 9/12/22	Fri 2/24/23
88	Complete 30% design	6 mons	Mon 2/27/23	Fri 8/11/23
89	**60% Design**	**420 days**	**Mon 8/14/23**	**Fri 3/21/25**
90	Initiate and progress 60% Design	6 mons	Mon 8/14/23	Fri 1/26/24
91	Additional Property Access for 60% Geotech Explorations (as needed)	6 mons	Mon 8/14/23	Fri 1/26/24



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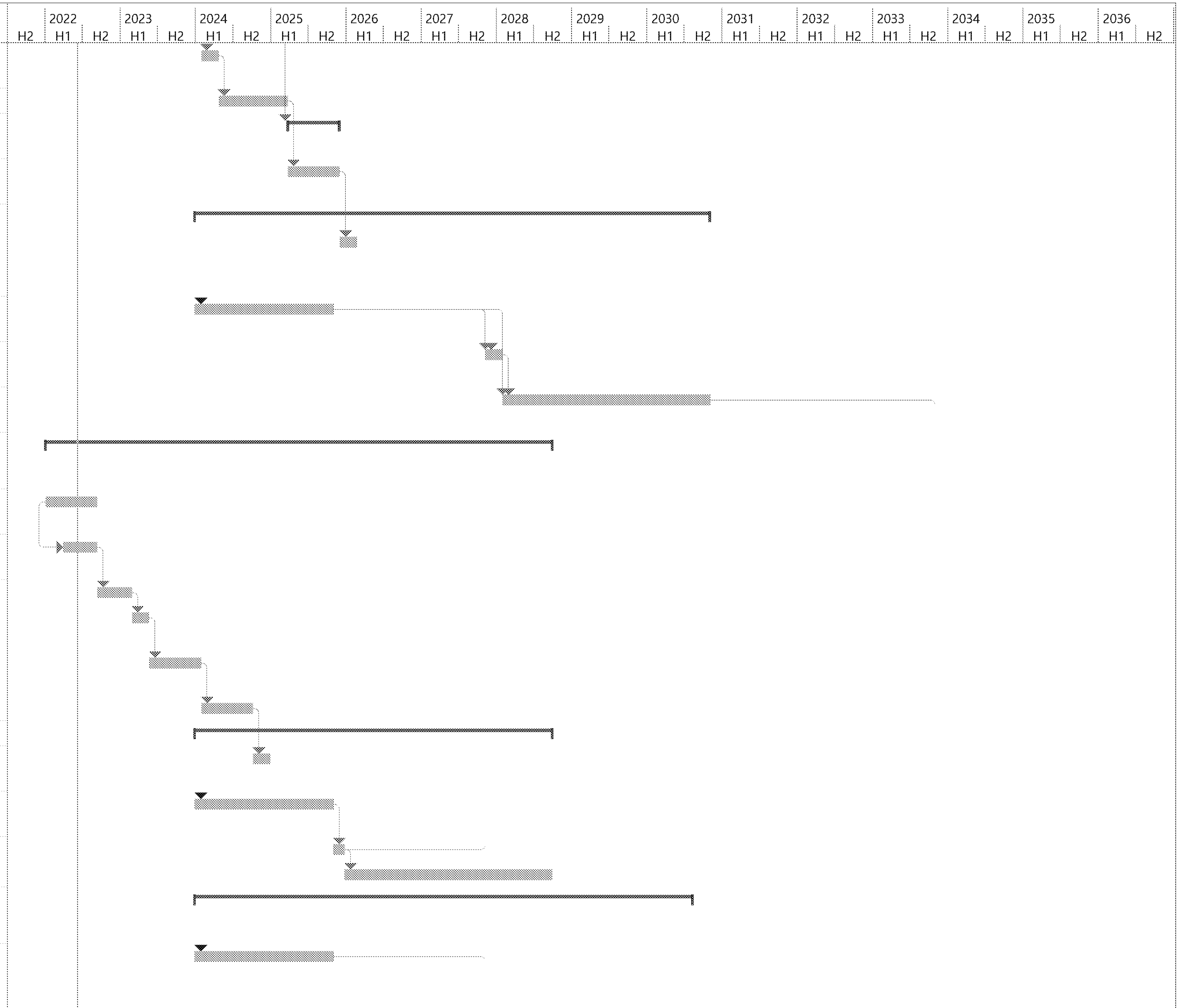
Date: Wed 6/8/22

Task		Project Summary		Manual Task		Start-only		Deadline	
Split		Inactive Task		Duration-only		Finish-only		Progress	
Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
Summary		Inactive Summary		Manual Summary		External Milestone			

ID	Task Name	Duration	Start	Finish
92	Geotech exploration for 60% design	3 mons	Mon 1/29/24	Fri 4/19/24
93	Complete 60% design	12 mons	Mon 4/22/24	Fri 3/21/25
94	**CA ISO Reviews Electrical System Study**	**180 days**	**Mon 3/24/25**	**Fri 11/28/25**
95	Complete Conveyance Design	9 mons	Mon 3/24/25	Fri 11/28/25
96	**Conveyance Construction**	**1787 days**	**Thu 12/28/23**	**Fri 11/1/30**
97	Bidding and Contract Negotiations for Conveyance Package	3 mons	Mon 12/1/25	Fri 2/20/26
98	Obtain Property Rights for Conveyance	24 mons	Thu 12/28/23	Wed 10/29/25
99	Conveyance Mobilization	3 mons	Mon 11/8/27	Fri 1/28/28
100	Conveyance Construction	36 mons	Mon 1/31/28	Fri 11/1/30
101	**Sites Lodoga Bridge/Road**	**1758 days**	**Mon 1/3/22**	**Wed 9/27/28**
102	Initiate and progress Bridge 30% Design	9 mons	Mon 1/3/22	Fri 9/9/22
103	Access rights for bridge geotech investigations	6 mons	Mon 3/28/22	Fri 9/9/22
104	Bridge Geotech	6 mons	Mon 9/12/22	Fri 2/24/23
105	Complete Bridge 30% Design	3 mons	Mon 2/27/23	Fri 5/19/23
106	Initiate and progress Bridge 60% Design	9 mons	Mon 5/22/23	Fri 1/26/24
107	Complete Bridge design	9 mons	Mon 1/29/24	Fri 10/4/24
108	**Bridge Construction**	**1240 days**	**Thu 12/28/23**	**Wed 9/27/28**
109	Bidding and Contract Negotiations for Bridge	3 mons	Mon 10/7/24	Fri 12/27/24
110	Obtain Property Rights for Bridge/Road	24 mons	Thu 12/28/23	Wed 10/29/25
111	Bridge Mobilization	2 mons	Thu 10/30/25	Wed 12/24/25
112	Bridge Construction	36 mons	Thu 12/25/25	Wed 9/27/28
113	**Reservoir Clearing/Demo**	**1727 days**	**Thu 12/28/23**	**Fri 8/9/30**
114	Obtain Property Rights for Reservoir Clearing/Demo	24 mons	Thu 12/28/23	Wed 10/29/25



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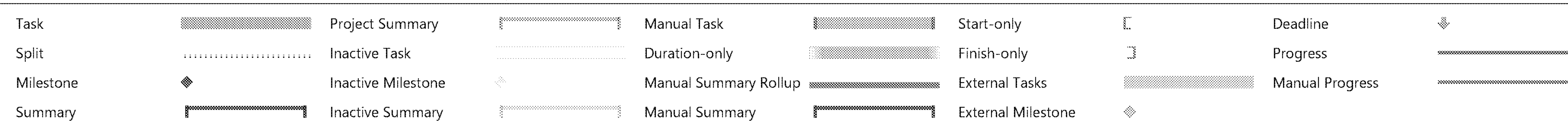

ID	Task Name	Duration	Start	Finish
115	Reservoir Clearing/Demo	24 mons	Mon 11/8/27	Fri 9/7/29
116	Cemetary Relocation	36 mons	Mon 11/8/27	Fri 8/9/30
117	**Reservoir Filling**	**36 mons**	**Mon 10/31/33**	**Fri 8/1/36**

Project: Sites - Contract Strateg
Date: Wed 6/8/22

Task
Split
Milestone
Summary
Project Summary
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Progress
Manual Progress

From: Heydinger, Erin [Erin.Heydinger@hdrinc.com]
Sent: 6/9/2022 12:54:27 PM
To: Spranza, John [john.spranza@hdrinc.com]; Jerry Brown [jbrown@sitesproject.org]
CC: Alicia Forsythe [aforsythe@sitesproject.org]; Marcia Kivett [MKivett@sitesproject.org]
Subject: RE: Env Water Manager - Optional Uses

I agree with John and note that we are already doing much of this with expanded exchanges. We could possibly do even more if we could add the Prop 1 storage account to our exchange volumes – the State might be willing to take on more risk than our local participants in the amount exchanged. This also suggests we might be able to use the State account as a "backstop" to allow Reclamation to take more risk for operating towards environmental benefits – something we will need to figure out when get further into our accounting for exchanges. For example, we could move water from the State's account in Sites to Reclamation's account in Sites to let Reclamation release more water from Shasta for spring pulses. They would be "repaid" that water in Sites.

I also think it would be worth reminding the group that quite a few "options" were developed as part of the Prop 1 process. They may want to refer back to the legislation to make sure they're not missing anything that they may want to use Sites water for. Here's an excerpt from the water code text added from Prop 1 (full text here: RegulationsSubmitted.pdf)

pg. 23:

Table 1. Ecosystem Priorities

In accordance with Water Code section 79754, CDFW has identified ecosystem priorities that could be realized by water storage projects. These priorities, which are not listed in rank order and are considered equal, are presented below:
Flow and Water Quality
1. Provide cold water at times and locations to increase the survival of salmonid eggs and fry. 2. Provide flows to improve habitat conditions for in-river rearing and downstream migration of juvenile salmonids. 3. Maintain flows and appropriate ramping rates at times and locations that will minimize dewatering of salmonid redds and prevent stranding of juvenile salmonids in side channel habitat. 4. Improve ecosystem water quality. 5. Provide flows that increase dissolved oxygen and lower water temperatures to support anadromous fish passage. 6. Increase attraction flows during upstream migration to reduce straying of anadromous species into non-natal tributaries. 7. Increase Delta outflow to provide low salinity habitat for Delta smelt, longfin smelt, and other estuarine fishes in the Delta, Suisun Bay, and Suisun Marsh. 8. Maintain or restore groundwater and surface water interconnection to support instream benefits and groundwater dependent ecosystems.
Physical Processes and Habitat
9. Enhance flow regimes or groundwater conditions to improve the quantity and quality of riparian and floodplain habitats for aquatic and terrestrial species. 10. Enhance the frequency, magnitude, and duration of floodplain inundation to enhance primary and secondary productivity and the growth and survival of fish. 11. Enhance the temporal and spatial distribution and diversity of habitats to support all life stages of fish and wildlife species. 12. Enhance access to fish spawning, rearing, and holding habitat by eliminating barriers to migration. 13. Remediate unscreened or poorly screened diversions to reduce entrainment of fish. 14. Provide water to enhance seasonal wetlands, permanent wetlands, and riparian habitat for aquatic and terrestrial species on State and Federal wildlife refuges and on other public and private lands. 15. Develop and implement invasive species management plans utilizing techniques that are supported by best available science to enhance habitat and increase the survival of native species. 16. Enhance habitat for native species that have commercial, recreational, scientific, or educational uses.

Table 3 discusses water quality priorities in more depth.

Hope this helps.

Erin

Erin Heydinger PE, PMP
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From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Wednesday, June 8, 2022 11:07 AM
To: Jerry Brown <jbrown@sitesproject.org>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Cc: Alicia Forsythe <aforsythe@sitesproject.org>; Marcia Kivett <MKivett@sitesproject.org>
Subject: RE: Env Water Manager - Optional Uses

Hi Jerry, see my responses below.

John Spranza

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From: Jerry Brown <jbrown@sitesproject.org>
Sent: Monday, June 6, 2022 8:10 AM
To: Heydinger, Erin <erin.heydinger@hdrinc.com>; Spranza, John <john.spranza@hdrinc.com>
Cc: Alicia Forsythe <aforsythe@sitesproject.org>; Marcia Kivett <MKivett@sitesproject.org>
Subject: Env Water Manager - Optional Uses

You'll recall we met with TNC and EDF about a month ago and they were tasked with providing objectives that would help to evaluate alternate uses of the Prop 1 water in Sites. Here is what I received from them as their initial thinking. I'd like to get your comments on each so that we can decide which of these we think should be pursued further:

a. Sufficient and protective temperature management for Winter-Run

JJS: I understand what they want, but I don't understand how to quantify "sufficient and protective." If we are talking WR eggs/fry, which I think we are, then we are talking about temps no greater than 53.5 or 56 degrees F in the upper Sacramento (depending on who you ask). We should be able to help with temps via exchanges with Shasta, but we would need Reclamation to work with CDFW on exchanging Sites' WSIP water for Shasta releases in May- October for temperature control.

b. Functional flow targets set and met in the Sacramento River, particularly in winter and spring to inundate floodplains and provide a spring pulse and recession. At a minimum, provide base flows winter through spring of at least 4500cfs and spring pulse flows of at least 11,000cfs for the mainstem Sacramento (based on emerging science, e.g., Munsch et al. 2019, 2020)

JJS: This concept is similar to the spring pulse flow requirements that Reclamation currently has where under certain Shasta storage conditions, Reclamation will make reservoir releases of up to 150 TAF to stimulate and facilitate juvenile salmonid emigration. I don't see spring pulses as an issue, I actually did my grad work on spring pulses and I know they are valuable and the emerging science on the Sacramento continues to demonstrate that. I would have to defer to Erin on whether or not we could consistently get to 11,000cfs, but the current exchanges we are modeling includes 75 TAF of spring pulse flows in some years. I also would need to dig a bit to see how long the 11k cfs flow rates would need to be maintained to constitute a "pulse" event. I don't see the 4,500 cfs base flow as a big ask as we can't divert until Wilkins slough is at 10,700 cfs. All in all, this is my favorite of the 4 options and we could combine our efforts with those of the CVP and other managed flow programs to really make a significant difference to the salmonid population on the Sac.

c. CVPIA for birds: L2 & L4 in all years + full wetland water infrastructure
    i. ~100k AF Sac V L2
    ii. ~200k AF SJV L2

JJS: I am curious about their asl for Level 2 water as almost all of the Level 2 water is secure and in general, delivered to refuges due to long-term contracts with Reclamation, we could explore that a bit to see where those numbers come from. For IL 4, only about 40% of IL 4 allocations were acquired and delivered since 2005, and as IL 4 water is something that we are currently receiving WSIP funding for, I don't really see any big issues with the ask outside of having to guarantee delivery (and all that goes with that). We could dig into the WSIP application to see what if there is more information on exactly that means in terms of water needs over the historical record, but I don't see IL 4 as being an issue. Now the refuge water infrastructure is a challenge as 4 refuges do not have the conveyance required to deliver IL 4 (Gray Lodge Wildlife Area, Mendota Wildlife Area, Pixley National Wildlife Refuge, and Sutter National Wildlife

Refuge). I don't know how WSIP IL 4 funds could be used to build out that infrastructure, but it is worth talking to CDFW about.

d. Functional flow targets set and met in all tributaries, with special emphasis on tributaries with independent and dependent populations of spring run Chinook (e.g., Lassen Tribs). All streams that were perennial under unimpaired flow conditions must remain perennial.

JJS: I would stay away from this, we should focus efforts on the Sacramento River or Delta, not tribs.

Please provide by COB Thursday.

Jerry

From: Angela Bezzone [bezzone@mbkengineers.com]
Sent: 6/9/2022 7:06:59 PM
To: JP Robinette [jrobinette@sitesproject.org]
CC: Cheyanne Harris [charris@brwncald.com]; Marc VanCamp [Vancamp@mbkengineers.com]; Kyle Knutson [knutson@mbkengineers.com]
Subject: CBD Analysis
Attachments: DRAFT CBD Water Right Analysis.pdf; DWR Land Use Mapping Tool Reach Summaries.xlsx

JP –

We performed an analysis of existing water rights along the Colusa Basin Drain (CBD) that is broken up into reaches: Balsdon Weir to the terminus of the proposed Dunnigan Pipeline, Dunnigan Pipeline to the Knights Landing Outfall Gates (KLOG), and Knights Landing Ridge Cut to the Wallace Weir. The attached "DRAFT CBD Water Right Analysis" includes figures comparing the combined diversion rates under the water rights in each reach to a theoretical rice demand for the acreage in the water rights. Below are key assumptions and takeaways about this analysis.

- Based on the combined reach total figure within the attached PDF, the maximum risk is approximately 417 CFS. We were unable to obtain flow data for the CBD to assess whether flows of this magnitude exist during the time when Sites water would likely be moved (July through November).
- The assumptions used for rice in the analysis include water for flood up, maintenance flows during the irrigation season, and water for decomposition in addition to crop demands based on 2021 data. This results in a conservative water use estimate.
- Based on our assumption that rice flood up occurs in May, rice water demand is not accounted for before May. Other crops planted in the area during March and April would require water prior to May 1st, which is why the water right limits are greater than the estimated rice use during these months.
  - DWR's Land Use Viewer was used to summarize the typical crops planted along each reach. Information available from ITRC was reviewed to indicate when these crops are likely to be planted or when irrigation is likely to be needed.
  - As shown, most other crops are likely planted in March, if conditions allow, or April if fields are still wet.
  - Similar to other areas, farmers along the CBD make planting decisions early in the year as seed has to be ordered and received prior to planting.
- During dry and critical years (specifically, when Sacramento River Settlement Contractors receive less than a full supply), the supply to landowners along the CBD is limited and unknown.
  - If a reliable supply is not anticipated, either crops will not be planted or an alternative supply, such as groundwater, will be used.
- The contract between the Colusa Drain Mutual Water Company and the Bureau of Reclamation allows for diversions by Company shareholders who have ordered water in a given year.

Going forward, improved measurement at key locations (including KLOG and Wallace Weir) will be important for understanding diversions along CBD reaches. In addition, continued discussion with landowners about proposed Sites operations will help in developing a plan for communications when Sites water is released in the future.

I look forward to discussing this with you tomorrow.

Angela Bezzone, P.E.

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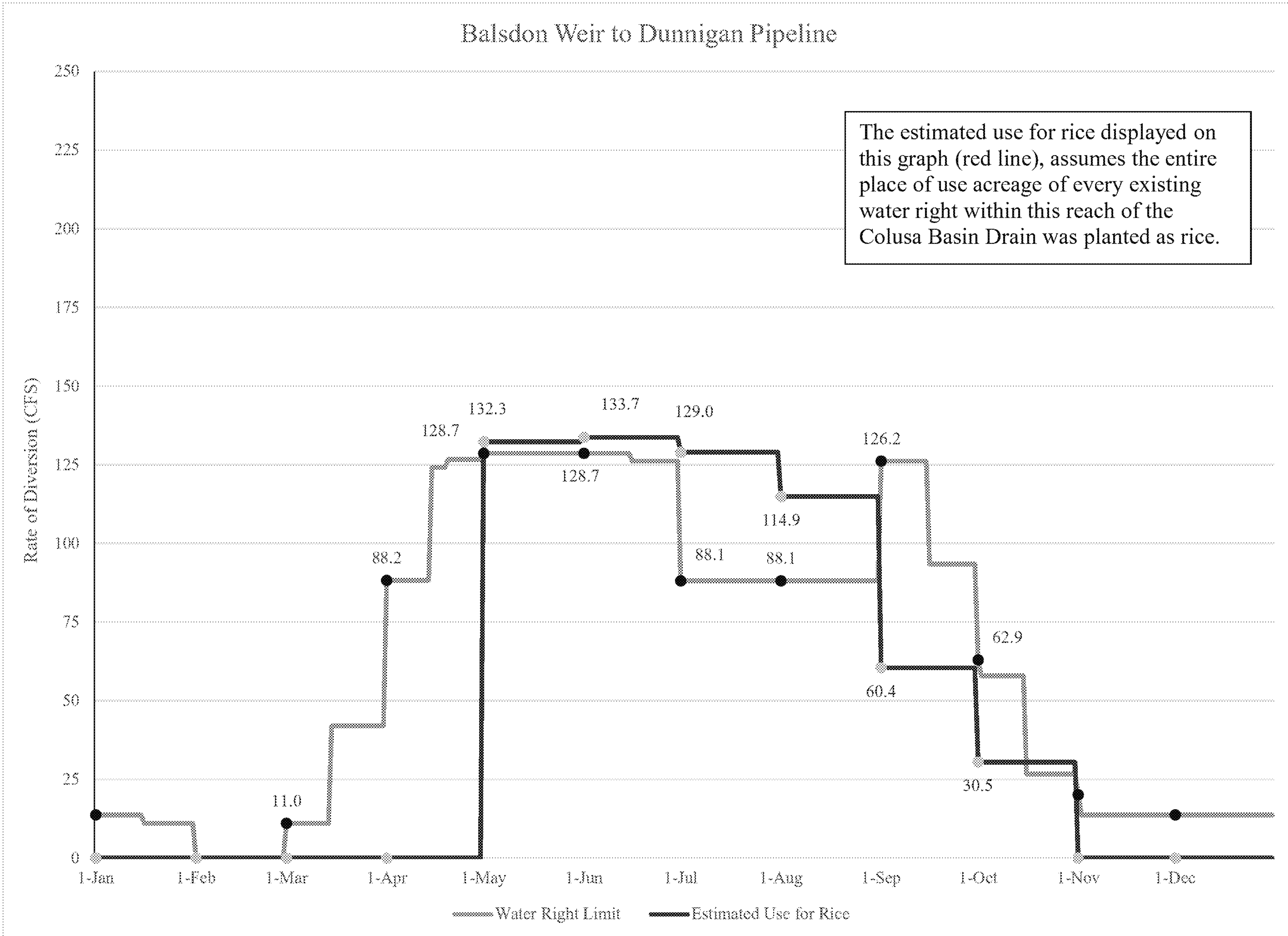
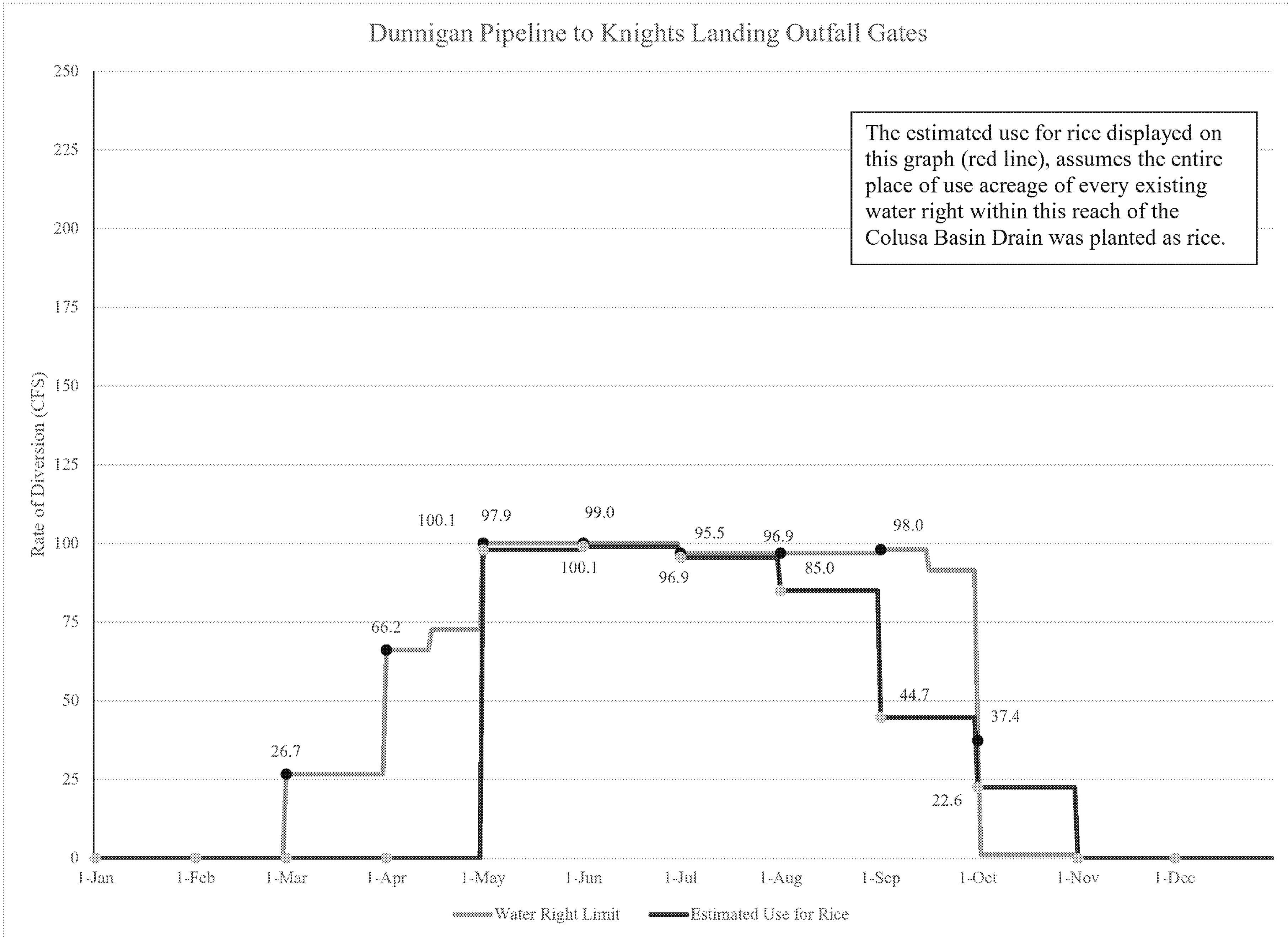
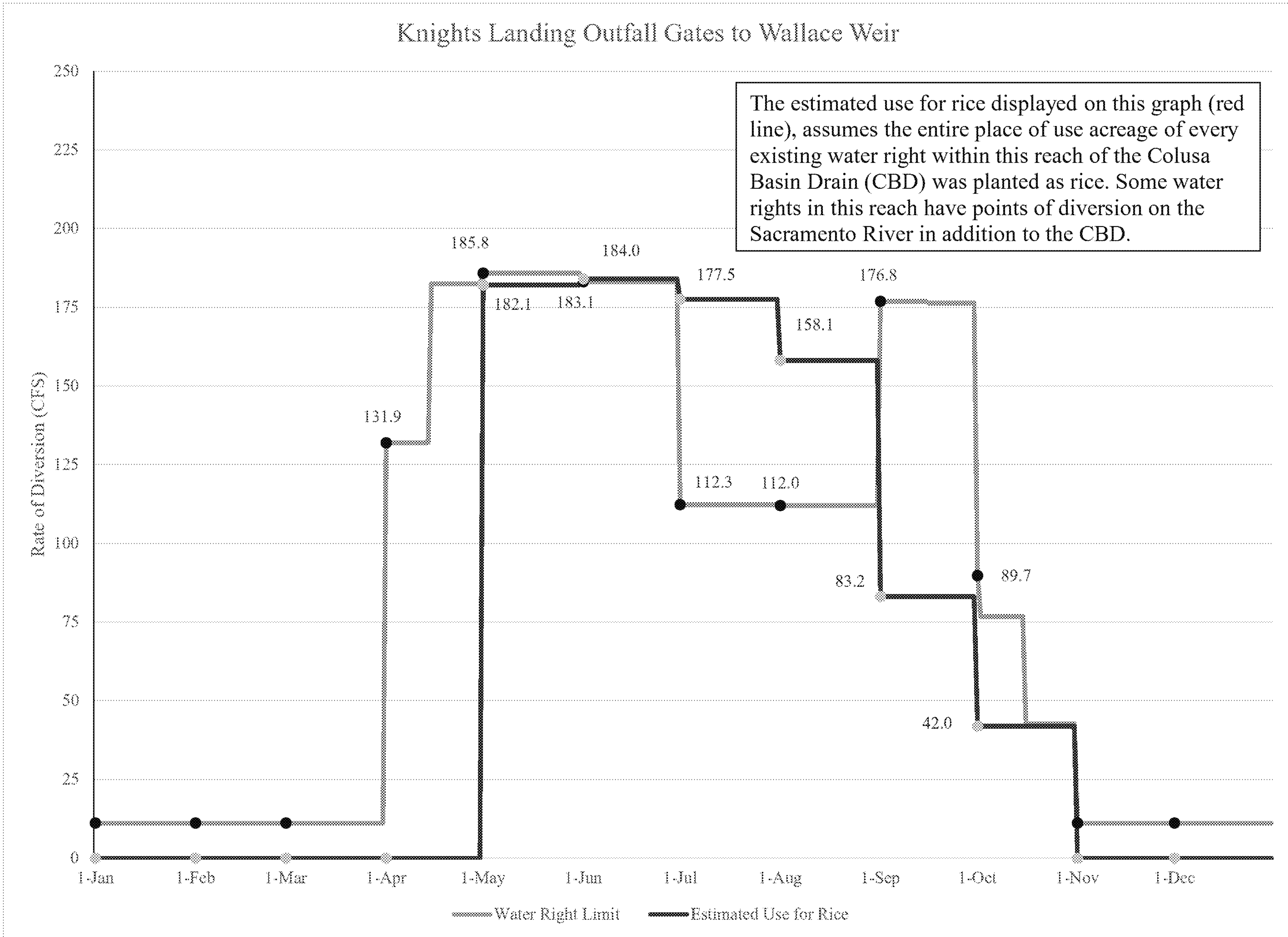
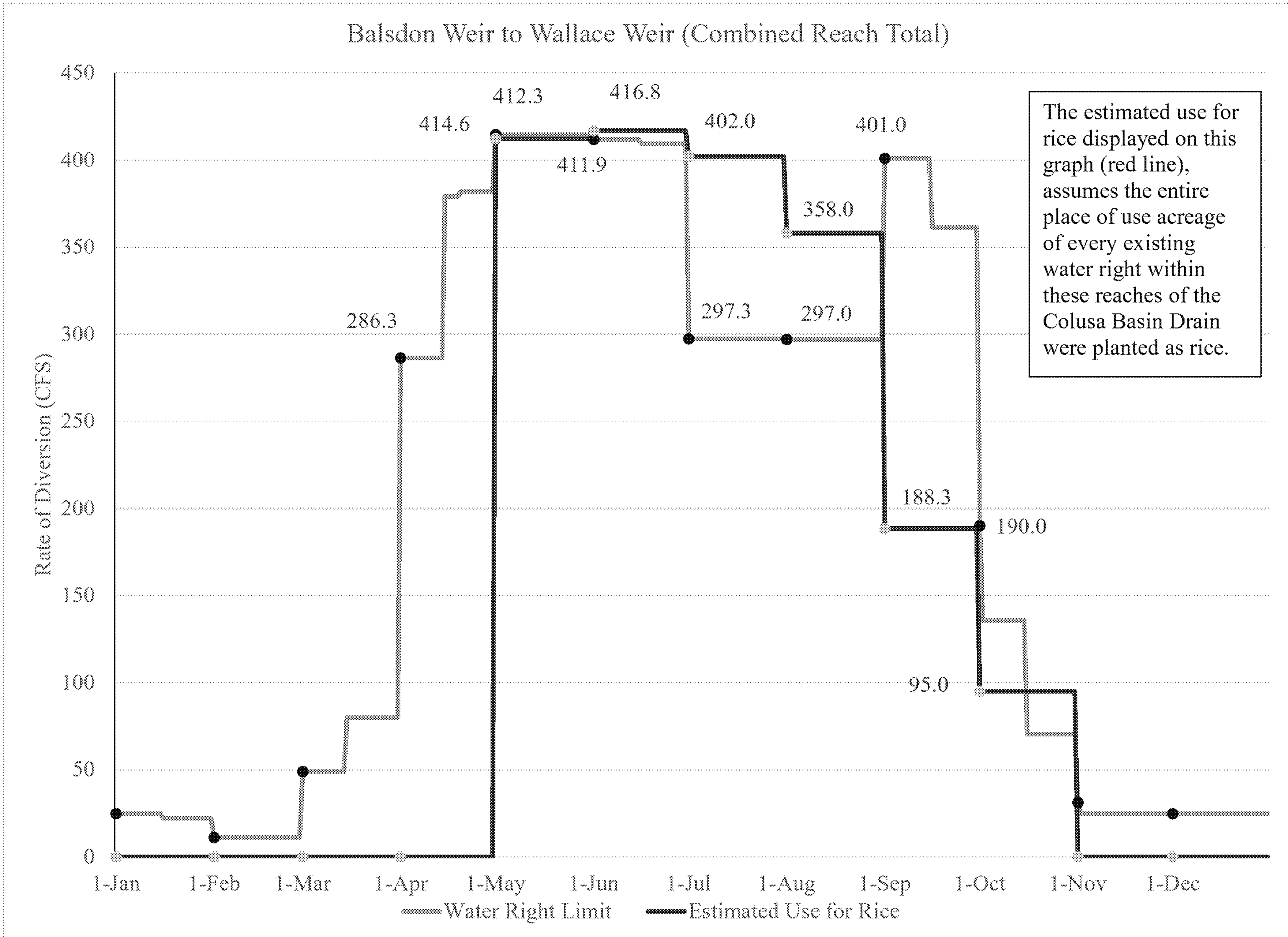

Balsdon Weir to Dunnigan Pipeline
The estimated use for rice displayed on this graph (red line), assumes the entire place of use acreage of every existing water right within this reach of the Colusa Basin Drain was planted as rice.
Rate of Diversion (CFS)
250
225
200
175
150
125
100
75
50
25
0
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
11.0
88.2
128.7
132.3
133.7
129.0
128.7
114.9
88.1
88.1
126.2
62.9
60.4
30.5
Water Right Limit
Estimated Use for Rice


Dunnigan Pipeline to Knights Landing Outfall Gates
Rate of Diversion (CFS)
250
225
200
175
150
125
100
75
50
25
0
The estimated use for rice displayed on this graph (red line), assumes the entire place of use acreage of every existing water right within this reach of the Colusa Basin Drain was planted as rice.
26.7
66.2
100.1
97.9
99.0
100.1
95.5
96.9
96.9
85.0
98.0
44.7
37.4
22.6
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
Water Right Limit
Estimated Use for Rice


Knights Landing Outfall Gates to Wallace Weir
The estimated use for rice displayed on this graph (red line), assumes the entire place of use acreage of every existing water right within this reach of the Colusa Basin Drain (CBD) was planted as rice. Some water rights in this reach have points of diversion on the Sacramento River in addition to the CBD.
Rate of Diversion (CFS)
250
225
200
175
150
125
100
75
50
25
0
185.8
184.0
177.5
176.8
182.1
183.1
158.1
131.9
112.3
112.0
83.2
89.7
42.0
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
Water Right Limit
Estimated Use for Rice



Balsdon Weir to Wallace Weir (Combined Reach Total)
Rate of Diversion (CFS)
450
400
350
300
250
200
150
100
50
0
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
412.3
416.8
414.6
402.0
401.0
411.9
358.0
286.3
297.3
297.0
188.3
190.0
95.0
Water Right Limit
Estimated Use for Rice
The estimated use for rice displayed on this graph (red line), assumes the entire place of use acreage of every existing water right within these reaches of the Colusa Basin Drain were planted as rice.

File Provided Natively

Power Model Documentation

This document describes the power model assumptions, methods, and models used for the Final EIR/EIS (2022). This appendix also provides model results processing and interpretation methods used for the impacts analysis and descriptions.

Power Modeling Methodology & Assumptions

Energy generation can be quantified by estimating hydropower generation, at a monthly level, over a sequence of years representing varying hydrologic conditions. This kind of analysis is based on input hydrology and reservoir operations information. Energy generation capability will be based on the reservoir storage and flow through the turbines. Energy consumption will be based on pumping requirements to meet the operating criteria. These inputs are fed into two spreadsheet-based models, Long-Term Generation (LTGen) and SWP Power, which compute energy generation at each CVP and SWP pumping facility through a series of computations.

Power Models

LTGEN and SWP_Power are two commonly used, publicly available models developed by Reclamation and DWR. These models calculate a facility's long-term power generation capacity and pumping energy consumption for CVP and SWP facilities (Reclamation, 2015). To calculate long-term power generation, the models use reservoir storage and release data from the CalSim II model along with user-specified generation characteristics, such as the number of units and transmission loss, to calculate a monthly average energy generation at all CVP and SWP reservoirs with power plants. Sites_Power has been developed to calculate the power generation and pumping energy consumption for facilities used to divert water to and from the proposed Sites Reservoir.

The models compute energy generation requirements using flow and storage data from CalSim II and user- specified characteristics, such as percentage of on-peak and off-peak pumping and transmission losses to calculate the monthly average energy consumption of all CVP and SWP pumping plants under the assumed CalSim II scenarios. Flows and storages from the entire CalSim II simulation period (October 1921 to September 2003) are used as inputs to the models. Climate change and sea level rise are inherently represented through CalSim II outputs.

Metrics for quantifying hydropower generation are displayed in terms of energy units generated (such as megawatts). Calculating energy generation annually, monthly, and by water year type can help in evaluating the overall hydropower performance under a variety of energy demand and hydrologic conditions.

For this analysis, the energy capacity, energy generation, energy use, and net energy generation of CVP and SWP facilities for No Action Alternative and three proposed Sites Project alternatives are compared against each other using exceedance tables, exceedance charts, and monthly pattern charts. Using LTGen and SWP_Power, the following parameters have been computed for each CVP and SWP facility:

- Facility Capacity (megawatts; MW)
- Energy Generation (gigawatt hours; GWh)
- Energy Use (gigawatt hours; GWh)
- Net Energy Generation (gigawatt hours; GWh)

Energy Generation Calculations

Energy generation is computed using empirical energy factors provided by the Western Area Power Administration (WAPA) for CVP facilities and by the DWR Operations Control Office (OCO) for SWP facilities. Energy generation can be calculated using Equation 1.

$$\text{Energy\_Generation } (MWh) = Energy\_Factor_G * Q\frac{ft^3}{s} \qquad \text{Eq. 1}$$

Average Monthly Power Capacity Calculations

Energy generation is limited on a monthly basis by an average power capacity at each facility. Power capacity fluctuates with varying reservoir levels and scheduled water releases. Generally, power production is higher during summer months when reservoir levels are higher and water is released to satisfy delivery requirements.

For CVP facilities, average monthly power capacity is estimated using empirical equations provided by WAPA. For SWP facilities, average monthly power capacity is computed using Equation 2, where the peak capacity is assumed to be a function of total head and average power plant flow.

$$\text{Power\_Capacity } (MW) = 0.7457\frac{kW}{hp} * 62.4\frac{lbs}{ft^3} * \frac{1MW}{1{,}000kW} * \frac{1hp}{550\frac{lb*ft}{s}} * \frac{1}{\eta} * head(ft) * Avg.powerplant\_flot\_rate\left(\frac{ft^3}{s}\right) \qquad \text{Eq. 2}$$

Energy Use Calculations

Energy use is computed using empirical energy factors provided by WAPA for CVP facilities and by the OCO for SWP facilities. Energy use can be calculated using Equation 3.

$$\text{Energy\_Use } (MWh) = Energy\_Factor_U * Q\frac{ft^3}{s} \qquad \text{Eq. 3}$$

In addition, the power models determine whether user-specified off-peak energy use targets can be satisfied under given power and flow capacity limits. Moreover, the tools determine the feasibility of requiring a certain percentage of pumping energy use to occur during off-peak hours for a particular month.

Transmission Losses

Transmission losses are estimated to determine energy use and generation at load centers, as percentages of energy use or generation.

Sites Power

The Sites Power tool estimates average annual energy generation and use at proposed Sites Project generation and pumping facilities, including existing facilities that would be operated differently if Sites Reservoir is built. For generation facilities, the tool estimates average annual energy generation and average annual peaking power capacity. For pumping facilities, the tool estimates average annual power requirements. Transmission losses are estimated for both pumping and generation facilities. In addition, the tool estimates the economic benefits and costs of power generation and use at the proposed Sites Reservoir generation and pumping facilities. A total of four pumping facilities and two generation facilities are included in the analysis.

Pumping facilities:

1. Sacramento River diversion to Tehama-Colusa Canal to Funks Reservoir (existing pumping facility)
2. Sacramento River diversion to Glenn-Colusa Canal to Glenn-Colusa Canal Terminal Regulating Reservoir (existing pumping facility)
3. Conveyance from Funks Reservoir to Sites Reservoir (proposed conveyance with pumping facilities)
4. Conveyance from Glenn-Colusa Canal Terminal Regulating Reservoir to Sites Reservoir (proposed conveyance with pumping facilities)

Generation facilities:

1. Conveyance from Sites Reservoir to Funks Reservoir (proposed conveyance with power generation facilities)
2. Conveyance from Sites Reservoir to Glenn-Colusa Canal Terminal Regulating Reservoir (proposed conveyance with power generation facilities)

Figure A-1 includes a schematic of the pumping and generation facilities used in NODOS Power. The red lettering represents CalSim II arcs and the green lettering represents water elevation. Each pumping and generation facilities (PP and GP) is associated with a capacity in cfs.

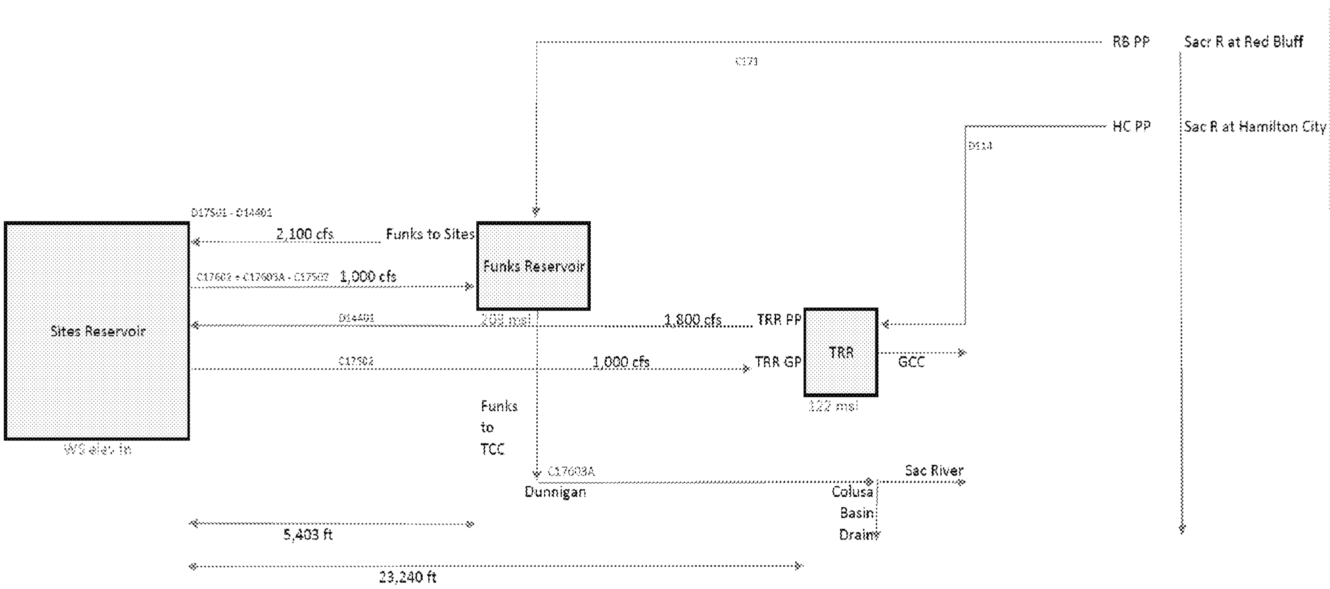


Figure A-1. Sites Power Model Schematic.

Assumption Tables

Tables A-1, A-2,and A-3 show the assumptions used to estimate energy use and transmission losses at CVP, SWP, and NODOS pumping facilities. Tables A-4, A-5, and A-6 show the assumptions used to estimate energy generation, power capacity, and transmission losses at CVP, SWP, and NODOS generation facilities.

Table A-1. Central Valley Project Pumping Plant Characteristics.

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Tracy Pumping Plant												
Energy Factor (kWh/af)	237.5	237.5	237.5	237.5	237.5	237.5	237.5	237.5	237.5	237.5	237.5	237.5
# Units	6	6	6	6	6	6	6	6	6	6	6	6
Capacity/Unit (MW)	16	16	16	16	16	16	16	16	16	16	16	16
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Percent Eng Off Peak (%)	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%	42.9%
On Peak Cap Adj Factor	1.05	1.05	1.05	1.50	1.20	2.20	1.60	2.30	1.50	1.05	1.05	1.05
Off Peak Cap Adj Factor	1.05	1.05	1.05	1.50	1.20	2.20	1.60	2.30	1.50	1.05	1.05	1.05
CVP Banks Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	297	297	297	297	297	297	297	297	297	297	297	297
# Units	0	0	0	0	0	0	0	0	0	0	0	0
Capacity/Unit (MW)	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Percent Eng Off Peak (%)	53.7%	53.7%	53.7%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	53.7%	53.7%	53.7%
On Peak Cap Adj Factor	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Off Peak Cap Adj Factor	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Contra Costa Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	164.8	164.8	164.8	164.8	164.8	164.8	164.8	164.8	164.8	164.8	164.8	164.8
# Units	6	6	6	6	6	6	6	6	6	6	6	6
Capacity/Unit (MW)	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Transmission Loss (%)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Percent Eng Off Peak (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
On Peak Cap Adj Factor	2.00	2.00	2.00	2.00	2.00	2.00	1.20	1.20	1.20	1.20	2.00	2.00
Off Peak Cap Adj Factor	2.00	2.00	2.00	2.00	2.00	2.00	1.20	1.20	1.20	1.20	2.00	2.00

Table A-1. Central Valley Project Pumping Plant Characteristics (cont).

O'Neill Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2
# Units	6	6	6	6	6	6	6	6	6	6	6	6
Capacity/ Unit (MW)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Transmissi on Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Percent Eng Off Peak (%)	48.5%	48.5%	48.5%	48.5%	48.5%	48.5%	48.5%	48.5%	48.5%	48.5%	48.5%	48.5%
On Peak Cap Adj Factor	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Off Peak Cap Adj Factor	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
CVP San Luis Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n
# Units	8	8	8	8	8	8	8	8	8	8	8	8
Capacity/ Unit (MW)	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n
Transmissi on Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Percent Eng Off Peak (%)	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%
On Peak Cap Adj Factor	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Off Peak Cap Adj Factor	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
San Felipe Pumping Plant (Pacheco)												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n	functio n
# Units	12	12	12	12	12	12	12	12	12	12	12	12
Capacity/ Unit (MW)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Transmissi on Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Percent Eng Off Peak (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
On Peak Cap Adj Factor	2.00	2.00	2.00	1.50	1.50	1.50	1.50	1.20	1.20	1.20	1.20	1.20
Off Peak Cap Adj Factor	2.00	2.00	2.00	1.50	1.50	1.50	1.50	1.20	1.20	1.20	1.20	1.20

Table A-1. Central Valley Project Pumping Plant Characteristics (cont).

CVP Dos Amigos Pumping Plant	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9
# Units	6	6	6	6	6	6	6	6	6	6	6	6
Capacity/ Unit (MW)	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Percent Eng Off Peak (%)	76.6%	76.6%	76.6%	76.6%	76.6%	76.6%	76.6%	76.6%	56.6%	56.6%	56.6%	76.6%
On Peak Cap Adj Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Off Peak Cap Adj Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Folsom Pumping Plant	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	6	6	6	6	6	6	6	6	6	6	6	6
Capacity/ Unit (MW)	5	5	5	5	5	5	5	5	5	5	5	5
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Percent Eng Off Peak (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
On Peak Cap Adj Factor	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Off Peak Cap Adj Factor	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

Corning Pumping Plant	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	190	190	190	190	190	190	190	190	190	190	190	190
# Units	0	0	0	0	0	0	0	0	0	0	0	0
Capacity/ Unit (MW)	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Loss (%)	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Percent Eng Off Peak (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
On Peak Cap Adj Factor	3.00	4.00	4.00	4.00	4.00	3.00	2.00	2.00	2.00	2.00	2.00	2.00
Off Peak Cap Adj Factor	3.00	4.00	4.00	4.00	4.00	3.00	2.00	2.00	2.00	2.00	2.00	2.00

Table A-1. Central Valley Project Pumping Plant Characteristics (cont).

San Luis Other												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5	93.5
# Units	0	0	0	0	0	0	0	0	0	0	0	0
Capacity/Unit (MW)	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Loss (%)	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Percent Eng Off Peak (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
On Peak Cap Adj Factor	2.00	2.00	2.00	2.00	2.00	2.00	1.50	1.50	1.50	1.50	1.50	2.00
Off Peak Cap Adj Factor	2.00	2.00	2.00	2.00	2.00	2.00	1.50	1.50	1.50	1.50	1.50	2.00

DMC Other												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
# Units	0	0	0	0	0	0	0	0	0	0	0	0
Capacity/Unit (MW)	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Loss (%)	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Percent Eng Off Peak (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
On Peak Cap Adj Factor	3.00	3.00	3.00	3.00	2.50	2.00	2.00	1.50	1.50	1.50	1.50	1.50
Off Peak Cap Adj Factor	3.00	3.00	3.00	3.00	2.50	2.00	2.00	1.50	1.50	1.50	1.50	1.50

Miscellaneous Project Use												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
MW	7	5	6	6	9	11	4	5	15	23	33	9
Transmission Loss (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
GWH	5.1	3.4	4.6	4.5	6.1	8.5	2.5	3.7	10.6	16.8	24.8	6.2
Percent Eng Off Peak (%)	59.1%	61.6%	67.3%	64.3%	62.0%	59.0%	52.2%	52.9%	49.1%	50.3%	49.8%	61.3%

DMC Intertie												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	42.3	42.3	42.3	42.3	42.3	42.3	42.3	42.3	42.3	42.3	42.3	42.3
# Units	8	8	8	8	8	8	8	8	8	8	8	8
Capacity/Unit (MW)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Percent Eng Off Peak (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
On Peak Cap Adj Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Off Peak Cap Adj Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Table A-2. State Water Project Pumping Plant Characteristics.

Banks Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	297	297	297	297	297	297	297	297	297	297	297	297
# Units	0	0	0	0	0	0	0	0	0	0	0	0
Capacity/Unit (MW)	0	0	0	0	0	0	0	0	0	0	0	0
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Percent Eng Off Peak (%)	53.7%	53.7%	53.7%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	53.7%	53.7%	53.7%
SWP San Luis Pumping Plant (Gianelli Pumping Plant)												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	function	function	function	function	function	function	function	function	function	function	function	function
# Units	8	8	8	8	8	8	8	8	8	8	8	8
Capacity/Unit (MW)	function	function	function	function	function	function	function	function	function	function	function	function
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Percent Eng Off Peak (%)	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%	89.7%
Dos Amigos Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9	137.9
# Units	6	6	6	6	6	6	6	6	6	6	6	6
Capacity/Unit (MW)	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6	27.6
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Percent Eng Off Peak (%)	76.6%	76.6%	76.6%	76.6%	76.6%	76.6%	76.6%	76.6%	56.6%	56.6%	56.6%	76.6%
Buena Vista Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	242	242	242	242	242	242	242	242	242	242	242	242
Plant Power Rating (MW)	107.8	107.8	107.8	107.8	107.8	107.8	107.8	107.8	107.8	107.8	107.8	107.8
Transmission Loss (%)	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%
Percent Eng Off Peak (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Table A-2. State Water Project Pumping Plant Characteristics (cont).

Teerink (Wheeler Ridge) Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	295	295	295	295	295	295	295	295	295	295	295	295
Plant Power Rating (MW)	111.9	111.9	111.9	111.9	111.9	111.9	111.9	111.9	111.9	111.9	111.9	111.9
Transmissi on Loss (%)	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%
Percent Eng Off Peak (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Chrisman (Wind Gap) Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	639	639	639	639	639	639	639	639	639	639	639	639
Plant Power Rating (MW)	246.18	246.18	246.18	246.18	246.18	246.18	246.18	246.18	246.18	246.18	246.18	246.18
Transmissi on Loss (%)	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%
Percent Eng Off Peak (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Edmonson Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	2,236	2,236	2,236	2,236	2,236	2,236	2,236	2,236	2,236	2,236	2,236	2,236
Plant Power Rating (MW)	775.84	775.84	775.84	775.84	775.84	775.84	775.84	775.84	775.84	775.84	775.84	775.84
Transmissi on Loss (%)	1.64%	1.64%	1.64%	1.64%	1.64%	1.64%	1.64%	1.64%	1.64%	1.64%	1.64%	1.64%
Percent Eng Off Peak (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Pearblossom Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	703	703	703	703	703	703	703	703	703	703	703	703
Plant Power Rating (MW)	151.58 8	151.58 8	151.58 8	151.58 8	151.58 8	151.58 8	151.58 8	151.58 8	151.58 8	151.58 8	151.58 8	151.58 8
Transmissi on Loss (%)	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%
Percent Eng Off Peak (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Table A-2. State Water Project Pumping Plant Characteristics (cont).

Oso Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	280	280	280	280	280	280	280	280	280	280	280	280
Plant Power Rating (MW)	69.975	69.975	69.975	69.975	69.975	69.975	69.975	69.975	69.975	69.975	69.975	69.975
Transmission Loss (%)	2.34%	2.34%	2.34%	2.34%	2.34%	2.34%	2.34%	2.34%	2.34%	2.34%	2.34%	2.34%
Percent Eng Off Peak (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
South Bay Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	797	797	797	797	797	797	797	797	797	797	797	797
Plant Power Rating (MW)	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69	20.69
Transmission Loss (%)	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Percent Eng Off Peak (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Del Valle Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	72	72	72	72	72	72	72	72	72	72	72	72
Plant Power Rating (MW)	0.746	0.746	0.746	0.746	0.746	0.746	0.746	0.746	0.746	0.746	0.746	0.746
Transmission Loss (%)	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Percent Eng Off Peak (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Las Perillas Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	77	77	77	77	77	77	77	77	77	77	77	77
Plant Power Rating (MW)	3.021	3.021	3.021	3.021	3.021	3.021	3.021	3.021	3.021	3.021	3.021	3.021
Transmission Loss (%)	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%
Percent Eng Off Peak (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Badger Hill Pumping Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	200	200	200	200	200	200	200	200	200	200	200	200
Plant Power Rating (MW)	8.766	8.766	8.766	8.766	8.766	8.766	8.766	8.766	8.766	8.766	8.766	8.766
Transmission Loss (%)	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%	1.32%
Percent Eng Off Peak (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Table A-3. Sites Project (NODOS) Pumping Plant Characteristics.

		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Tehama-Colusa Canal Pump Station													
	Plant Efficiency (%)	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%
	Dynamic Head (feet)	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
	Plant Power Rating (MW)	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50	7.50
	Transmission Loss (%)	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Flow Capacity (CFS)	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500	2500
Terminal Regulating Reservoir Pump Station													
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Head Loss	Number of Pipelines	2	2	2	2	2	2	2	2	2	2	2	2
Head Loss	Flow/Pipeline (CFS)	900	900	900	900	900	900	900	900	900	900	900	900
Head Loss	Pipe Roughness	120	120	120	120	120	120	120	120	120	120	120	120
Head Loss	Pipeline Diameter (feet)	12	12	12	12	12	12	12	12	12	12	12	12
Head Loss	Pipeline Length (feet)	23,240	23240	23240	23240	23240	23240	23240	23240	23,240	23240	23240	23240
	Elevation 1	122.0	122	122	122	122	122	122	122	122	122	122	122
	Elevation 2	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS
	Plant Power Rating (MW)	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5	76.5
	Plant Efficiency (%)	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%	88.0%
	Transmission Loss (%)	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Funks Pump Station													
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Head Loss	Number of Pipelines	2	2	2	2	2	2	2	2	2	2	2	2
Head Loss	Flow/Pipeline (CFS)	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050	1050
Head Loss	Pipe$_{steel}$ Roughness	120	120	120	120	120	120	120	120	120	120	120	120
Head Loss	Pipeline Diameter (feet)	12	12	12	12	12	12	12	12	12	12	12	12
Head Loss	Pipeline$_{steel}$ Length (feet)	5,403	5,403	5,403	5,403	5,403	5,403	5,403	5,403	5,403	5,403	5,403	5,403
	Elevation 1	203	203	203	203	203	203	203	203	203	203	203	203
	Elevation 2	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS
	Plant Power Rating (MW)	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2	68.2
	Plant Efficiency (%)	89.0%	89.0%	89.0%	89.0%	89.0%	89.0%	89.0%	89.0%	89.0%	89.0%	89.0%	89.0%
	Transmission Loss (%)	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
	Percent Eng Off Peak (%)	50.00%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%

Table A-3. Sites Project (NODOS) Pumping Plant Characteristics (cont).

GCID-Sites Pump Station												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Plant Efficiency (%)	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%	85.0%
Dynamic Head (feet)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Plant Power Rating (MW)	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39
Transmission Loss (%)	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Flow Capacity (CFS)	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000

Table A-4. Central Valley Project Powerplant Characteristics.

Trinity Powerplant - Peaking Operation												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	2	2	2	2	2	2	2	2	2	2	2	2
Capacity/Unit (MW)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Transmission Loss (%)	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Lewiston Powerplant - Baseload Operation												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	0	0	0	0	0	0	0	0	0	0	0	0
Capacity/Unit (MW)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Transmission Loss (%)	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Carr Powerplant - Peaking Operation												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	2	2	2	2	2	2	2	2	2	2	2	2
Capacity/Unit (MW)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Transmission Loss (%)	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Spring Creek Powerplant - Peaking Operation												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	2	2	2	2	2	2	2	2	2	2	2	2
Capacity/Unit (MW)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Transmission Loss (%)	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Shasta Powerplant - Peaking Operation												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	5	5	5	5	5	5	5	5	5	5	5	5
Capacity/Unit (MW)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Transmission Loss (%)	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Keswick Powerplant - Baseload Operation												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	3	3	3	3	3	3	3	3	3	3	3	3
Capacity/Unit (MW)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Transmission Loss (%)	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%

Table A-4. Central Valley Project Powerplant Characteristics (cont).

Folsom Powerplant - Peaking Operation												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	3	3	3	3	3	3	3	3	3	3	3	3
Capacity/Unit (MW)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Transmission Loss (%)	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Nimbus Powerplant - Baseload Operation												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	2	2	2	2	2	2	2	2	2	2	2	2
Capacity/Unit (MW)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Transmission Loss (%)	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
New Melones Powerplant - Peaking Operation												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	2	2	2	2	2	2	2	2	2	2	2	2
Capacity/Unit (MW)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
CVP San Luis Powerplant - Peaking Operation												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	8	8	8	8	8	8	8	8	8	8	8	8
Capacity/Unit (MW)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Share of Total Cap (%)	47.1%	47.1%	47.1%	47.1%	47.1%	47.1%	47.1%	47.1%	47.1%	47.1%	47.1%	47.1%
O'Neill Powerplant - Baseload Operation, flow computation												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	6	6	6	6	6	6	6	6	6	6	6	6
Capacity/Unit (MW)	3	3	3	3	3	3	3	3	3	3	3	3
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%

Table A-5. State Water Project Powerplant Characteristics.

Hyatt (Lake Oroville) Power Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Maximum Flow Capacity (cfs)	16950	16950	16950	16950	16950	16950	16950	16950	16950	16950	16950	16950
Plant Power Rating (MW)	812	812	812	812	812	812	812	812	812	812	812	812
Plant Efficiency	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%
Transmission Loss (%)	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
Thermalito Power Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Maximum Flow Capacity (cfs)	17400	17400	17400	17400	17400	17400	17400	17400	17400	17400	17400	17400
Plant Power Rating (MW)	120	120	120	120	120	120	120	120	120	120	120	120
Plant Efficiency	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%	87.3%
Transmission Loss (%)	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
SWP San Luis (Gianelli Power Plant)												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
Capacity/Unit (MW)	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function	Function
# Units	8	8	8	8	8	8	8	8	8	8	8	8
Share of Total Cap (%)	52.9%	52.9%	52.9%	52.9%	52.9%	52.9%	52.9%	52.9%	52.9%	52.9%	52.9%	52.9%
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Alamo Power Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	105	105	105	105	105	105	105	105	105	105	105	105
Maximum Flow Capacity (cfs)	1740	1740	1740	1740	1740	1740	1740	1740	1740	1740	1740	1740
Plant Power Rating (MW)	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6	19.6
Plant Efficiency	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%	80.1%
Transmission Loss (%)	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
Mojave Power Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	95	95	95	95	95	95	95	95	95	95	95	95
Maximum Flow Capacity (cfs)	2880	2880	2880	2880	2880	2880	2880	2880	2880	2880	2880	2880
Plant Power Rating (MW)	32.90	32.90	32.90	32.90	32.90	32.90	32.90	32.90	32.90	32.90	32.90	32.90
Plant Efficiency	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%	84%
Transmission Loss (%)	5.93%	5.93%	5.93%	5.93%	5.93%	5.93%	5.93%	5.93%	5.93%	5.93%	5.93%	5.93%

Table A-5. State Water Project Powerplant Characteristics (cont).

Devil's Canyon Power Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113	1113
Maximum Flow Capacity (cfs)	2940	2940	2940	2940	2940	2940	2940	2940	2940	2940	2940	2940
Plant Power Rating (MW)	358	358	358	358	358	358	358	358	358	358	358	358
Plant Efficiency	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%	82%
Transmission Loss (%)	2.23%	2.23%	2.23%	2.23%	2.23%	2.23%	2.23%	2.23%	2.23%	2.23%	2.23%	2.23%
W. E. Warne Power Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	573	573	573	573	573	573	573	573	573	573	573	573
Maximum Flow Capacity (cfs)	1564	1564	1564	1564	1564	1564	1564	1564	1564	1564	1564	1564
Plant Power Rating (MW)	78.2	78.2	78.2	78.2	78.2	78.2	78.2	78.2	78.2	78.2	78.2	78.2
Plant Efficiency	81.4%	81.4%	81.4%	81.4%	81.4%	81.4%	81.4%	81.4%	81.4%	81.4%	81.4%	81.4%
Transmission Loss (%)	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%	1.4%
Castaic Power Plant												
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Energy Factor (kWh/af)	Functi on	Functi on	Functi on	Functi on	Functi on	Functi on	Functi on	Functi on	Functi on	Functi on	Functi on	Functi on
Maximum Flow Capacity (cfs)	17840	17840	17840	17840	17840	17840	17840	17840	17840	17840	17840	17840
Plant Power Rating (MW)	1260	1260	1260	1260	1260	1260	1260	1260	1260	1260	1260	1260
Plant Efficiency	88.4%	88.4%	88.4%	88.4%	88.4%	88.4%	88.4%	88.4%	88.4%	88.4%	88.4%	88.4%
Transmission Loss (%)	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%

Table A-6. Sites Project (NODOS) Powerplant Characteristics.

Funks Power Plant													
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Head Loss	Number of Pipelines	2	2	2	2	2	2	2	2	2	2	2	2
Head Loss	Capacity/Pipeline	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Head Loss	Pipe$_{concrete}$ Roughness	0	0	0	0	0	0	0	0	0	0	0	0
Head Loss	Pipe$_{steel}$ Roughness	120	120	120	120	120	120	120	120	120	120	120	120
Head Loss	Pipeline Diameter (feet)	12	12	12	12	12	12	12	12	12	12	12	12
Head Loss	Pipeline$_{steel}$ Length (feet)	5403	5403	5403	5403	5403	5403	5403	5403	5403	5403	5403	5403
	Elevation 1	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS
	Elevation 2	203	203	203	203	203	203	203	203	203	203	203	203
	Plant Power Rating (MW)	47	47	47	47	47	47	47	47	47	47	47	47
	Plant Efficiency (%)	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
	Transmission Loss (%)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
	Percent Eng On Peak (%)	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%

TRR Power Plant													
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Head Loss	Number of Pipelines	2	2	2	2	2	2	2	2	2	2	2	2
Head Loss	Capacity/Pipeline	500	500	500	500	500	500	500	500	500	500	500	500
Head Loss	Pipe Roughness	120	120	120	120	120	120	120	120	120	120	120	120
Head Loss	Pipeline Diameter (feet)	12	12	12	12	12	12	12	12	12	12	12	12
Head Loss	Pipeline Length (feet)	23,240	23,240	23,240	23,240	23,240	23,240	23,240	23,240	23,240	23,240	23,240	23,240
Head Loss	Elevation 1	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS	Sites WS
	Elevation 2	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0	122.0
	Plant Power Rating (MW)	26	26	26	26	26	26	26	26	26	26	26	26
	Plant Efficiency (%)	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
	Transmission Loss (%)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

*Funks plant efficiency equals zero when EOM storage is less than 300 TAF.

References

U.S. Department of the Interior, Bureau of Reclamation (Reclamation). 2015. Final Environmental Impact Statement for the Coordinated Long-term Operation of the Central Valley Project and the State Water Project, Appendix 8A: Power Model Documentation.

Attachment 1 – Power Modeling Results (LTGen, SWP Power, and Sites Power)

The following results of the LTGen, SWP, and Sites Power models are included for energy capacity, energy generation, and energy use at key project locations for the following alternatives:

- No Action Alternative 051422
- Alternative 1A 051722
- Alternative 1B 051722
- Alternative 3 051722

Monthly Reports

Title	Model Parameter	Table Numbers	Figure Numbers
CVP Total Capacity	CVP_TOTAL	1-1 to 1-3	1-1 to 1-18
CVP Total Generation	CVP_TOTAL	2-1 to 2-3	2-1 to 2-18
CVP Total Energy Use	CVP_TOTAL	3-1 to 3-3	3-1 to 3-18
CVP Net Generation	CVP_TOTAL	4-1 to 4-3	4-1 to 4-18
CVP Net Revenue	CVP_TOTAL	5-1 to 5-3	5-1 to 5-18
SWP Total Capacity	SWP_TOTAL	6-1 to 6-3	6-1 to 6-18
SWP Total Generation	SWP_TOTAL	7-1 to 7-3	7-1 to 7-18
SWP Total Energy Use	SWP_TOTAL	8-1 to 8-3	8-1 to 8-18
SWP Net Generation	SWP_TOTAL	9-1 to 9-3	9-1 to 9-18
SWP Net Revenue	SWP_TOTAL	10-1 to 10-3	10-1 to 10-18
Sites Total Capacity	SITES_TOTAL	11-1 to 11-3	11-1 to 11-18
Sites Total Generation	SITES_TOTAL	12-1 to 12-3	12-1 to 12-18
Sites Total Energy Use	SITES_TOTAL	13-1 to 13-3	13-1 to 13-18
Sites Net Generation	SITES_TOTAL	14-1 to 14-3	14-1 to 14-18
Sites Net Revenue	SITES_TOTAL	15-1 to 15-3	15-1 to 15-18
CVP, SWP, and SITES Net Generation	CVP_SWP_SITES_TOTAL	16-1 to 16-3	16-1 to 16-18
CVP, SWP, and SITES Net Revenue	CVP_SWP_SITES_TOTAL	17-1 to 17-3	17-1 to 17-18

Annual Reports

Title	Model Parameter	Table Numbers	Figure Numbers
CVP Total Generation	CVP_TOTAL	18-1 to 18-3	18-1
CVP Total Energy Use	CVP_TOTAL	19-1 to 19-3	19-1
CVP Net Generation	CVP_TOTAL	20-1 to 20-3	20-1
CVP Net Revenue	CVP_TOTAL	21-1 to 21-3	21-1
SWP Total Generation	SWP_TOTAL	22-1 to 22-3	22-1
SWP Total Energy Use	SWP_TOTAL	23-1 to 23-3	23-1
SWP Net Generation	SWP_TOTAL	24-1 to 24-3	24-1
SWP Net Revenue	SWP_TOTAL	25-1 to 25-3	25-1
Sites Total Generation	SITES_TOTAL	26-1 to 26-3	26-1
Sites Total Energy Use	SITES_TOTAL	27-1 to 27-3	27-1
Sites Net Generation	SITES_TOTAL	28-1 to 28-3	28-1
Sites Net Revenue	SITES_TOTAL	29-1 to 29-3	29-1
CVP, SWP, and SITES Net Generation	CVP_SWP_SITES_TOTAL	30-1 to 30-3	30-1
CVP, SWP, and SITES Net Revenue	CVP_SWP_SITES_TOTAL	31-1 to 31-3	31-1

Report formats

- Exceedance tables comparing power modeling results of two scenarios
- Monthly pattern charts including all scenarios
- Monthly/Annual exceedance charts including all scenarios

Table 1-1a. CVP Facilities Total Capacity, No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,764	1,802	1,849	1,871	1,908	1,945	1,926	1,908	1,844	1,777	1,732	1,719
20%	1,722	1,781	1,826	1,858	1,889	1,921	1,904	1,869	1,789	1,730	1,695	1,699
30%	1,694	1,759	1,801	1,839	1,872	1,898	1,872	1,823	1,730	1,688	1,659	1,668
40%	1,668	1,722	1,781	1,823	1,856	1,871	1,841	1,786	1,697	1,648	1,624	1,640
50%	1,630	1,692	1,741	1,802	1,832	1,841	1,806	1,762	1,660	1,607	1,580	1,599
60%	1,610	1,653	1,713	1,767	1,805	1,820	1,784	1,718	1,633	1,576	1,556	1,546
70%	1,563	1,594	1,667	1,729	1,777	1,797	1,766	1,700	1,598	1,533	1,507	1,529
80%	1,483	1,522	1,600	1,674	1,717	1,739	1,696	1,646	1,559	1,488	1,481	1,465
90%	1,354	1,444	1,538	1,599	1,623	1,619	1,597	1,514	1,449	1,359	1,338	1,339
Long Term												
Full Simulation Period[d]	1,592	1,647	1,707	1,758	1,796	1,818	1,791	1,740	1,653	1,587	1,556	1,557
Water Year Types[b,c]												
Wet (32%)	1,725	1,770	1,806	1,840	1,881	1,917	1,898	1,872	1,802	1,747	1,705	1,705
Above Normal (15%)	1,635	1,687	1,736	1,815	1,846	1,867	1,846	1,800	1,694	1,640	1,599	1,610
Below Normal (17%)	1,603	1,648	1,716	1,734	1,779	1,815	1,792	1,733	1,636	1,578	1,561	1,569
Dry (22%)	1,567	1,626	1,686	1,743	1,780	1,788	1,754	1,688	1,599	1,521	1,505	1,510
Critical (15%)	1,286	1,371	1,485	1,577	1,605	1,601	1,557	1,478	1,387	1,298	1,263	1,240

Table 1-1b. CVP Facilities Total Capacity, Alternative 1A 051722, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,766	1,811	1,855	1,871	1,910	1,946	1,926	1,908	1,843	1,777	1,731	1,720
20%	1,727	1,780	1,827	1,859	1,890	1,923	1,905	1,868	1,789	1,730	1,697	1,699
30%	1,693	1,759	1,801	1,836	1,871	1,896	1,872	1,821	1,736	1,687	1,660	1,676
40%	1,668	1,720	1,777	1,824	1,855	1,872	1,843	1,786	1,699	1,650	1,628	1,639
50%	1,639	1,693	1,741	1,802	1,833	1,842	1,806	1,762	1,659	1,607	1,582	1,602
60%	1,612	1,656	1,724	1,768	1,808	1,821	1,784	1,720	1,634	1,577	1,558	1,551
70%	1,565	1,597	1,667	1,729	1,774	1,793	1,767	1,700	1,601	1,532	1,509	1,526
80%	1,491	1,528	1,607	1,680	1,718	1,740	1,697	1,650	1,560	1,489	1,483	1,465
90%	1,361	1,444	1,543	1,609	1,621	1,620	1,601	1,544	1,458	1,382	1,343	1,349
Long Term												
Full Simulation Period[d]	1,595	1,650	1,709	1,760	1,797	1,819	1,792	1,742	1,655	1,590	1,559	1,560
Water Year Types[b,c]												
Wet (32%)	1,726	1,771	1,806	1,842	1,881	1,917	1,898	1,872	1,801	1,747	1,706	1,706
Above Normal (15%)	1,639	1,689	1,739	1,816	1,847	1,868	1,847	1,801	1,695	1,642	1,604	1,613
Below Normal (17%)	1,611	1,652	1,718	1,732	1,778	1,814	1,790	1,732	1,639	1,579	1,563	1,570
Dry (22%)	1,567	1,625	1,688	1,746	1,782	1,791	1,756	1,690	1,601	1,523	1,506	1,512
Critical (15%)	1,290	1,381	1,492	1,580	1,608	1,606	1,564	1,489	1,399	1,308	1,272	1,248

Table 1-1c. CVP Facilities Total Capacity, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2	9	6	0	1	0	0	0	-1	0	0	0
20%	5	-1	1	2	1	1	0	0	0	0	2	-1
30%	-1	0	-1	-3	-1	-2	0	-2	5	0	1	8
40%	-1	-2	-3	1	-1	0	2	0	2	2	4	-1
50%	9	0	1	-1	1	1	0	0	-1	1	2	3
60%	2	4	11	1	3	1	0	2	0	1	2	6
70%	1	3	-1	1	-4	-3	1	0	3	-1	2	-4
80%	8	6	8	5	1	1	1	4	1	2	2	1
90%	7	0	5	10	-2	1	5	30	9	23	6	10
Long Term												
Full Simulation Period[d]	3	3	2	2	1	1	1	2	2	3	3	3
Water Year Types[b,c]												
Wet (32%)	1	1	1	2	0	0	0	0	-1	0	1	1
Above Normal (15%)	3	2	2	2	2	1	1	1	1	2	5	4
Below Normal (17%)	8	4	2	-1	-1	-1	-1	-1	2	1	2	2
Dry (22%)	1	0	1	3	2	2	2	2	2	2	1	2
Critical (15%)	4	11	7	3	3	5	7	11	12	10	8	8

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 1-2a. CVP Facilities Total Capacity, No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,764	1,802	1,849	1,871	1,908	1,945	1,926	1,908	1,844	1,777	1,732	1,719
20%	1,722	1,781	1,826	1,858	1,889	1,921	1,904	1,869	1,789	1,730	1,695	1,699
30%	1,694	1,759	1,801	1,839	1,872	1,898	1,872	1,823	1,730	1,688	1,659	1,668
40%	1,668	1,722	1,781	1,823	1,856	1,871	1,841	1,786	1,697	1,648	1,624	1,640
50%	1,630	1,692	1,741	1,802	1,832	1,841	1,806	1,762	1,660	1,607	1,580	1,599
60%	1,610	1,653	1,713	1,767	1,805	1,820	1,784	1,718	1,633	1,576	1,556	1,546
70%	1,563	1,594	1,667	1,729	1,777	1,797	1,766	1,700	1,598	1,533	1,507	1,529
80%	1,483	1,522	1,600	1,674	1,717	1,739	1,696	1,646	1,559	1,488	1,481	1,465
90%	1,354	1,444	1,538	1,599	1,623	1,619	1,597	1,514	1,449	1,359	1,338	1,339
Long Term												
Full Simulation Period[a]	1,592	1,647	1,707	1,758	1,796	1,818	1,791	1,740	1,653	1,587	1,556	1,557
Water Year Types[b,c]												
Wet (32%)	1,725	1,770	1,806	1,840	1,881	1,917	1,898	1,872	1,802	1,747	1,705	1,705
Above Normal (15%)	1,635	1,687	1,736	1,815	1,846	1,867	1,846	1,800	1,694	1,640	1,599	1,610
Below Normal (17%)	1,603	1,648	1,716	1,734	1,779	1,815	1,792	1,733	1,636	1,578	1,561	1,569
Dry (22%)	1,567	1,626	1,686	1,743	1,780	1,788	1,754	1,688	1,599	1,521	1,505	1,510
Critical (15%)	1,286	1,371	1,485	1,577	1,605	1,601	1,557	1,478	1,387	1,298	1,263	1,240

Table 1-2b. CVP Facilities Total Capacity, Alternative 1B 051722, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,766	1,810	1,855	1,871	1,910	1,944	1,926	1,908	1,844	1,777	1,733	1,723
20%	1,729	1,781	1,826	1,860	1,890	1,923	1,904	1,866	1,789	1,736	1,696	1,699
30%	1,694	1,752	1,804	1,839	1,872	1,900	1,871	1,827	1,730	1,689	1,661	1,676
40%	1,666	1,720	1,781	1,824	1,856	1,872	1,841	1,788	1,701	1,650	1,631	1,641
50%	1,641	1,695	1,744	1,802	1,833	1,838	1,809	1,768	1,661	1,610	1,582	1,603
60%	1,621	1,656	1,725	1,770	1,807	1,822	1,787	1,725	1,639	1,581	1,563	1,562
70%	1,568	1,600	1,667	1,734	1,777	1,792	1,772	1,709	1,604	1,536	1,517	1,528
80%	1,492	1,529	1,617	1,683	1,717	1,739	1,697	1,655	1,565	1,490	1,483	1,465
90%	1,365	1,445	1,551	1,606	1,622	1,622	1,604	1,540	1,457	1,383	1,345	1,349
Long Term												
Full Simulation Period[a]	1,597	1,650	1,710	1,761	1,797	1,820	1,793	1,744	1,657	1,592	1,561	1,562
Water Year Types[b,c]												
Wet (32%)	1,727	1,771	1,807	1,842	1,881	1,918	1,898	1,871	1,802	1,747	1,706	1,706
Above Normal (15%)	1,641	1,690	1,739	1,816	1,847	1,868	1,844	1,804	1,699	1,646	1,607	1,616
Below Normal (17%)	1,614	1,654	1,720	1,733	1,779	1,813	1,792	1,736	1,640	1,582	1,566	1,574
Dry (22%)	1,569	1,626	1,689	1,746	1,782	1,791	1,758	1,693	1,605	1,526	1,509	1,516
Critical (15%)	1,292	1,383	1,493	1,583	1,610	1,608	1,566	1,491	1,402	1,311	1,274	1,250

Table 1-2c. CVP Facilities Total Capacity, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	3	8	6	1	1	-1	0	0	0	0	1	4
20%	6	0	0	2	1	1	0	-2	0	6	1	-1
30%	0	-7	2	0	0	2	-1	4	0	1	1	8
40%	-3	-1	0	1	0	1	0	2	4	2	7	1
50%	11	3	4	-1	1	-2	2	6	1	4	2	4
60%	11	4	12	3	2	2	3	7	6	5	7	17
70%	5	7	0	6	0	-5	6	8	6	3	10	-1
80%	9	8	18	9	0	0	1	9	6	2	2	1
90%	11	1	12	7	-1	3	7	26	8	24	8	10
Long Term												
Full Simulation Period[a]	5	3	3	2	1	2	2	4	5	5	5	5
Water Year Types[b,c]												
Wet (32%)	1	1	1	2	0	1	0	-1	0	0	1	1
Above Normal (15%)	5	3	3	2	1	1	-2	4	5	6	8	6
Below Normal (17%)	12	6	4	0	0	-2	1	3	3	5	5	6
Dry (22%)	2	0	3	3	2	3	4	5	6	5	5	6
Critical (15%)	6	12	8	6	6	7	9	12	15	13	11	10

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 1-3a. CVP Facilities Total Capacity, No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,764	1,802	1,849	1,871	1,908	1,945	1,926	1,908	1,844	1,777	1,732	1,719
20%	1,722	1,781	1,826	1,858	1,889	1,921	1,904	1,869	1,789	1,730	1,695	1,699
30%	1,694	1,759	1,801	1,839	1,872	1,898	1,872	1,823	1,730	1,688	1,659	1,668
40%	1,668	1,722	1,781	1,823	1,856	1,871	1,841	1,786	1,697	1,648	1,624	1,640
50%	1,630	1,692	1,741	1,802	1,832	1,841	1,806	1,762	1,660	1,607	1,580	1,599
60%	1,610	1,653	1,713	1,767	1,805	1,820	1,784	1,718	1,633	1,576	1,556	1,546
70%	1,563	1,594	1,667	1,729	1,777	1,797	1,766	1,700	1,598	1,533	1,507	1,529
80%	1,483	1,522	1,600	1,674	1,717	1,739	1,696	1,646	1,559	1,488	1,481	1,465
90%	1,354	1,444	1,538	1,599	1,623	1,619	1,597	1,514	1,449	1,359	1,338	1,339
Long Term												
Full Simulation Period[a]	1,592	1,647	1,707	1,758	1,796	1,818	1,791	1,740	1,653	1,587	1,556	1,557
Water Year Types[b,c]												
Wet (32%)	1,725	1,770	1,806	1,840	1,881	1,917	1,898	1,872	1,802	1,747	1,705	1,705
Above Normal (15%)	1,635	1,687	1,736	1,815	1,846	1,867	1,846	1,800	1,694	1,640	1,599	1,610
Below Normal (17%)	1,603	1,648	1,716	1,734	1,779	1,815	1,792	1,733	1,636	1,578	1,561	1,569
Dry (22%)	1,567	1,626	1,686	1,743	1,780	1,788	1,754	1,688	1,599	1,521	1,505	1,510
Critical (15%)	1,286	1,371	1,485	1,577	1,605	1,601	1,557	1,478	1,387	1,298	1,263	1,240

Table 1-3b. CVP Facilities Total Capacity, Alternative 3 051722, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,756	1,806	1,855	1,870	1,910	1,945	1,926	1,907	1,843	1,777	1,736	1,720
20%	1,727	1,781	1,824	1,863	1,890	1,922	1,904	1,867	1,789	1,745	1,698	1,688
30%	1,697	1,751	1,806	1,840	1,869	1,900	1,869	1,822	1,732	1,695	1,667	1,670
40%	1,670	1,722	1,779	1,823	1,849	1,872	1,841	1,790	1,709	1,665	1,641	1,644
50%	1,648	1,699	1,746	1,804	1,834	1,838	1,805	1,768	1,669	1,621	1,589	1,609
60%	1,626	1,658	1,728	1,775	1,811	1,826	1,790	1,733	1,643	1,590	1,570	1,572
70%	1,566	1,602	1,679	1,739	1,781	1,800	1,772	1,713	1,610	1,552	1,542	1,542
80%	1,515	1,544	1,619	1,679	1,718	1,739	1,704	1,660	1,578	1,495	1,485	1,470
90%	1,369	1,448	1,554	1,614	1,633	1,622	1,609	1,552	1,471	1,393	1,350	1,357
Long Term												
Full Simulation Period[a]	1,602	1,653	1,714	1,763	1,799	1,821	1,793	1,747	1,663	1,599	1,569	1,568
Water Year Types[b,c]												
Wet (32%)	1,727	1,771	1,807	1,843	1,882	1,919	1,899	1,872	1,803	1,747	1,706	1,703
Above Normal (15%)	1,651	1,696	1,745	1,817	1,847	1,870	1,839	1,801	1,703	1,656	1,620	1,623
Below Normal (17%)	1,615	1,658	1,725	1,730	1,775	1,809	1,787	1,738	1,647	1,594	1,579	1,585
Dry (22%)	1,579	1,629	1,693	1,754	1,788	1,795	1,761	1,701	1,616	1,536	1,521	1,528
Critical (15%)	1,300	1,386	1,498	1,586	1,616	1,613	1,573	1,497	1,409	1,319	1,284	1,259

Table 1-3c. CVP Facilities Total Capacity, Alternative 3 051722 minus No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-8	5	6	-1	1	-1	0	-1	0	0	4	1
20%	5	0	-2	5	1	1	0	-2	0	15	3	-12
30%	3	-8	5	1	-3	3	-3	-1	2	7	8	2
40%	1	0	-2	0	-8	1	0	5	12	17	17	4
50%	18	7	6	2	2	-3	-2	6	9	15	9	10
60%	16	5	15	8	6	6	6	14	10	14	14	26
70%	3	8	12	10	4	3	6	13	12	19	35	13
80%	32	22	19	5	1	0	8	15	20	7	4	6
90%	15	4	16	15	10	3	12	38	23	34	13	18
Long Term												
Full Simulation Period[a]	10	6	6	4	3	3	2	7	10	12	13	11
Water Year Types[b,c]												
Wet (32%)	2	1	1	3	1	2	1	0	0	0	1	-1
Above Normal (15%)	16	9	9	2	1	3	-7	1	9	16	21	13
Below Normal (17%)	13	10	9	-4	-4	-6	-4	5	11	16	18	16
Dry (22%)	12	4	7	11	8	7	6	13	17	15	16	18
Critical (15%)	14	15	14	9	11	12	15	19	22	21	20	19

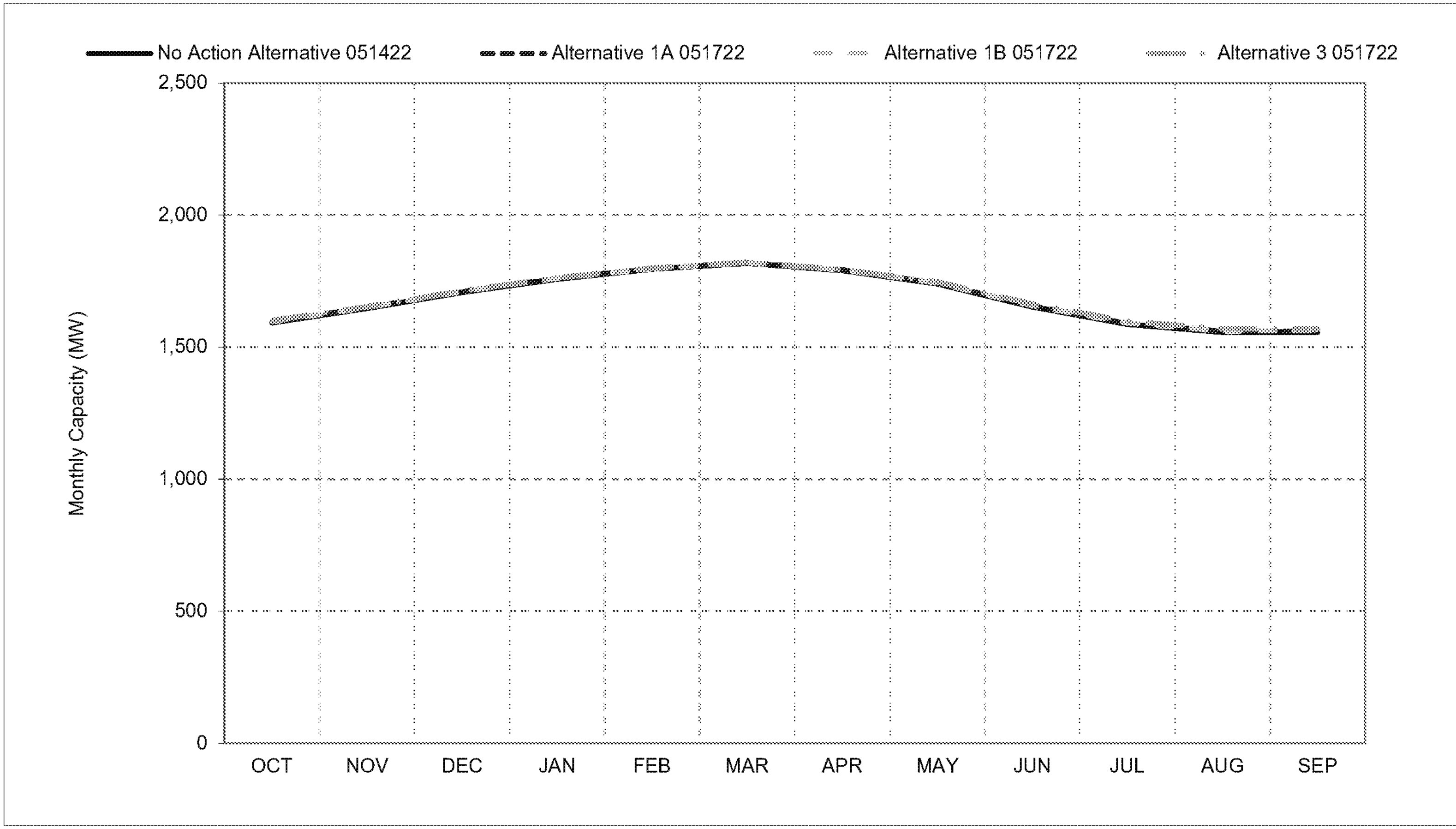
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

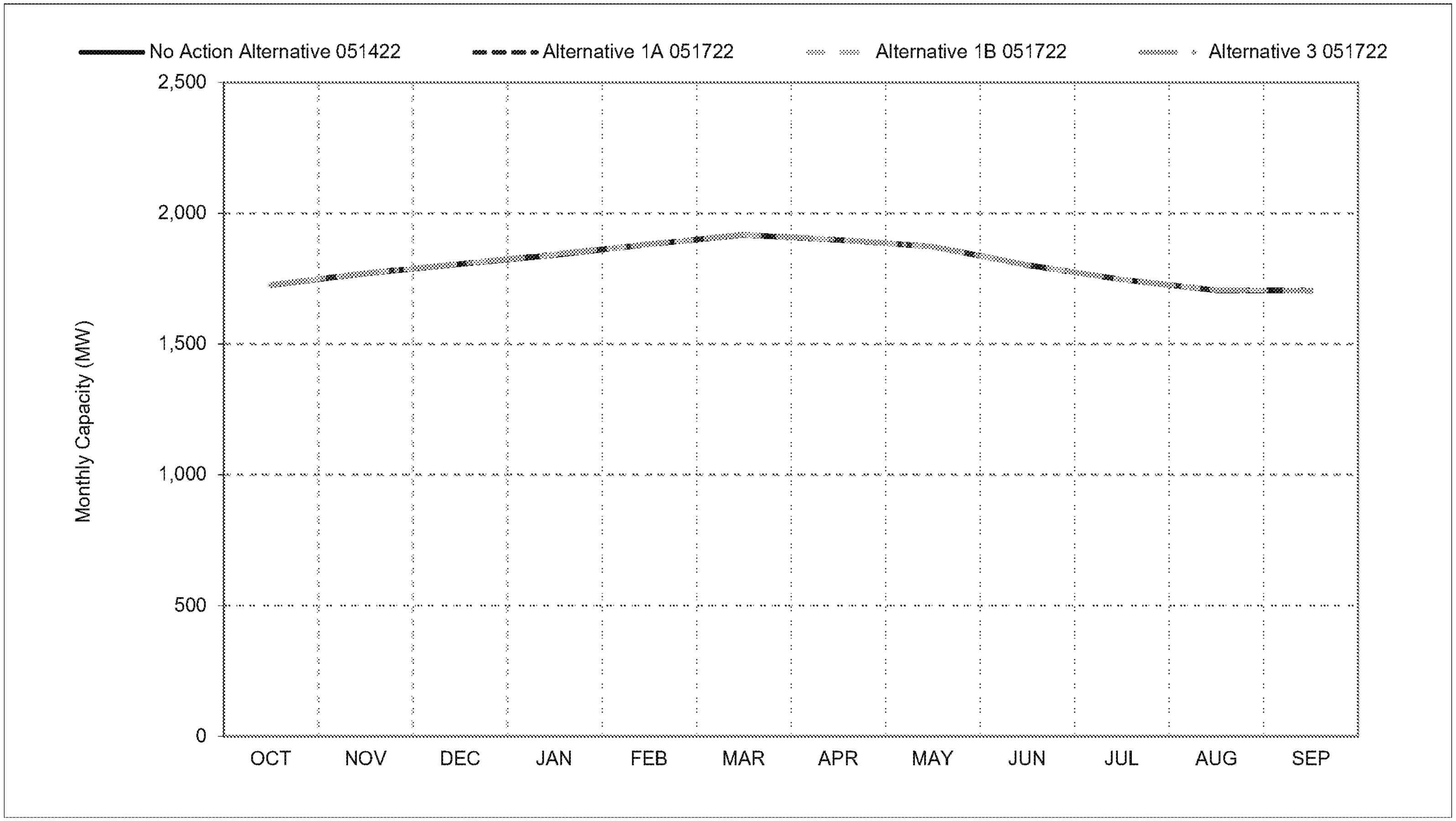
d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-1. CVP Facilities Total Capacity, Long-Term Average Capacity



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-2. CVP Facilities Total Capacity, Wet Year Average Capacity

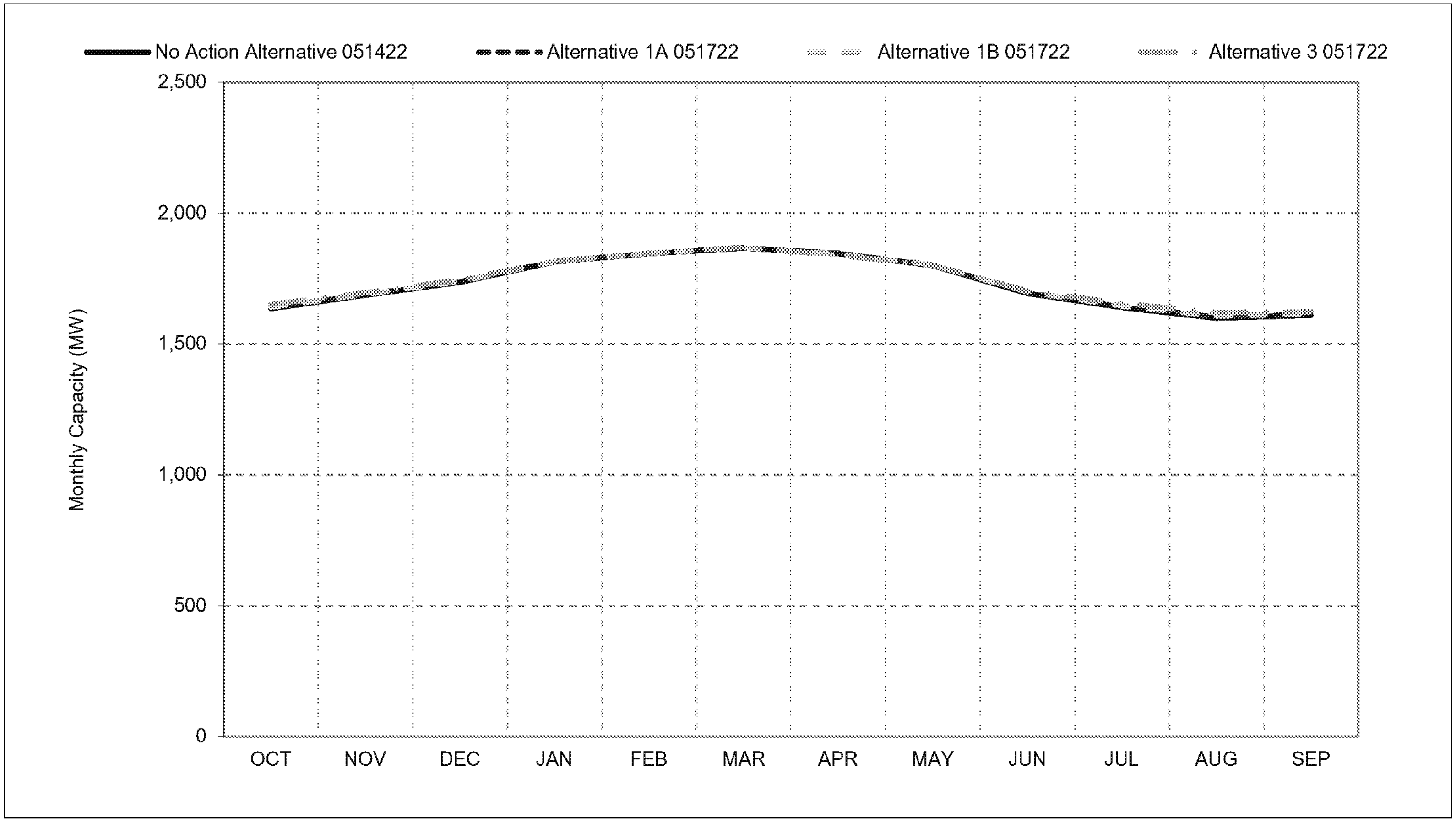


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-3. CVP Facilities Total Capacity, Above Normal Year Average Capacity

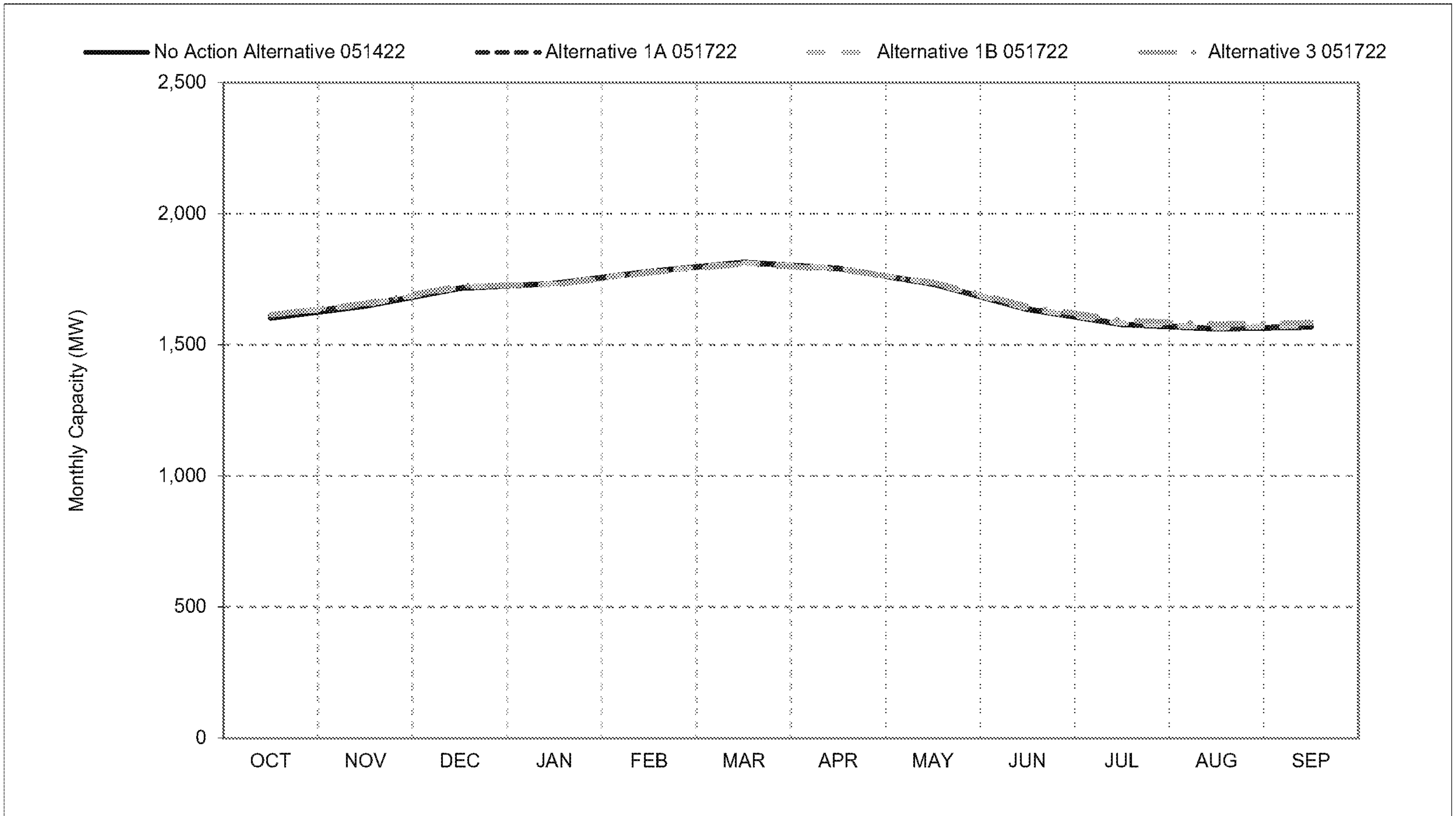


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-4. CVP Facilities Total Capacity, Below Normal Year Average Capacity

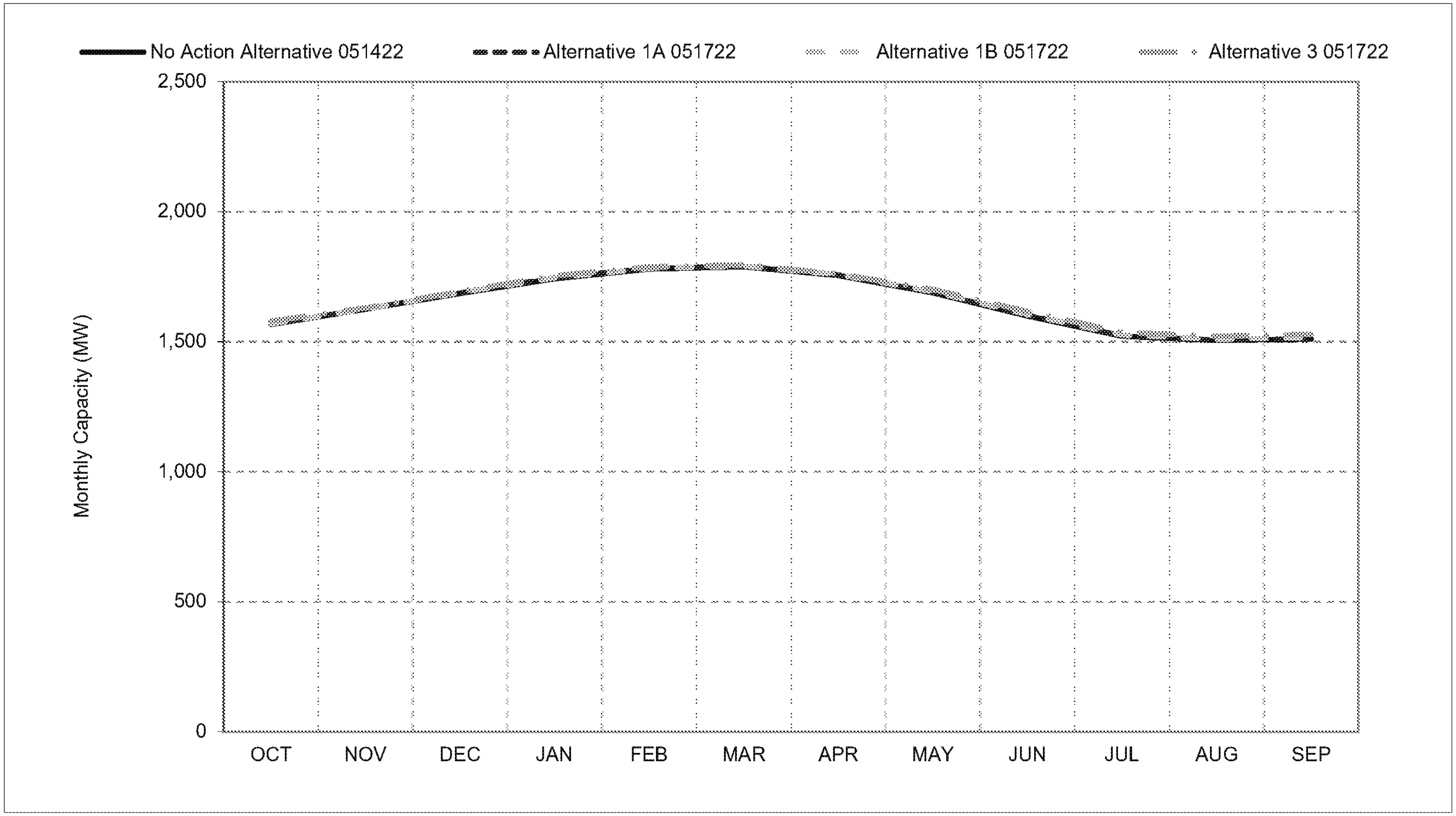


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

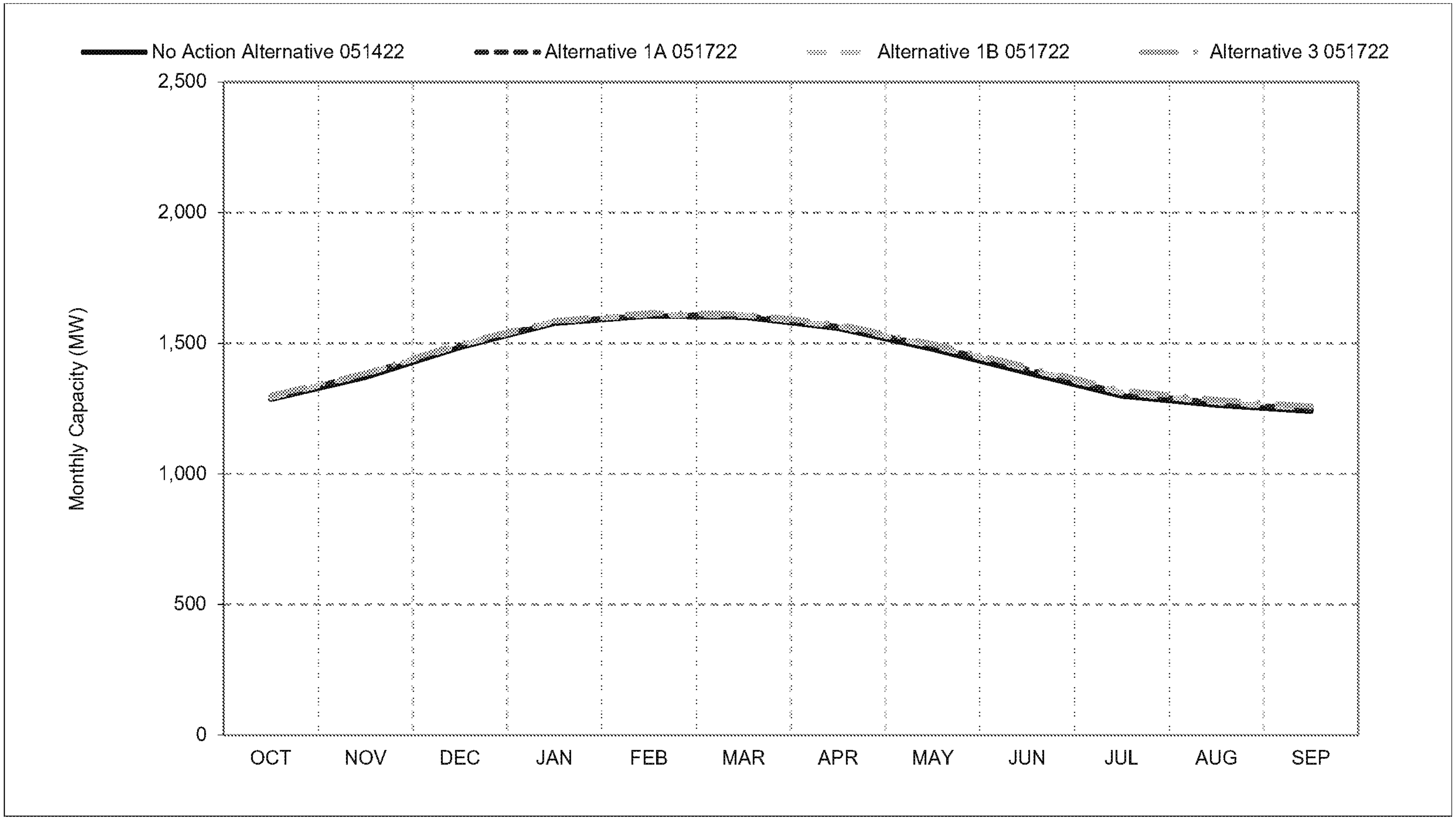
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-5. CVP Facilities Total Capacity, Dry Year Average Capacity



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-6. CVP Facilities Total Capacity, Critical Year Average Capacity

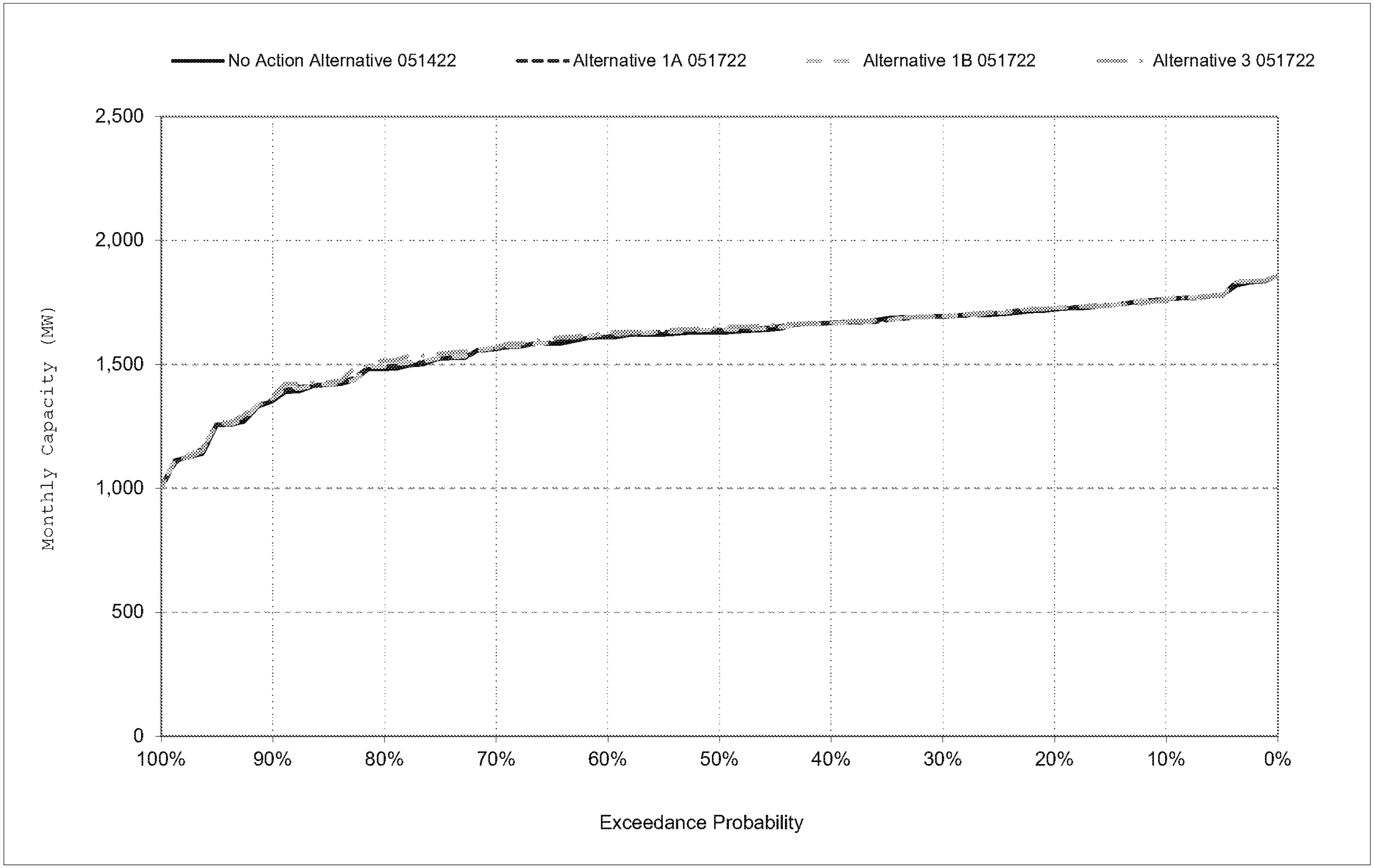


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

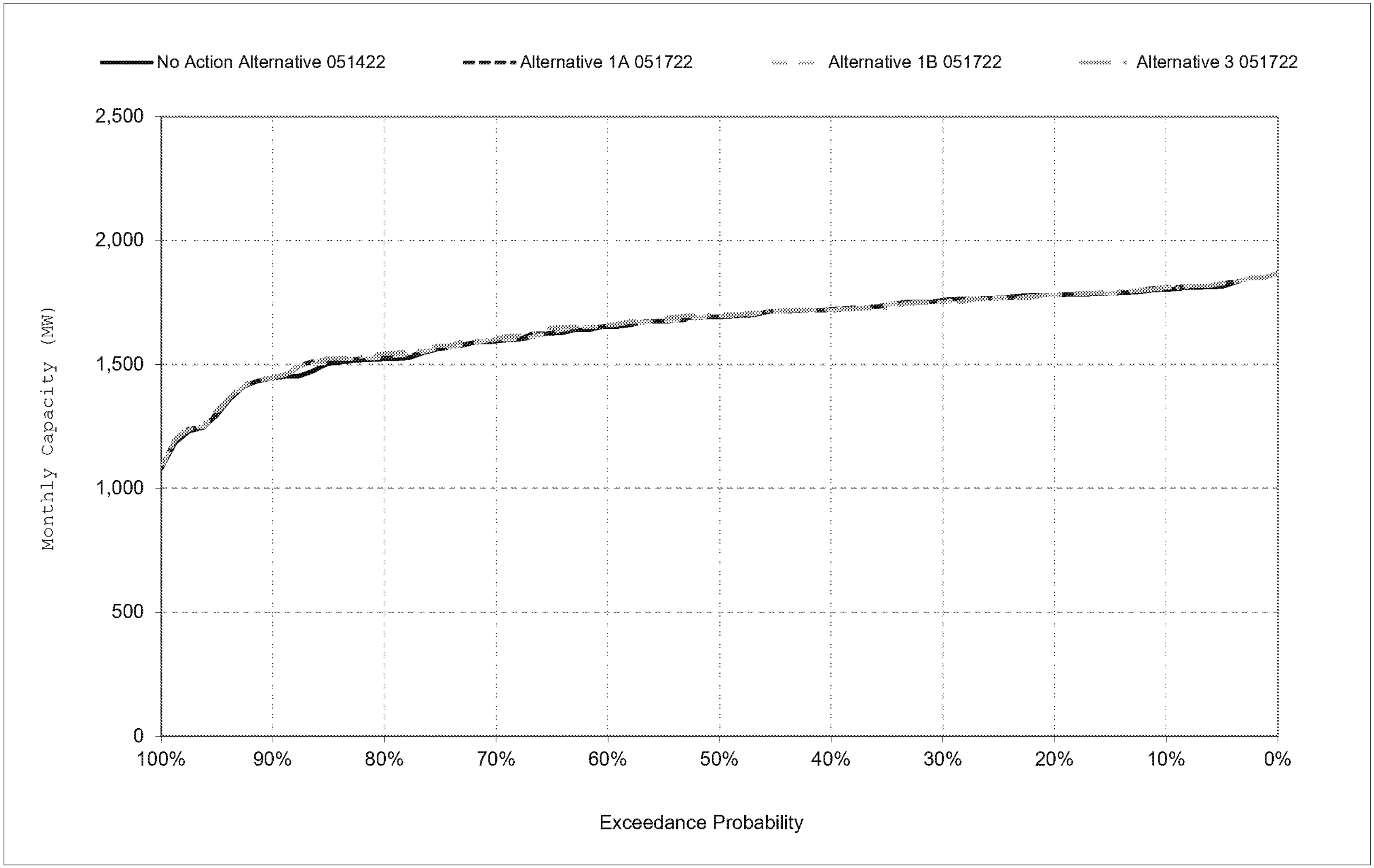
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-7. CVP Facilities Total Capacity, October



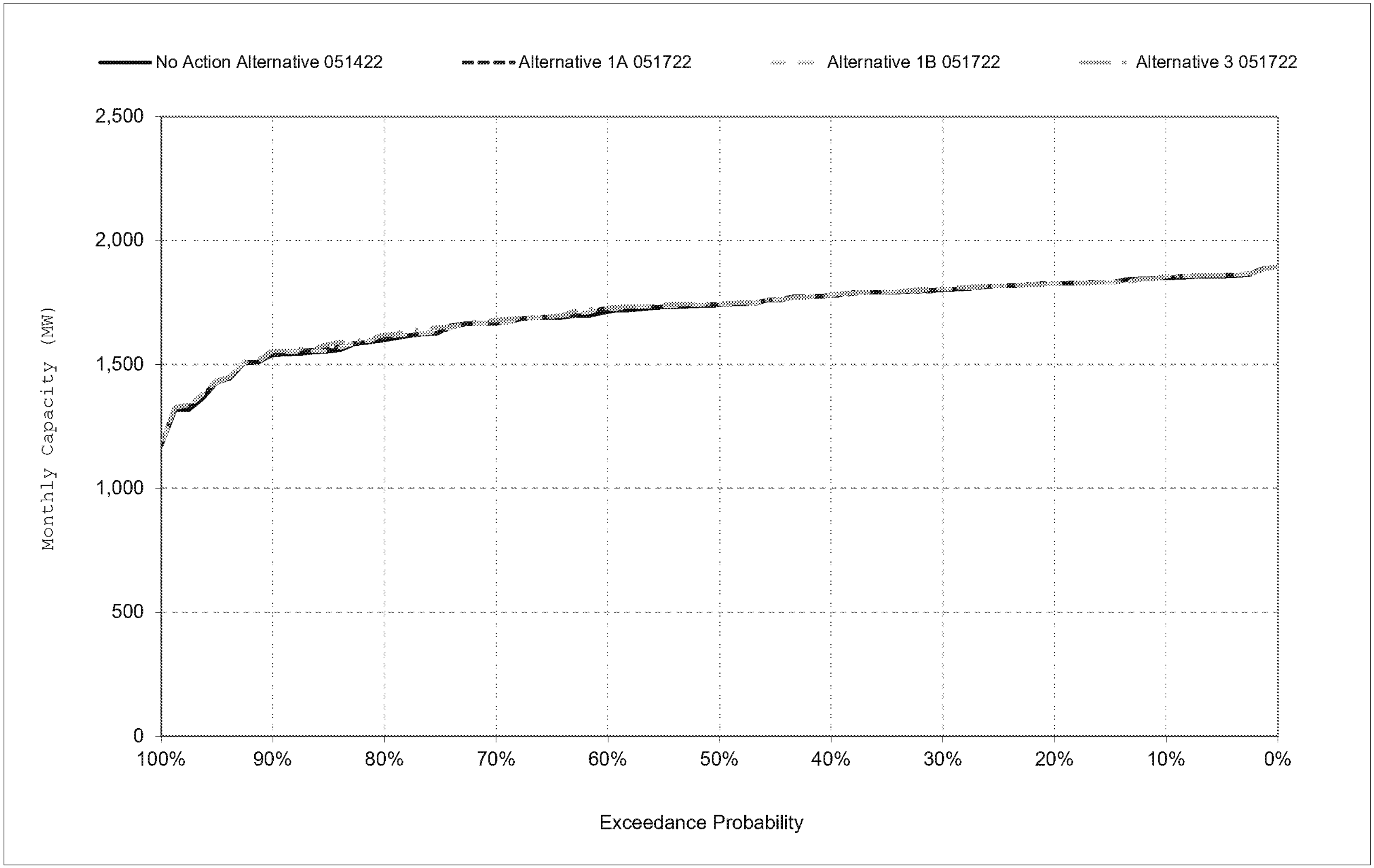
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-8. CVP Facilities Total Capacity, November



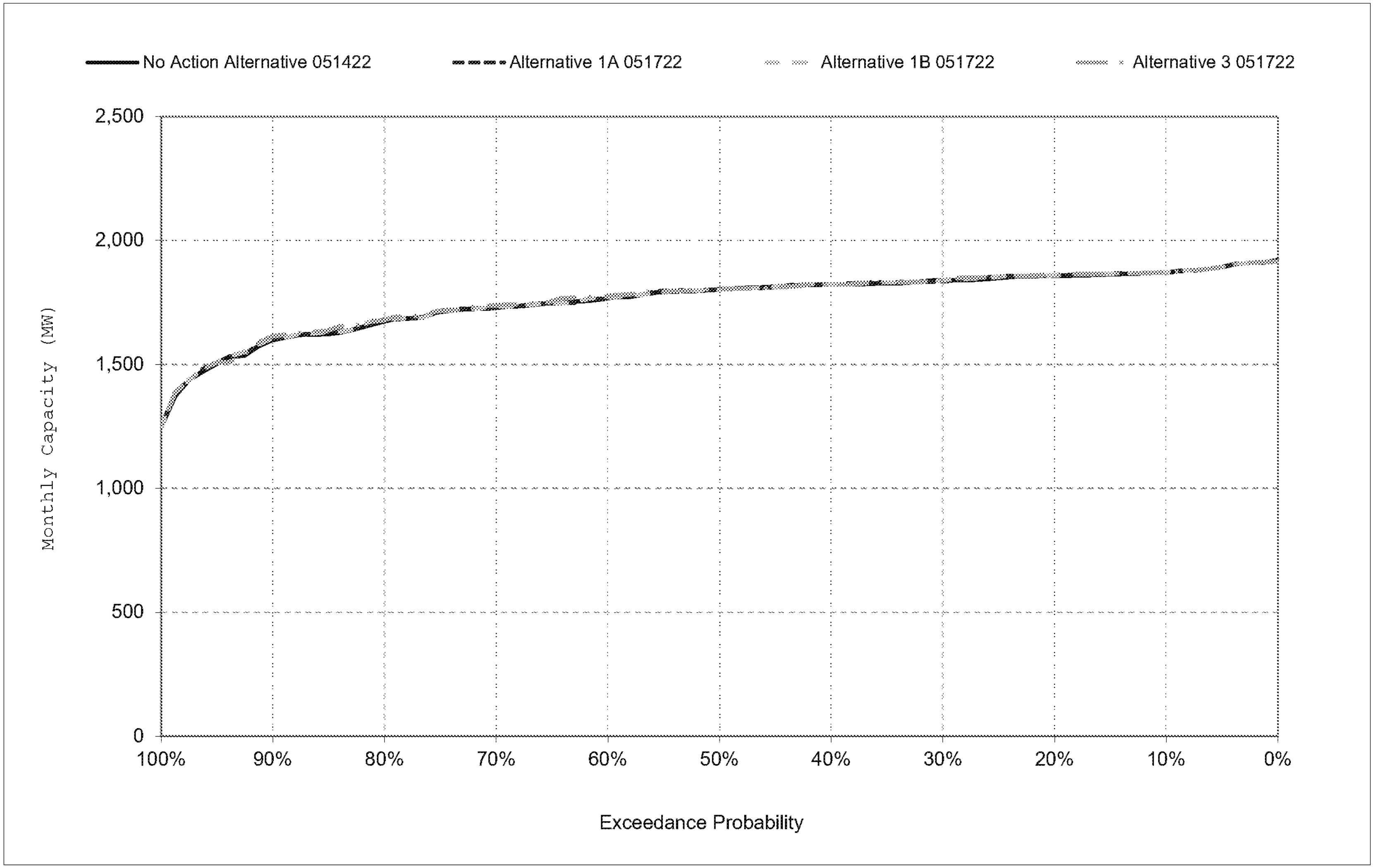
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-9. CVP Facilities Total Capacity, December



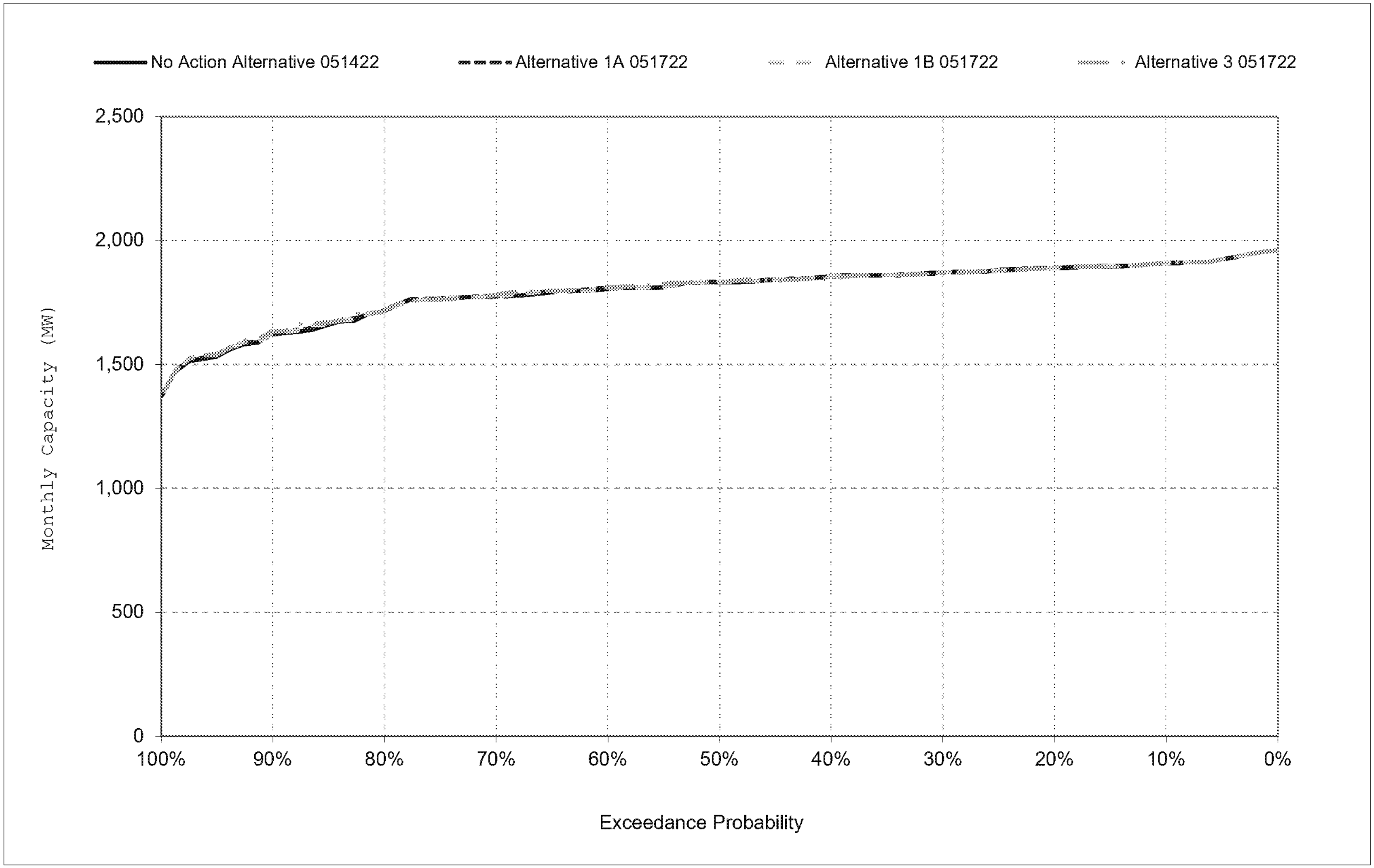
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-10. CVP Facilities Total Capacity, January



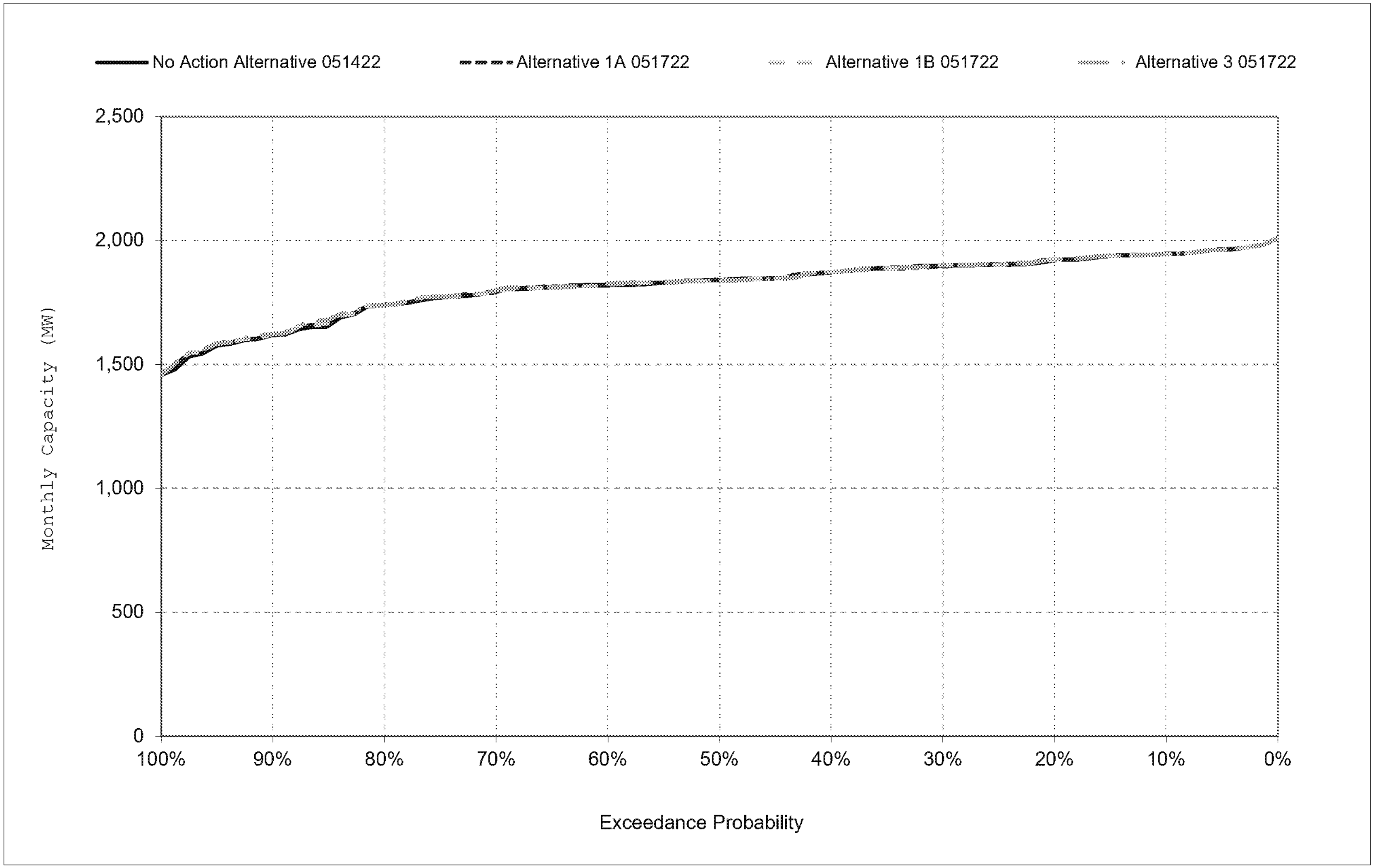
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-11. CVP Facilities Total Capacity, February



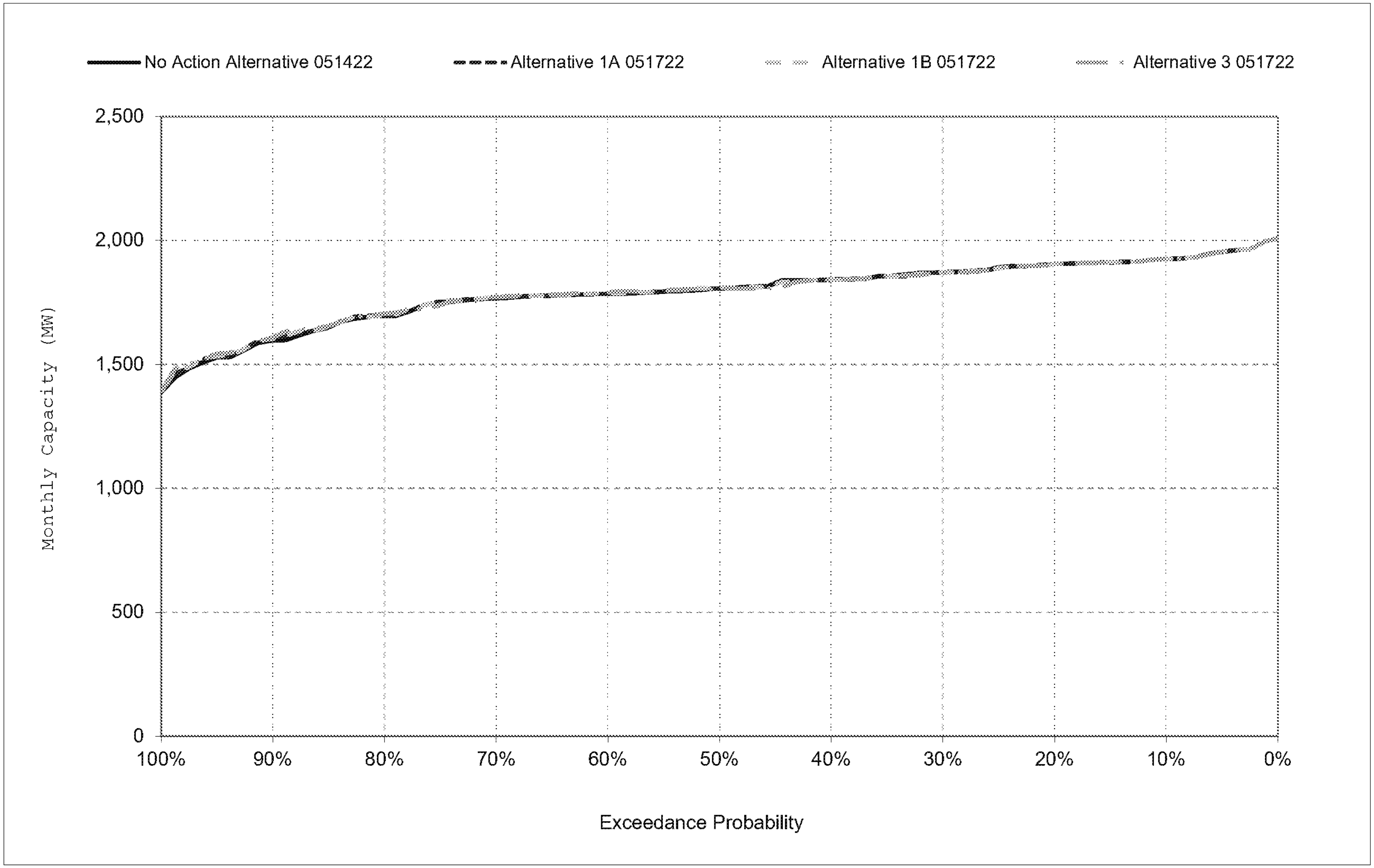
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-12. CVP Facilities Total Capacity, March



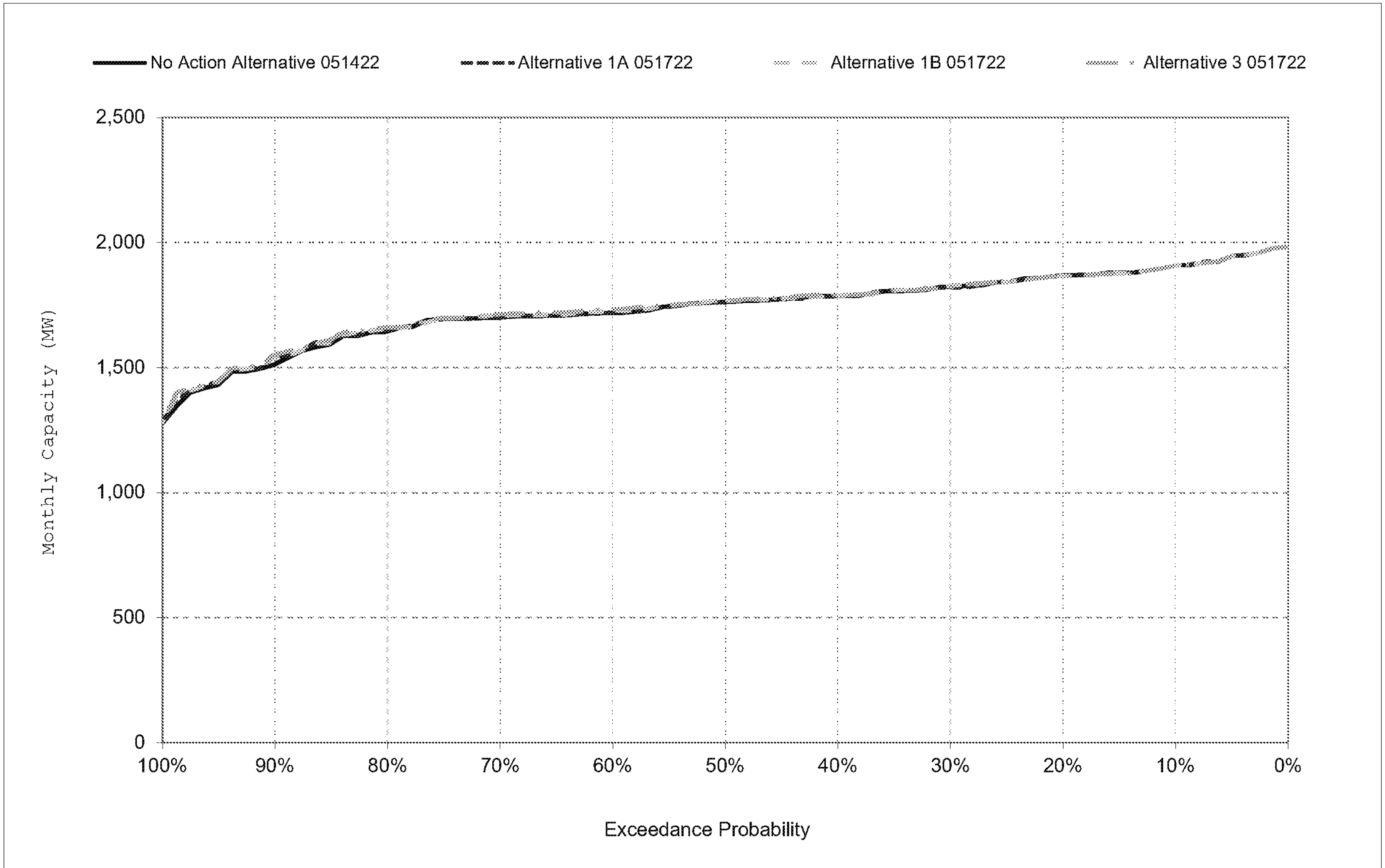
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-13. CVP Facilities Total Capacity, April



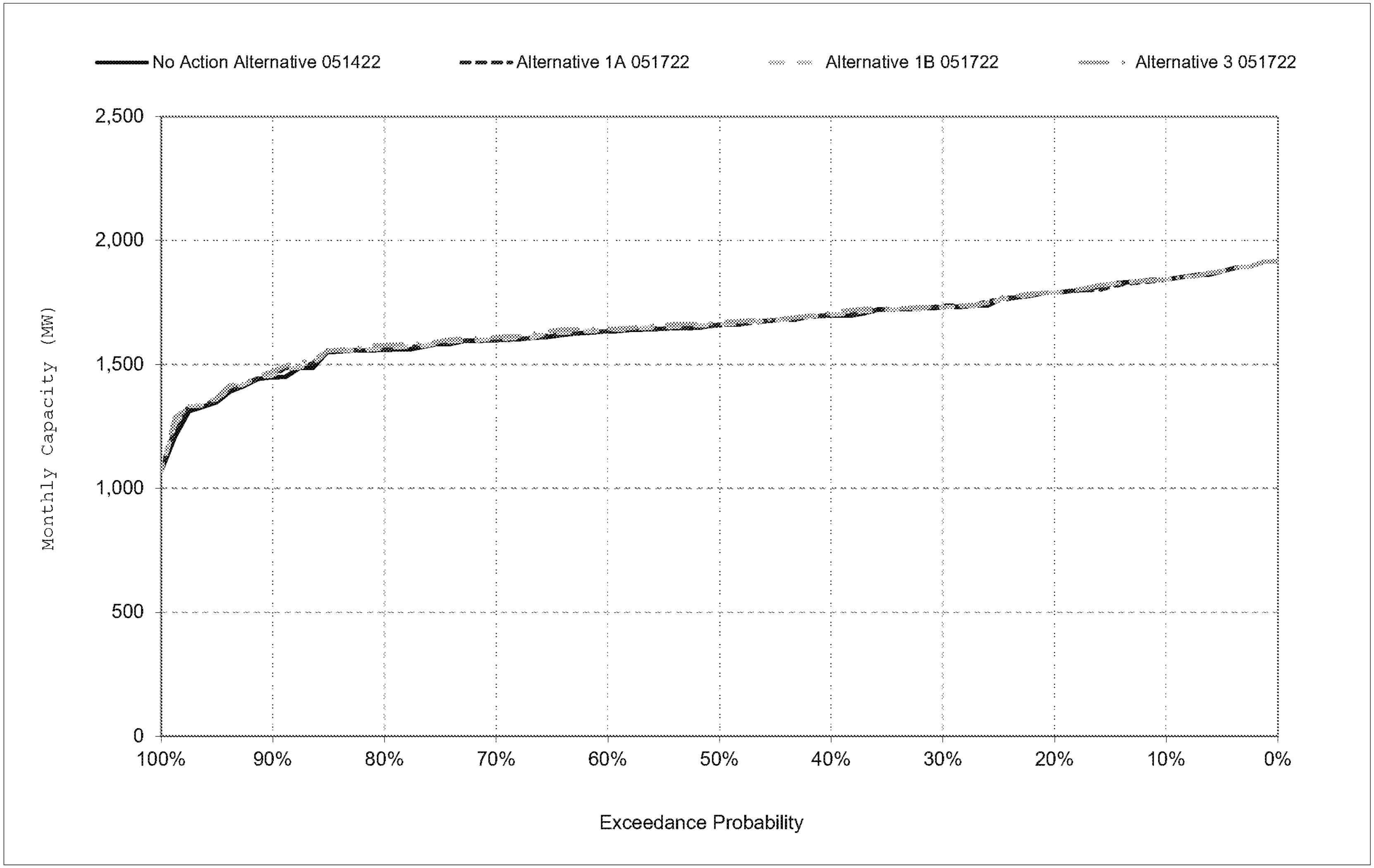
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-14. CVP Facilities Total Capacity, May



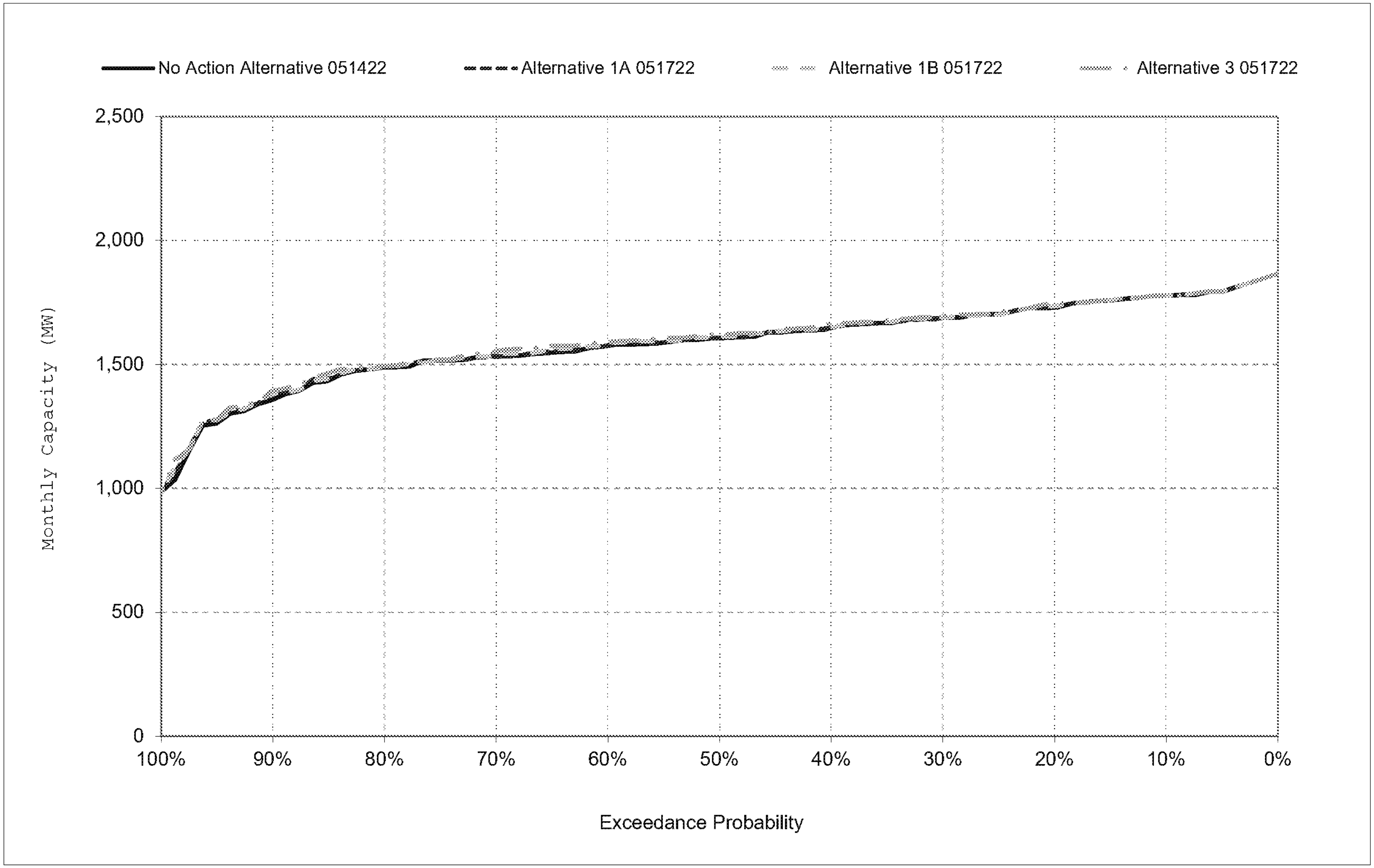
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-15. CVP Facilities Total Capacity, June



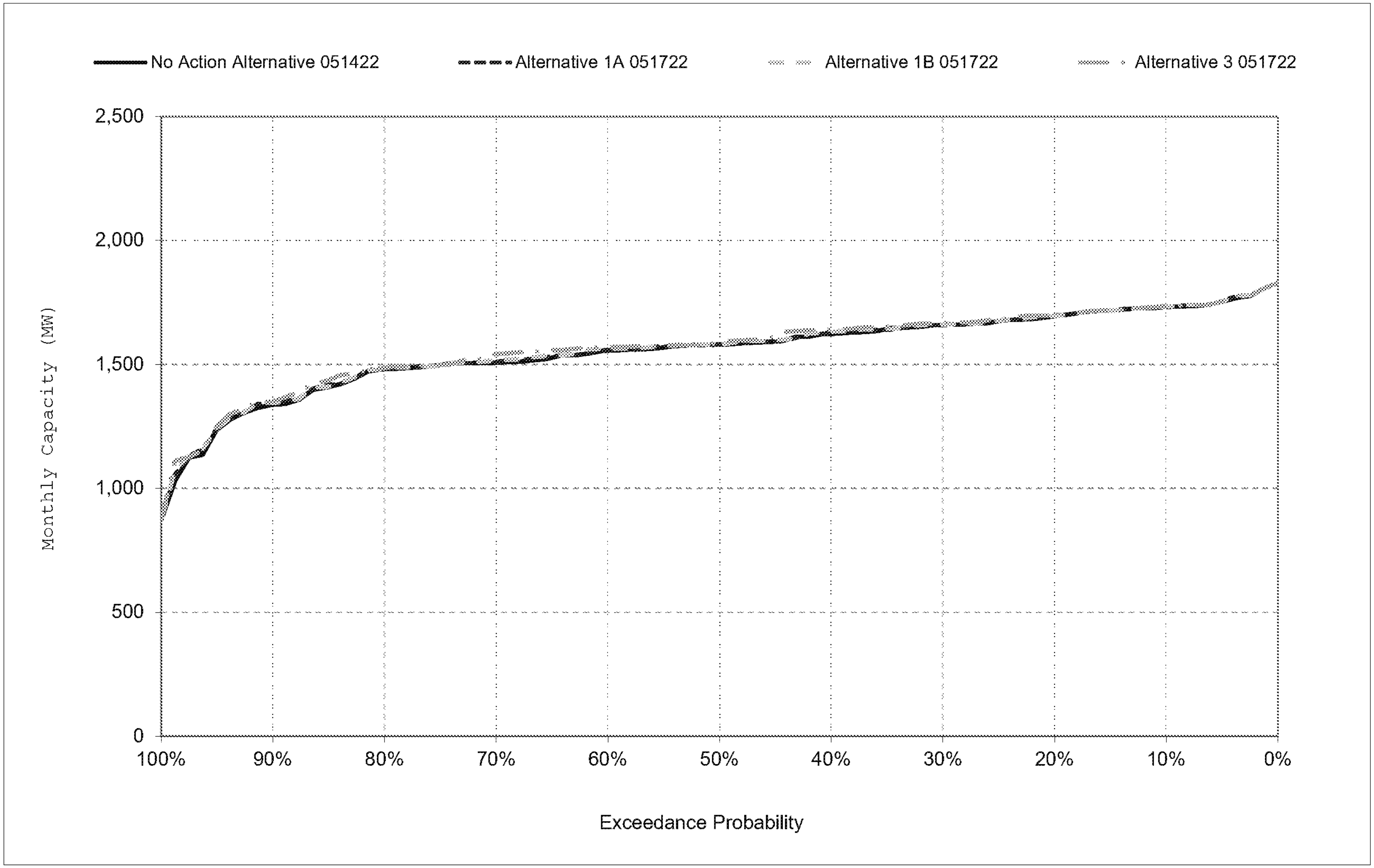
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-16. CVP Facilities Total Capacity, July



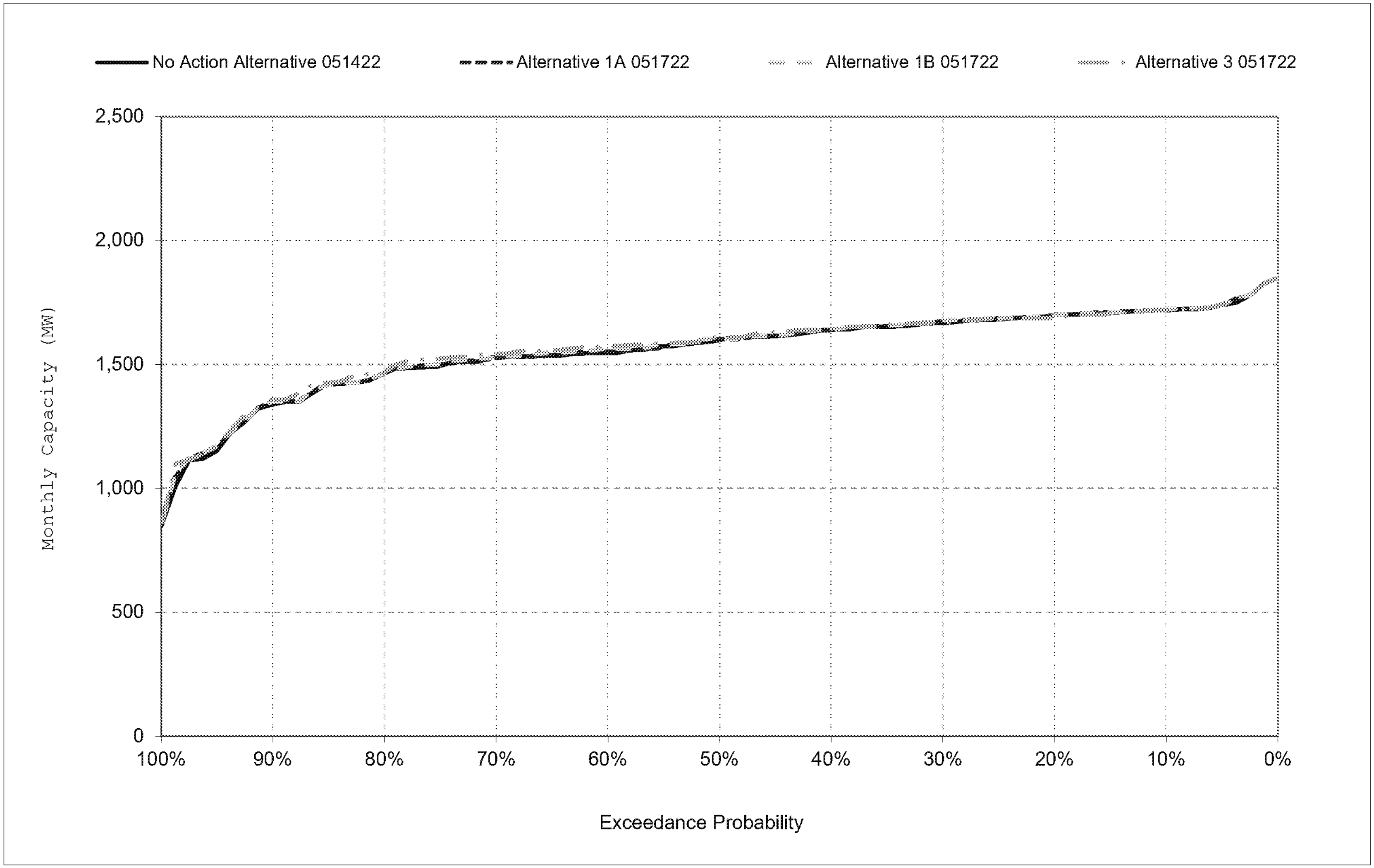
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-17. CVP Facilities Total Capacity, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 1-18. CVP Facilities Total Capacity, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 2-1a. CVP Facilities Total Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	443	349	668	719	714	702	502	700	596	800	672	571
20%	418	291	420	518	639	582	369	637	565	748	608	518
30%	291	270	269	387	416	447	319	547	548	704	568	458
40%	269	241	216	255	295	255	298	517	538	673	546	423
50%	256	206	194	193	199	224	276	494	524	654	523	344
60%	235	191	171	163	163	185	247	468	504	624	504	314
70%	216	181	160	146	143	164	238	459	488	608	478	281
80%	195	153	146	137	132	150	224	418	461	568	450	263
90%	164	129	110	127	120	136	200	339	391	467	369	206
Long Term												
Full Simulation Period[a]	279	241	283	316	334	338	317	512	517	648	523	376
Water Year Types[b,c]												
Wet (32%)	383	316	357	558	538	545	433	637	578	711	608	522
Above Normal (15%)	286	289	288	322	450	443	331	564	532	724	577	447
Below Normal (17%)	248	222	306	199	273	220	268	483	515	670	515	327
Dry (22%)	214	182	273	157	150	185	243	438	509	617	484	274
Critical (15%)	185	139	108	161	121	152	221	331	384	453	358	203

Table 2-1b. CVP Facilities Total Generation, Alternative 1A 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	436	365	672	719	714	746	502	700	597	788	676	571
20%	418	291	447	518	639	572	376	635	565	746	596	515
30%	292	270	268	387	422	453	319	547	548	702	562	453
40%	270	241	216	255	292	257	298	517	539	673	542	412
50%	253	206	200	190	199	227	276	494	525	654	522	340
60%	235	193	172	154	163	185	246	469	504	623	504	315
70%	218	180	160	146	140	162	238	460	485	608	477	282
80%	199	153	150	138	132	150	221	403	462	568	442	264
90%	165	127	110	126	124	137	200	341	370	466	382	211
Long Term												
Full Simulation Period[a]	280	241	284	316	335	341	316	511	516	647	523	377
Water Year Types[b,c]												
Wet (32%)	382	316	357	558	538	554	433	637	578	712	608	522
Above Normal (15%)	291	290	290	326	453	442	332	563	533	722	570	440
Below Normal (17%)	248	226	308	197	275	220	268	483	515	665	509	325
Dry (22%)	211	181	276	155	150	188	244	441	510	617	484	274
Critical (15%)	190	139	107	161	125	152	213	325	376	456	369	211

Table 2-1c. CVP Facilities Total Generation, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-7	15	3	0	0	44	0	0	1	-12	5	0
20%	0	0	27	0	0	-9	7	-2	0	-2	-13	-2
30%	1	0	-1	0	6	6	0	0	0	-2	-6	-5
40%	1	0	-1	0	-3	2	0	0	1	0	-3	-11
50%	-3	0	6	-3	0	3	0	0	1	0	-1	-4
60%	1	2	1	-9	0	0	-1	1	0	-1	0	1
70%	1	0	0	0	-3	-1	0	1	-2	0	0	0
80%	4	0	4	1	0	0	-3	-15	1	0	-8	1
90%	1	-2	0	-1	4	1	0	3	-21	-1	12	5
Long Term												
Full Simulation Period[a]	1	1	1	0	1	3	-1	-1	-1	-1	0	0
Water Year Types[b,c]												
Wet (32%)	-1	0	0	0	0	9	0	-1	1	0	0	0
Above Normal (15%)	5	1	2	4	4	-1	1	0	1	-2	-7	-7
Below Normal (17%)	0	5	3	-1	1	-1	0	0	0	-5	-6	-2
Dry (22%)	-2	-1	3	-1	-1	4	1	2	1	0	0	0
Critical (15%)	5	0	-1	-1	4	0	-8	-6	-8	3	11	9

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 2-2a. CVP Facilities Total Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	443	349	668	719	714	702	502	700	596	800	672	571
20%	418	291	420	518	639	582	369	637	565	748	608	518
30%	291	270	269	387	416	447	319	547	548	704	568	458
40%	269	241	216	255	295	255	298	517	538	673	546	423
50%	256	206	194	193	199	224	276	494	524	654	523	344
60%	235	191	171	163	163	185	247	468	504	624	504	314
70%	216	181	160	146	143	164	238	459	488	608	478	281
80%	195	153	146	137	132	150	224	418	461	568	450	263
90%	164	129	110	127	120	136	200	339	391	467	369	206
Long Term												
Full Simulation Period[d]	279	241	283	316	334	338	317	512	517	648	523	376
Water Year Types[b,c]												
Wet (32%)	383	316	357	558	538	545	433	637	578	711	608	522
Above Normal (15%)	286	289	288	322	450	443	331	564	532	724	577	447
Below Normal (17%)	248	222	306	199	273	220	268	483	515	670	515	327
Dry (22%)	214	182	273	157	150	185	243	438	509	617	484	274
Critical (15%)	185	139	108	161	121	152	221	331	384	453	358	203

Table 2-2b. CVP Facilities Total Generation, Alternative 1B 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	436	347	670	719	714	746	502	700	591	793	676	571
20%	418	294	457	518	639	585	376	636	557	754	606	518
30%	295	270	279	387	437	446	315	571	542	704	562	454
40%	273	242	223	255	300	277	298	517	530	673	545	413
50%	258	213	199	190	199	227	273	493	512	652	525	341
60%	241	199	172	155	168	182	245	463	501	622	502	315
70%	220	181	161	146	142	162	237	456	481	601	480	283
80%	199	156	150	138	132	150	220	383	461	566	450	264
90%	165	127	110	127	124	136	200	328	370	464	380	211
Long Term												
Full Simulation Period[d]	282	243	286	316	337	341	315	510	511	647	525	378
Water Year Types[b,c]												
Wet (32%)	382	314	357	558	540	552	432	642	578	710	606	520
Above Normal (15%)	295	291	295	326	456	443	333	566	510	717	575	446
Below Normal (17%)	250	230	313	197	279	220	268	473	509	669	513	328
Dry (22%)	212	186	277	155	151	185	237	431	508	617	486	275
Critical (15%)	191	139	107	161	125	158	215	324	374	454	369	212

Table 2-2c. CVP Facilities Total Generation, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-7	-2	2	0	0	44	0	0	-5	-7	5	0
20%	0	3	37	0	0	3	7	-1	-8	6	-2	0
30%	5	0	10	0	21	-2	-4	23	-6	1	-6	-4
40%	4	1	6	0	5	22	0	0	-8	0	-1	-10
50%	1	7	5	-3	0	3	-3	-1	-11	-2	2	-3
60%	6	8	1	-8	5	-3	-1	-5	-3	-2	-1	1
70%	4	1	1	0	-1	-2	-1	-3	-7	-7	2	2
80%	4	3	4	1	0	0	-5	-35	0	-2	0	1
90%	1	-2	0	-1	4	0	0	-11	-22	-3	11	6
Long Term												
Full Simulation Period[d]	2	2	3	0	3	3	-2	-2	-6	-1	1	1
Water Year Types[b,c]												
Wet (32%)	0	-2	1	0	2	7	-1	5	0	-1	-1	-1
Above Normal (15%)	9	2	8	4	6	0	2	3	-22	-7	-2	0
Below Normal (17%)	2	9	7	-1	6	-1	0	-10	-6	-1	-2	1
Dry (22%)	-1	4	4	-2	1	0	-6	-7	-1	1	2	1
Critical (15%)	6	0	-1	0	5	6	-6	-7	-9	2	11	9

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 2-3a. CVP Facilities Total Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	443	349	668	719	714	702	502	700	596	800	672	571
20%	418	291	420	518	639	582	369	637	565	748	608	518
30%	291	270	269	387	416	447	319	547	548	704	568	458
40%	269	241	216	255	295	255	298	517	538	673	546	423
50%	256	206	194	193	199	224	276	494	524	654	523	344
60%	235	191	171	163	163	185	247	468	504	624	504	314
70%	216	181	160	146	143	164	238	459	488	608	478	281
80%	195	153	146	137	132	150	224	418	461	568	450	263
90%	164	129	110	127	120	136	200	339	391	467	369	206
Long Term												
Full Simulation Period[d]	279	241	283	316	334	338	317	512	517	648	523	376
Water Year Types[b,c]												
Wet (32%)	383	316	357	558	538	545	433	637	578	711	608	522
Above Normal (15%)	286	289	288	322	450	443	331	564	532	724	577	447
Below Normal (17%)	248	222	306	199	273	220	268	483	515	670	515	327
Dry (22%)	214	182	273	157	150	185	243	438	509	617	484	274
Critical (15%)	185	139	108	161	121	152	221	331	384	453	358	203

Table 2-3b. CVP Facilities Total Generation, Alternative 3 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	436	359	672	719	714	746	502	700	587	777	677	571
20%	418	300	472	518	639	610	376	636	548	720	581	512
30%	309	274	284	387	440	446	316	561	540	690	558	454
40%	285	253	231	267	305	283	291	518	517	671	536	412
50%	269	234	206	192	199	227	265	493	506	649	516	339
60%	252	209	177	163	163	185	245	463	491	616	500	326
70%	234	191	161	146	143	162	236	438	472	590	481	283
80%	206	167	150	136	133	150	220	382	444	561	438	260
90%	165	127	110	128	125	137	200	327	374	476	376	212
Long Term												
Full Simulation Period[d]	289	250	291	318	338	343	315	508	503	639	521	377
Water Year Types[b,c]												
Wet (32%)	382	315	358	561	541	551	431	641	578	711	607	521
Above Normal (15%)	309	304	301	329	459	446	331	572	503	685	555	449
Below Normal (17%)	269	249	319	197	283	220	265	471	485	654	504	325
Dry (22%)	219	193	288	155	151	193	240	425	495	615	487	275
Critical (15%)	194	141	111	162	124	159	217	320	375	454	370	210

Table 2-3c. CVP Facilities Total Generation, Alternative 3 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-7	10	4	0	0	44	0	0	-9	-23	5	0
20%	0	8	52	0	0	28	7	-1	-18	-28	-27	-6
30%	19	4	15	0	24	-2	-3	14	-8	-13	-10	-4
40%	16	12	15	12	9	29	-7	0	-21	-2	-10	-11
50%	12	28	12	-1	0	3	-11	-1	-18	-5	-7	-5
60%	18	17	6	0	0	0	-1	-5	-13	-8	-4	12
70%	18	10	1	0	0	-1	-2	-21	-16	-18	3	1
80%	11	14	5	-1	1	0	-5	-36	-17	-7	-12	-3
90%	1	-2	0	1	5	1	0	-11	-17	9	7	6
Long Term												
Full Simulation Period[d]	9	9	8	2	4	5	-2	-4	-14	-9	-3	1
Water Year Types[b,c]												
Wet (32%)	-1	-1	1	3	2	6	-2	4	1	0	-1	-1
Above Normal (15%)	23	15	13	7	10	3	0	9	-30	-39	-22	2
Below Normal (17%)	22	27	13	-1	9	-1	-3	-12	-30	-16	-11	-2
Dry (22%)	5	11	14	-1	0	8	-3	-13	-15	-2	3	1
Critical (15%)	10	2	3	1	4	7	-4	-11	-8	1	12	8

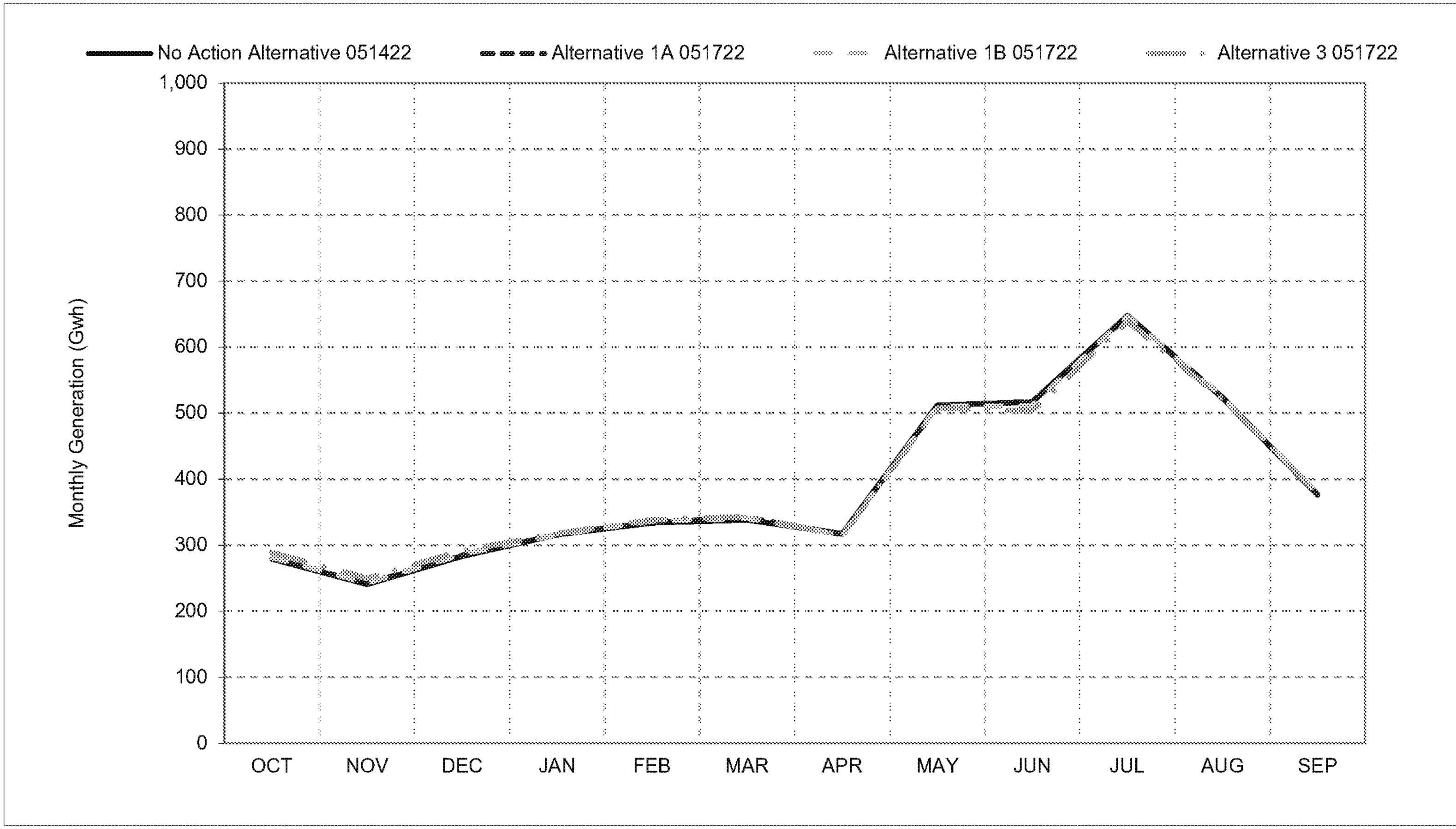
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

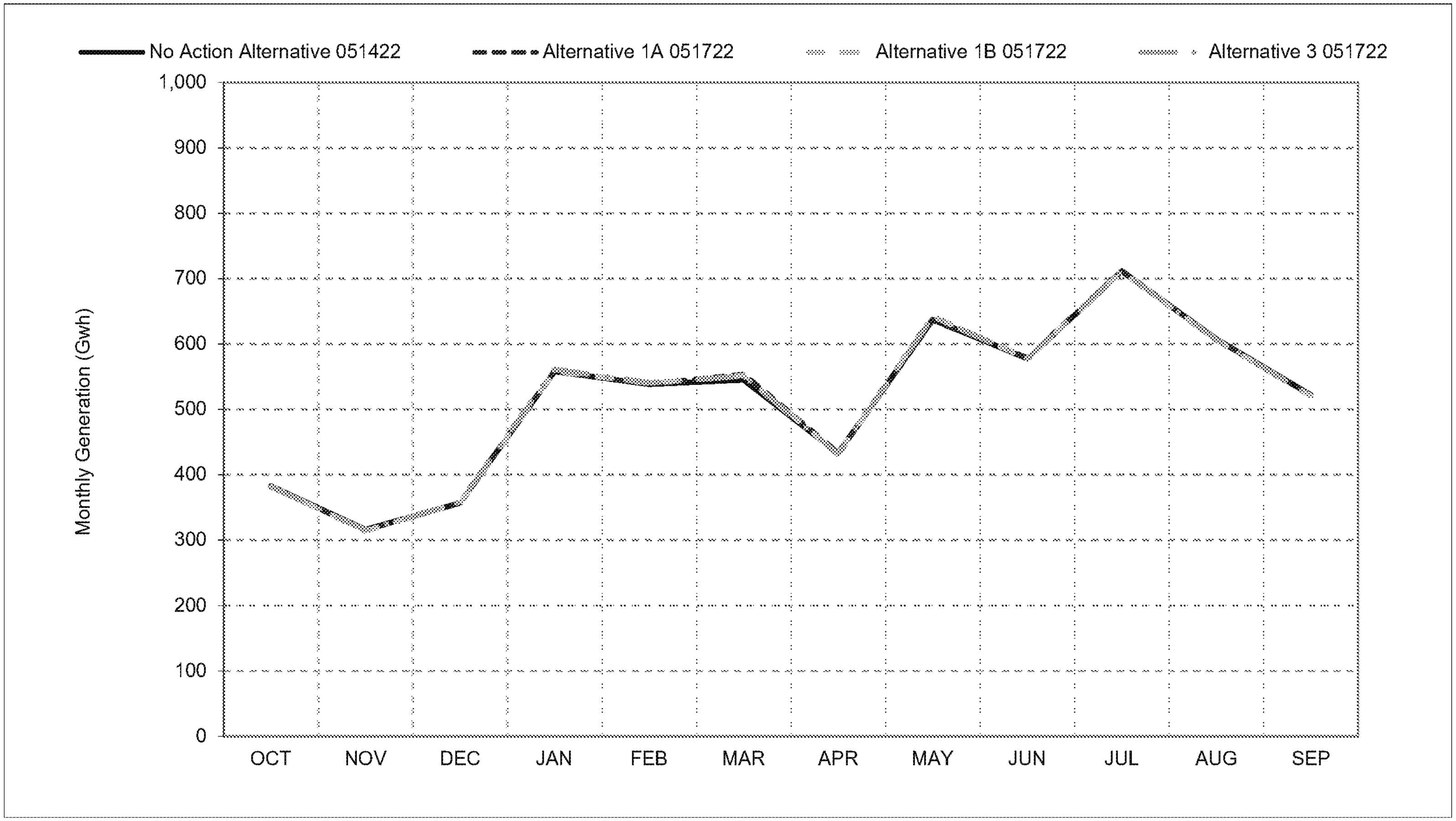
d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-1. CVP Facilities Total Generation, Long-Term Average Generation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-2. CVP Facilities Total Generation, Wet Year Average Generation

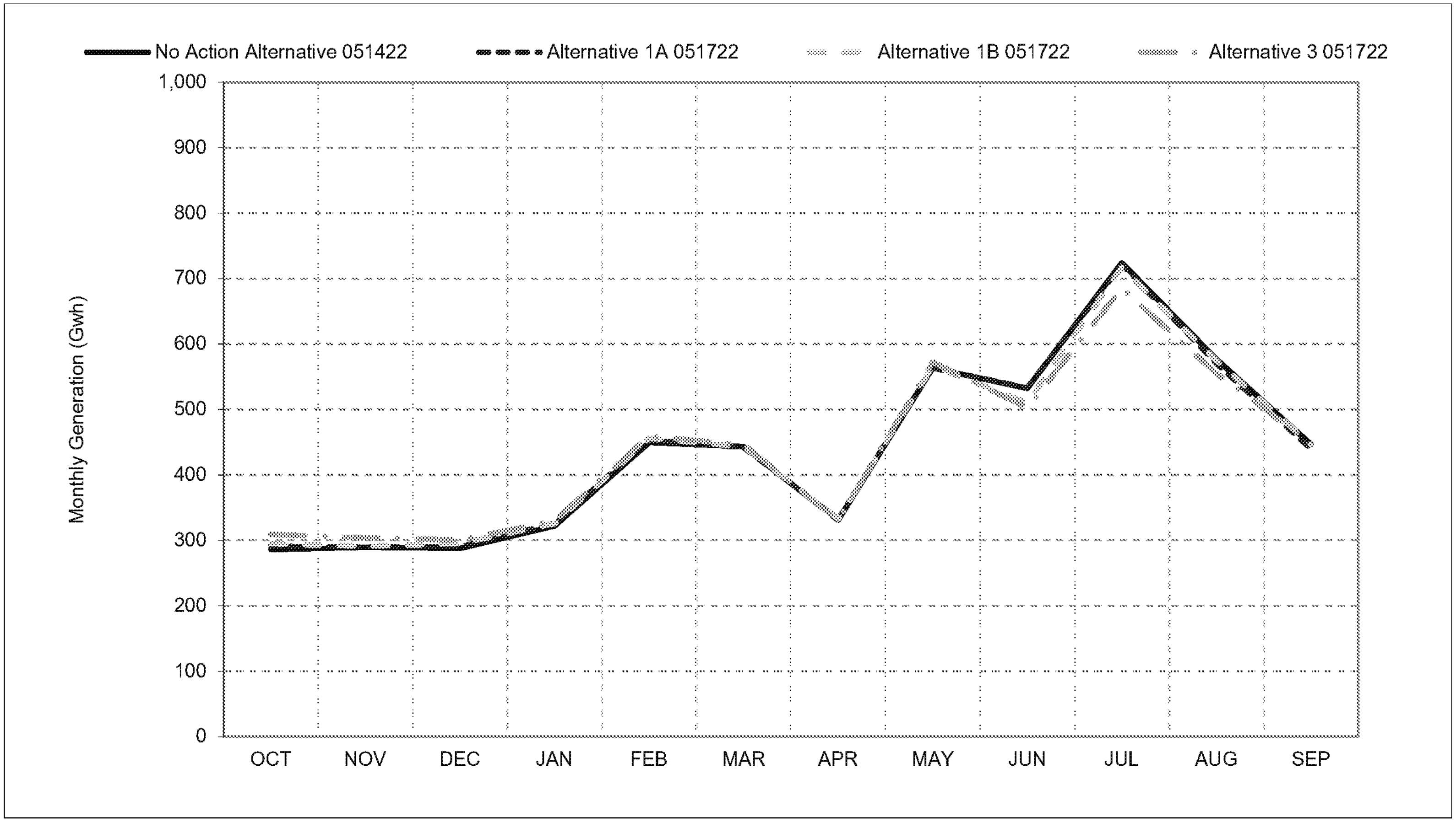


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-3. CVP Facilities Total Generation, Above Normal Year Average Generation

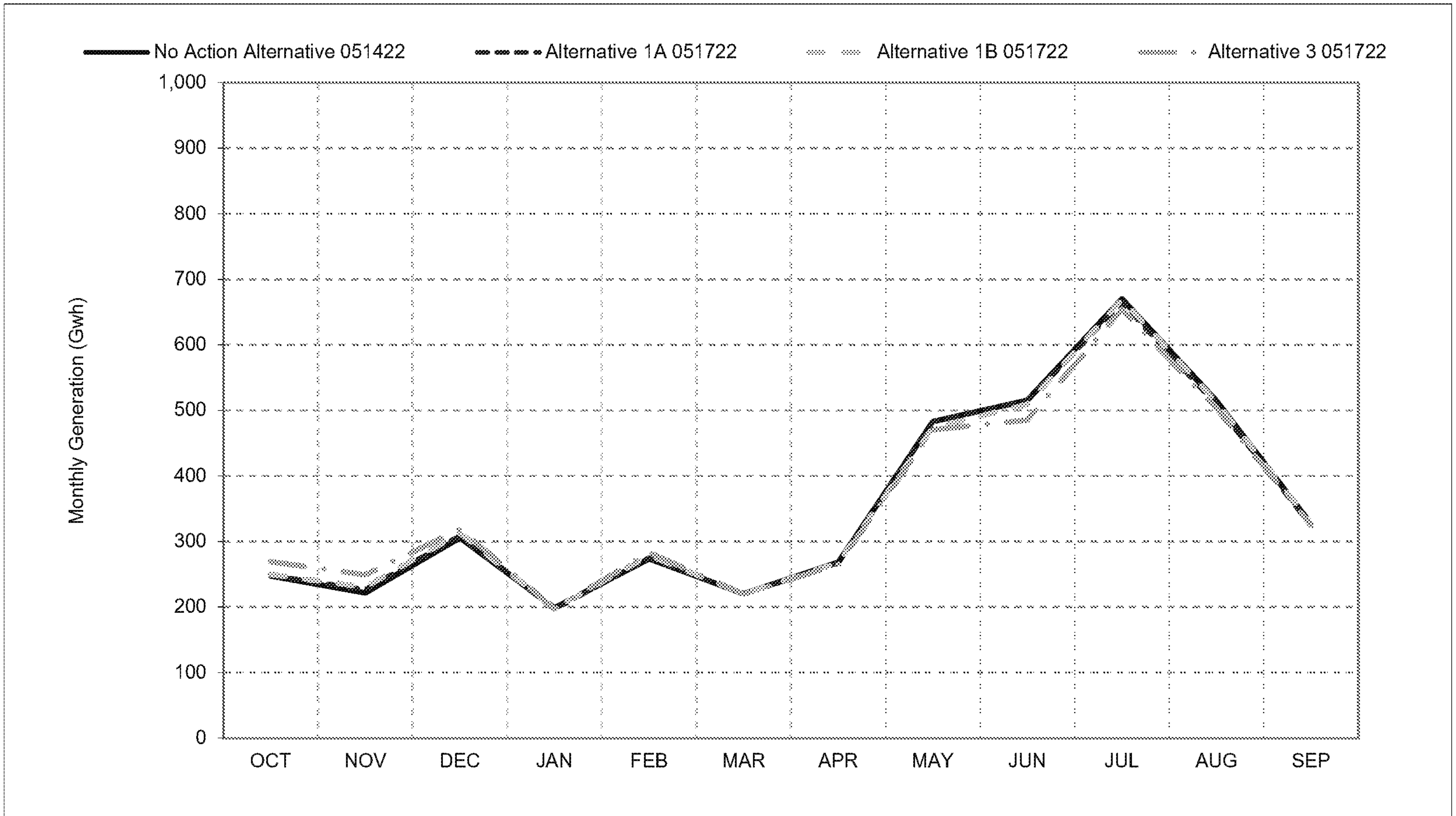


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-4. CVP Facilities Total Generation, Below Normal Year Average Generation

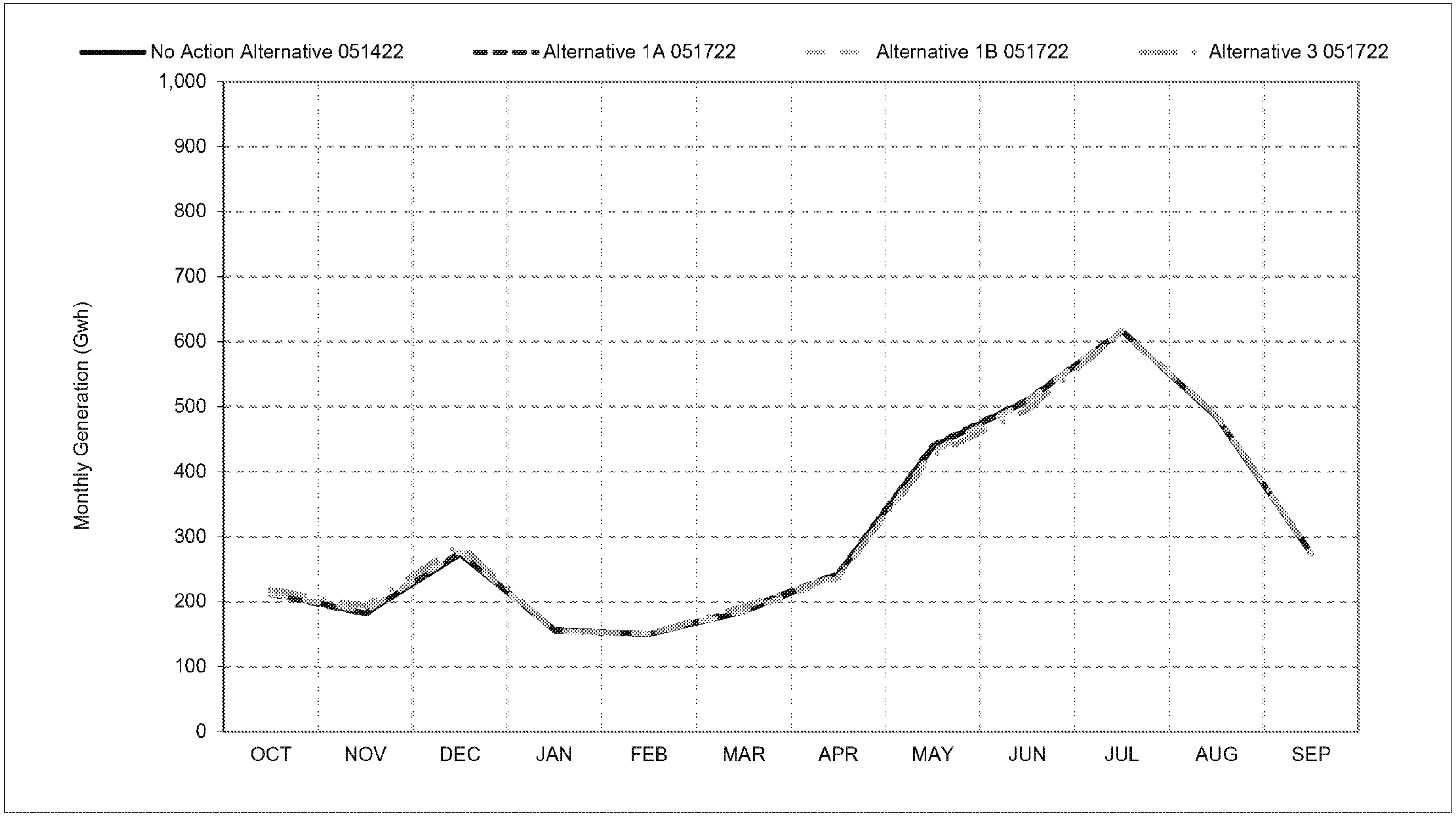


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-5. CVP Facilities Total Generation, Dry Year Average Generation

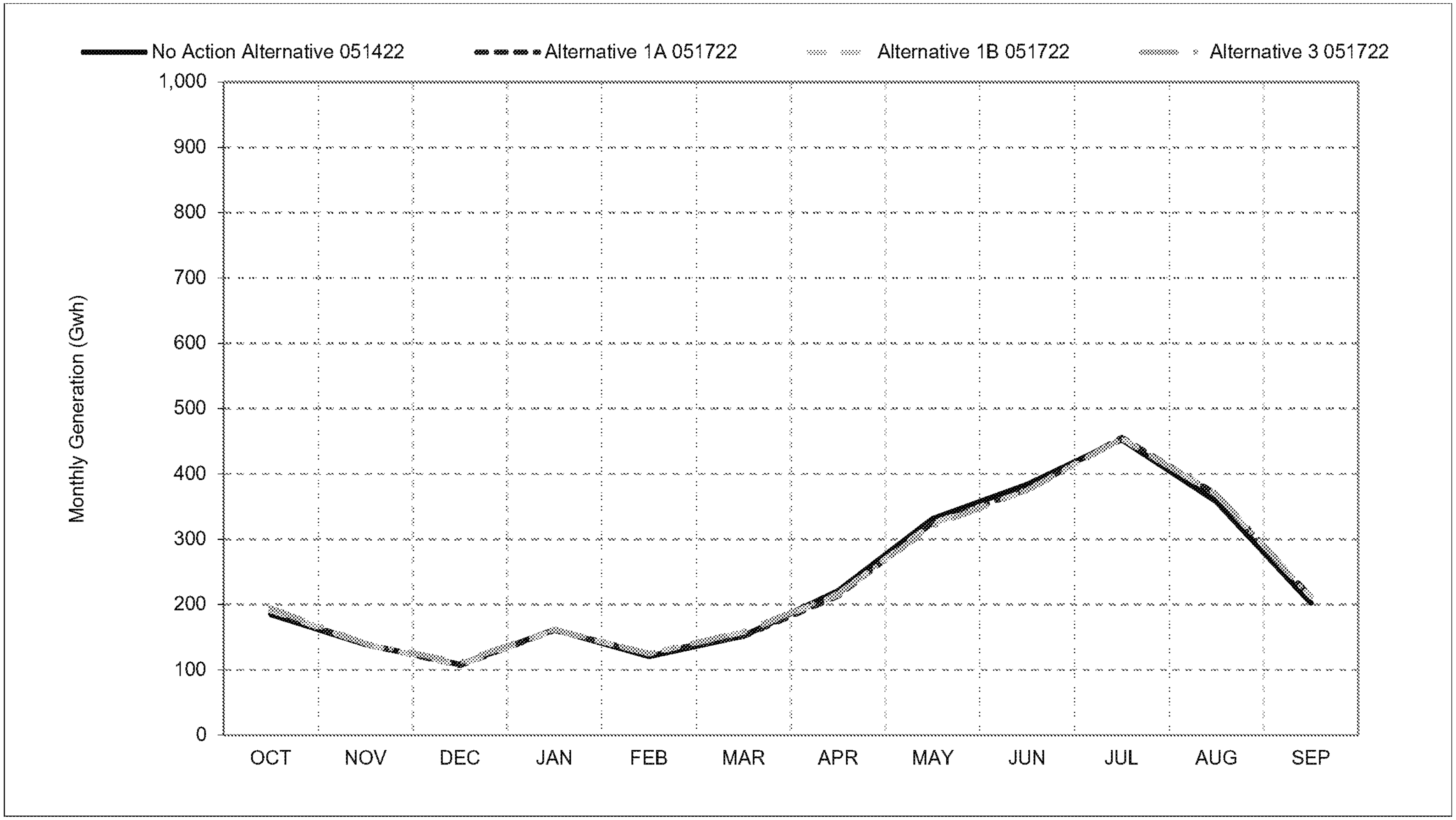


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

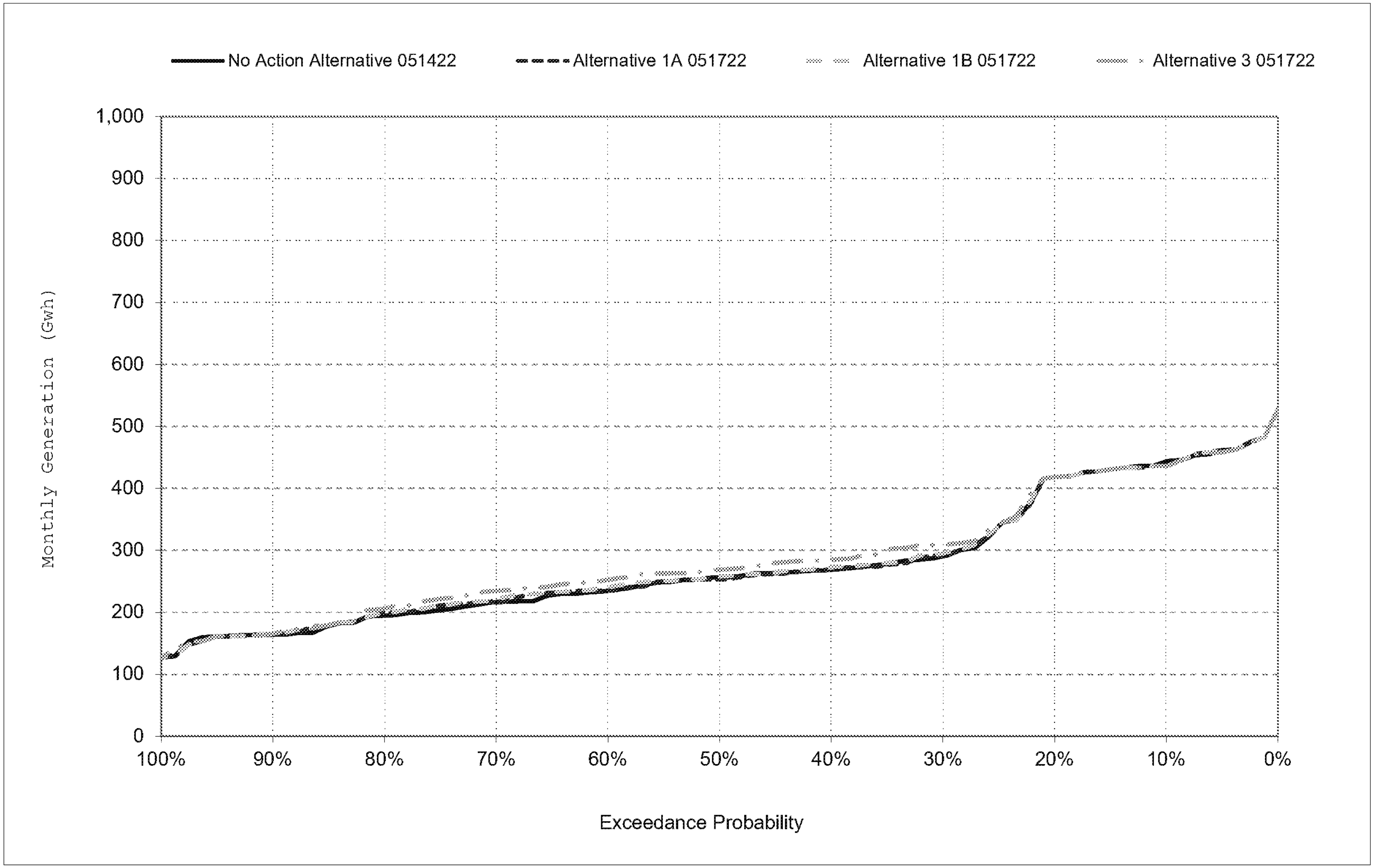
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-6. CVP Facilities Total Generation, Critical Year Average Generation



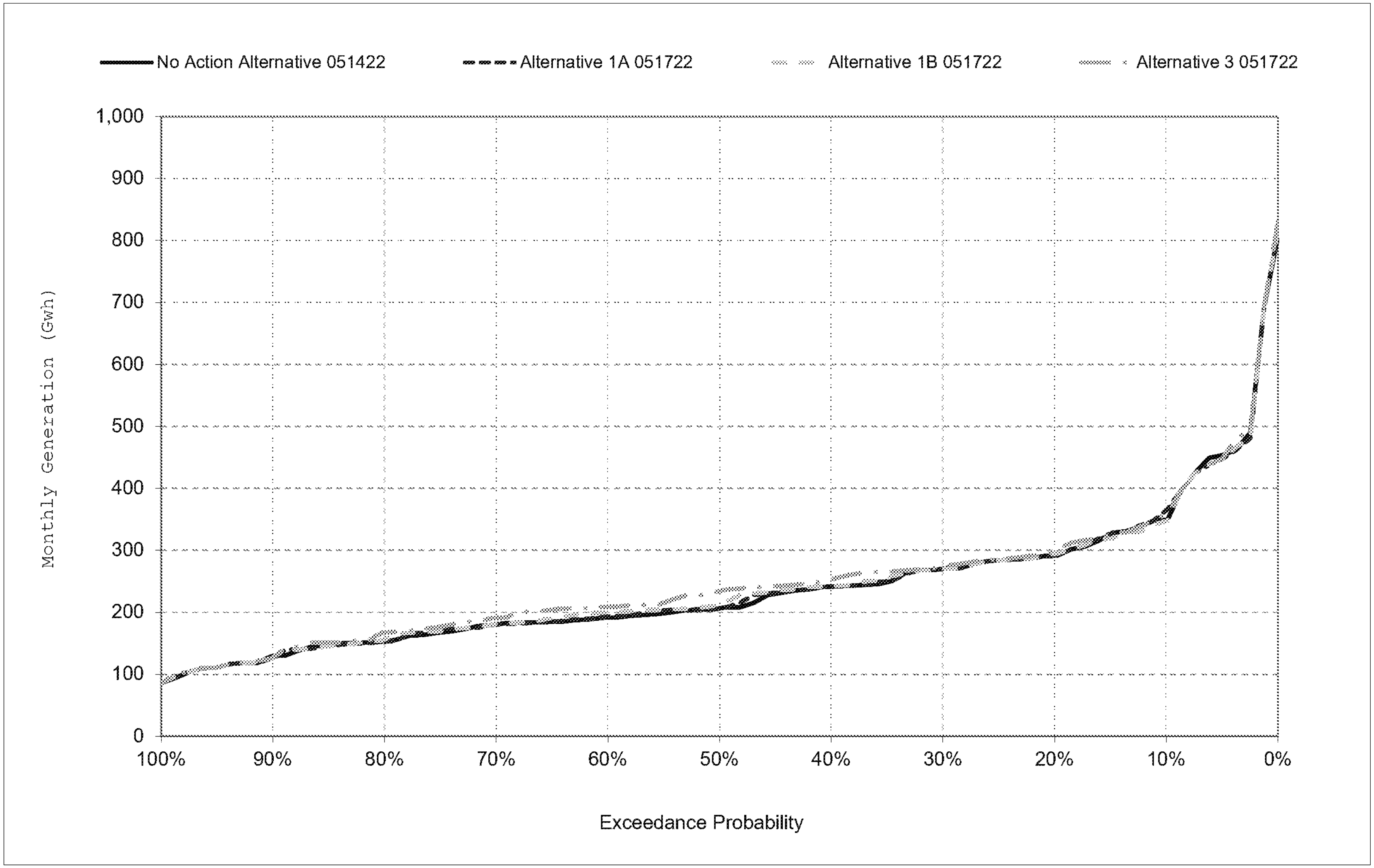
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-7. CVP Facilities Total Generation, October



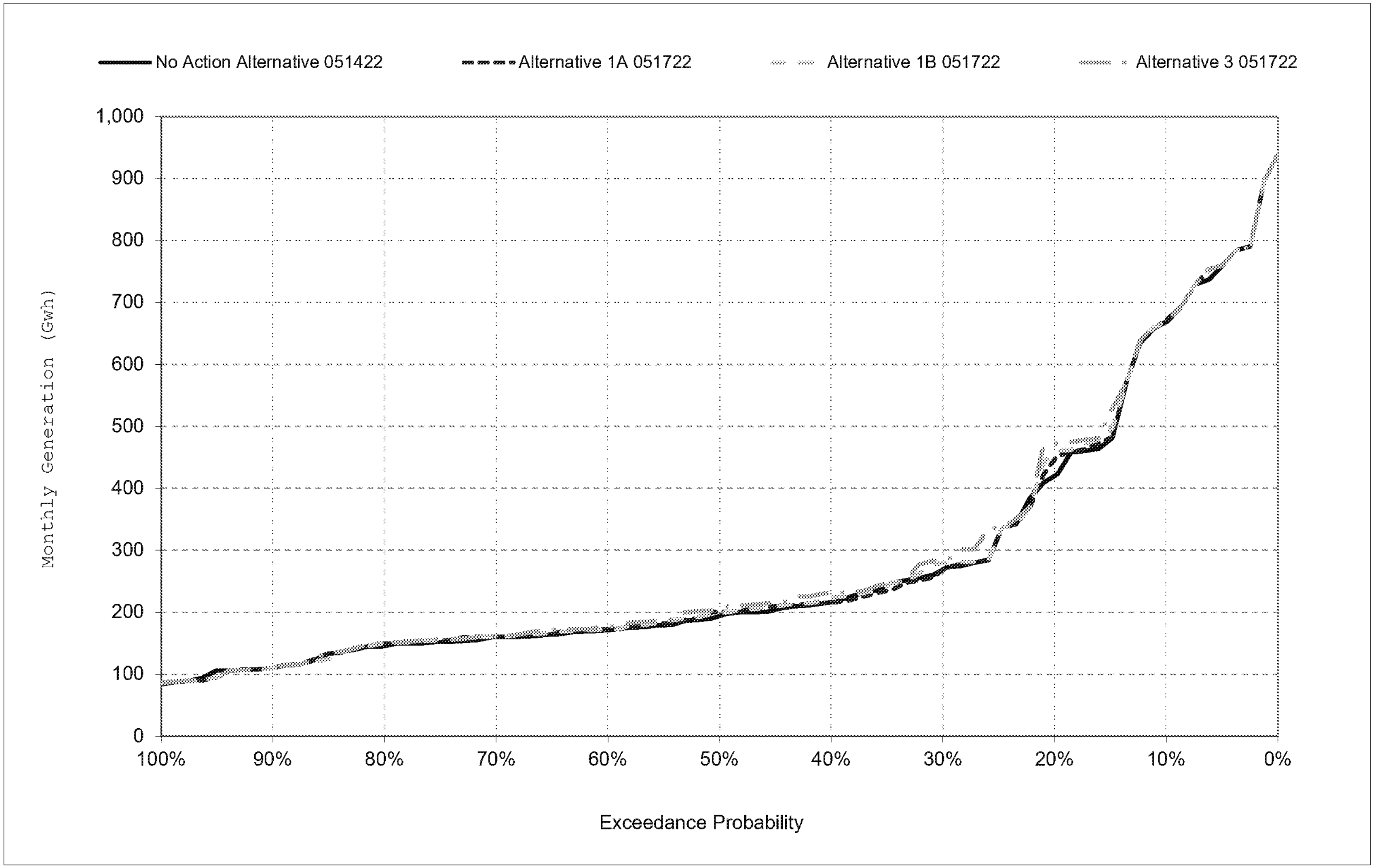
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-8. CVP Facilities Total Generation, November



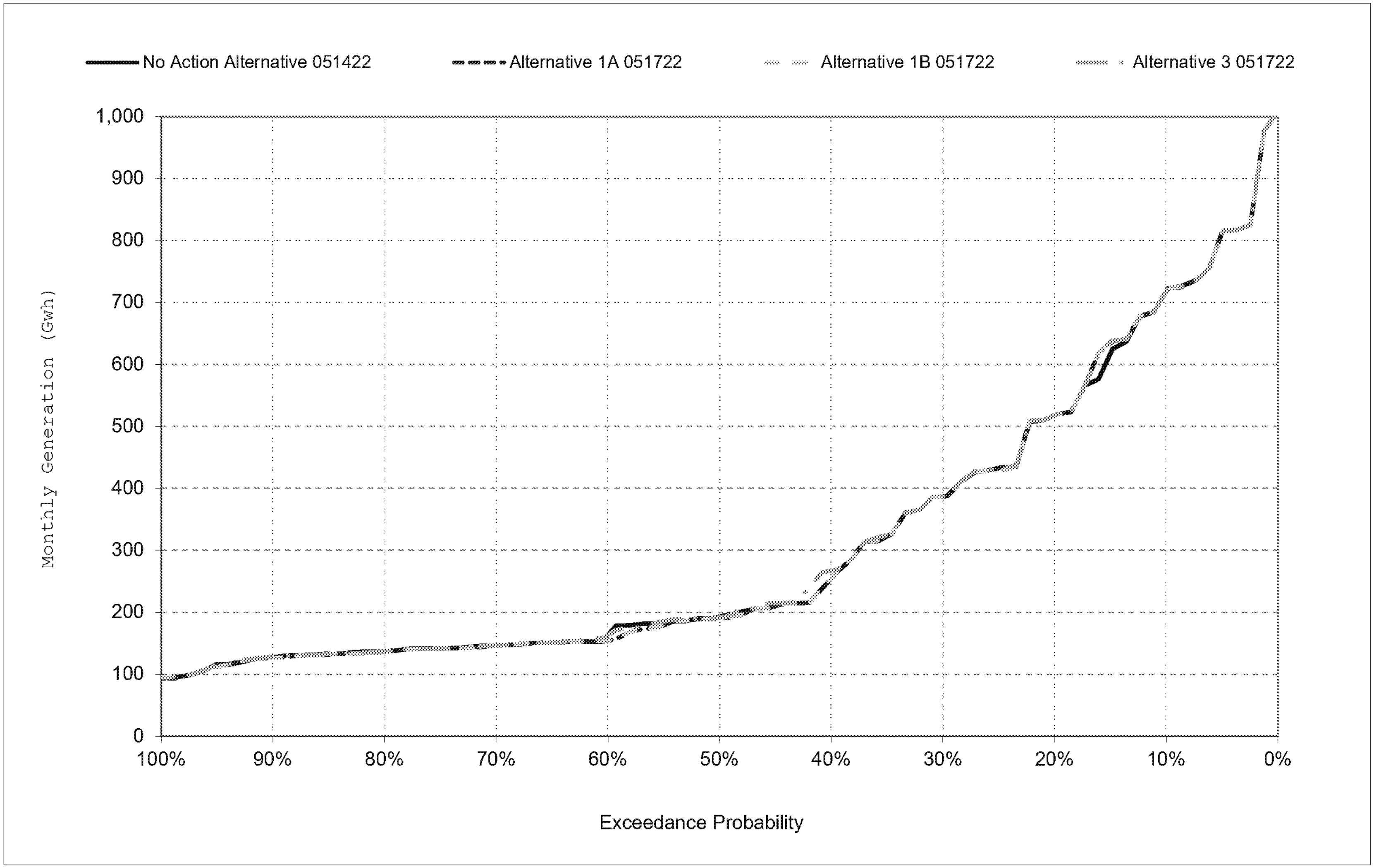
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-9. CVP Facilities Total Generation, December



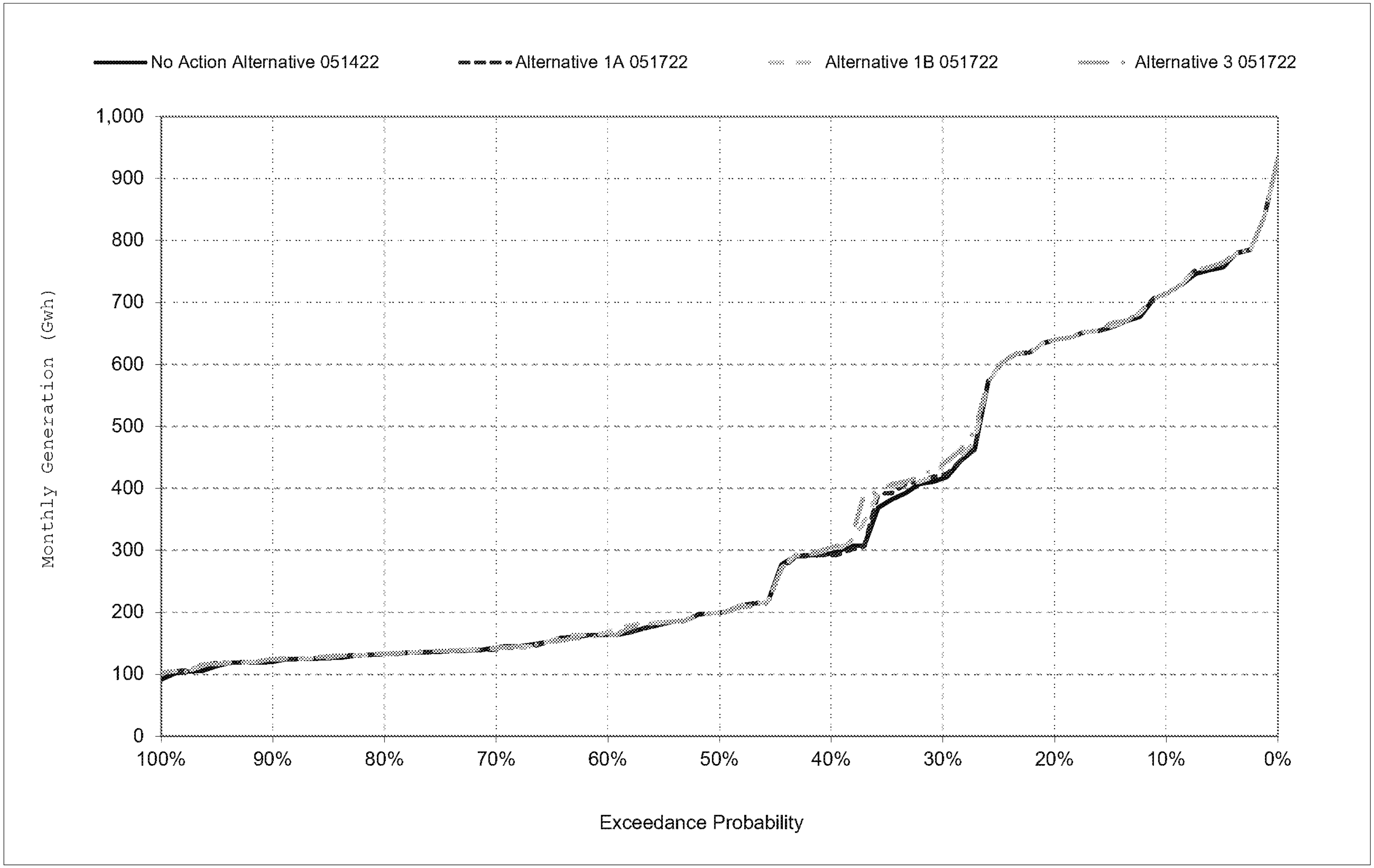
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-10. CVP Facilities Total Generation, January



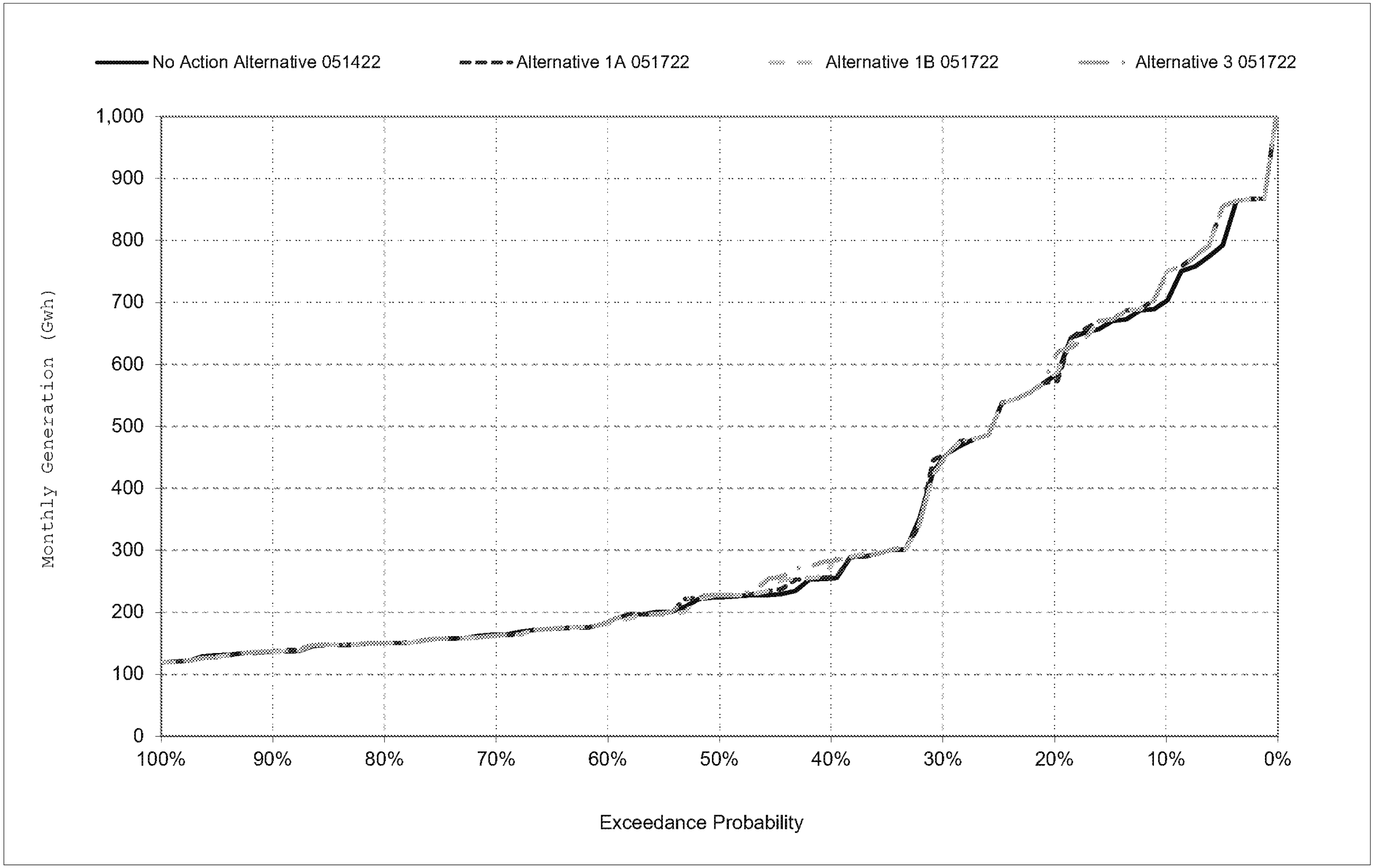
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-11. CVP Facilities Total Generation, February



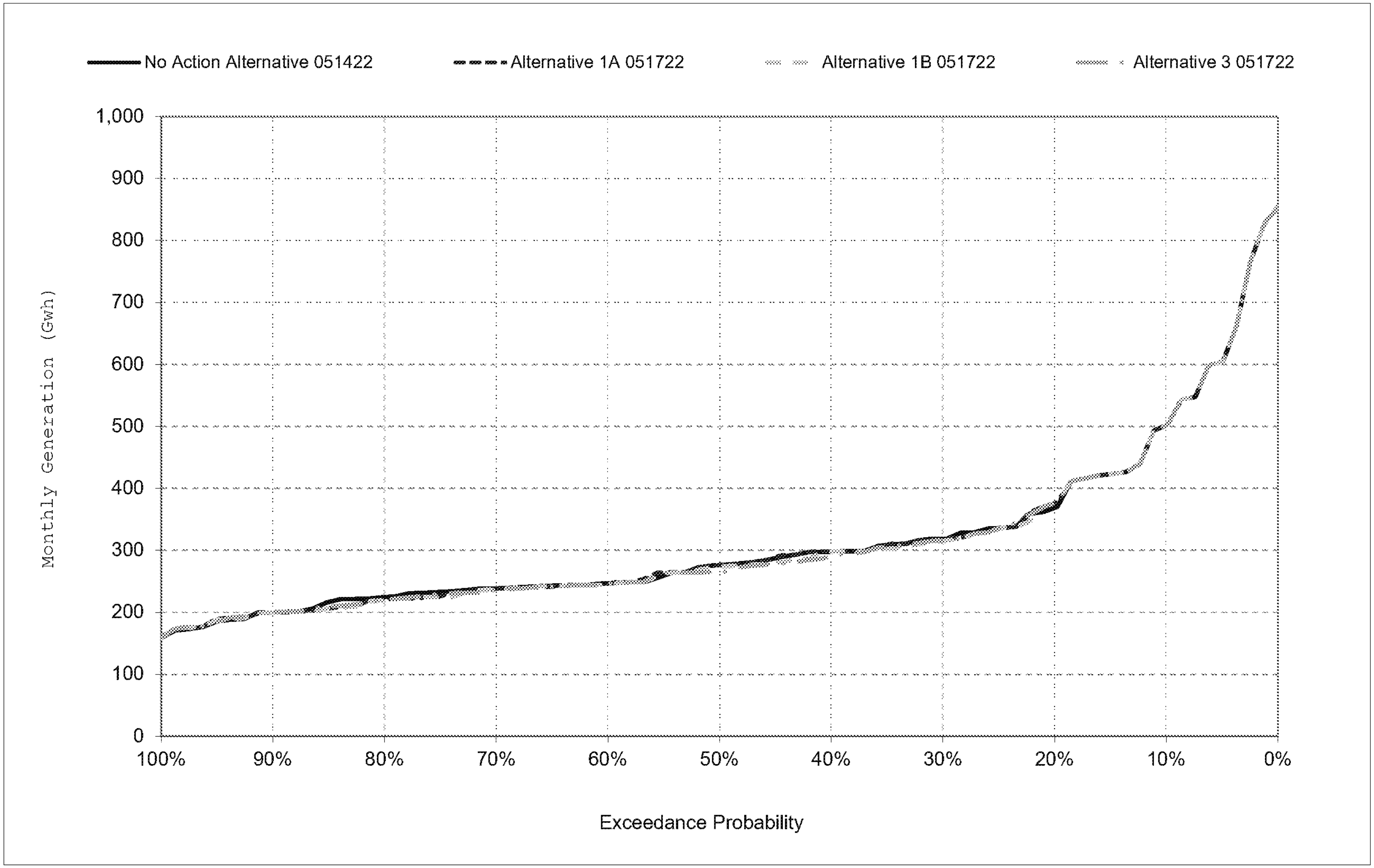
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-12. CVP Facilities Total Generation, March



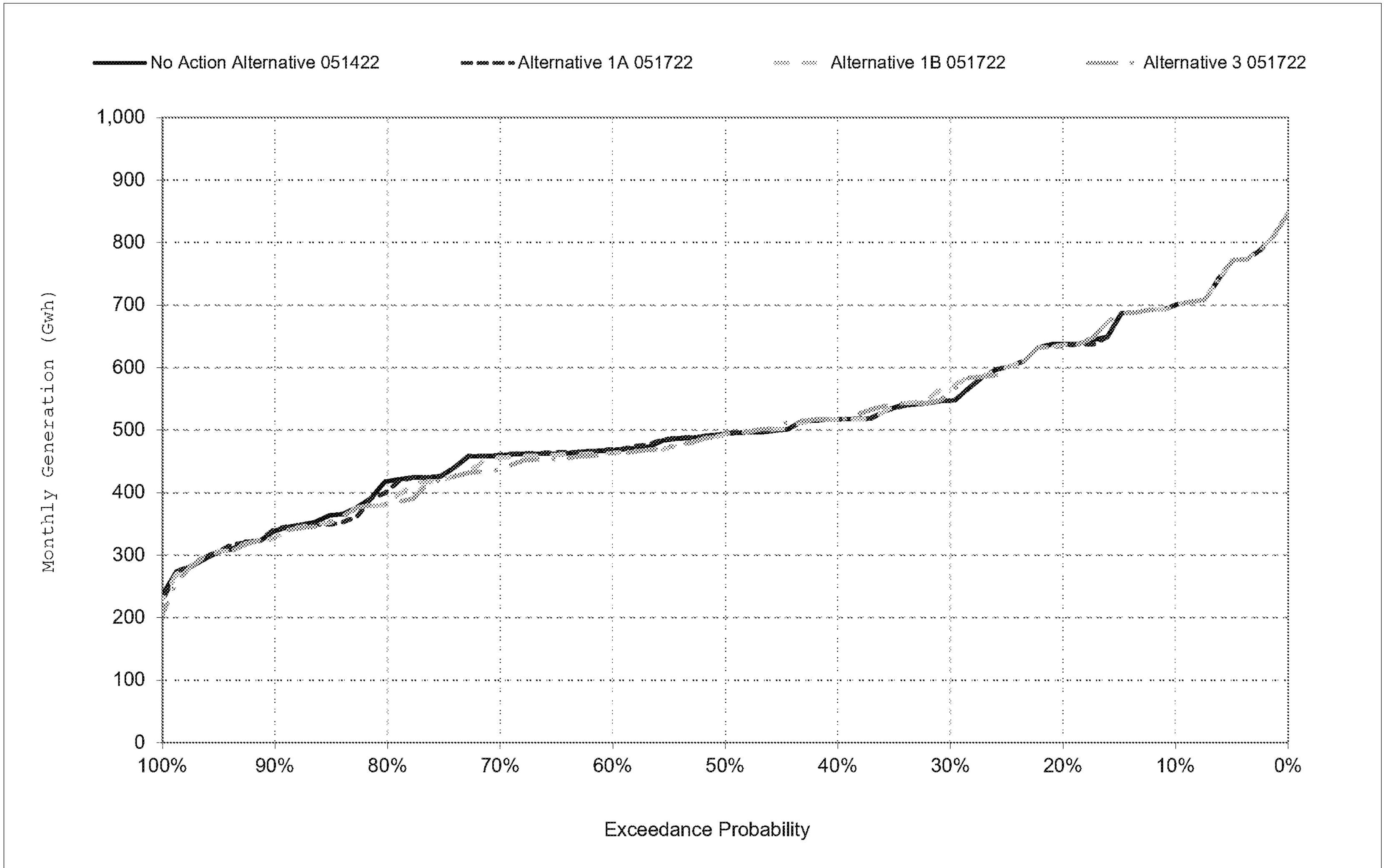
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-13. CVP Facilities Total Generation, April



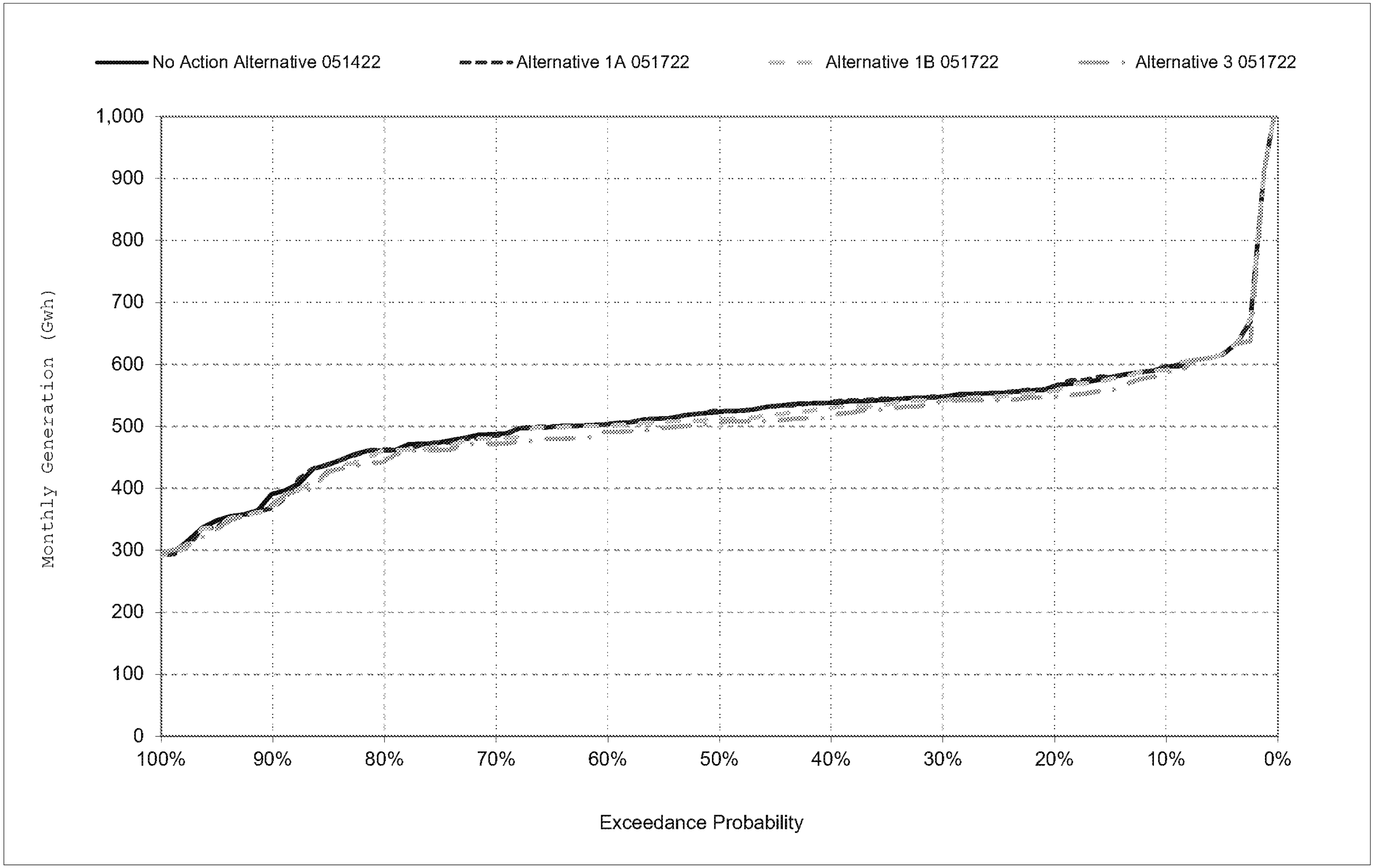
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-14. CVP Facilities Total Generation, May



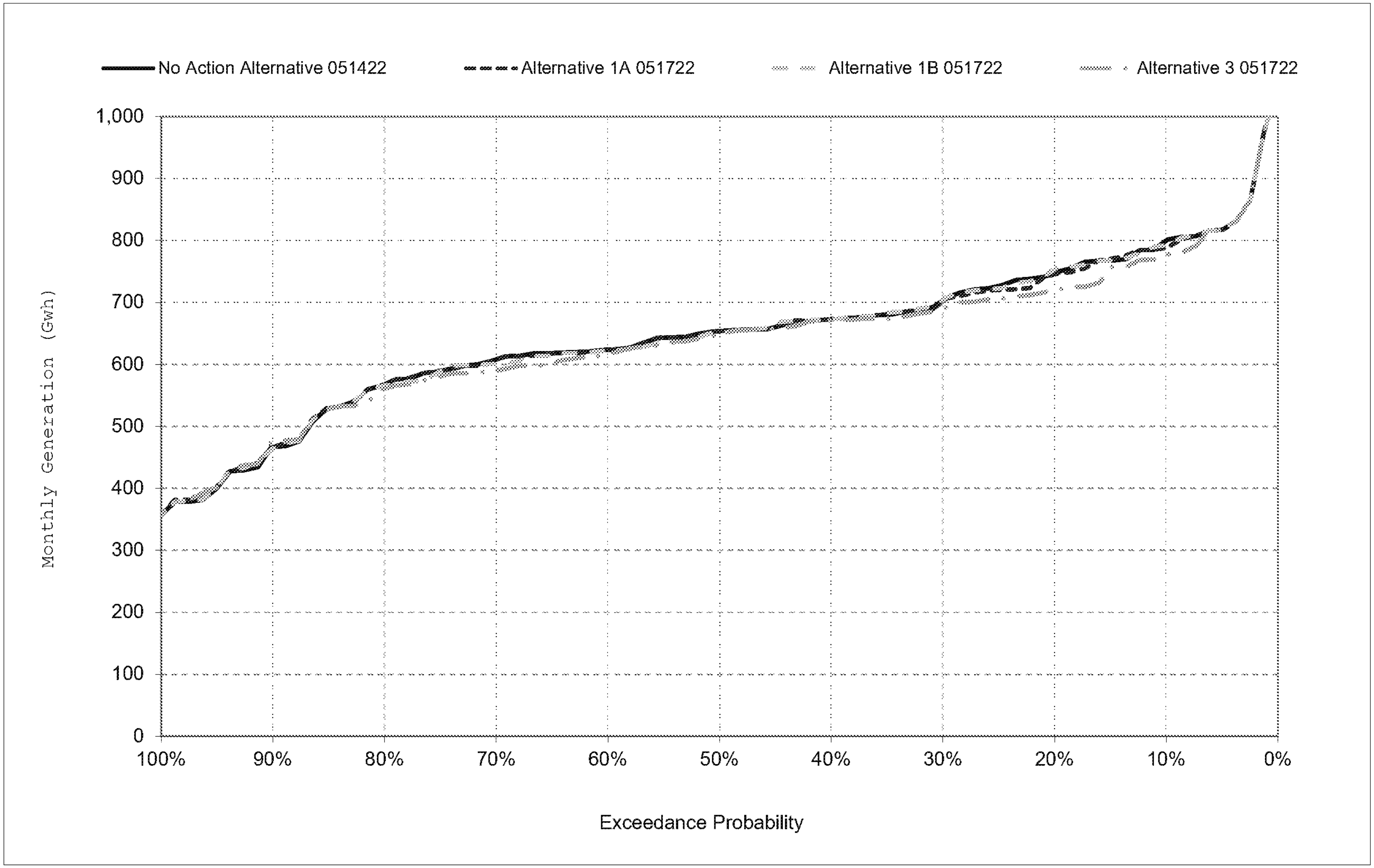
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-15. CVP Facilities Total Generation, June



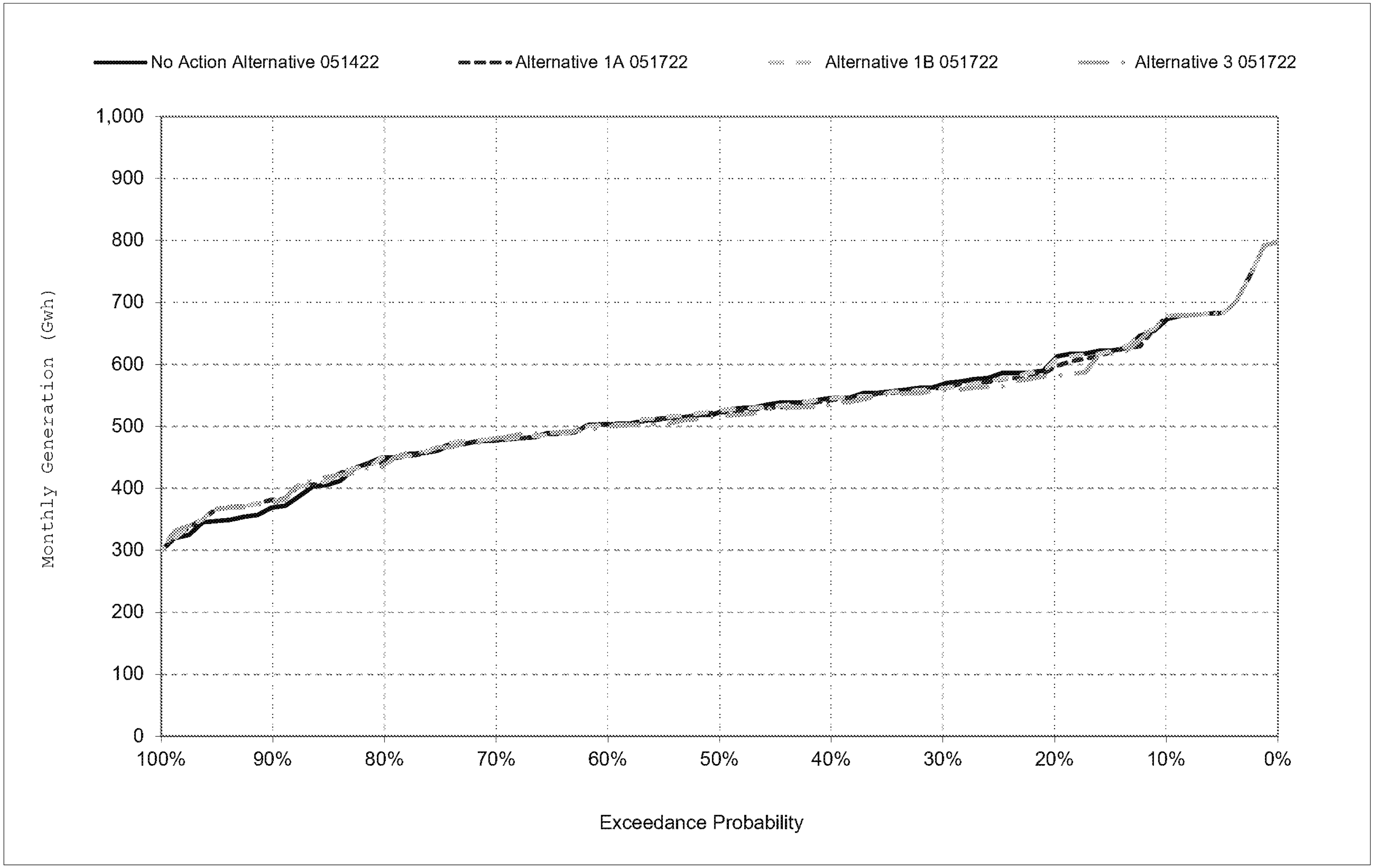
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-16. CVP Facilities Total Generation, July



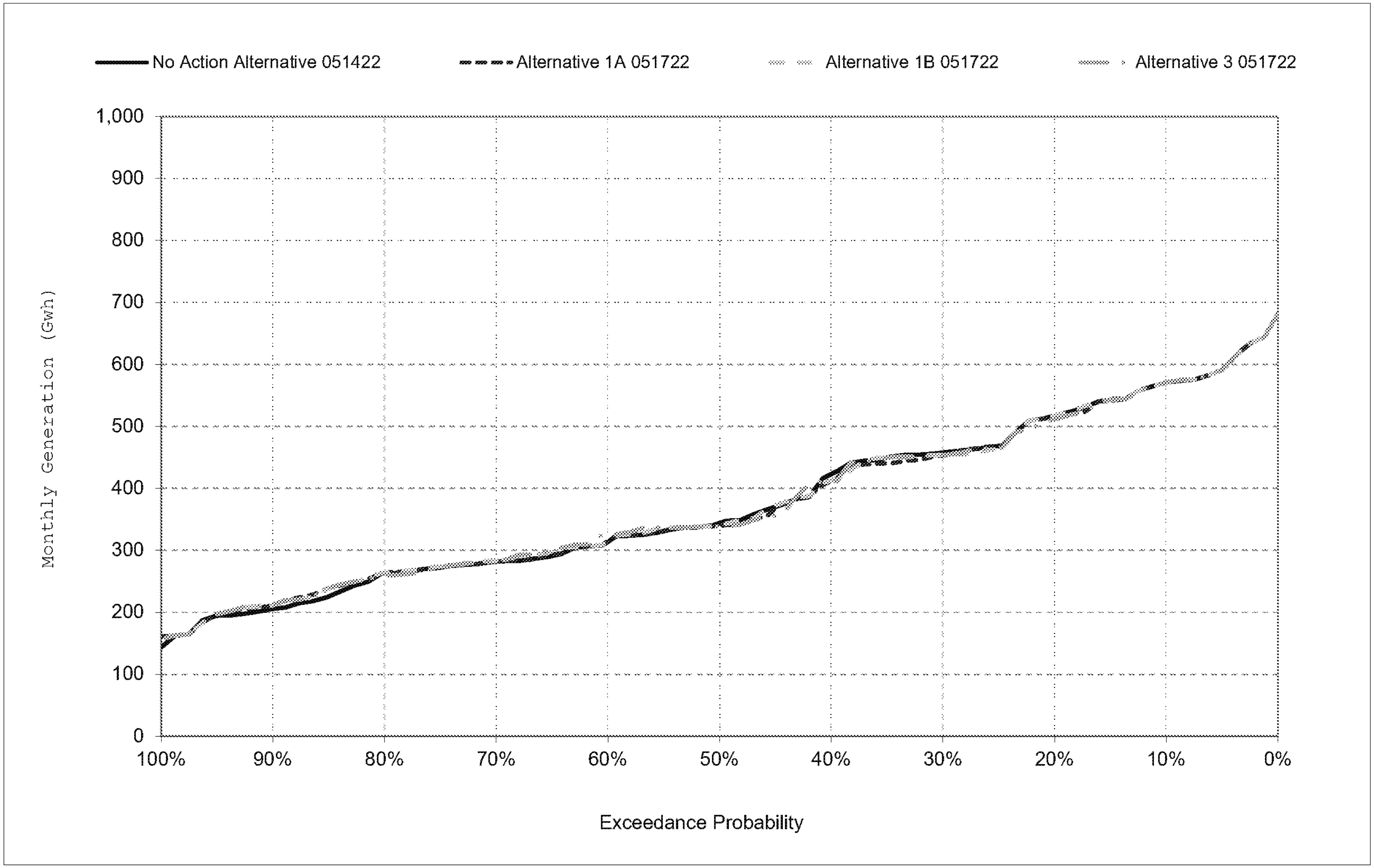
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-17. CVP Facilities Total Generation, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 2-18. CVP Facilities Total Generation, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 3-1a. CVP Facilities Total Energy Use, No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	117	181	177	172	157	157	123	134	152	172	150	127
20%	89	160	164	163	146	145	98	111	141	167	143	110
30%	73	146	161	153	141	111	92	98	122	158	139	100
40%	71	141	159	151	134	98	87	93	116	151	136	93
50%	68	136	153	146	124	96	74	87	108	142	133	88
60%	67	105	137	138	118	83	58	80	104	135	127	80
70%	62	88	125	132	114	76	49	73	91	123	124	73
80%	57	74	102	115	107	68	35	60	79	117	117	69
90%	45	51	63	100	95	40	31	47	48	66	89	47
Long Term												
Full Simulation Period[a]	74	120	137	137	124	98	73	87	106	135	126	88
Water Year Types[b,c]												
Wet (32%)	78	163	165	147	137	121	102	113	138	166	141	87
Above Normal (15%)	72	151	158	142	123	101	85	98	123	145	136	81
Below Normal (17%)	101	104	139	142	132	92	73	89	107	145	130	126
Dry (22%)	60	77	114	138	113	87	51	67	87	121	119	88
Critical (15%)	61	76	87	104	102	67	32	44	48	68	92	53

Table 3-1b. CVP Facilities Total Energy Use, Alternative 1A 051722, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	121	182	177	172	155	155	123	134	152	171	150	127
20%	93	160	163	163	146	137	98	111	141	167	143	109
30%	76	147	161	154	140	111	91	99	122	158	140	100
40%	72	143	159	151	134	99	87	93	116	150	135	94
50%	70	137	152	146	124	95	74	87	109	144	133	88
60%	67	114	139	139	118	83	59	81	104	137	127	81
70%	64	92	127	130	114	77	49	73	91	124	122	75
80%	59	74	98	115	106	66	35	61	79	116	117	70
90%	49	55	68	102	95	40	31	47	48	67	92	48
Long Term												
Full Simulation Period[a]	77	122	137	137	123	97	73	87	106	135	126	89
Water Year Types[b,c]												
Wet (32%)	80	163	166	147	137	118	101	113	138	166	140	87
Above Normal (15%)	72	152	158	143	122	98	85	98	123	146	136	81
Below Normal (17%)	104	114	138	142	132	92	73	89	107	145	130	126
Dry (22%)	61	77	115	137	112	87	51	67	87	121	120	90
Critical (15%)	68	77	88	106	103	67	32	44	48	69	92	54

Table 3-1c. CVP Facilities Total Energy Use, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4	0	0	0	-2	-2	0	0	0	0	0	0
20%	5	0	-1	0	0	-8	-1	0	0	0	0	0
30%	3	2	0	1	-1	0	0	1	0	1	1	0
40%	1	2	0	0	0	0	0	0	0	0	0	1
50%	1	1	-1	0	0	-1	0	0	0	1	0	0
60%	0	9	2	0	0	0	1	1	0	2	-1	1
70%	1	3	1	-1	0	1	0	0	0	1	-1	2
80%	2	1	-4	0	0	-2	0	0	0	-1	0	0
90%	4	4	4	3	0	0	0	0	0	1	3	1
Long Term												
Full Simulation Period[a]	3	2	0	0	0	-1	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	3	0	0	0	0	-3	-1	0	0	0	-1	0
Above Normal (15%)	0	1	0	1	-1	-3	-1	0	0	1	0	0
Below Normal (17%)	3	9	-1	0	-1	0	0	0	0	0	1	0
Dry (22%)	1	0	1	-1	-1	0	0	0	0	0	1	2
Critical (15%)	7	1	1	1	0	0	0	0	0	1	0	1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 3-2a. CVP Facilities Total Energy Use, No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	117	181	177	172	157	157	123	134	152	172	150	127
20%	89	160	164	163	146	145	98	111	141	167	143	110
30%	73	146	161	153	141	111	92	98	122	158	139	100
40%	71	141	159	151	134	98	87	93	116	151	136	93
50%	68	136	153	146	124	96	74	87	108	142	133	88
60%	67	105	137	138	118	83	58	80	104	135	127	80
70%	62	88	125	132	114	76	49	73	91	123	124	73
80%	57	74	102	115	107	68	35	60	79	117	117	69
90%	45	51	63	100	95	40	31	47	48	66	89	47
Long Term												
Full Simulation Period[d]	74	120	137	137	124	98	73	87	106	135	126	88
Water Year Types[b,c]												
Wet (32%)	78	163	165	147	137	121	102	113	138	166	141	87
Above Normal (15%)	72	151	158	142	123	101	85	98	123	145	136	81
Below Normal (17%)	101	104	139	142	132	92	73	89	107	145	130	126
Dry (22%)	60	77	114	138	113	87	51	67	87	121	119	88
Critical (15%)	61	76	87	104	102	67	32	44	48	68	92	53

Table 3-2b. CVP Facilities Total Energy Use, Alternative 1B 051722, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	127	182	178	172	155	155	121	134	152	171	150	127
20%	93	160	164	163	146	137	98	111	141	167	143	109
30%	77	147	161	155	140	114	91	99	122	158	140	100
40%	72	143	158	151	134	99	85	93	117	150	136	95
50%	70	137	150	145	124	96	74	87	109	144	134	89
60%	67	114	133	139	118	83	59	82	104	136	128	82
70%	64	96	121	131	114	78	49	73	91	124	123	75
80%	59	83	96	116	105	69	35	61	79	116	118	70
90%	49	63	64	103	95	52	31	50	49	67	92	49
Long Term												
Full Simulation Period[d]	77	123	136	137	123	98	73	87	106	135	127	89
Water Year Types[b,c]												
Wet (32%)	80	163	166	147	137	119	101	113	138	167	140	87
Above Normal (15%)	72	152	158	143	121	98	85	98	123	146	137	81
Below Normal (17%)	105	118	139	142	132	91	73	90	108	145	131	127
Dry (22%)	61	82	106	137	112	87	51	69	88	120	121	90
Critical (15%)	67	77	88	106	103	75	32	45	48	68	93	54

Table 3-2c. CVP Facilities Total Energy Use, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	10	0	1	0	-2	-2	-2	0	0	0	-1	0
20%	5	0	0	0	0	-8	0	0	0	0	0	0
30%	5	2	0	1	-1	3	0	1	0	0	1	1
40%	1	2	-1	0	0	1	-2	0	1	0	0	2
50%	1	1	-3	-1	0	0	0	0	1	2	1	1
60%	0	9	-4	0	0	0	1	1	0	1	1	2
70%	1	7	-5	-1	0	2	0	0	0	1	-1	2
80%	2	10	-6	1	-2	1	0	1	0	-1	1	0
90%	4	12	0	3	1	12	0	3	1	1	2	1
Long Term												
Full Simulation Period[d]	3	4	-1	0	0	0	-1	0	0	0	1	1
Water Year Types[b,c]												
Wet (32%)	3	0	1	0	0	-2	-1	0	0	1	-1	0
Above Normal (15%)	0	1	0	1	-2	-3	-1	0	0	1	1	0
Below Normal (17%)	4	13	1	0	0	-1	0	0	1	0	1	1
Dry (22%)	1	5	-8	0	-1	0	0	1	1	0	2	2
Critical (15%)	7	0	2	2	1	8	0	1	0	0	1	1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 3-3a. CVP Facilities Total Energy Use, No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	117	181	177	172	157	157	123	134	152	172	150	127
20%	89	160	164	163	146	145	98	111	141	167	143	110
30%	73	146	161	153	141	111	92	98	122	158	139	100
40%	71	141	159	151	134	98	87	93	116	151	136	93
50%	68	136	153	146	124	96	74	87	108	142	133	88
60%	67	105	137	138	118	83	58	80	104	135	127	80
70%	62	88	125	132	114	76	49	73	91	123	124	73
80%	57	74	102	115	107	68	35	60	79	117	117	69
90%	45	51	63	100	95	40	31	47	48	66	89	47
Long Term												
Full Simulation Period[d]	74	120	137	137	124	98	73	87	106	135	126	88
Water Year Types[b,c]												
Wet (32%)	78	163	165	147	137	121	102	113	138	166	141	87
Above Normal (15%)	72	151	158	142	123	101	85	98	123	145	136	81
Below Normal (17%)	101	104	139	142	132	92	73	89	107	145	130	126
Dry (22%)	60	77	114	138	113	87	51	67	87	121	119	88
Critical (15%)	61	76	87	104	102	67	32	44	48	68	92	53

Table 3-3b. CVP Facilities Total Energy Use, Alternative 3 051722, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	132	181	175	171	155	155	113	134	152	171	152	124
20%	93	160	163	163	146	130	97	111	141	166	146	109
30%	82	147	161	155	140	111	91	99	125	159	141	100
40%	72	145	157	151	134	101	85	94	116	154	137	96
50%	70	137	149	147	124	97	74	87	107	146	134	90
60%	66	119	140	139	118	84	58	81	104	137	128	81
70%	64	101	126	133	115	79	48	74	93	128	123	74
80%	58	76	107	117	107	69	37	61	83	117	116	69
90%	48	67	79	103	94	52	31	49	50	70	97	50
Long Term												
Full Simulation Period[d]	79	125	137	138	124	98	71	87	107	137	128	88
Water Year Types[b,c]												
Wet (32%)	81	163	166	148	137	116	96	113	138	167	140	87
Above Normal (15%)	77	155	156	143	122	101	85	98	123	150	141	81
Below Normal (17%)	103	113	146	142	133	93	73	89	105	144	129	124
Dry (22%)	67	91	107	139	116	88	51	70	90	125	123	89
Critical (15%)	67	77	91	105	103	76	32	45	48	67	94	55

Table 3-3c. CVP Facilities Total Energy Use, Alternative 3 051722 minus No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15	0	-2	-1	-2	-2	-10	0	0	0	2	-3
20%	5	0	-1	0	-1	-15	-1	0	0	0	3	-1
30%	9	1	0	1	-1	0	-1	1	2	2	2	1
40%	1	4	-2	0	0	2	-2	1	-1	3	1	3
50%	1	0	-4	1	1	1	0	0	-1	4	0	2
60%	0	14	3	1	0	1	0	1	0	2	1	2
70%	1	12	1	1	2	3	0	1	2	5	-1	1
80%	2	2	5	2	0	1	2	1	5	0	-1	0
90%	2	16	16	3	0	12	0	2	2	5	8	3
Long Term												
Full Simulation Period[d]	5	5	0	0	1	0	-2	1	1	2	1	0
Water Year Types[b,c]												
Wet (32%)	3	0	1	0	0	-5	-6	0	0	2	-1	0
Above Normal (15%)	5	4	-2	1	-1	0	0	0	1	4	5	0
Below Normal (17%)	2	8	7	0	0	1	-1	0	-2	-1	-1	-2
Dry (22%)	7	15	-7	1	3	0	1	3	4	4	4	1
Critical (15%)	6	0	5	1	0	9	0	1	0	0	2	1

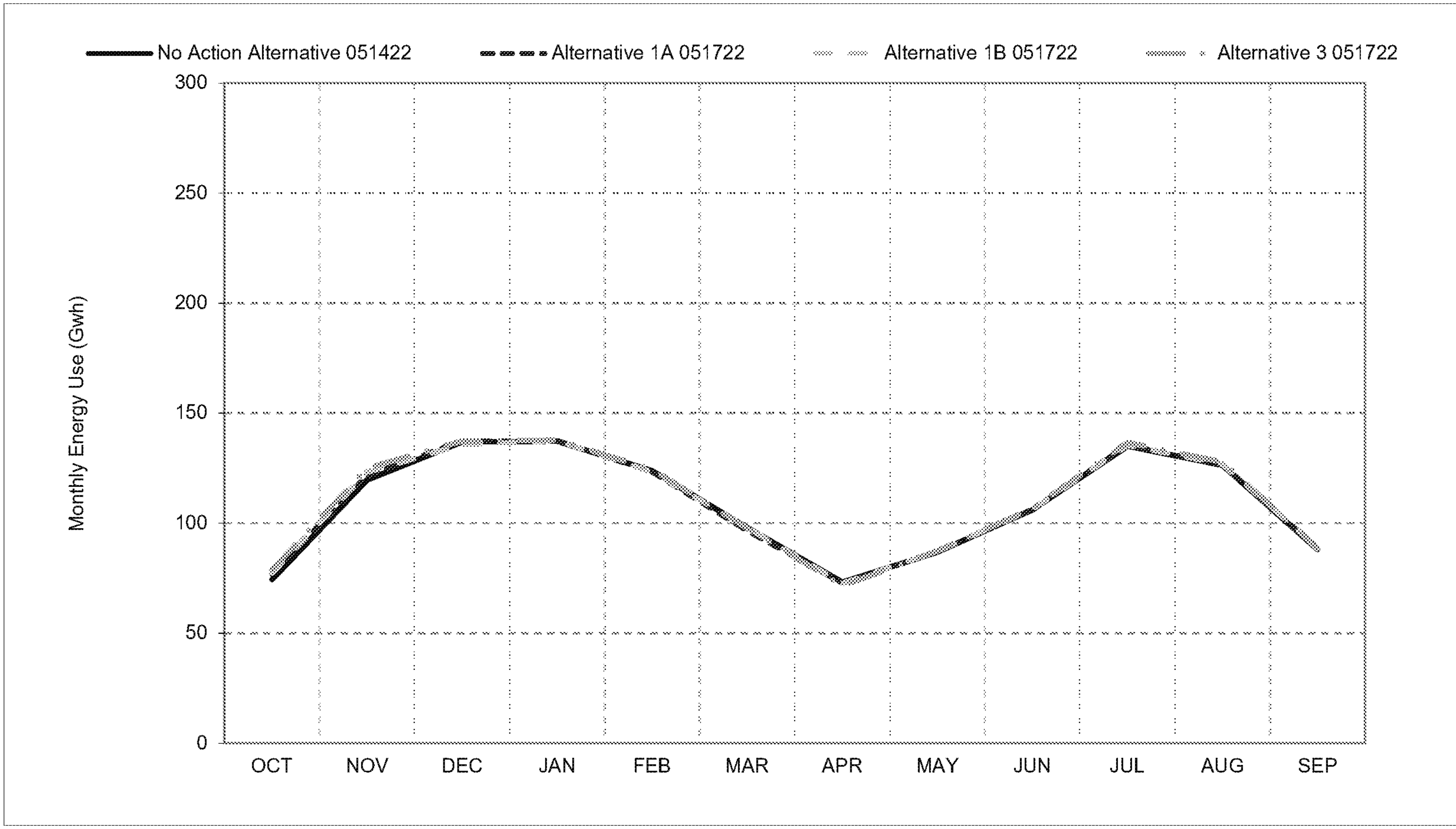
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

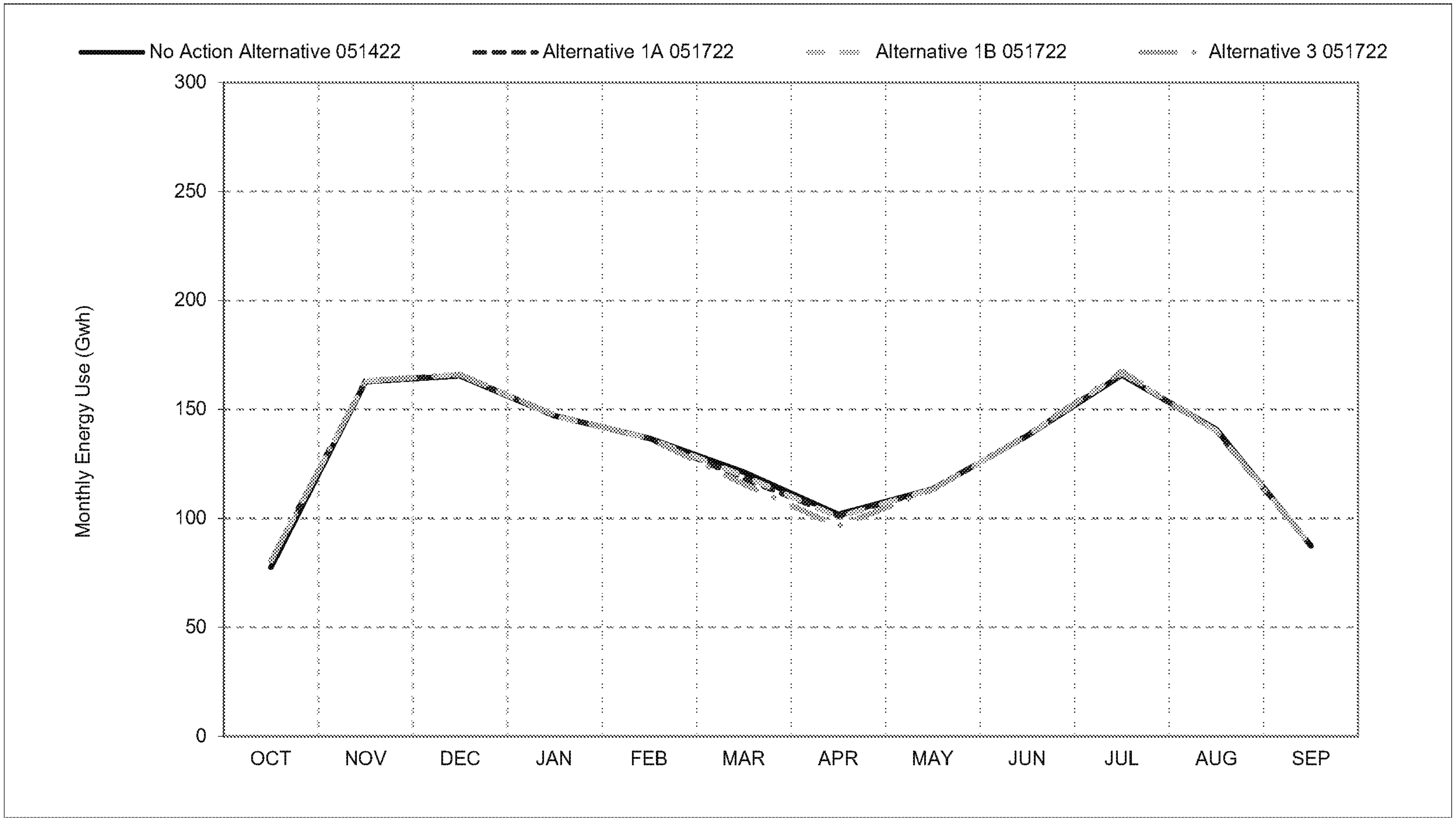
d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-1. CVP Facilities Total Energy Use, Long-Term Average Energy Use



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-2. CVP Facilities Total Energy Use, Wet Year Average Energy Use

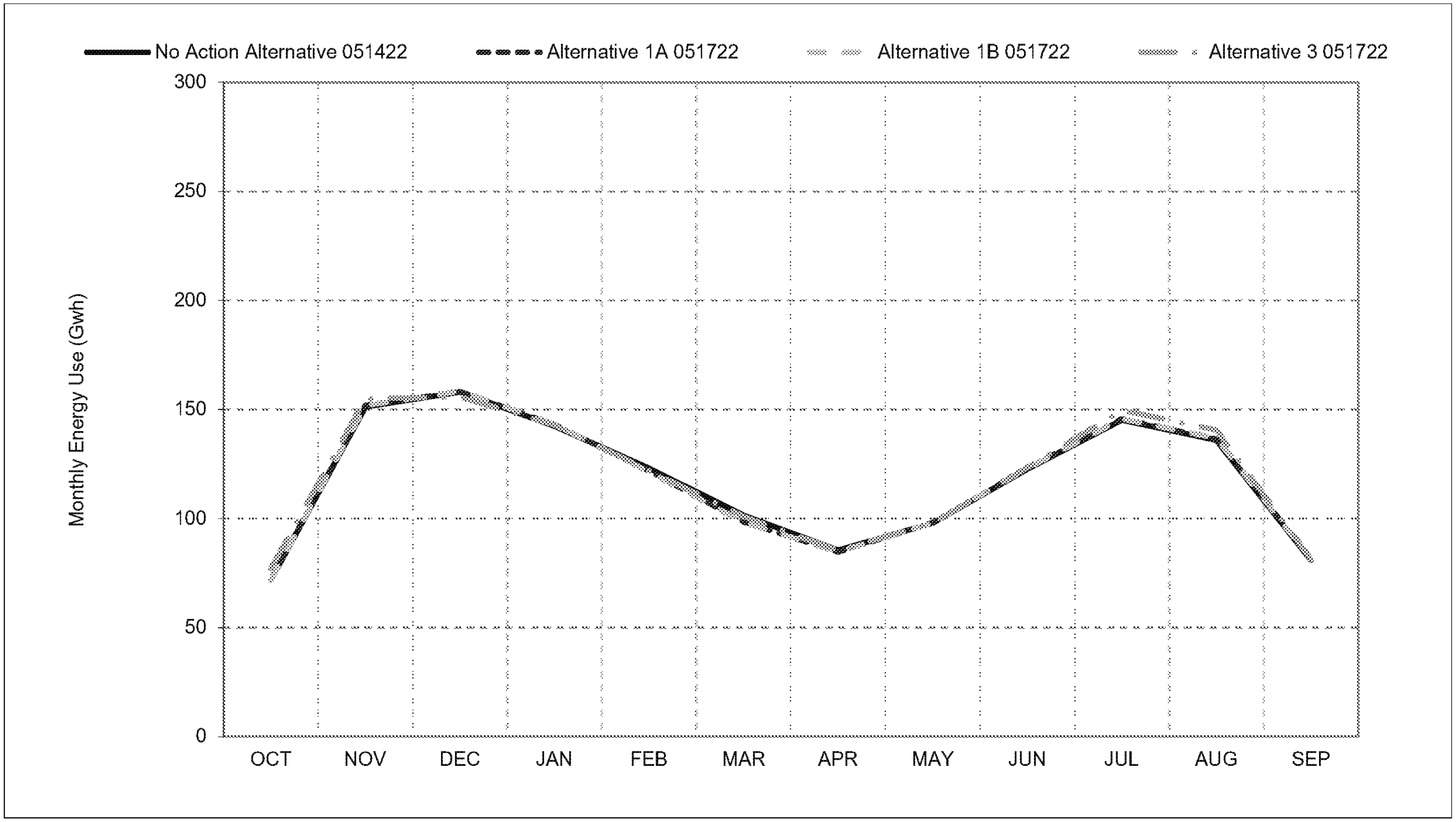


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-3. CVP Facilities Total Energy Use, Above Normal Year Average Energy Use

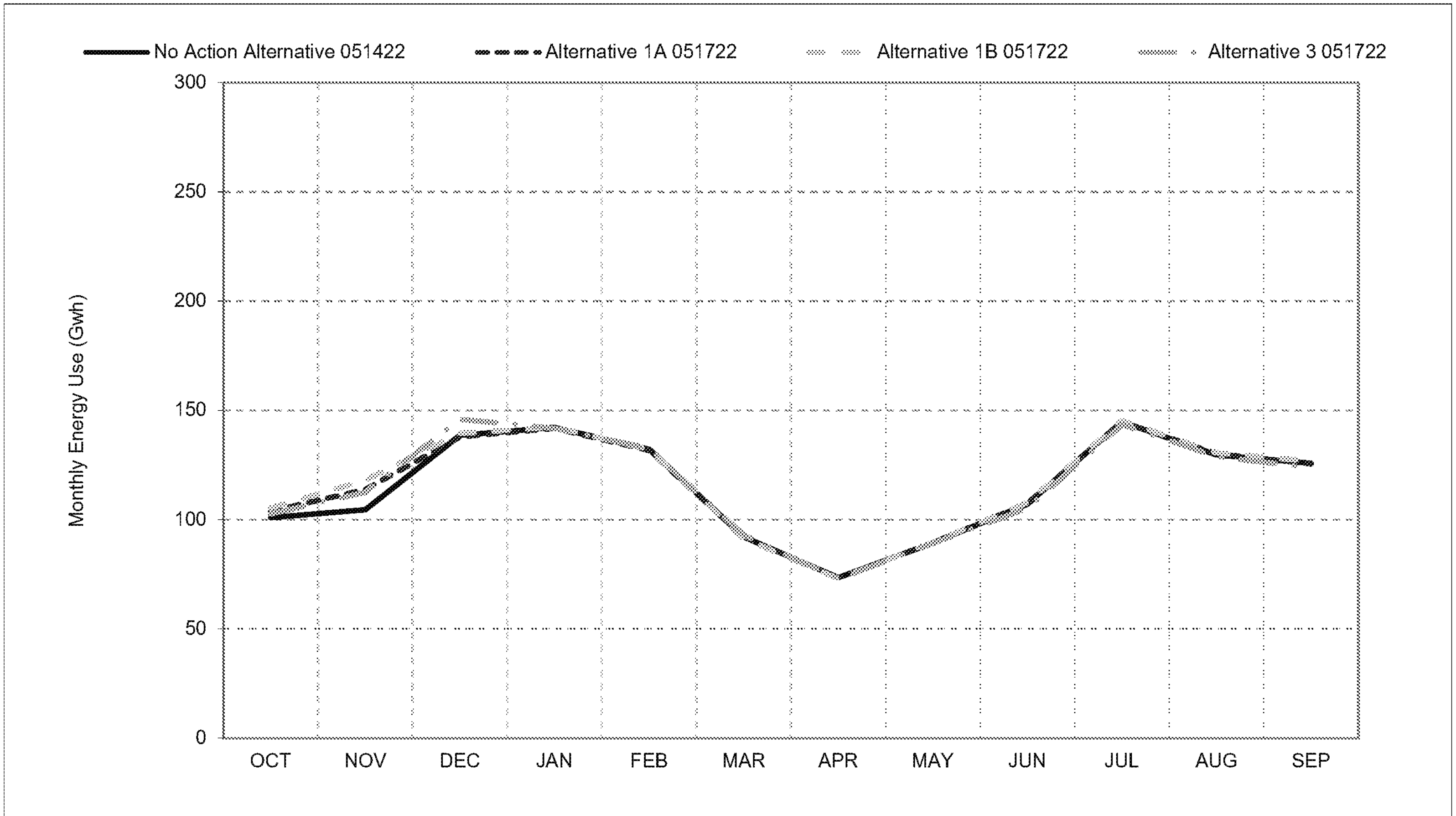


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-4. CVP Facilities Total Energy Use, Below Normal Year Average Energy Use

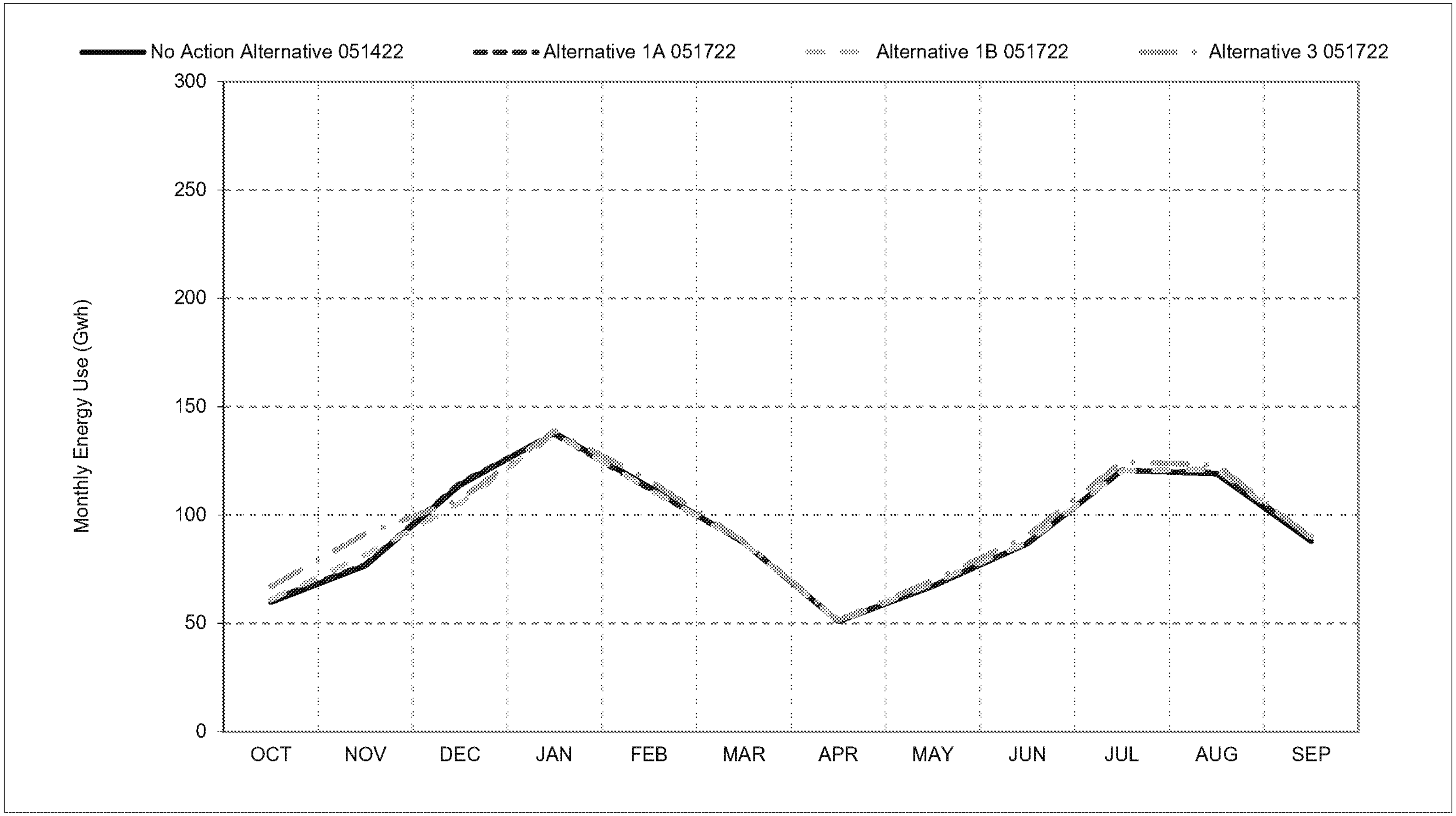


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-5. CVP Facilities Total Energy Use, Dry Year Average Energy Use

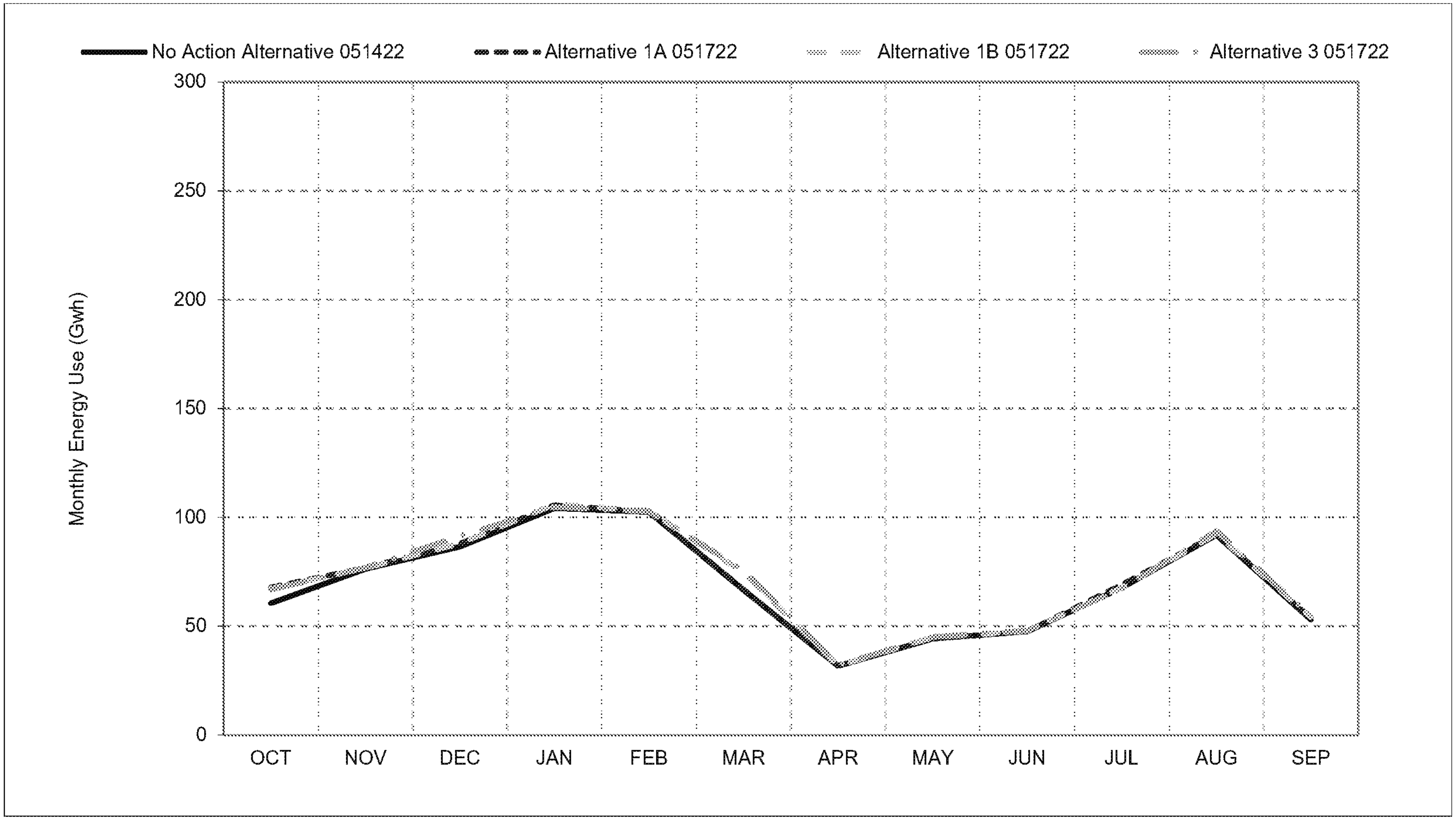


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-6. CVP Facilities Total Energy Use, Critical Year Average Energy Use

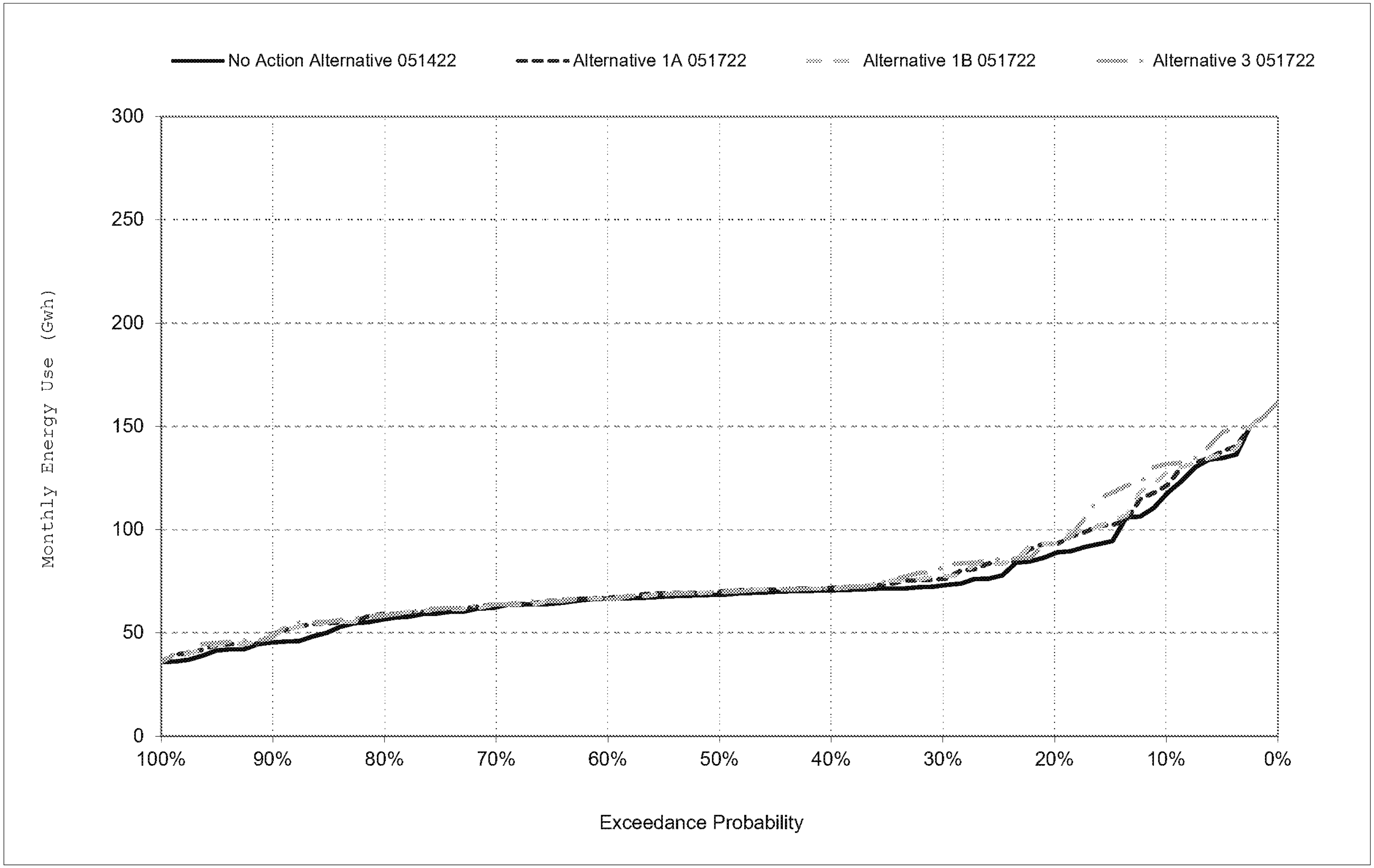


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

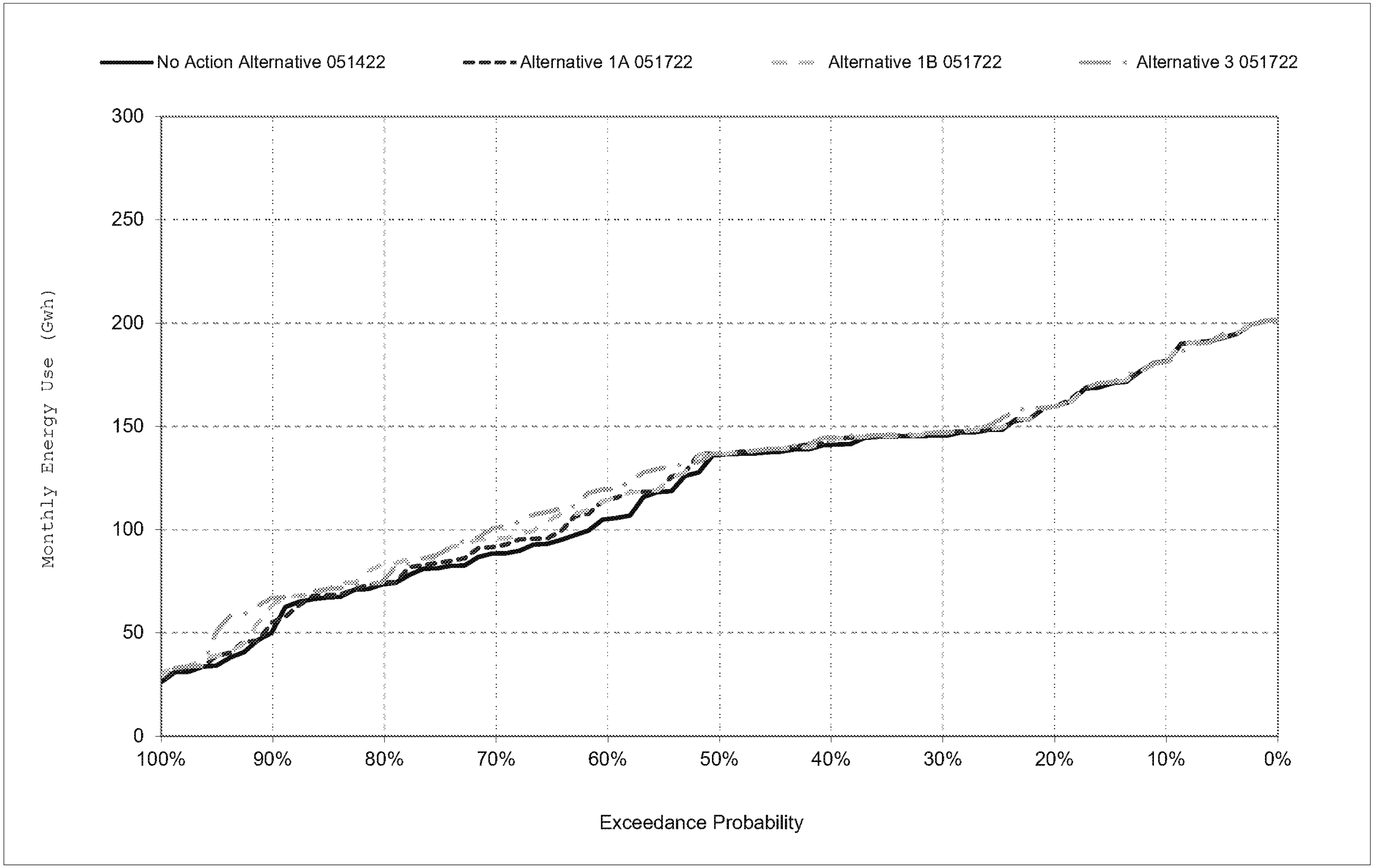
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-7. CVP Facilities Total Energy Use, October



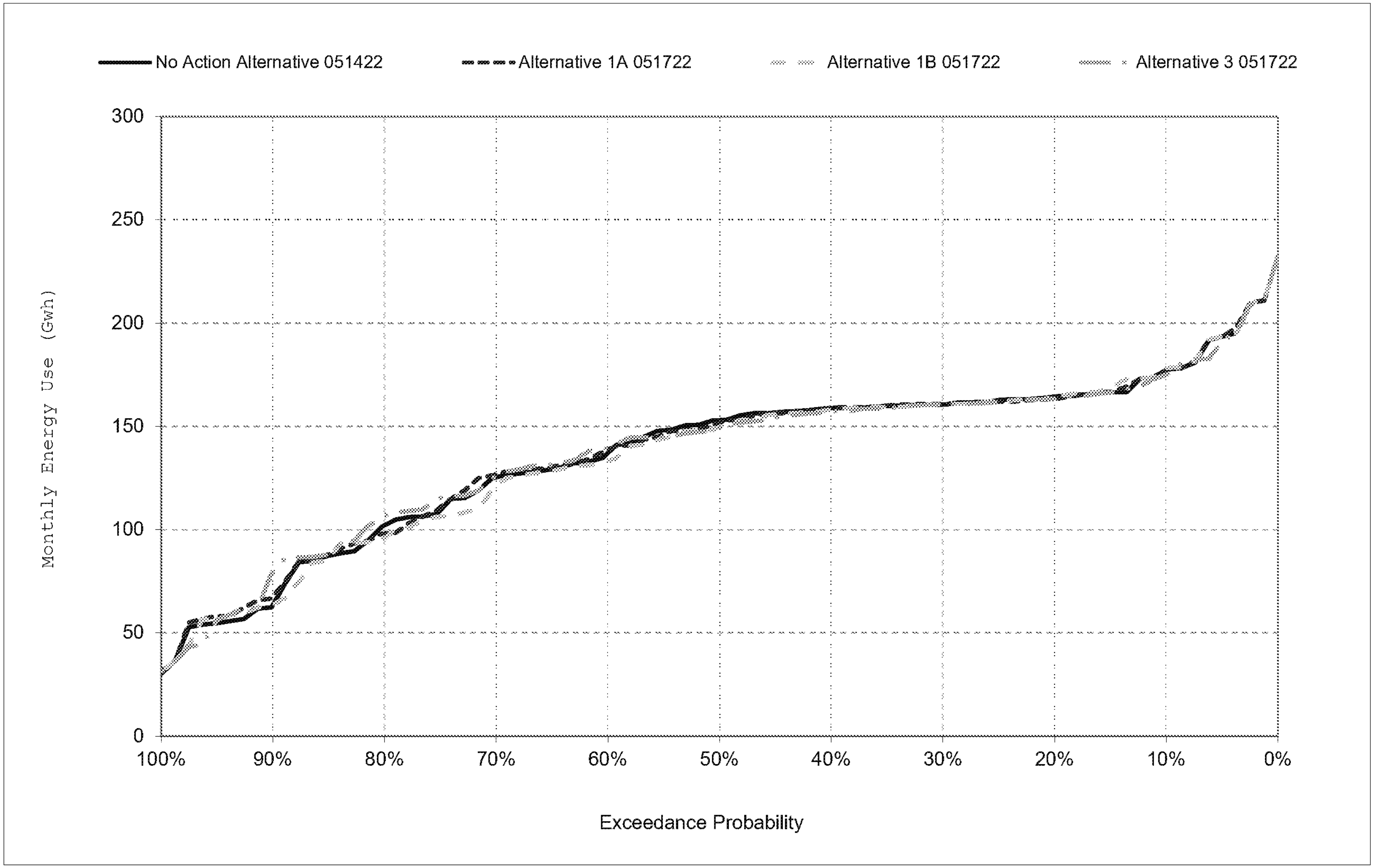
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-8. CVP Facilities Total Energy Use, November



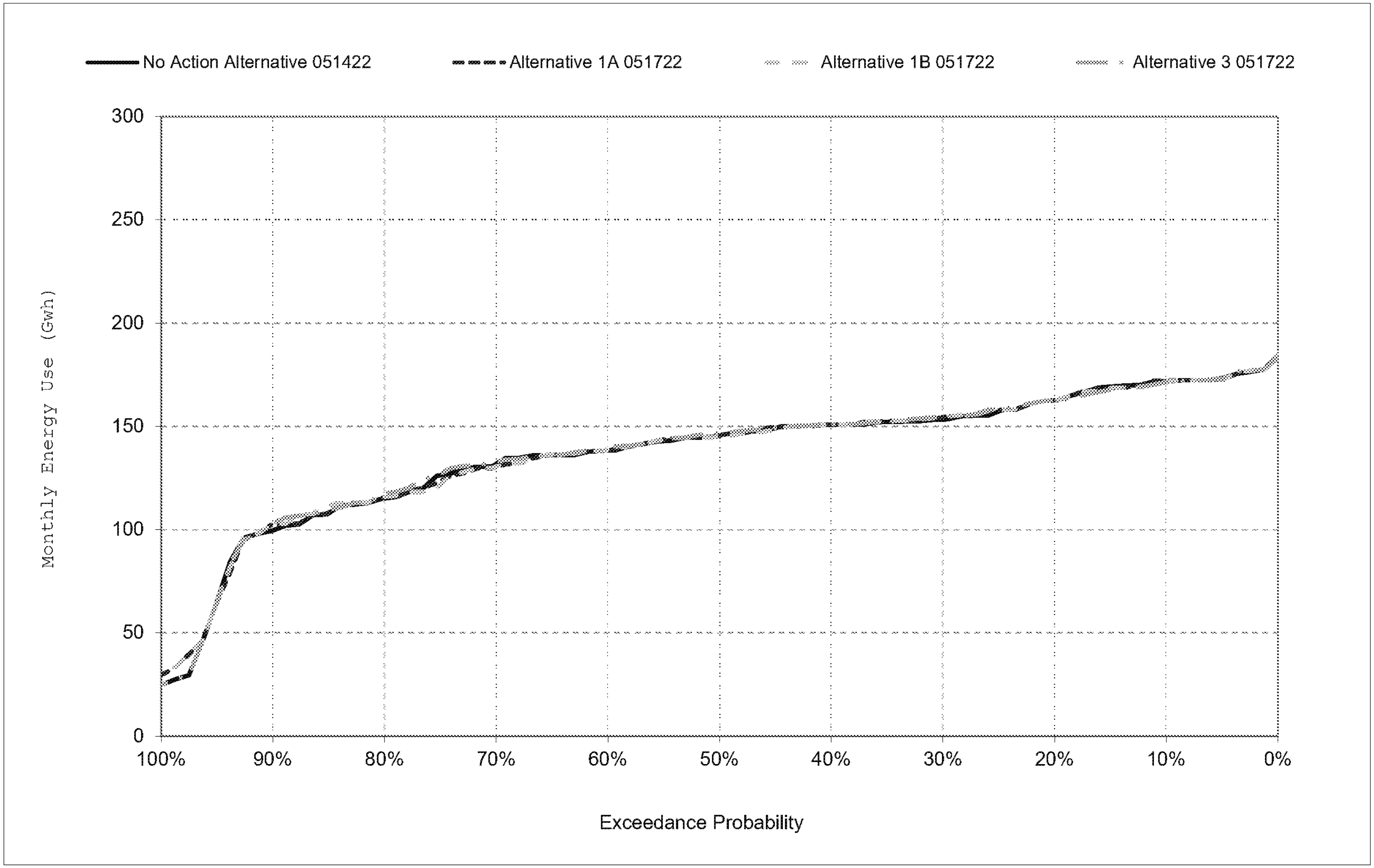
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-9. CVP Facilities Total Energy Use, December



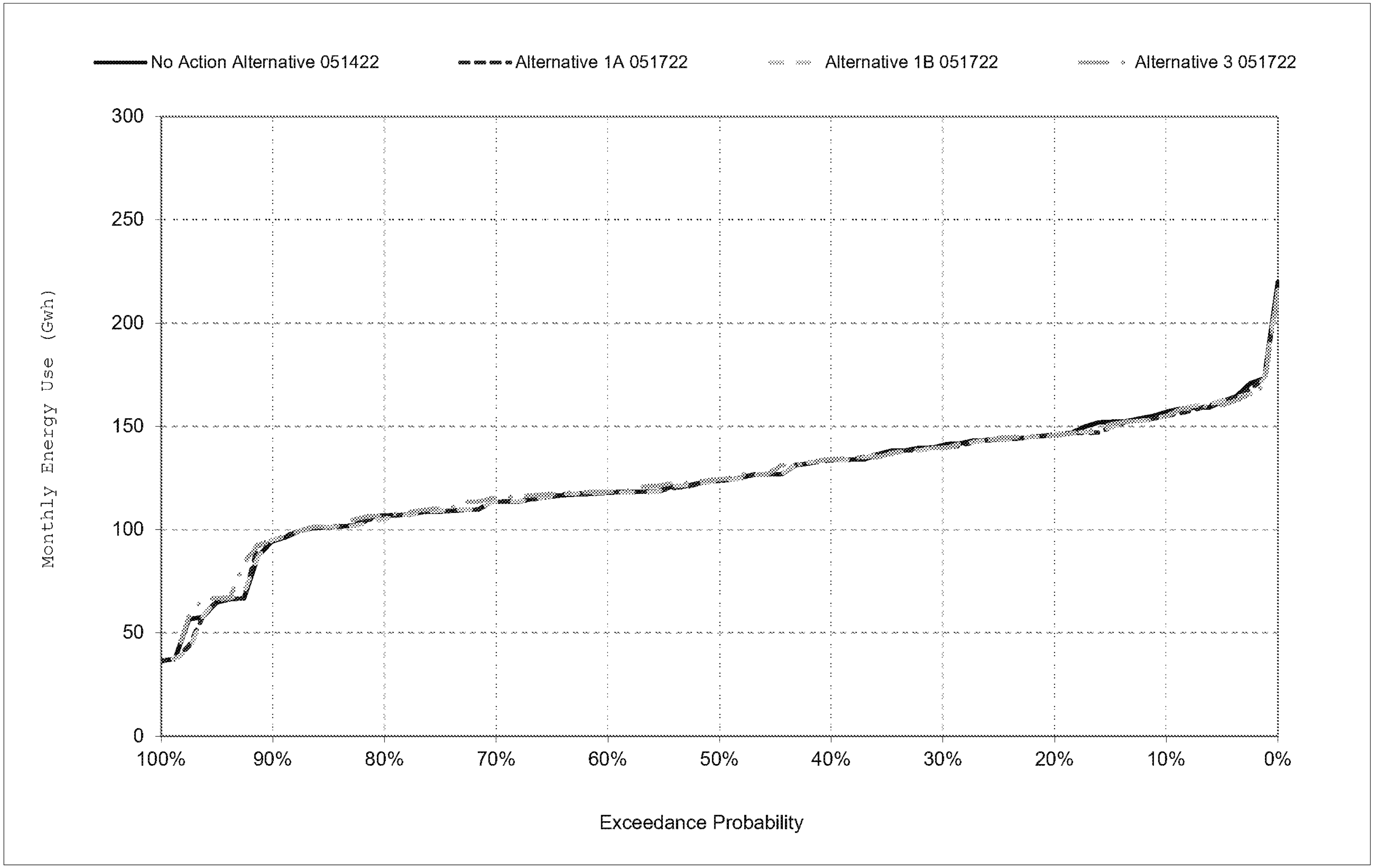
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-10. CVP Facilities Total Energy Use, January



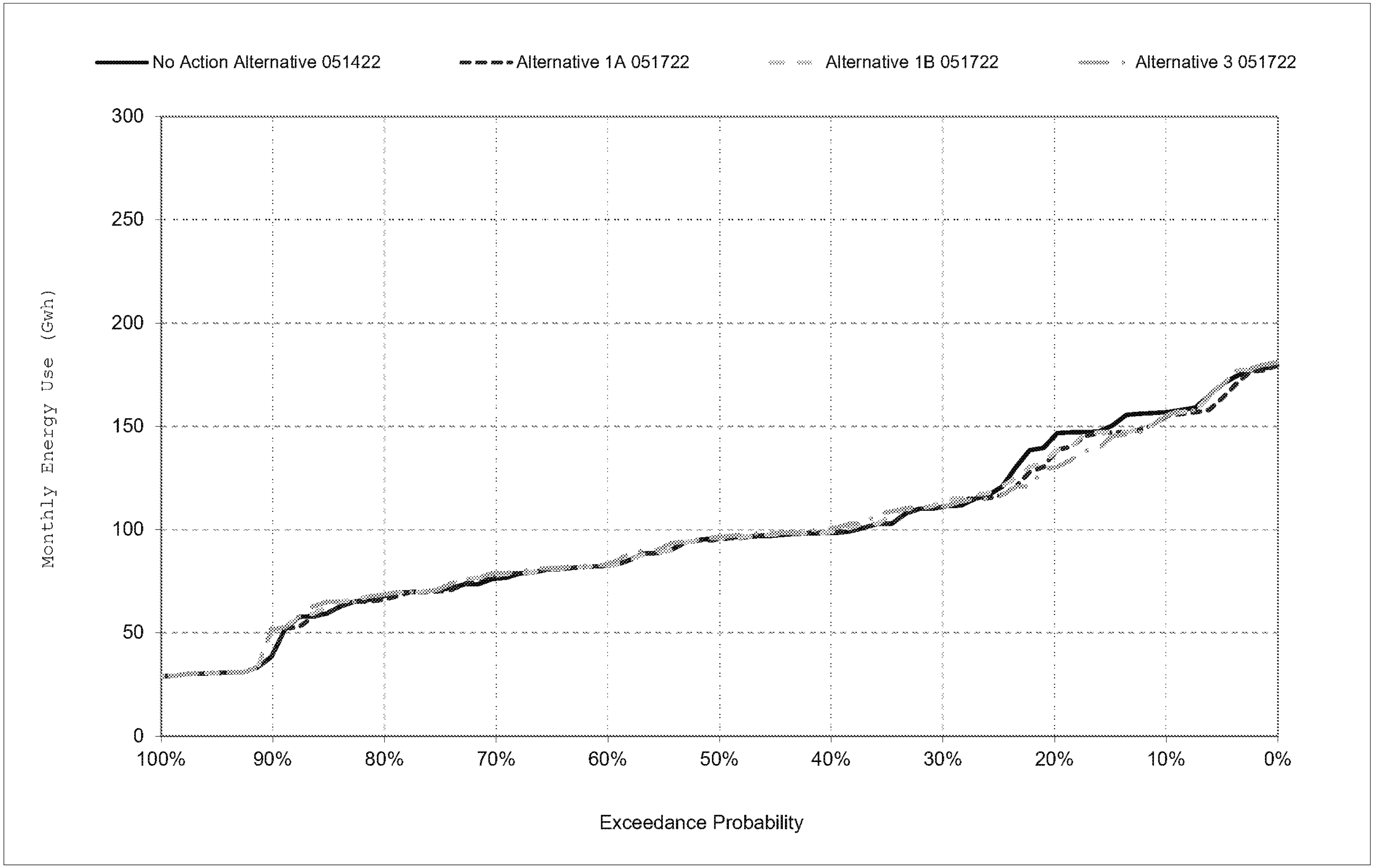
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-11. CVP Facilities Total Energy Use, February



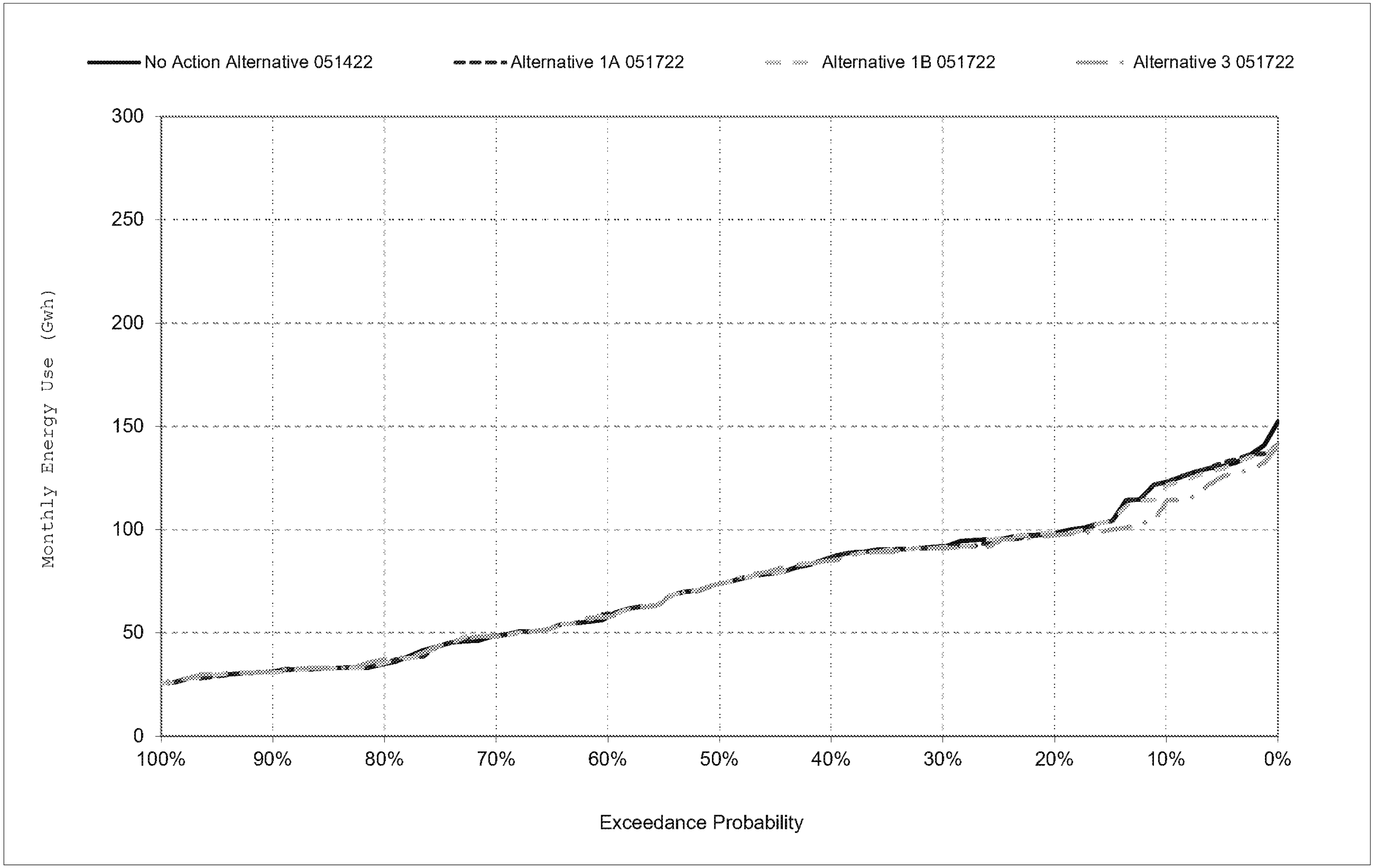
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-12. CVP Facilities Total Energy Use, March



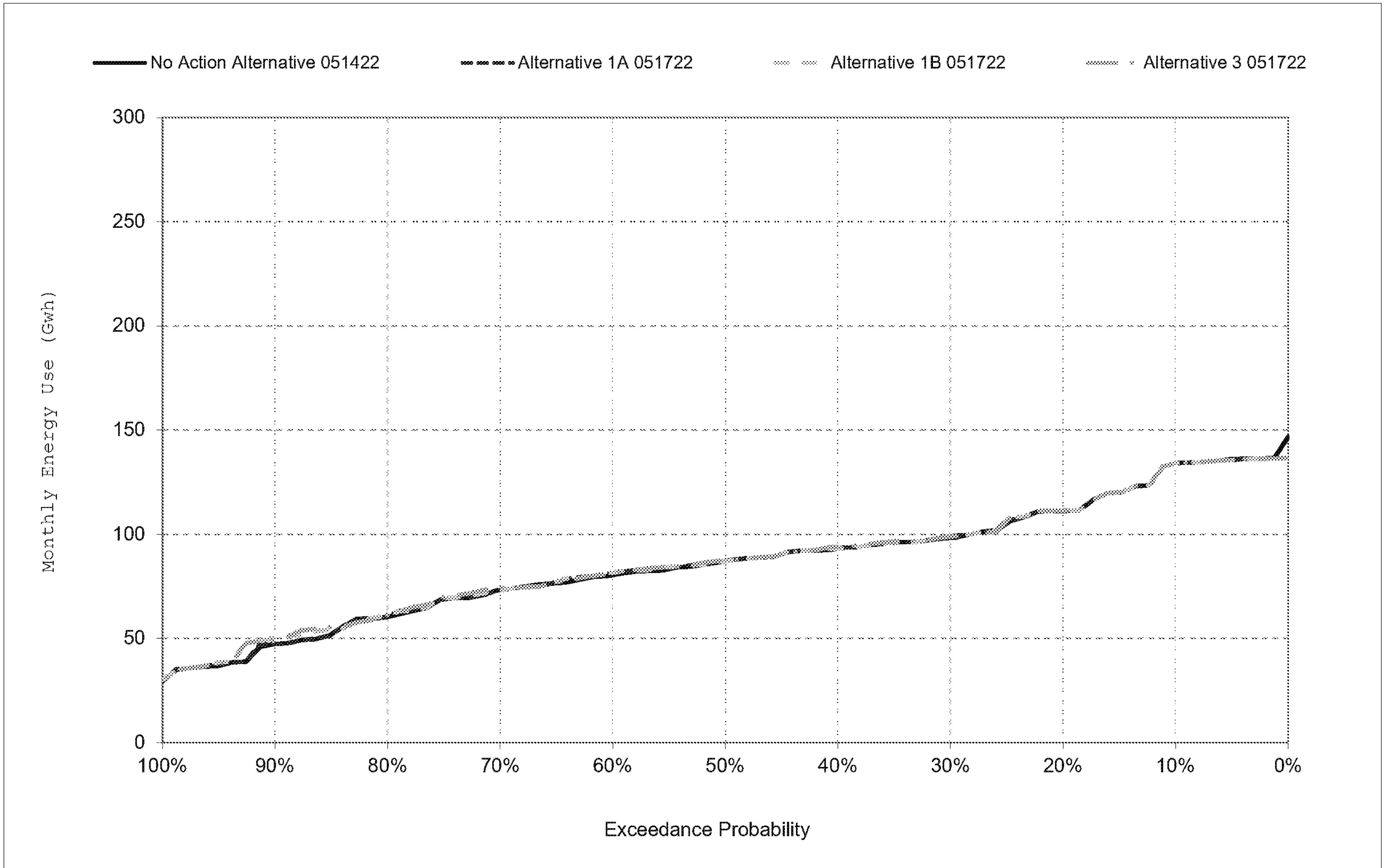
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-13. CVP Facilities Total Energy Use, April



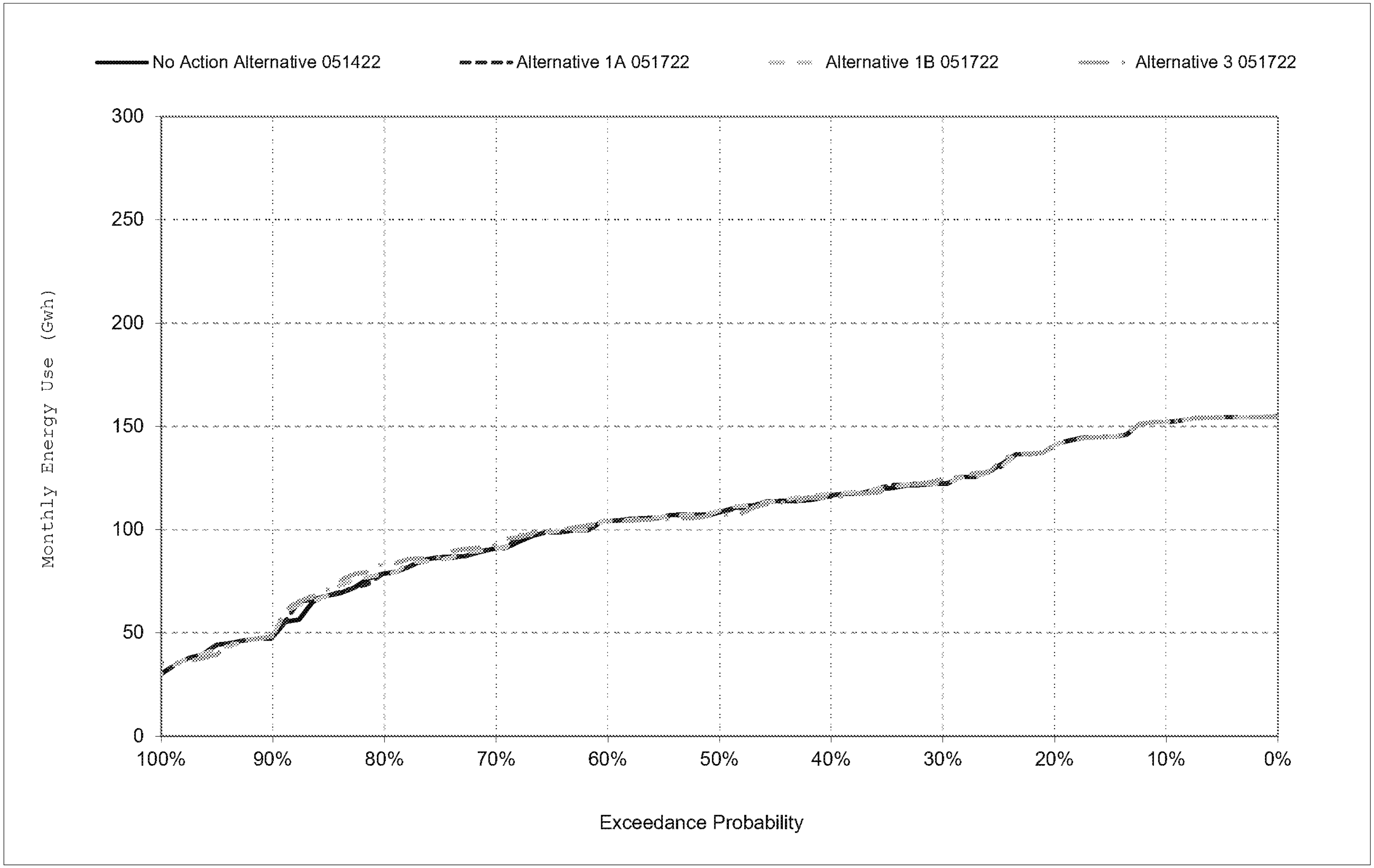
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-14. CVP Facilities Total Energy Use, May



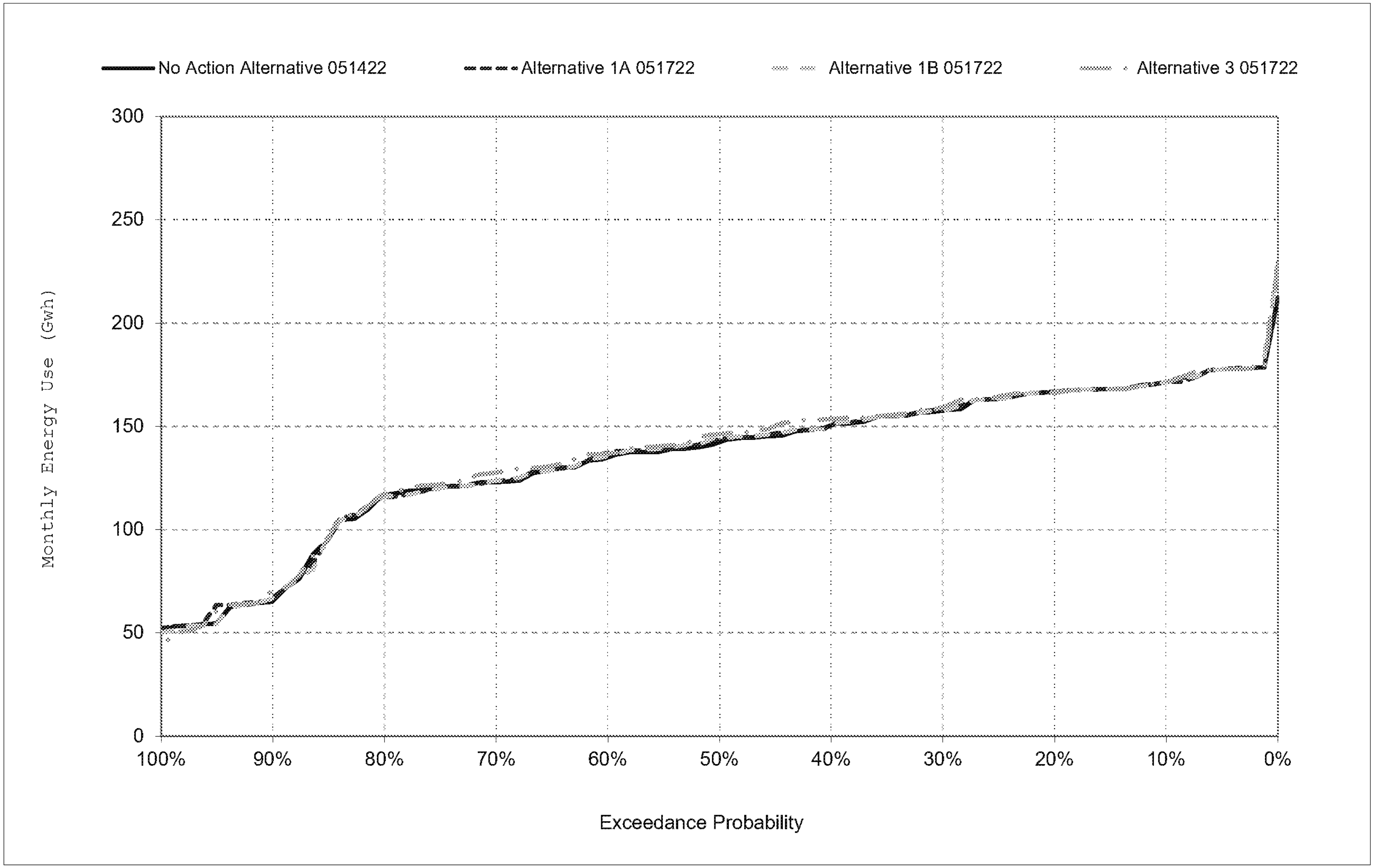
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-15. CVP Facilities Total Energy Use, June



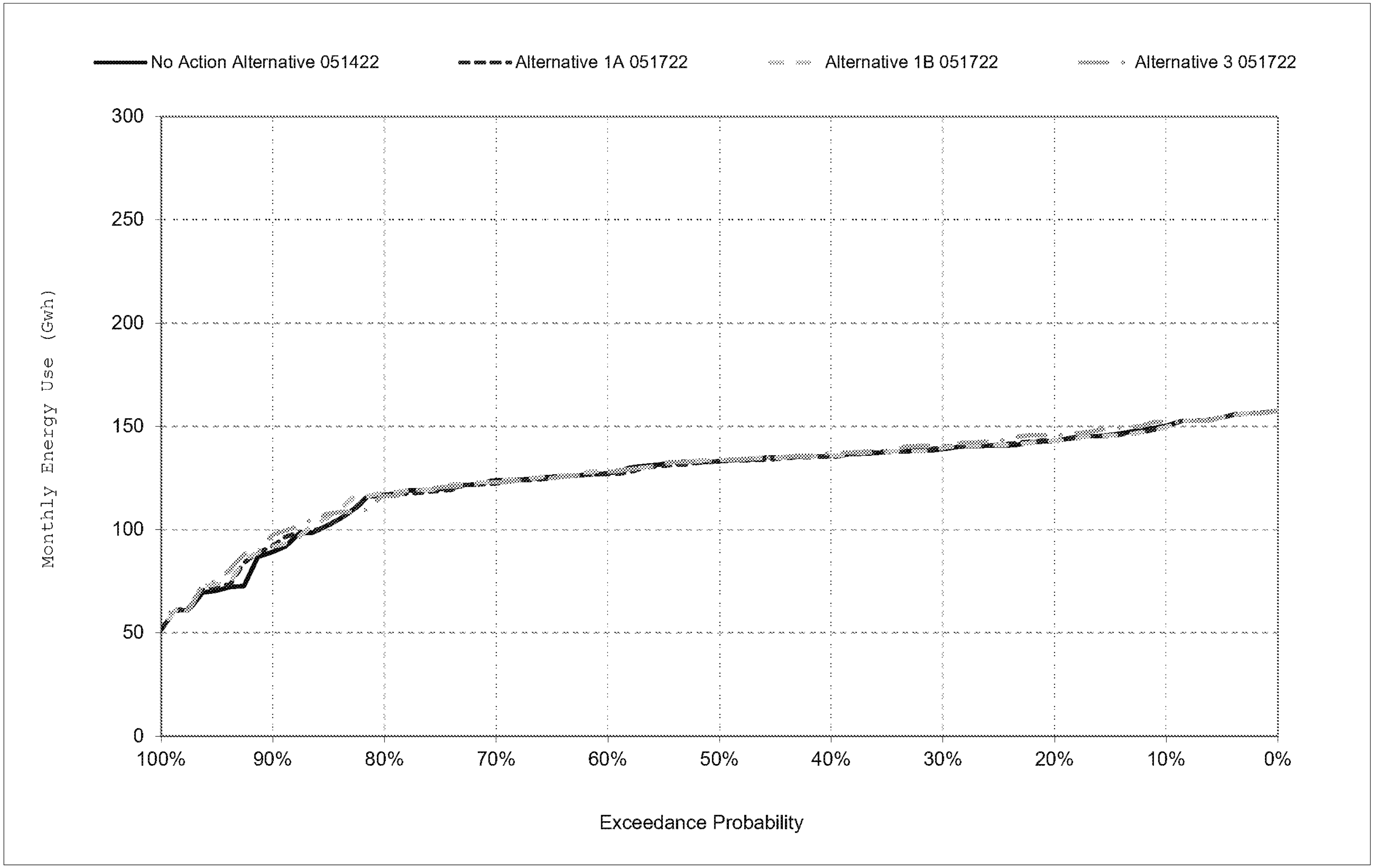
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-16. CVP Facilities Total Energy Use, July



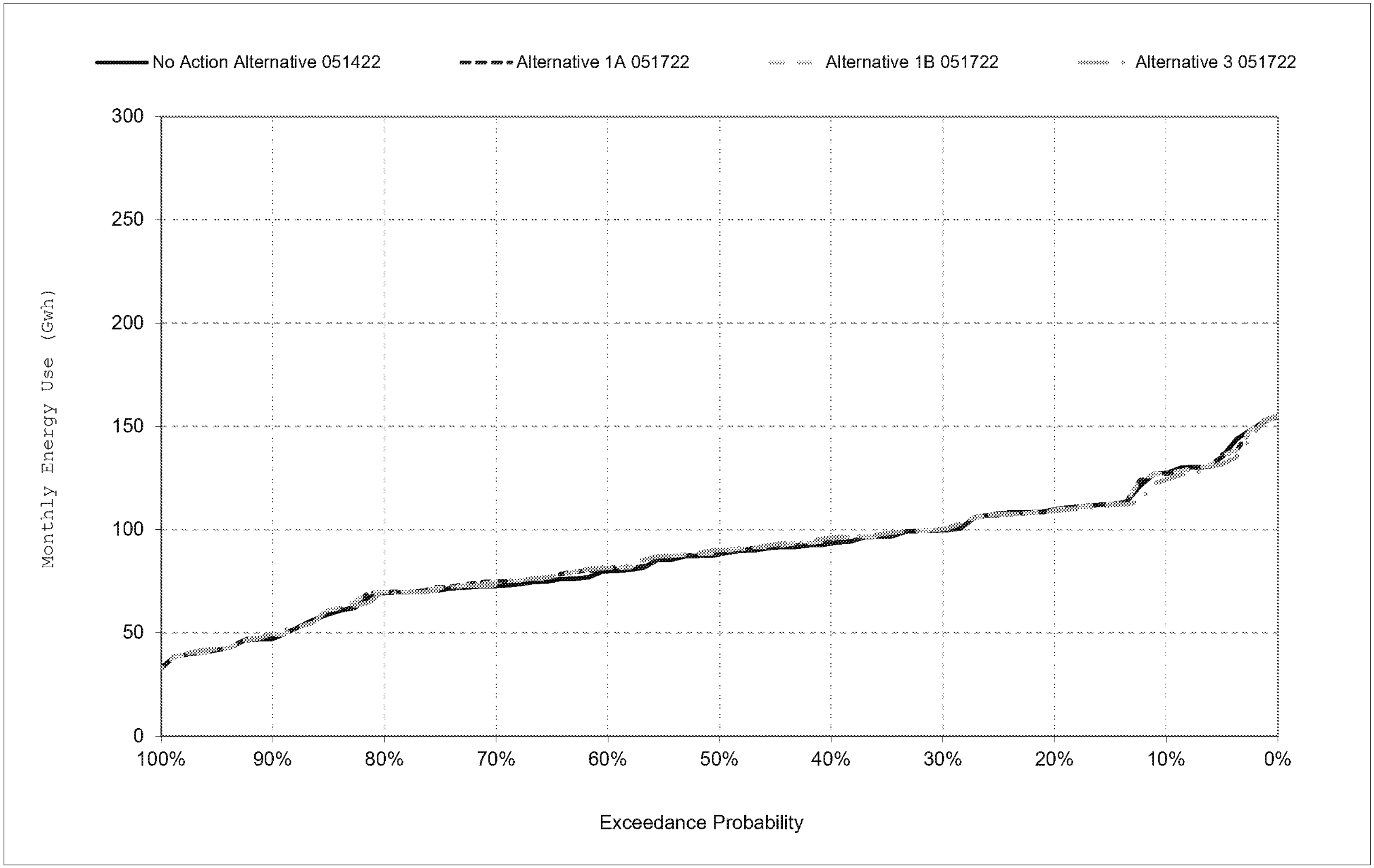
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-17. CVP Facilities Total Energy Use, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 3-18. CVP Facilities Total Energy Use, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 4-1a. CVP Facilities Net Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	368	208	504	543	566	590	411	576	474	649	522	474
20%	318	150	276	392	489	492	292	536	447	597	463	432
30%	219	122	104	233	278	307	246	457	435	565	434	373
40%	200	104	84	124	172	173	222	430	427	529	407	335
50%	185	97	66	72	70	131	204	413	405	501	390	230
60%	161	89	45	40	53	103	191	391	391	482	368	214
70%	147	75	25	21	35	91	173	370	376	460	348	199
80%	121	64	7	1	22	70	155	329	361	419	333	171
90%	106	47	0	-14	3	47	134	280	321	379	285	140
Long Term												
Full Simulation Period[a]	205	121	146	179	210	240	244	425	411	513	397	288
Water Year Types[b,c]												
Wet (32%)	305	153	191	411	402	424	331	524	440	546	467	435
Above Normal (15%)	214	138	130	180	327	342	246	466	410	579	441	366
Below Normal (17%)	147	117	167	56	141	128	195	393	408	525	385	201
Dry (22%)	154	105	159	19	37	97	192	371	423	496	365	186
Critical (15%)	124	62	22	57	18	85	189	287	336	385	266	149

Table 4-1b. CVP Facilities Net Generation, Alternative 1A 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	363	220	520	546	565	631	411	576	475	649	522	474
20%	306	150	292	392	489	499	294	536	448	593	456	425
30%	222	119	101	232	284	306	246	458	435	565	429	369
40%	198	104	81	122	169	175	223	430	427	528	405	329
50%	184	95	65	69	71	139	199	414	404	500	389	232
60%	160	84	52	38	53	105	183	390	393	483	372	214
70%	137	72	26	13	36	91	173	371	377	462	351	197
80%	123	63	10	2	23	70	155	328	358	420	333	177
90%	101	48	-1	-10	6	47	139	283	318	382	300	141
Long Term												
Full Simulation Period[a]	203	120	147	179	212	245	243	424	410	512	397	288
Water Year Types[b,c]												
Wet (32%)	301	153	191	411	402	435	332	523	440	546	467	434
Above Normal (15%)	219	138	132	183	332	343	248	465	410	576	434	359
Below Normal (17%)	144	113	170	55	143	128	194	394	408	520	379	199
Dry (22%)	151	104	161	18	37	101	193	373	423	496	365	185
Critical (15%)	122	62	19	55	22	85	181	281	328	387	277	158

Table 4-1c. CVP Facilities Net Generation, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-5	11	15	3	0	41	0	0	0	0	0	0
20%	-12	-1	16	0	0	7	2	0	1	-4	-7	-7
30%	3	-3	-3	-1	6	0	0	0	1	0	-6	-4
40%	-2	1	-3	-2	-3	2	1	0	0	-1	-3	-6
50%	-1	-2	-1	-3	0	8	-5	1	-1	0	-1	1
60%	-1	-5	7	-2	0	1	-8	-1	2	1	4	-1
70%	-10	-3	1	-8	1	0	0	0	0	2	3	-2
80%	2	-1	3	1	1	0	0	-1	-3	0	0	6
90%	-5	0	-1	4	3	0	5	3	-2	3	15	1
Long Term												
Full Simulation Period[a]	-2	-1	1	0	2	4	0	-1	-1	-1	0	0
Water Year Types[b,c]												
Wet (32%)	-4	-1	0	0	0	11	1	0	1	0	1	0
Above Normal (15%)	5	0	2	3	5	2	2	0	1	-3	-7	-7
Below Normal (17%)	-3	-4	3	-1	2	-1	0	0	0	-5	-6	-1
Dry (22%)	-3	-1	2	-1	0	4	1	2	1	0	0	-1
Critical (15%)	-2	0	-3	-2	4	0	-8	-6	-8	2	11	8

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 4-2a. CVP Facilities Net Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	368	208	504	543	566	590	411	576	474	649	522	474
20%	318	150	276	392	489	492	292	536	447	597	463	432
30%	219	122	104	233	278	307	246	457	435	565	434	373
40%	200	104	84	124	172	173	222	430	427	529	407	335
50%	185	97	66	72	70	131	204	413	405	501	390	230
60%	161	89	45	40	53	103	191	391	391	482	368	214
70%	147	75	25	21	35	91	173	370	376	460	348	199
80%	121	64	7	1	22	70	155	329	361	419	333	171
90%	106	47	0	-14	3	47	134	280	321	379	285	140
Long Term												
Full Simulation Period[a]	205	121	146	179	210	240	244	425	411	513	397	288
Water Year Types[b,c]												
Wet (32%)	305	153	191	411	402	424	331	524	440	546	467	435
Above Normal (15%)	214	138	130	180	327	342	246	466	410	579	441	366
Below Normal (17%)	147	117	167	56	141	128	195	393	408	525	385	201
Dry (22%)	154	105	159	19	37	97	192	371	423	496	365	186
Critical (15%)	124	62	22	57	18	85	189	287	336	385	266	149

Table 4-2b. CVP Facilities Net Generation, Alternative 1B 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	363	207	530	552	566	631	411	584	473	649	523	474
20%	305	152	298	393	489	497	290	536	443	596	463	432
30%	224	119	120	232	303	307	242	473	426	567	425	366
40%	200	104	84	122	184	166	219	427	410	528	405	329
50%	185	95	67	69	75	128	199	407	401	499	389	236
60%	161	82	52	37	52	103	181	386	389	481	369	214
70%	146	72	28	11	37	91	171	363	370	450	351	198
80%	122	64	8	2	23	70	155	315	356	419	331	175
90%	101	51	-3	-11	6	47	139	283	310	383	299	141
Long Term												
Full Simulation Period[a]	204	120	151	178	214	243	242	422	405	511	398	289
Water Year Types[b,c]												
Wet (32%)	302	151	191	412	404	432	331	529	440	544	466	433
Above Normal (15%)	223	139	137	183	334	345	248	468	387	572	438	365
Below Normal (17%)	144	112	173	55	147	128	195	384	402	524	382	201
Dry (22%)	151	104	171	17	39	98	186	363	421	497	365	185
Critical (15%)	124	62	19	55	22	83	183	280	326	387	276	158

Table 4-2c. CVP Facilities Net Generation, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-5	-1	25	9	0	41	0	8	-2	0	0	0
20%	-13	2	22	1	0	6	-2	0	-4	0	0	0
30%	5	-2	16	-1	25	0	-4	16	-8	2	-9	-7
40%	0	1	1	-1	12	-7	-3	-3	-17	-1	-2	-7
50%	0	-2	1	-3	5	-3	-5	-5	-3	-1	-1	6
60%	0	-6	7	-2	0	0	-9	-5	-3	-2	1	0
70%	-1	-3	3	-10	2	0	-2	-7	-6	-11	3	-1
80%	1	0	1	1	1	0	0	-13	-5	0	-2	4
90%	-5	4	-2	3	3	0	5	3	-11	4	14	1
Long Term												
Full Simulation Period[a]	-1	-2	4	0	4	3	-2	-3	-6	-1	1	0
Water Year Types[b,c]												
Wet (32%)	-3	-2	0	0	2	9	0	5	0	-2	0	-1
Above Normal (15%)	9	1	7	3	8	3	2	3	-22	-7	-3	-1
Below Normal (17%)	-2	-5	6	-1	6	0	0	-10	-7	-1	-3	0
Dry (22%)	-3	-1	12	-1	2	0	-6	-8	-2	1	0	-1
Critical (15%)	-1	0	-2	-2	4	-2	-6	-7	-10	2	11	8

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 4-3a. CVP Facilities Net Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	368	208	504	543	566	590	411	576	474	649	522	474
20%	318	150	276	392	489	492	292	536	447	597	463	432
30%	219	122	104	233	278	307	246	457	435	565	434	373
40%	200	104	84	124	172	173	222	430	427	529	407	335
50%	185	97	66	72	70	131	204	413	405	501	390	230
60%	161	89	45	40	53	103	191	391	391	482	368	214
70%	147	75	25	21	35	91	173	370	376	460	348	199
80%	121	64	7	1	22	70	155	329	361	419	333	171
90%	106	47	0	-14	3	47	134	280	321	379	285	140
Long Term												
Full Simulation Period[a]	205	121	146	179	210	240	244	425	411	513	397	288
Water Year Types[b,c]												
Wet (32%)	305	153	191	411	402	424	331	524	440	546	467	435
Above Normal (15%)	214	138	130	180	327	342	246	466	410	579	441	366
Below Normal (17%)	147	117	167	56	141	128	195	393	408	525	385	201
Dry (22%)	154	105	159	19	37	97	192	371	423	496	365	186
Critical (15%)	124	62	22	57	18	85	189	287	336	385	266	149

Table 4-3b. CVP Facilities Net Generation, Alternative 3 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	363	254	529	552	567	631	411	584	459	617	522	474
20%	301	163	309	392	489	501	289	536	435	578	445	421
30%	237	129	132	231	302	307	243	450	411	546	420	365
40%	211	109	84	137	188	184	216	428	404	523	398	339
50%	191	96	71	71	69	131	194	405	391	500	383	236
60%	166	87	53	35	53	101	184	381	383	479	366	213
70%	153	77	28	17	39	89	172	359	362	447	350	198
80%	128	66	10	0	19	66	155	314	348	417	331	175
90%	106	52	-2	-13	7	48	137	281	303	383	296	142
Long Term												
Full Simulation Period[a]	210	125	154	180	214	245	243	420	397	502	393	289
Water Year Types[b,c]												
Wet (32%)	301	152	192	414	404	435	335	528	440	544	467	433
Above Normal (15%)	232	149	145	187	337	345	245	474	379	536	415	367
Below Normal (17%)	167	137	173	55	150	127	192	381	380	510	375	201
Dry (22%)	152	102	180	16	35	105	189	356	405	490	364	186
Critical (15%)	127	64	20	57	22	83	185	275	327	386	276	156

Table 4-3c. CVP Facilities Net Generation, Alternative 3 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-5	46	24	8	2	41	0	8	-16	-32	0	0
20%	-17	13	33	0	0	10	-3	0	-11	-19	-19	-11
30%	18	8	28	-2	24	0	-3	-7	-24	-18	-14	-8
40%	11	6	0	14	15	11	-6	-1	-23	-6	-9	4
50%	6	0	5	-1	-2	0	-10	-8	-14	-1	-7	6
60%	5	-1	8	-5	0	-3	-7	-10	-8	-3	-2	-2
70%	6	2	3	-4	4	-1	-1	-12	-14	-14	2	-1
80%	6	2	4	-1	-3	-4	0	-15	-12	-2	-2	4
90%	0	5	-2	1	3	1	3	2	-18	4	11	2
Long Term												
Full Simulation Period[a]	5	4	8	1	4	5	-1	-5	-14	-10	-4	1
Water Year Types[b,c]												
Wet (32%)	-4	-1	1	3	2	11	4	4	0	-2	0	-1
Above Normal (15%)	18	11	15	7	11	3	0	9	-30	-43	-26	2
Below Normal (17%)	20	19	6	-1	9	-1	-2	-12	-28	-15	-10	0
Dry (22%)	-2	-3	21	-2	-3	8	-3	-15	-18	-6	-1	0
Critical (15%)	3	1	-1	0	4	-2	-4	-12	-9	1	10	6

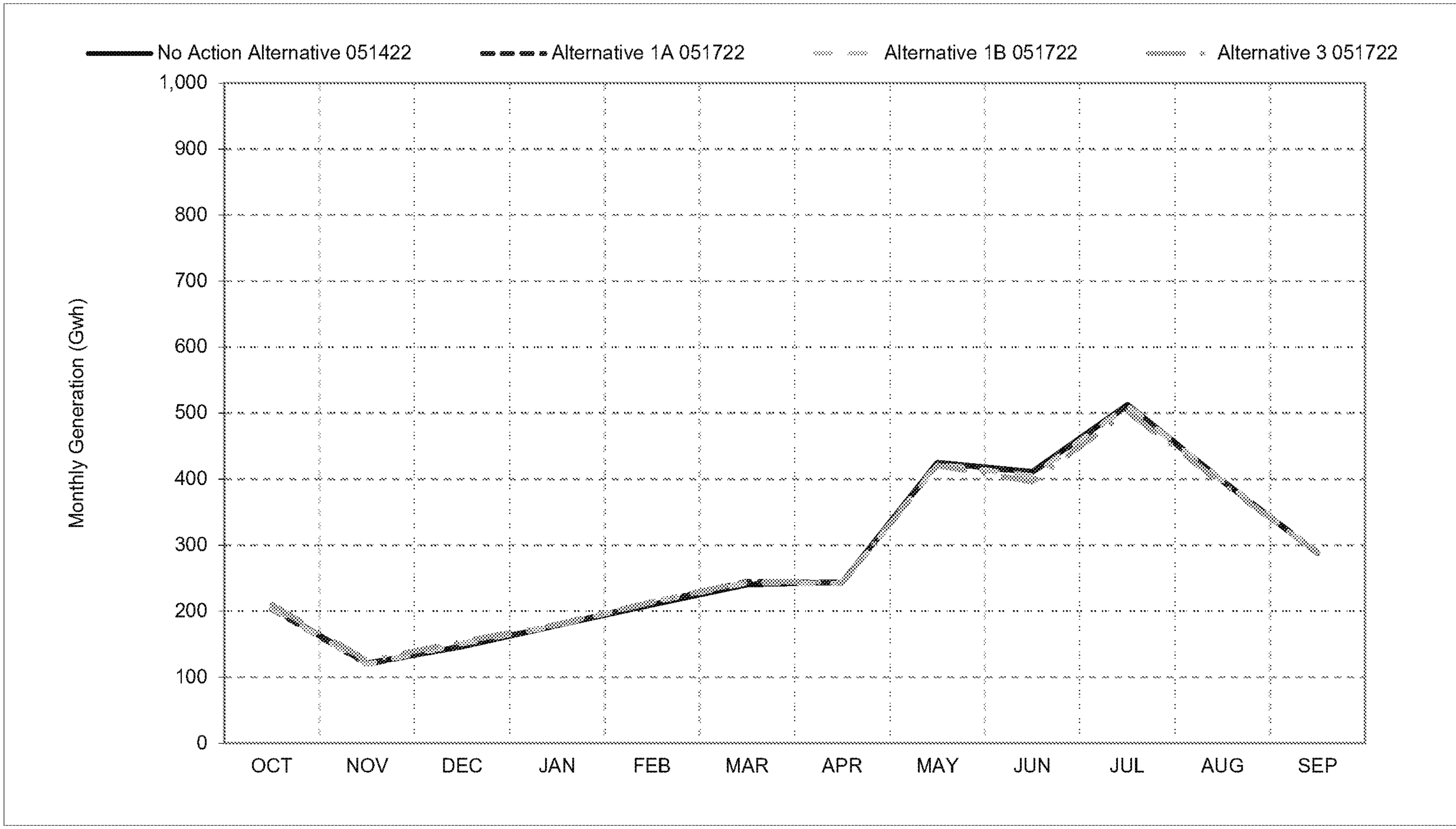
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-1. CVP Facilities Net Generation, Long-Term Average Generation

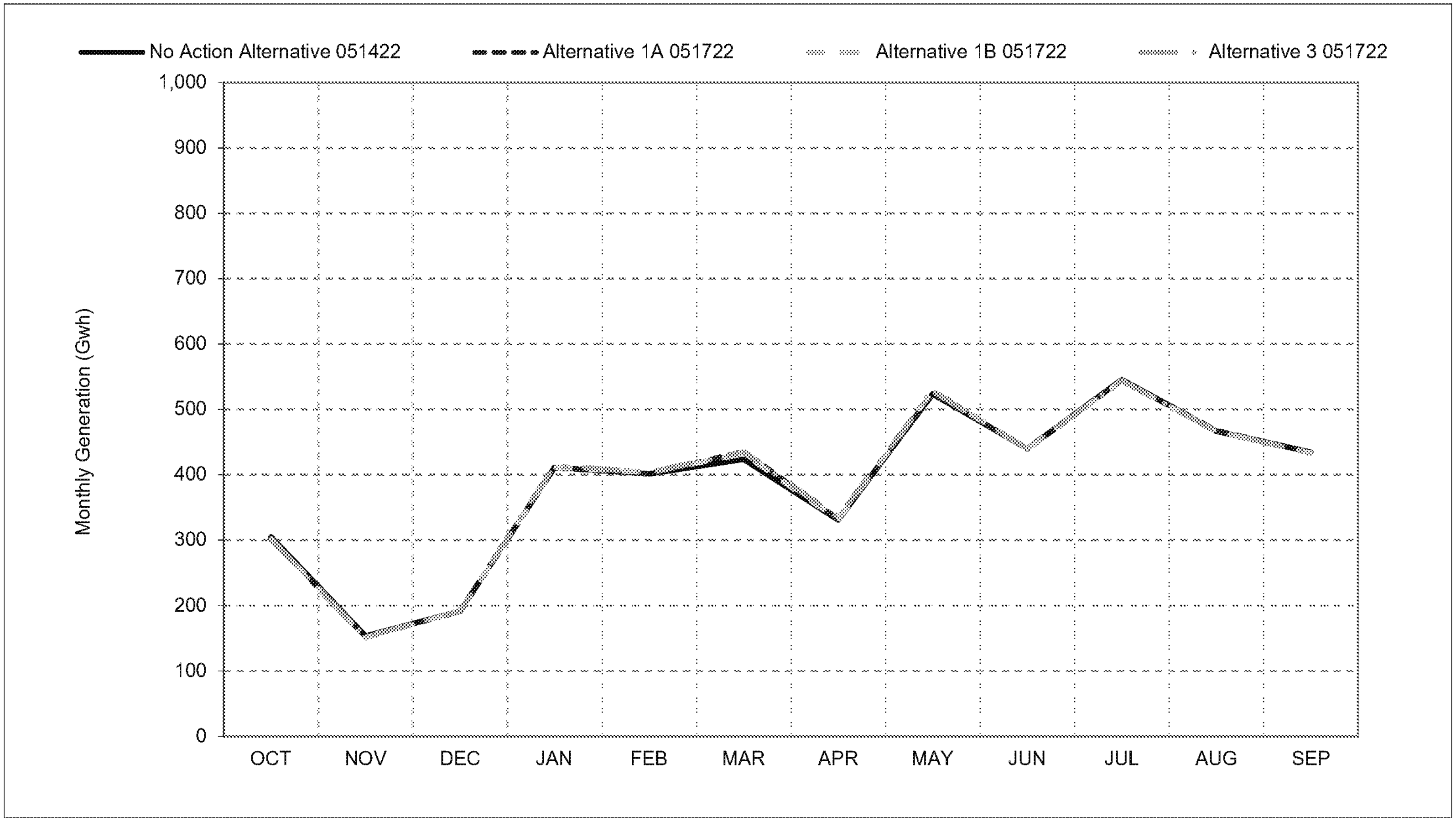


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-2. CVP Facilities Net Generation, Wet Year Average Generation

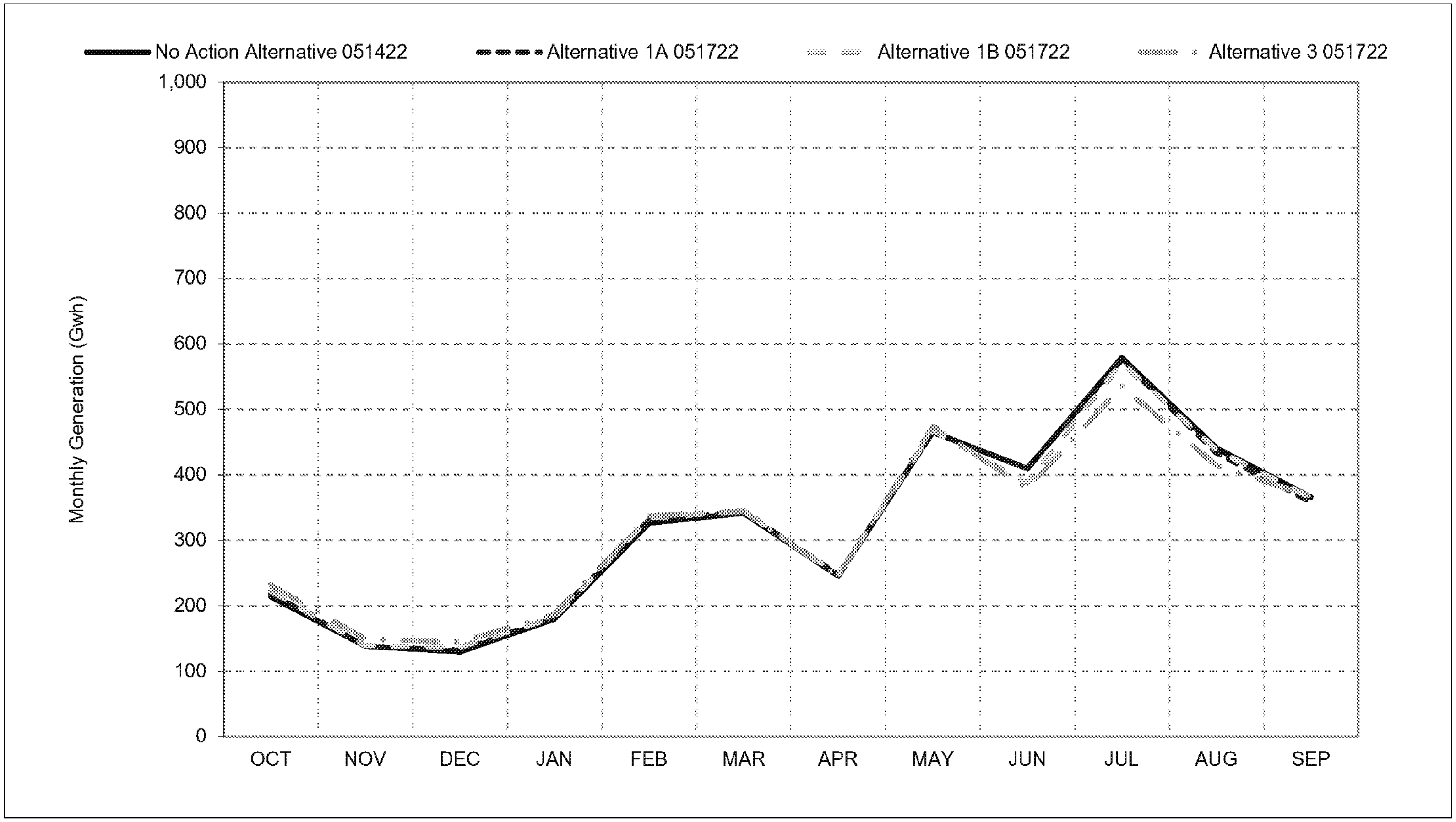


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-3. CVP Facilities Net Generation, Above Normal Year Average Generation

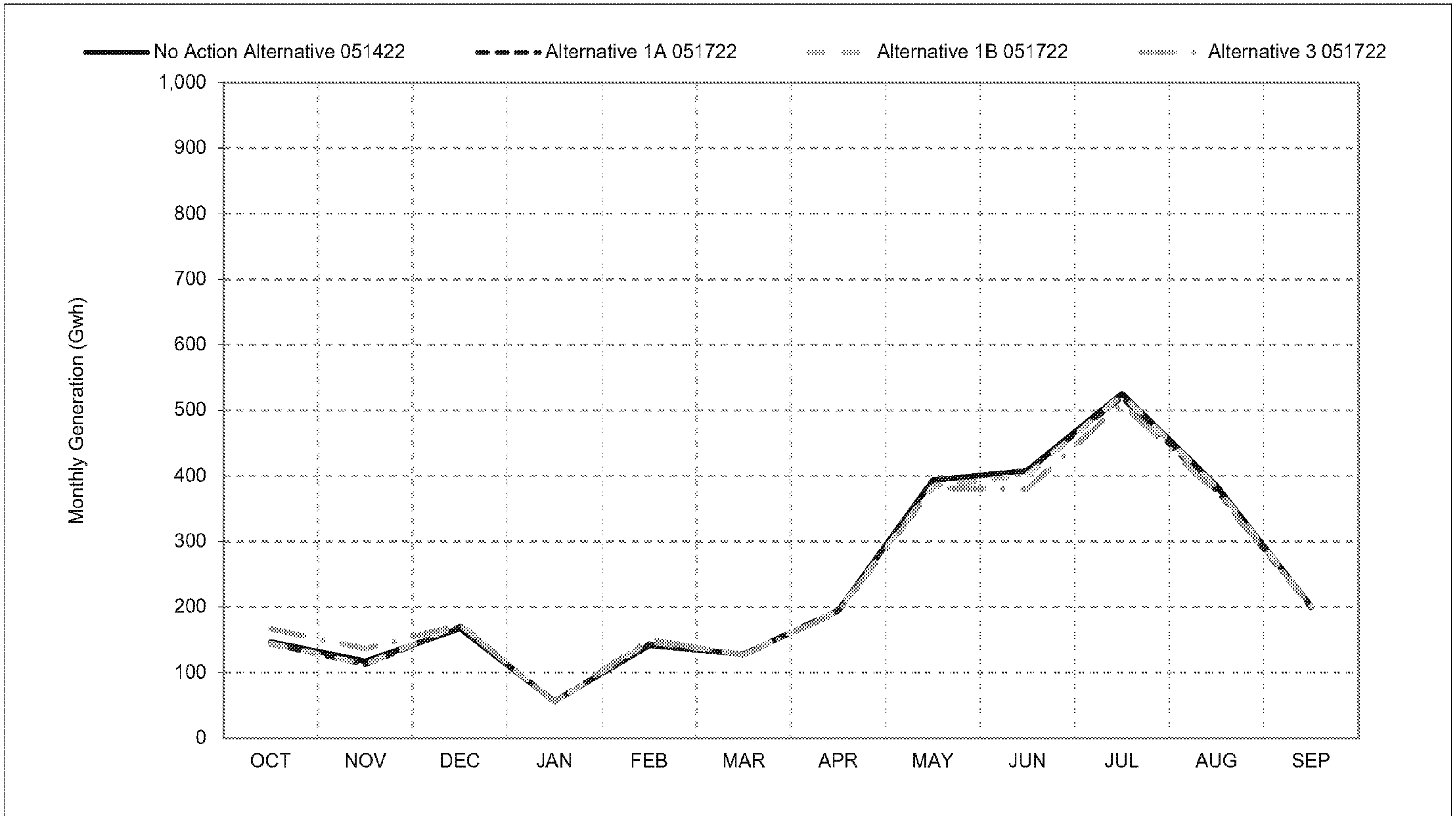


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

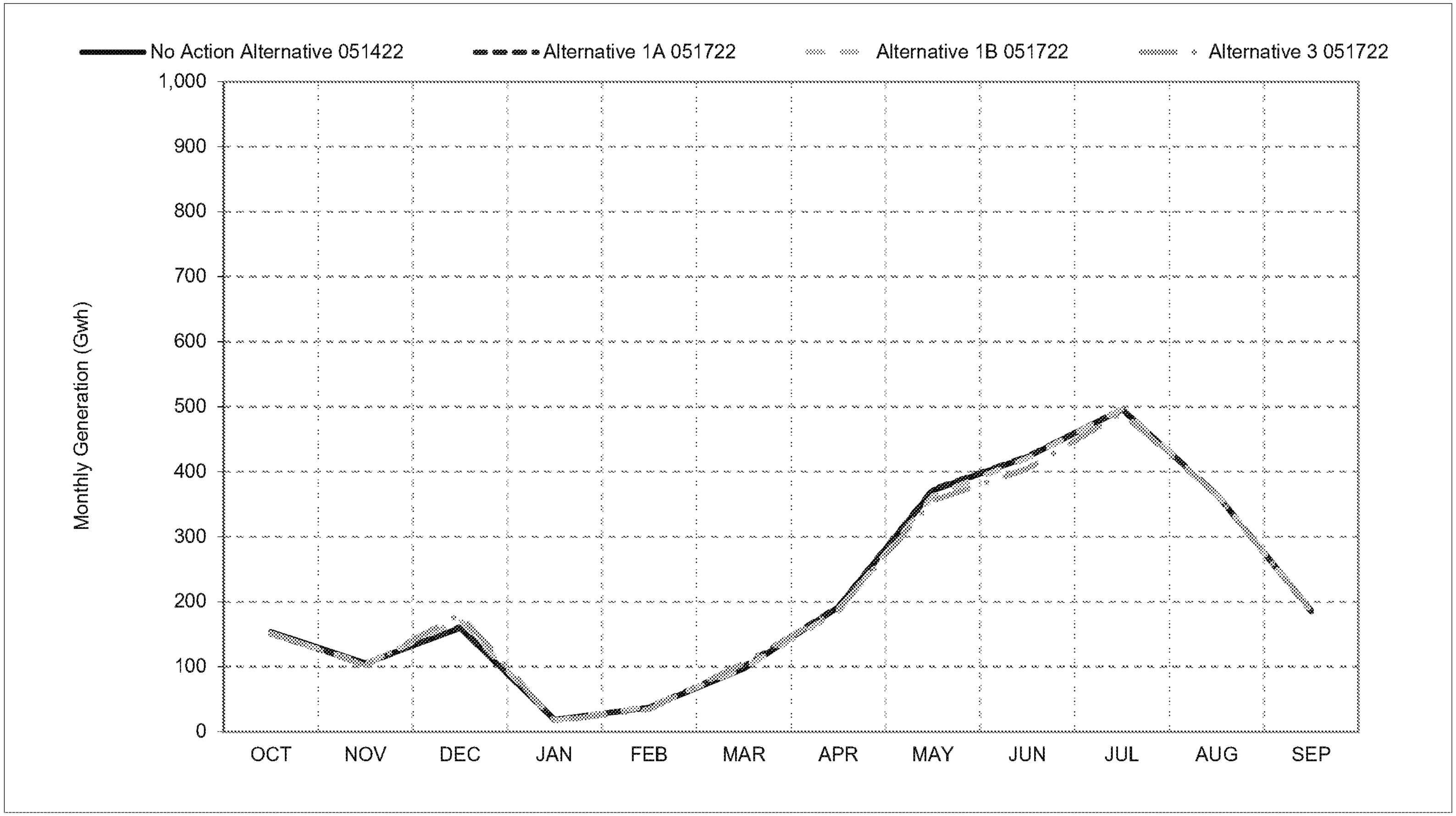
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-4. CVP Facilities Net Generation, Below Normal Year Average Generation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-5. CVP Facilities Net Generation, Dry Year Average Generation

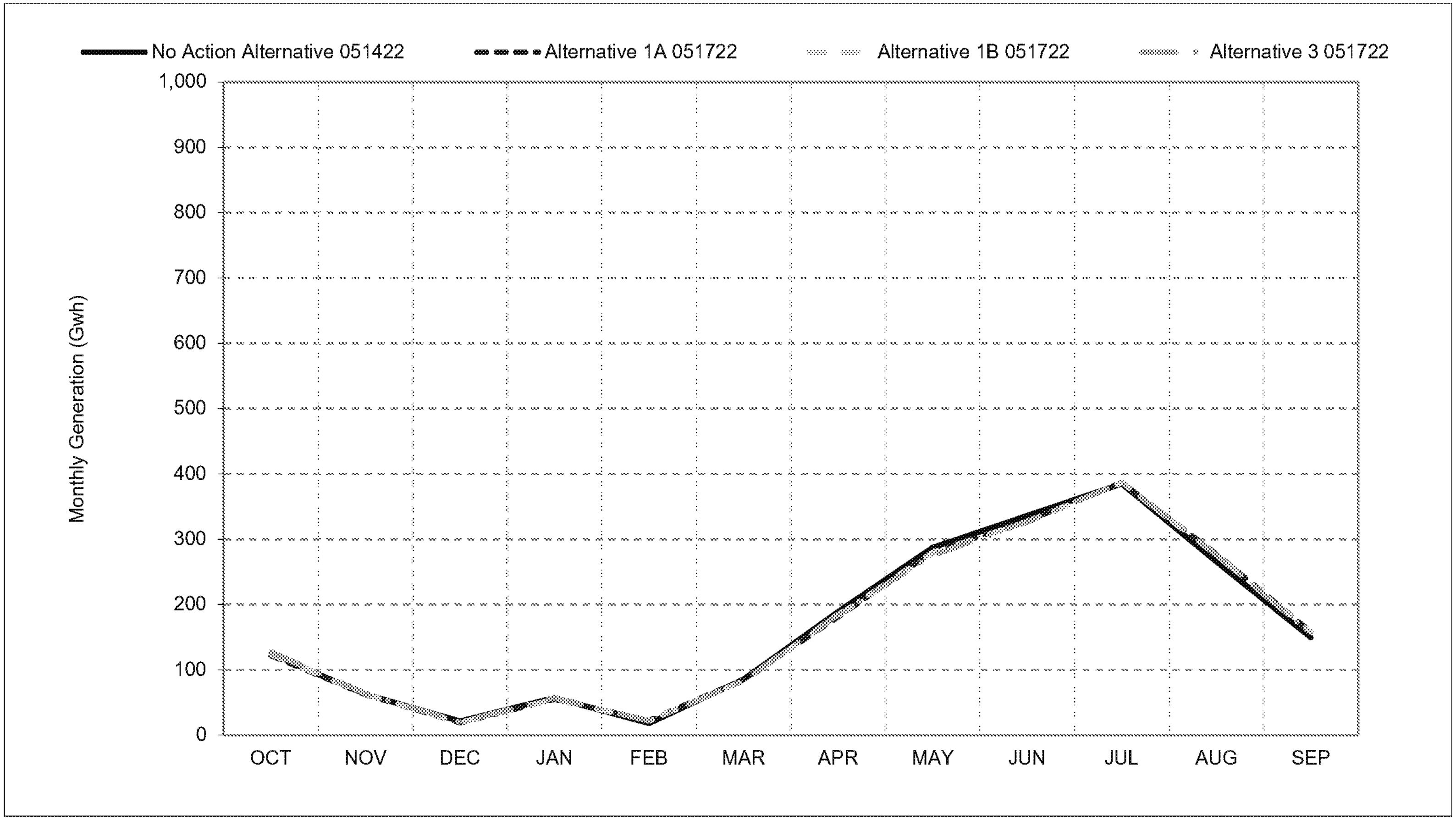


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-6. CVP Facilities Net Generation, Critical Year Average Generation

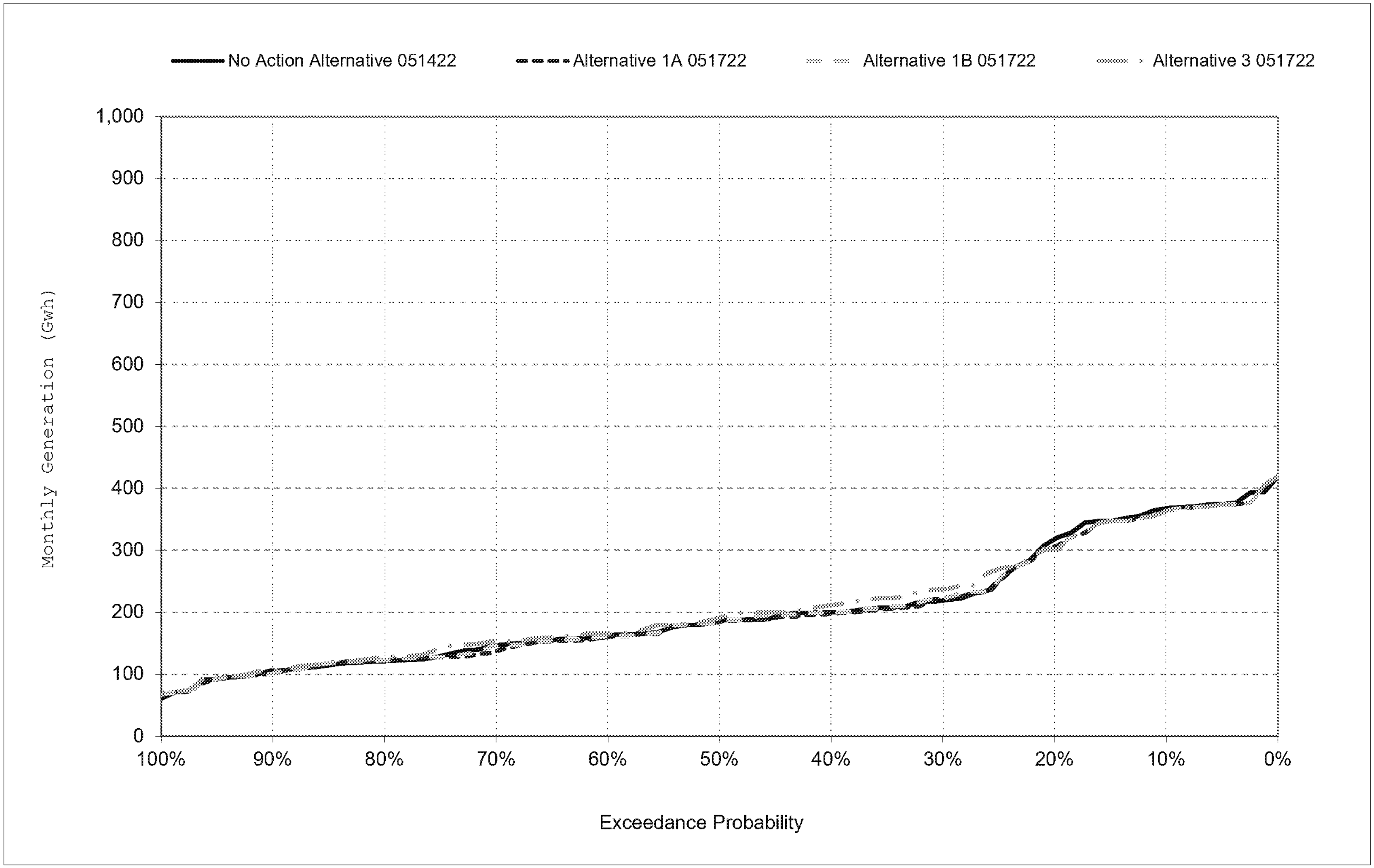


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

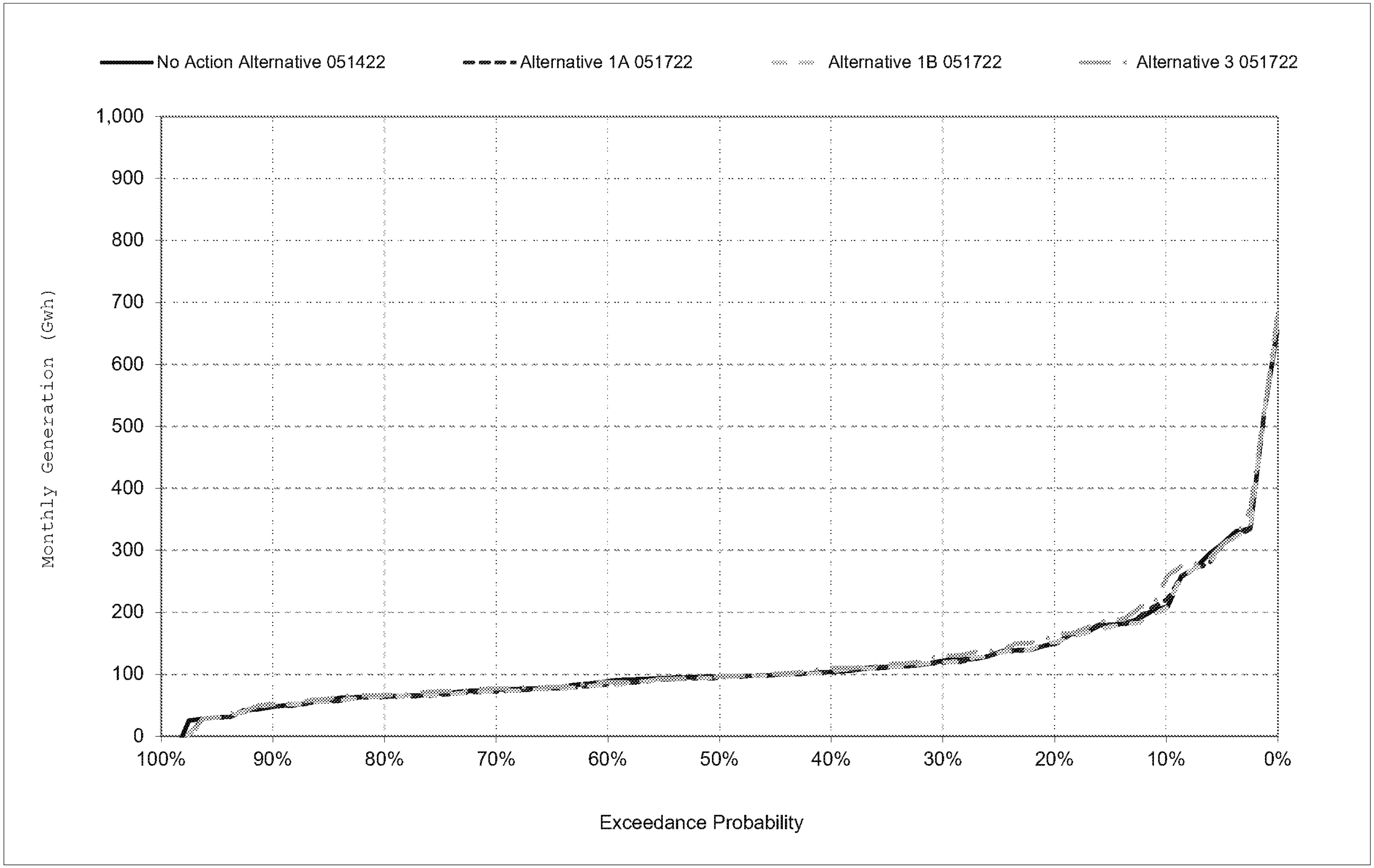
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-7. CVP Facilities Net Generation, October



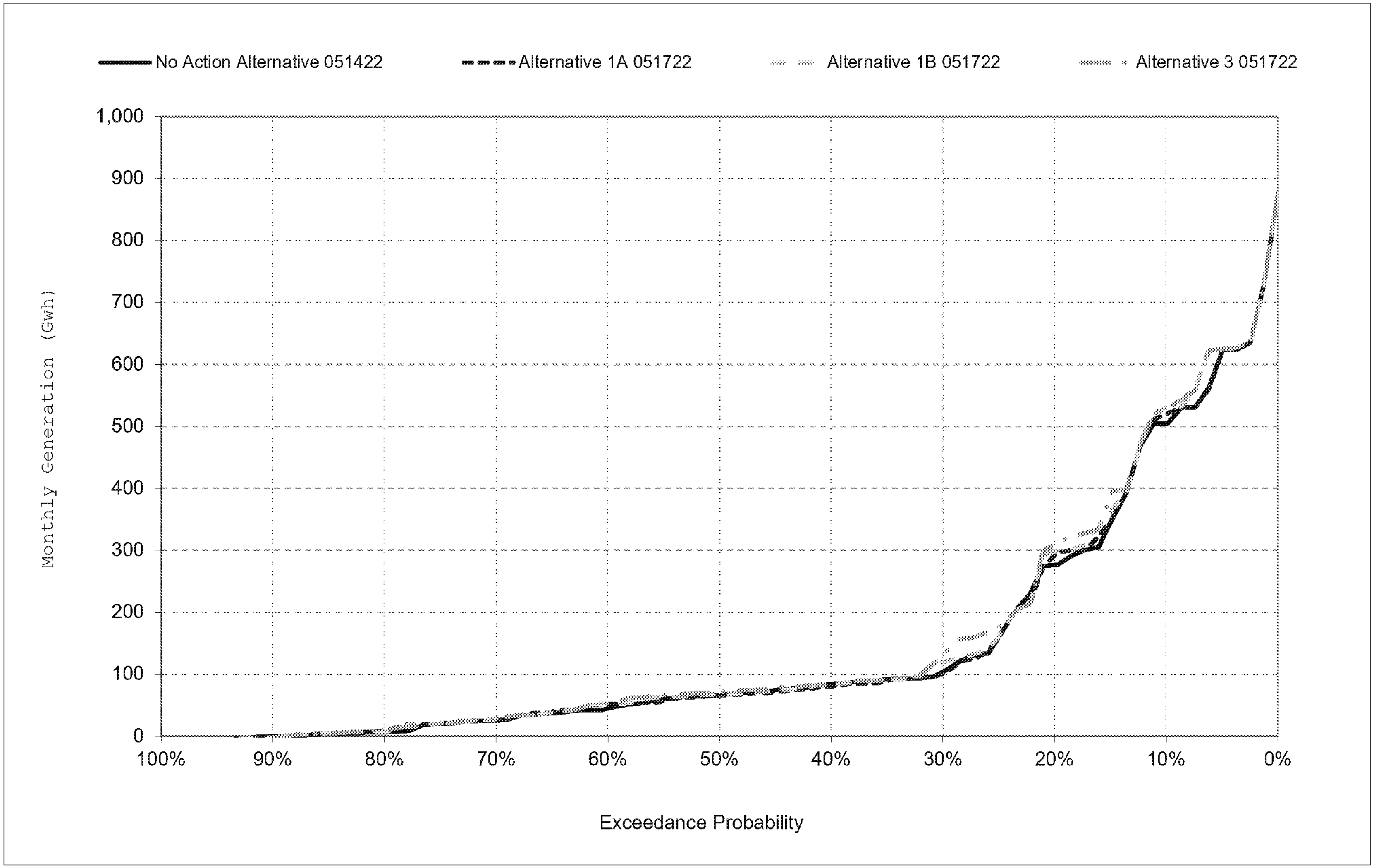
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-8. CVP Facilities Net Generation, November



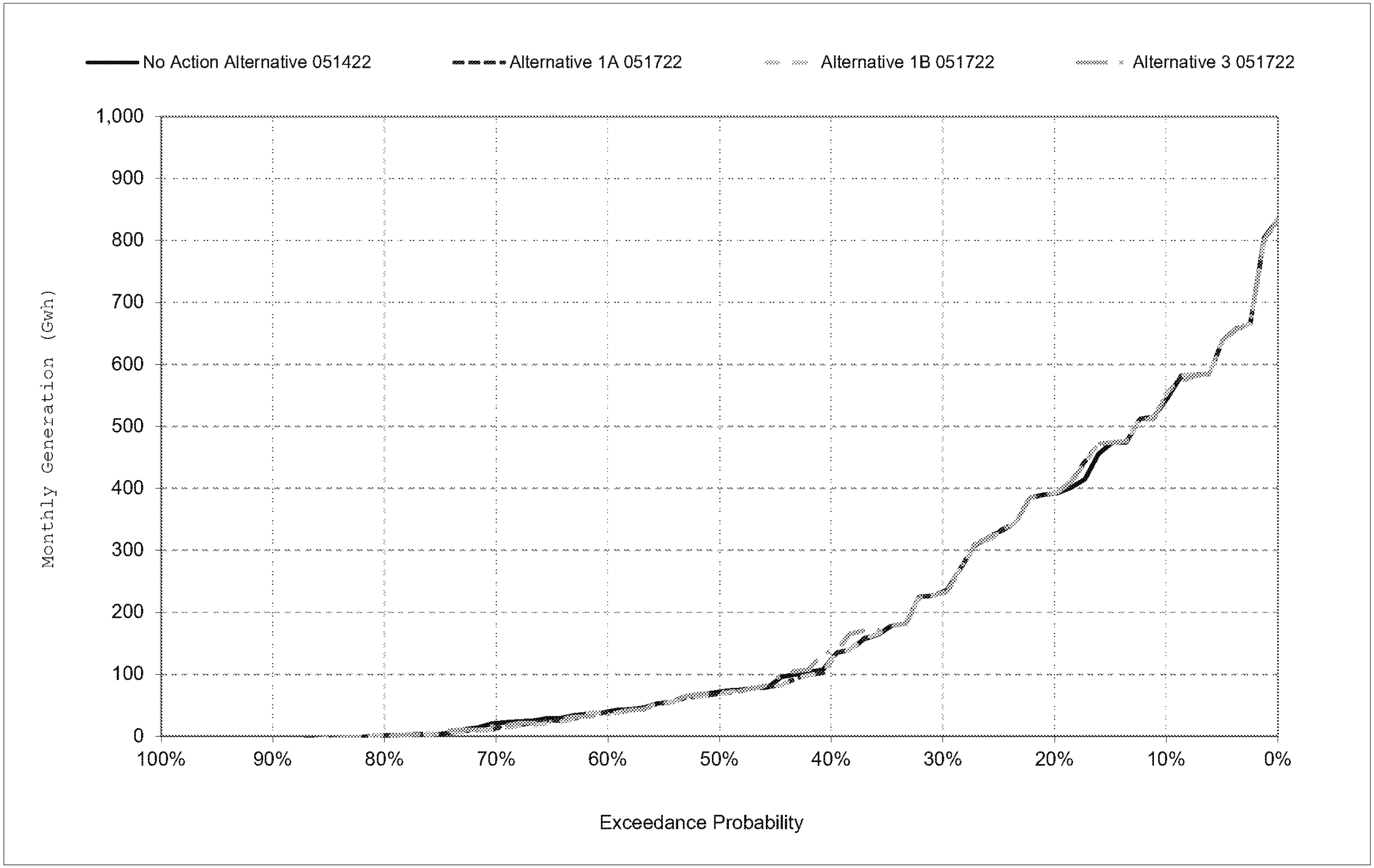
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-9. CVP Facilities Net Generation, December



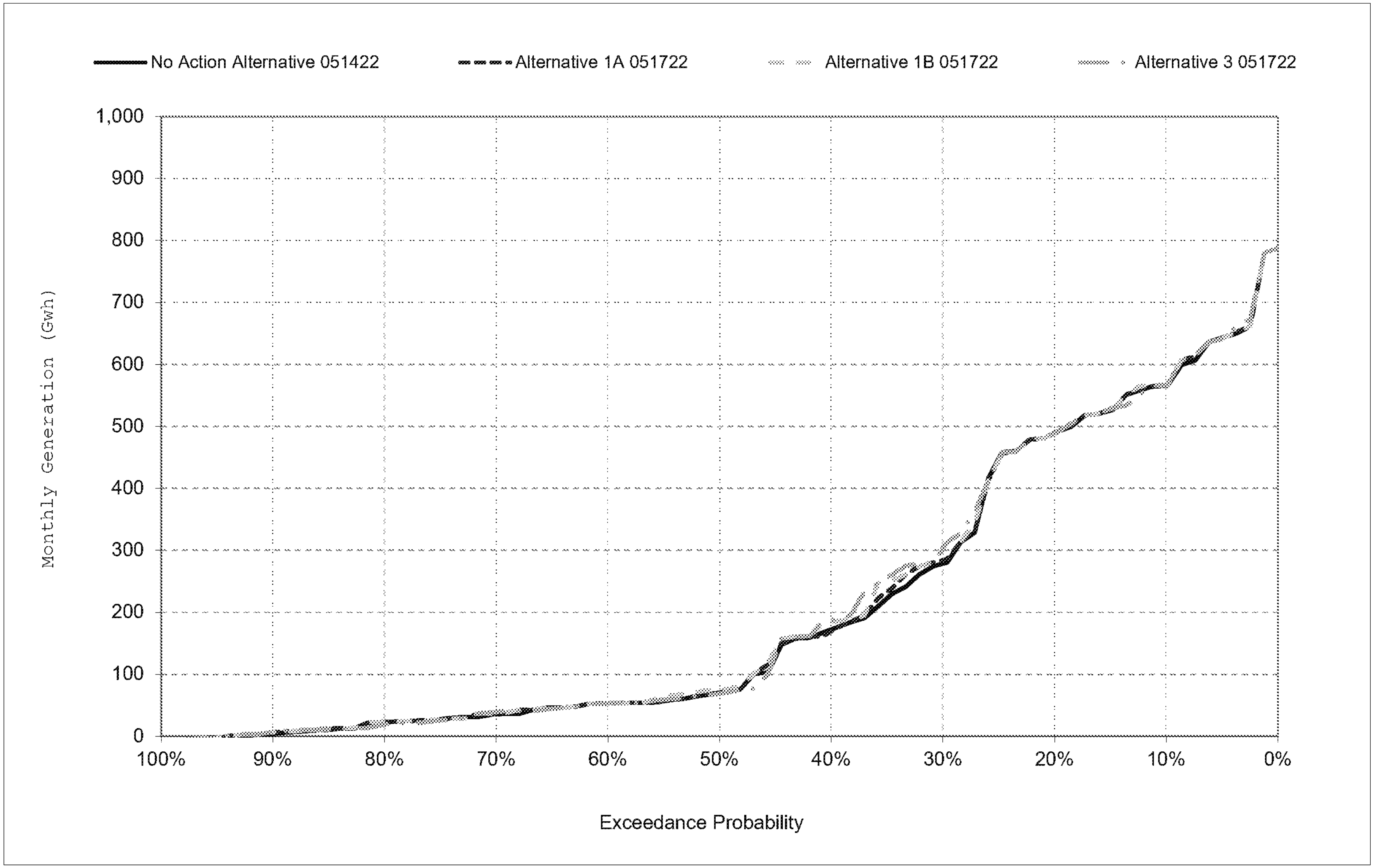
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-10. CVP Facilities Net Generation, January



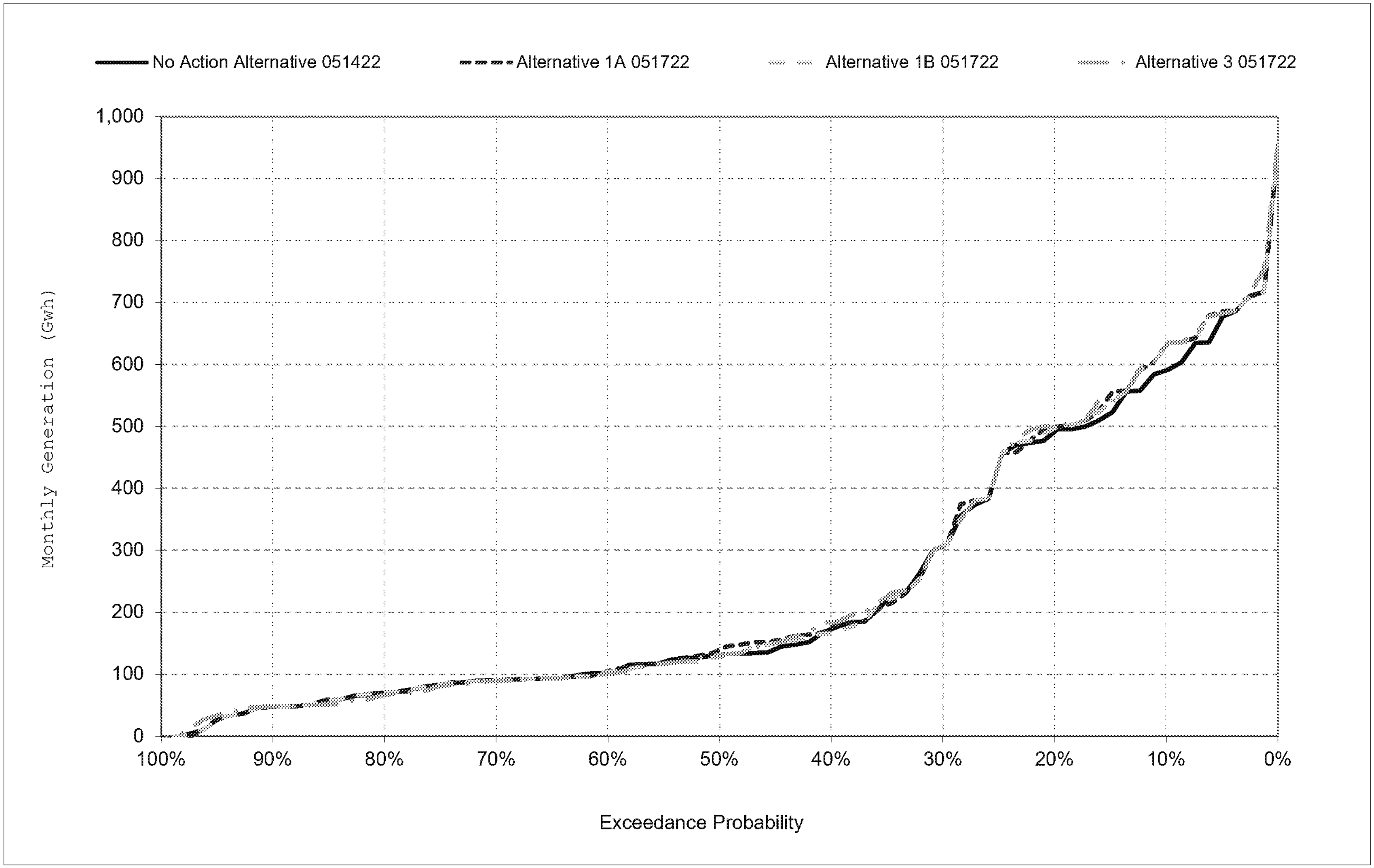
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-11. CVP Facilities Net Generation, February



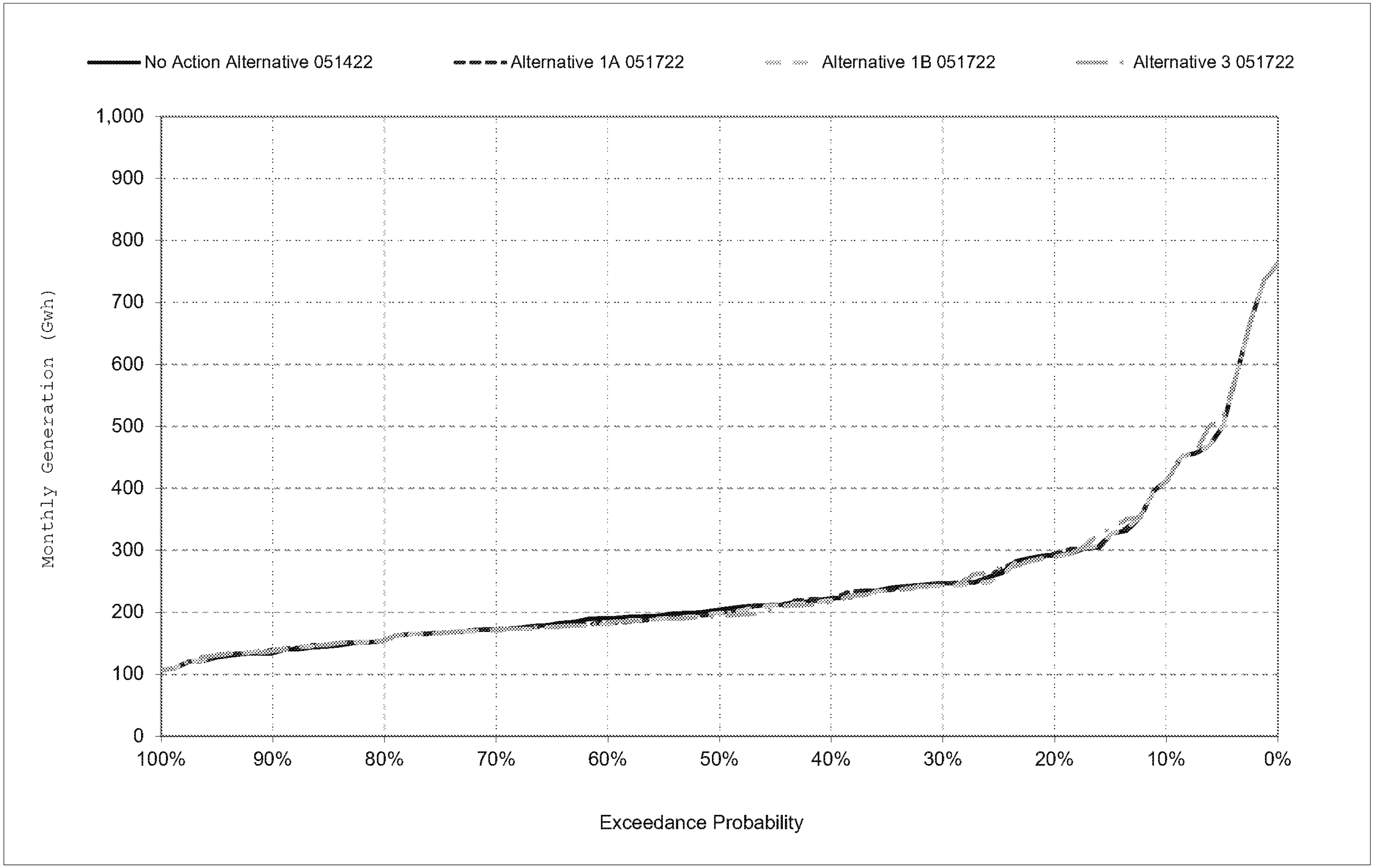
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-12. CVP Facilities Net Generation, March



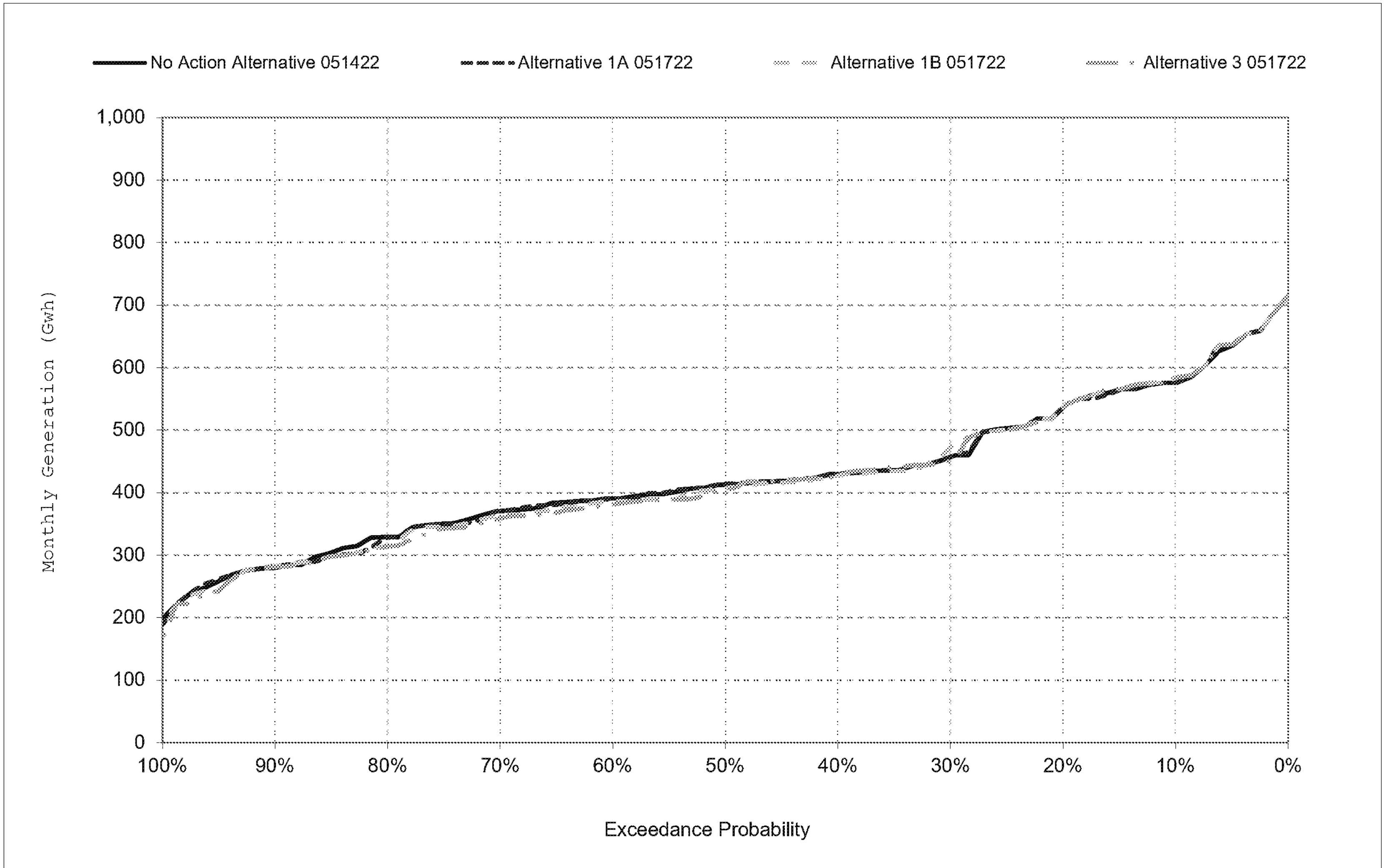
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-13. CVP Facilities Net Generation, April



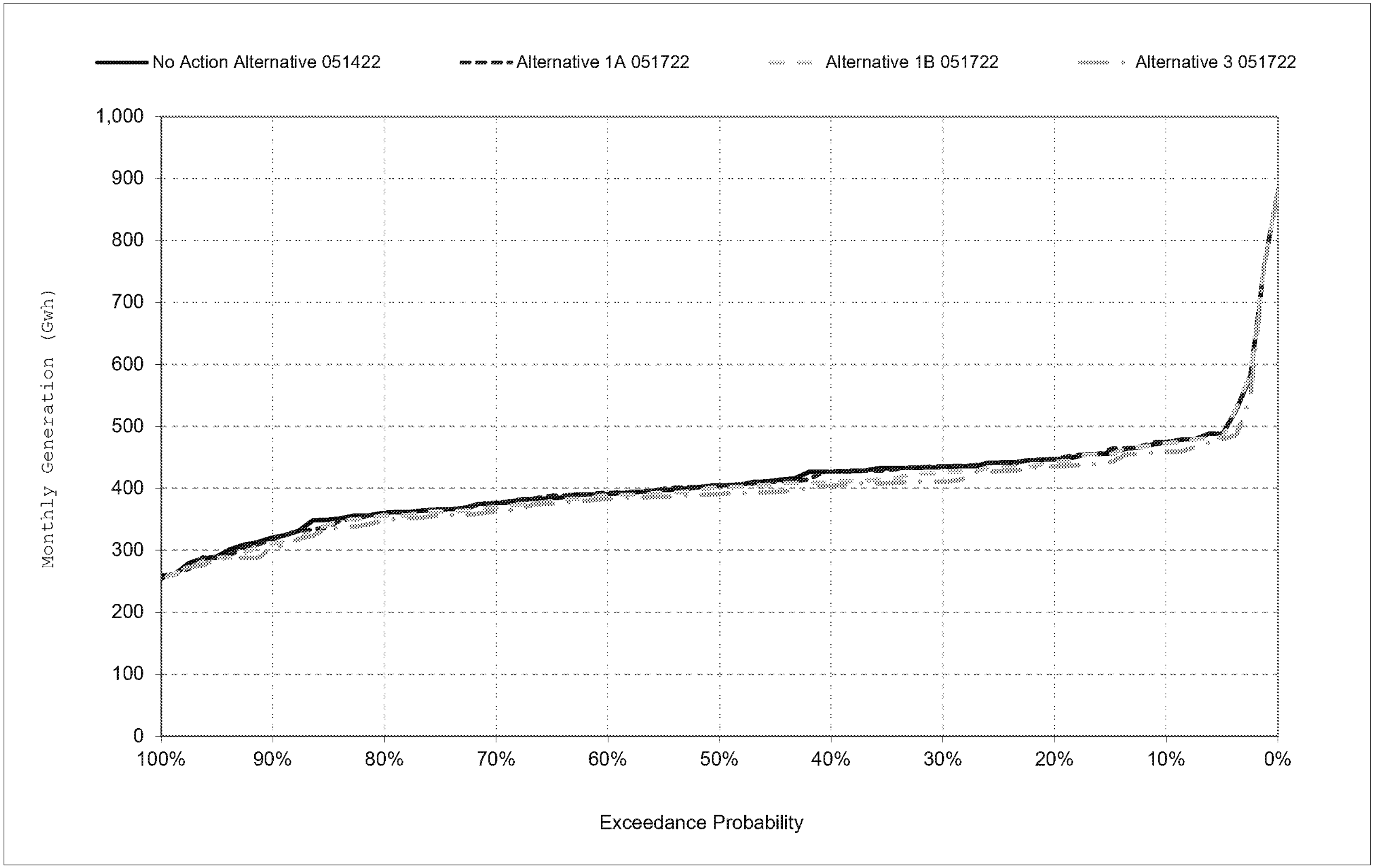
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-14. CVP Facilities Net Generation, May



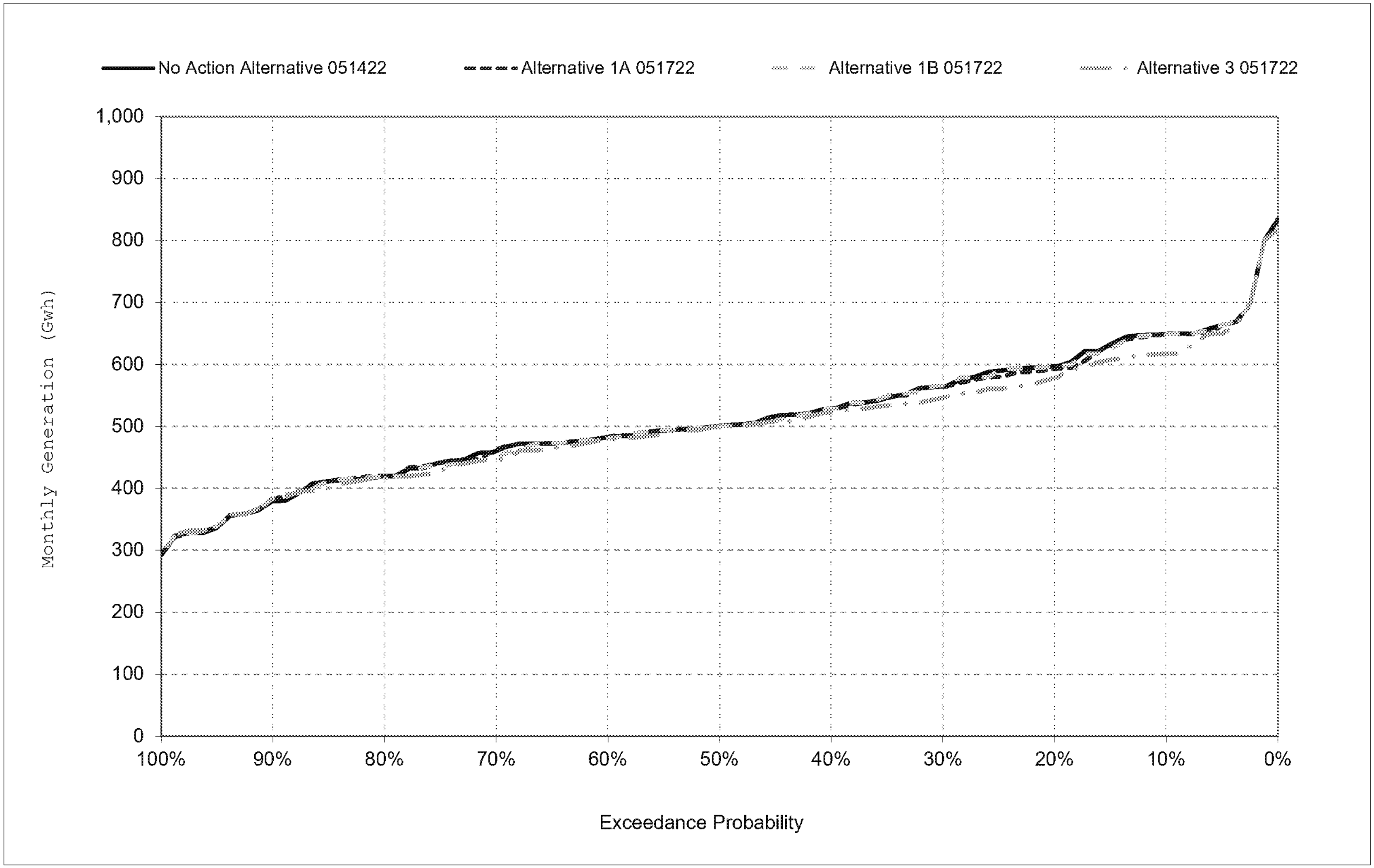
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-15. CVP Facilities Net Generation, June



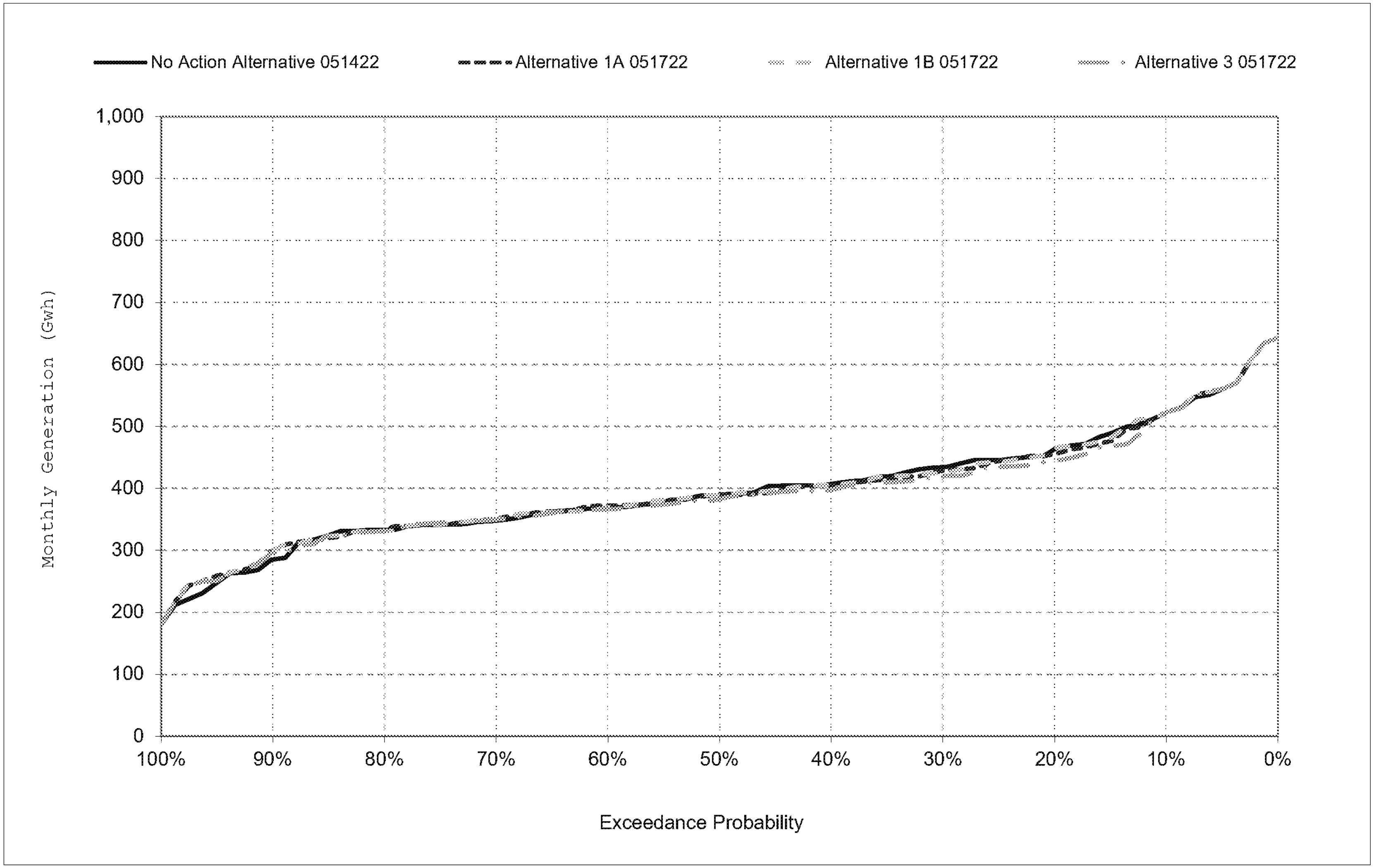
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-16. CVP Facilities Net Generation, July



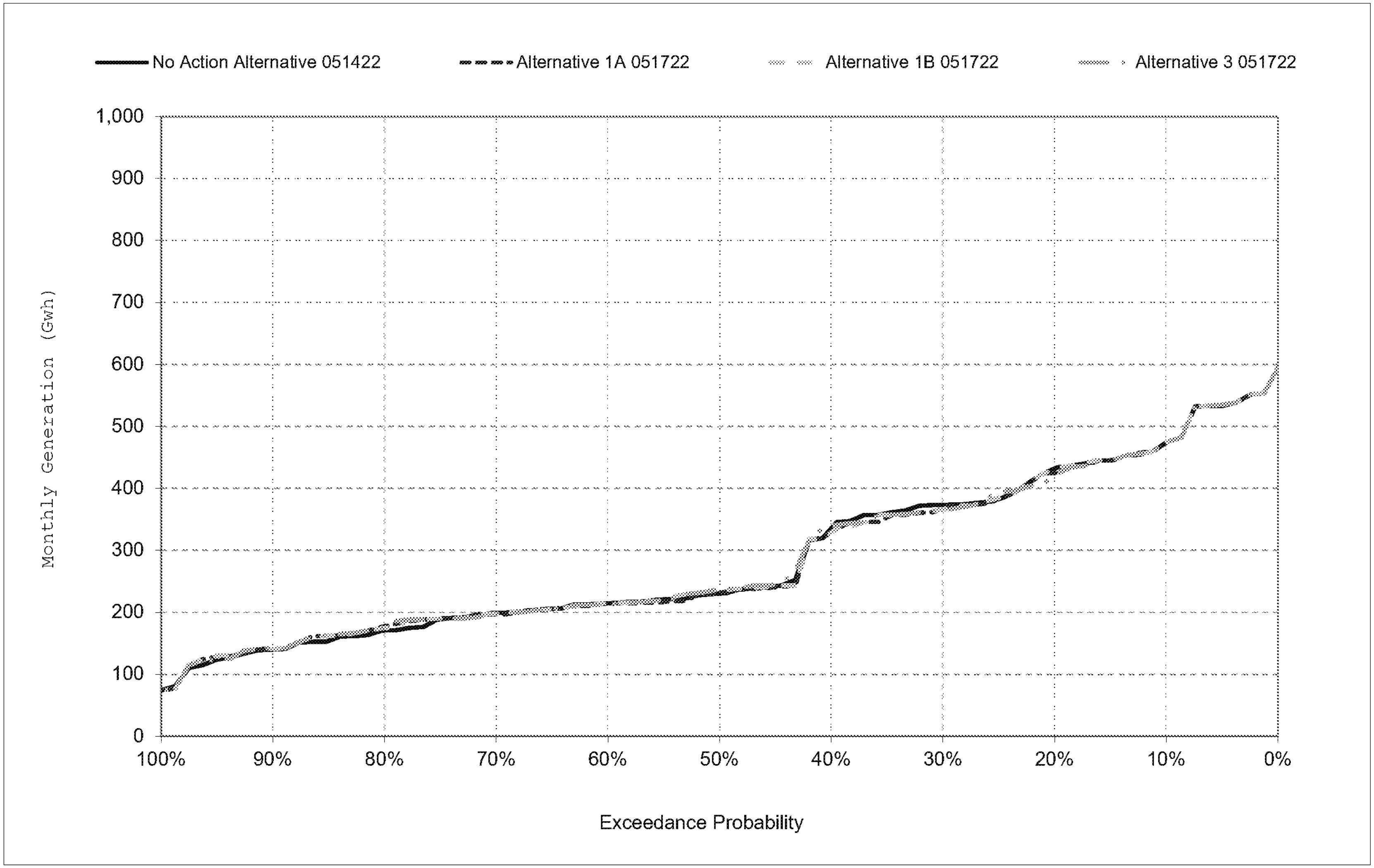
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-17. CVP Facilities Net Generation, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 4-18. CVP Facilities Net Generation, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 5-1a. CVP Facilities Net Revenue, No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,372	11,368	29,210	33,096	31,359	30,005	20,200	26,332	22,804	36,721	32,631	28,261
20%	16,983	8,127	15,991	23,857	27,085	24,930	14,362	24,570	21,524	33,762	28,940	25,752
30%	11,581	6,630	6,140	14,284	15,397	15,412	12,084	20,965	20,905	31,944	27,108	22,300
40%	10,599	5,667	4,950	7,580	9,507	8,737	10,904	19,603	20,571	29,914	25,464	20,071
50%	9,814	5,317	3,944	4,472	3,889	6,533	10,038	18,890	19,452	28,326	24,356	13,947
60%	8,571	4,895	2,790	2,578	2,867	5,244	9,360	17,858	18,765	27,291	22,997	12,973
70%	7,804	4,143	1,749	1,375	1,908	4,534	8,455	16,923	18,082	26,054	21,804	11,928
80%	6,472	3,555	625	197	1,172	3,459	7,487	15,015	17,328	23,733	20,795	10,259
90%	5,701	2,725	155	-675	135	2,261	6,562	12,758	15,479	21,446	17,789	8,480
Long Term												
Full Simulation Period[d]	10,868	6,650	8,577	10,979	11,604	12,129	11,949	19,428	19,778	29,002	24,825	17,282
Water Year Types[b,c]												
Wet (32%)	16,118	8,442	11,192	25,065	22,227	21,477	16,214	23,930	21,120	30,868	29,158	25,928
Above Normal (15%)	11,322	7,603	7,655	11,048	18,068	17,319	12,014	21,286	19,689	32,763	27,544	21,844
Below Normal (17%)	7,857	6,417	9,779	3,573	7,778	6,415	9,515	17,970	19,642	29,726	24,077	12,217
Dry (22%)	8,161	5,747	9,292	1,282	2,023	4,851	9,406	16,996	20,371	28,053	22,809	11,230
Critical (15%)	6,610	3,445	1,357	3,574	956	4,268	9,299	13,162	16,231	21,777	16,617	8,970

Table 5-1b. CVP Facilities Net Revenue, Alternative 1A 051722, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,150	11,994	30,086	33,281	31,315	32,029	20,200	26,332	22,874	36,702	32,632	28,261
20%	16,305	8,095	16,971	23,887	27,083	25,353	14,373	24,576	21,564	33,547	28,491	25,362
30%	11,725	6,472	5,972	14,213	15,699	15,404	12,078	21,014	20,900	31,945	26,774	22,052
40%	10,489	5,730	4,683	7,471	9,345	8,831	10,931	19,594	20,556	29,882	25,310	19,674
50%	9,758	5,278	3,931	4,327	3,894	7,056	9,750	18,926	19,424	28,309	24,293	14,044
60%	8,579	4,619	3,187	2,419	2,879	5,304	8,997	17,794	18,841	27,327	23,252	12,960
70%	7,319	4,085	1,777	924	1,970	4,499	8,456	16,928	18,103	26,152	21,924	11,856
80%	6,518	3,508	790	272	1,202	3,458	7,543	14,878	17,196	23,740	20,838	10,832
90%	5,435	2,728	75	-427	288	2,261	6,772	13,002	15,372	21,612	18,701	8,551
Long Term												
Full Simulation Period[d]	10,769	6,587	8,626	10,962	11,693	12,357	11,927	19,400	19,741	28,945	24,809	17,261
Water Year Types[b,c]												
Wet (32%)	15,925	8,414	11,184	25,055	22,230	22,060	16,248	23,911	21,149	30,866	29,201	25,925
Above Normal (15%)	11,576	7,606	7,785	11,238	18,347	17,401	12,113	21,267	19,718	32,592	27,108	21,427
Below Normal (17%)	7,720	6,188	9,960	3,509	7,876	6,382	9,506	17,973	19,619	29,443	23,689	12,133
Dry (22%)	7,996	5,686	9,393	1,225	2,019	5,034	9,453	17,088	20,408	28,066	22,803	11,159
Critical (15%)	6,509	3,428	1,216	3,453	1,175	4,248	8,915	12,892	15,858	21,873	17,308	9,458

Table 5-1c. CVP Facilities Net Revenue, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-222	626	876	185	-44	2,024	0	0	70	-19	1	0
20%	-677	-32	980	30	-1	423	10	6	39	-215	-449	-391
30%	144	-158	-168	-70	302	-8	-6	49	-6	1	-334	-248
40%	-110	63	-267	-110	-162	94	28	-8	-14	-32	-154	-397
50%	-55	-39	-13	-145	5	523	-288	37	-28	-17	-62	97
60%	8	-276	397	-159	12	60	-362	-64	76	36	255	-13
70%	-485	-57	28	-451	61	-35	1	4	22	98	119	-72
80%	46	-47	165	75	30	-1	57	-138	-132	8	43	572
90%	-266	3	-80	248	152	0	210	244	-107	167	913	71
Long Term												
Full Simulation Period[d]	-98	-63	49	-16	90	228	-22	-28	-37	-57	-17	-21
Water Year Types[b,c]												
Wet (32%)	-193	-27	-8	-10	3	583	34	-19	29	-1	43	-3
Above Normal (15%)	253	3	130	190	279	82	100	-19	30	-171	-436	-417
Below Normal (17%)	-137	-228	181	-63	98	-33	-10	3	-24	-283	-387	-84
Dry (22%)	-165	-61	101	-57	-4	183	47	92	37	13	-6	-71
Critical (15%)	-102	-17	-141	-121	219	-20	-384	-270	-374	96	691	487

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 5-2a. CVP Facilities Net Revenue, No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,372	11,368	29,210	33,096	31,359	30,005	20,200	26,332	22,804	36,721	32,631	28,261
20%	16,983	8,127	15,991	23,857	27,085	24,930	14,362	24,570	21,524	33,762	28,940	25,752
30%	11,581	6,630	6,140	14,284	15,397	15,412	12,084	20,965	20,905	31,944	27,108	22,300
40%	10,599	5,667	4,950	7,580	9,507	8,737	10,904	19,603	20,571	29,914	25,464	20,071
50%	9,814	5,317	3,944	4,472	3,889	6,533	10,038	18,890	19,452	28,326	24,356	13,947
60%	8,571	4,895	2,790	2,578	2,867	5,244	9,360	17,858	18,765	27,291	22,997	12,973
70%	7,804	4,143	1,749	1,375	1,908	4,534	8,455	16,923	18,082	26,054	21,804	11,928
80%	6,472	3,555	625	197	1,172	3,459	7,487	15,015	17,328	23,733	20,795	10,259
90%	5,701	2,725	155	-675	135	2,261	6,562	12,758	15,479	21,446	17,789	8,480
Long Term												
Full Simulation Period[a]	10,868	6,650	8,577	10,979	11,604	12,129	11,949	19,428	19,778	29,002	24,825	17,282
Water Year Types[b,c]												
Wet (32%)	16,118	8,442	11,192	25,065	22,227	21,477	16,214	23,930	21,120	30,868	29,158	25,928
Above Normal (15%)	11,322	7,603	7,655	11,048	18,068	17,319	12,014	21,286	19,689	32,763	27,544	21,844
Below Normal (17%)	7,857	6,417	9,779	3,573	7,778	6,415	9,515	17,970	19,642	29,726	24,077	12,217
Dry (22%)	8,161	5,747	9,292	1,282	2,023	4,851	9,406	16,996	20,371	28,053	22,809	11,230
Critical (15%)	6,610	3,445	1,357	3,574	956	4,268	9,299	13,162	16,231	21,777	16,617	8,970

Table 5-2b. CVP Facilities Net Revenue, Alternative 1B 051722, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,150	11,313	30,579	33,606	31,376	32,029	20,200	26,699	22,769	36,693	32,636	28,261
20%	16,249	8,232	17,327	23,931	27,083	25,282	14,253	24,570	21,276	33,744	28,952	25,760
30%	11,824	6,521	6,985	14,215	16,779	15,412	11,902	21,650	20,510	32,067	26,579	21,862
40%	10,584	5,757	4,987	7,512	10,136	8,389	10,757	19,491	19,745	29,882	25,363	19,671
50%	9,790	5,251	4,053	4,335	4,125	6,420	9,716	18,584	19,326	28,255	24,329	14,178
60%	8,589	4,549	3,181	2,402	2,843	5,244	8,909	17,667	18,633	27,192	23,066	13,001
70%	7,775	4,060	1,879	835	2,015	4,502	8,398	16,549	17,750	25,448	21,906	11,912
80%	6,517	3,506	665	271	1,247	3,470	7,541	14,430	17,045	23,710	20,691	10,499
90%	5,425	2,821	39	-477	299	2,260	6,770	12,979	14,844	21,688	18,675	8,554
Long Term												
Full Simulation Period[a]	10,832	6,571	8,828	10,959	11,815	12,278	11,865	19,307	19,470	28,922	24,862	17,312
Water Year Types[b,c]												
Wet (32%)	15,961	8,321	11,197	25,086	22,344	21,914	16,231	24,166	21,111	30,762	29,126	25,843
Above Normal (15%)	11,786	7,657	8,071	11,225	18,505	17,482	12,130	21,404	18,598	32,342	27,381	21,796
Below Normal (17%)	7,743	6,186	10,131	3,489	8,104	6,418	9,521	17,516	19,313	29,650	23,895	12,231
Dry (22%)	8,023	5,702	9,961	1,195	2,121	4,872	9,116	16,609	20,276	28,117	22,836	11,193
Critical (15%)	6,587	3,445	1,230	3,446	1,180	4,142	8,995	12,817	15,763	21,878	17,272	9,451

Table 5-2c. CVP Facilities Net Revenue, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-222	-55	1,369	510	18	2,024	0	368	-35	-28	5	0
20%	-734	105	1,336	74	-2	352	-109	0	-248	-18	12	8
30%	243	-108	845	-69	1,382	1	-182	685	-395	123	-529	-438
40%	-15	90	36	-69	629	-348	-147	-111	-825	-32	-100	-400
50%	-24	-66	109	-137	236	-113	-322	-305	-126	-71	-27	231
60%	18	-347	391	-176	-25	0	-451	-191	-132	-99	68	28
70%	-29	-83	130	-540	106	-32	-57	-375	-331	-607	102	-16
80%	46	-49	41	74	75	12	54	-585	-283	-23	-104	240
90%	-276	96	-116	198	164	-1	208	221	-635	242	886	74
Long Term												
Full Simulation Period[a]	-35	-79	251	-20	211	149	-85	-121	-308	-79	37	30
Water Year Types[b,c]												
Wet (32%)	-157	-120	5	21	117	437	17	236	-9	-106	-32	-86
Above Normal (15%)	464	54	416	177	437	163	116	118	-1,090	-421	-163	-48
Below Normal (17%)	-114	-230	352	-84	327	4	6	-454	-330	-76	-182	13
Dry (22%)	-138	-45	670	-87	98	21	-290	-387	-95	64	27	-38
Critical (15%)	-23	0	-127	-128	224	-126	-303	-346	-468	101	655	481

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 5-3a. CVP Facilities Net Revenue, No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,372	11,368	29,210	33,096	31,359	30,005	20,200	26,332	22,804	36,721	32,631	28,261
20%	16,983	8,127	15,991	23,857	27,085	24,930	14,362	24,570	21,524	33,762	28,940	25,752
30%	11,581	6,630	6,140	14,284	15,397	15,412	12,084	20,965	20,905	31,944	27,108	22,300
40%	10,599	5,667	4,950	7,580	9,507	8,737	10,904	19,603	20,571	29,914	25,464	20,071
50%	9,814	5,317	3,944	4,472	3,889	6,533	10,038	18,890	19,452	28,326	24,356	13,947
60%	8,571	4,895	2,790	2,578	2,867	5,244	9,360	17,858	18,765	27,291	22,997	12,973
70%	7,804	4,143	1,749	1,375	1,908	4,534	8,455	16,923	18,082	26,054	21,804	11,928
80%	6,472	3,555	625	197	1,172	3,459	7,487	15,015	17,328	23,733	20,795	10,259
90%	5,701	2,725	155	-675	135	2,261	6,562	12,758	15,479	21,446	17,789	8,480
Long Term												
Full Simulation Period[a]	10,868	6,650	8,577	10,979	11,604	12,129	11,949	19,428	19,778	29,002	24,825	17,282
Water Year Types[b,c]												
Wet (32%)	16,118	8,442	11,192	25,065	22,227	21,477	16,214	23,930	21,120	30,868	29,158	25,928
Above Normal (15%)	11,322	7,603	7,655	11,048	18,068	17,319	12,014	21,286	19,689	32,763	27,544	21,844
Below Normal (17%)	7,857	6,417	9,779	3,573	7,778	6,415	9,515	17,970	19,642	29,726	24,077	12,217
Dry (22%)	8,161	5,747	9,292	1,282	2,023	4,851	9,406	16,996	20,371	28,053	22,809	11,230
Critical (15%)	6,610	3,445	1,357	3,574	956	4,268	9,299	13,162	16,231	21,777	16,617	8,970

Table 5-3b. CVP Facilities Net Revenue, Alternative 3 051722, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	19,149	13,824	30,463	33,596	31,434	32,030	20,199	26,699	22,083	34,924	32,633	28,258
20%	16,059	8,900	17,960	23,854	27,064	25,532	14,238	24,561	20,888	32,711	27,760	25,120
30%	12,566	7,129	7,755	14,189	16,724	15,420	11,906	20,602	19,813	30,910	26,244	21,805
40%	11,174	5,997	5,017	8,474	10,366	9,274	10,615	19,502	19,443	29,563	24,902	20,228
50%	10,158	5,284	4,251	4,408	3,788	6,509	9,515	18,497	18,773	28,278	23,954	14,234
60%	8,812	4,807	3,242	2,241	2,868	4,987	9,011	17,430	18,367	27,103	22,890	12,910
70%	8,126	4,295	1,872	1,192	2,103	4,462	8,439	16,353	17,374	25,267	21,829	11,927
80%	6,758	3,756	805	146	993	3,267	7,613	14,349	16,735	23,591	20,715	10,561
90%	5,751	2,878	93	-615	319	2,283	6,672	12,894	14,603	21,678	18,494	8,603
Long Term												
Full Simulation Period[a]	11,131	6,870	9,023	11,051	11,810	12,393	11,926	19,215	19,075	28,412	24,562	17,323
Water Year Types[b,c]												
Wet (32%)	15,924	8,380	11,234	25,224	22,356	22,051	16,412	24,123	21,131	30,777	29,157	25,853
Above Normal (15%)	12,273	8,186	8,520	11,459	18,658	17,473	12,002	21,685	18,212	30,306	25,918	21,937
Below Normal (17%)	8,907	7,470	10,112	3,517	8,272	6,347	9,406	17,417	18,270	28,883	23,435	12,202
Dry (22%)	8,072	5,581	10,478	1,150	1,865	5,258	9,251	16,275	19,488	27,739	22,765	11,219
Critical (15%)	6,789	3,513	1,279	3,577	1,158	4,147	9,082	12,621	15,803	21,855	17,259	9,355

Table 5-3c. CVP Facilities Net Revenue, Alternative 3 051722 minus No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-222	2,456	1,252	500	75	2,025	-1	367	-721	-1,797	2	-4
20%	-923	773	1,969	-3	-21	602	-124	-9	-637	-1,051	-1,180	-633
30%	985	499	1,615	-95	1,328	8	-178	-363	-1,093	-1,033	-864	-495
40%	574	329	66	893	859	537	-289	-101	-1,128	-351	-562	157
50%	344	-32	307	-64	-101	-23	-523	-392	-679	-48	-401	287
60%	241	-88	452	-337	0	-257	-348	-428	-398	-188	-107	-63
70%	322	152	123	-183	195	-72	-16	-570	-707	-788	25	-1
80%	287	201	180	-51	-179	-192	126	-666	-593	-142	-80	301
90%	49	153	-62	60	183	22	111	136	-876	232	705	123
Long Term												
Full Simulation Period[a]	264	219	446	72	207	264	-24	-212	-703	-590	-263	41
Water Year Types[b,c]												
Wet (32%)	-194	-61	42	159	129	574	197	193	11	-91	-1	-75
Above Normal (15%)	951	583	865	411	591	154	-11	399	-1,477	-2,457	-1,626	93
Below Normal (17%)	1,050	1,053	332	-56	494	-68	-109	-553	-1,372	-843	-642	-15
Dry (22%)	-89	-166	1,187	-133	-158	407	-155	-721	-883	-315	-44	-11
Critical (15%)	179	69	-78	2	202	-121	-217	-542	-428	78	643	384

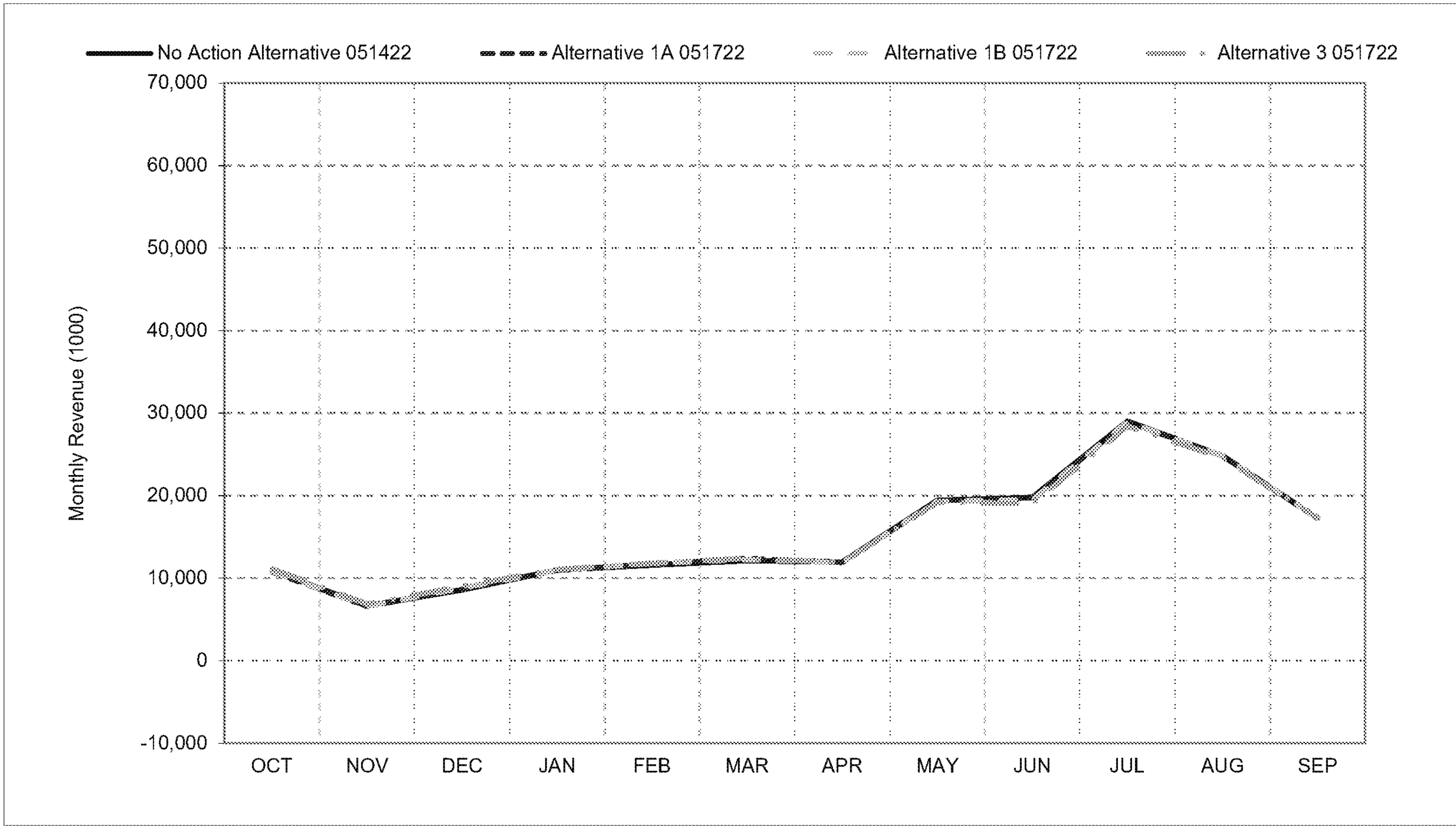
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

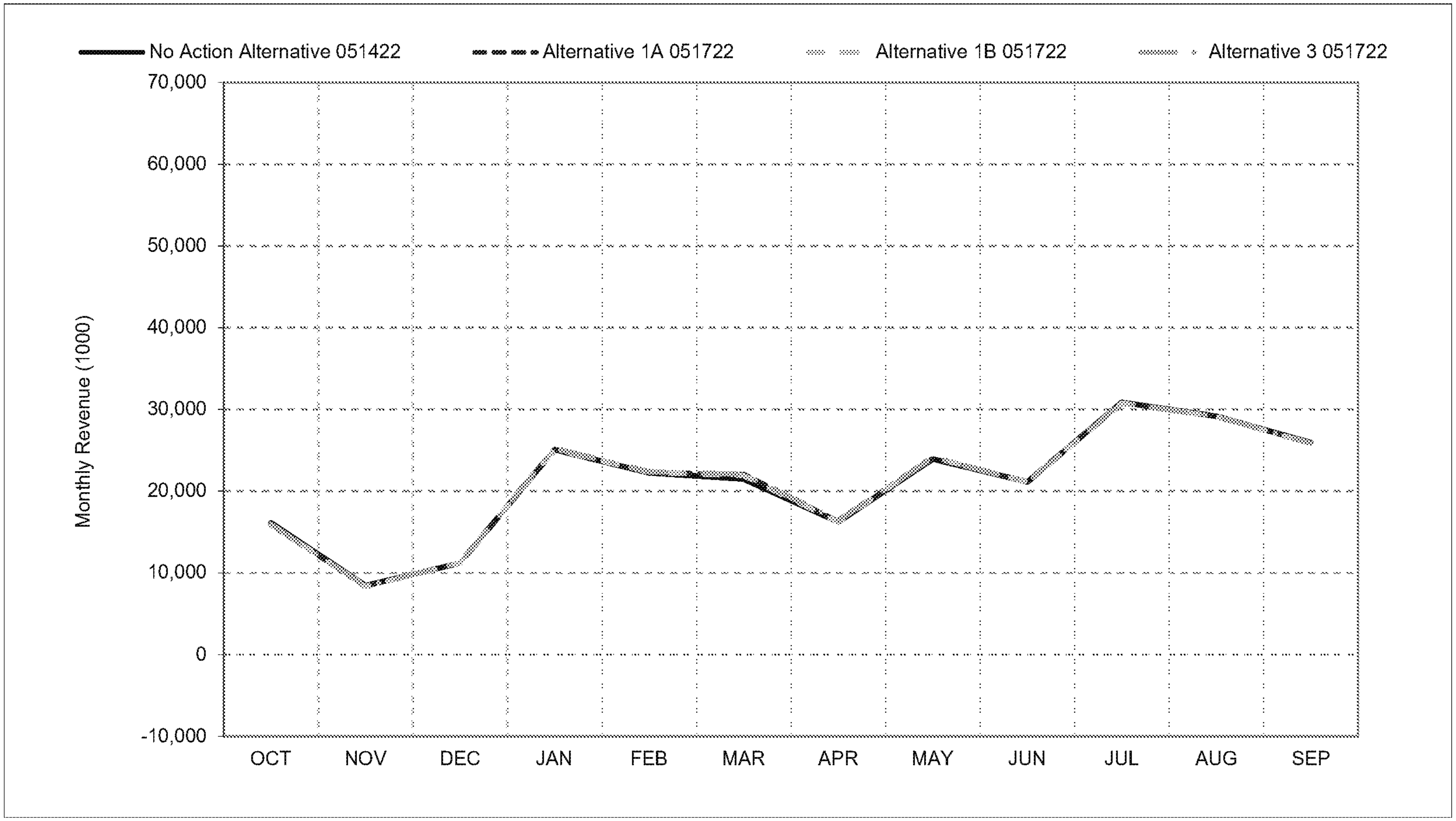
d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-1. CVP Facilities Net Revenue, Long-Term Average Revenue



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-2. CVP Facilities Net Revenue, Wet Year Average Revenue

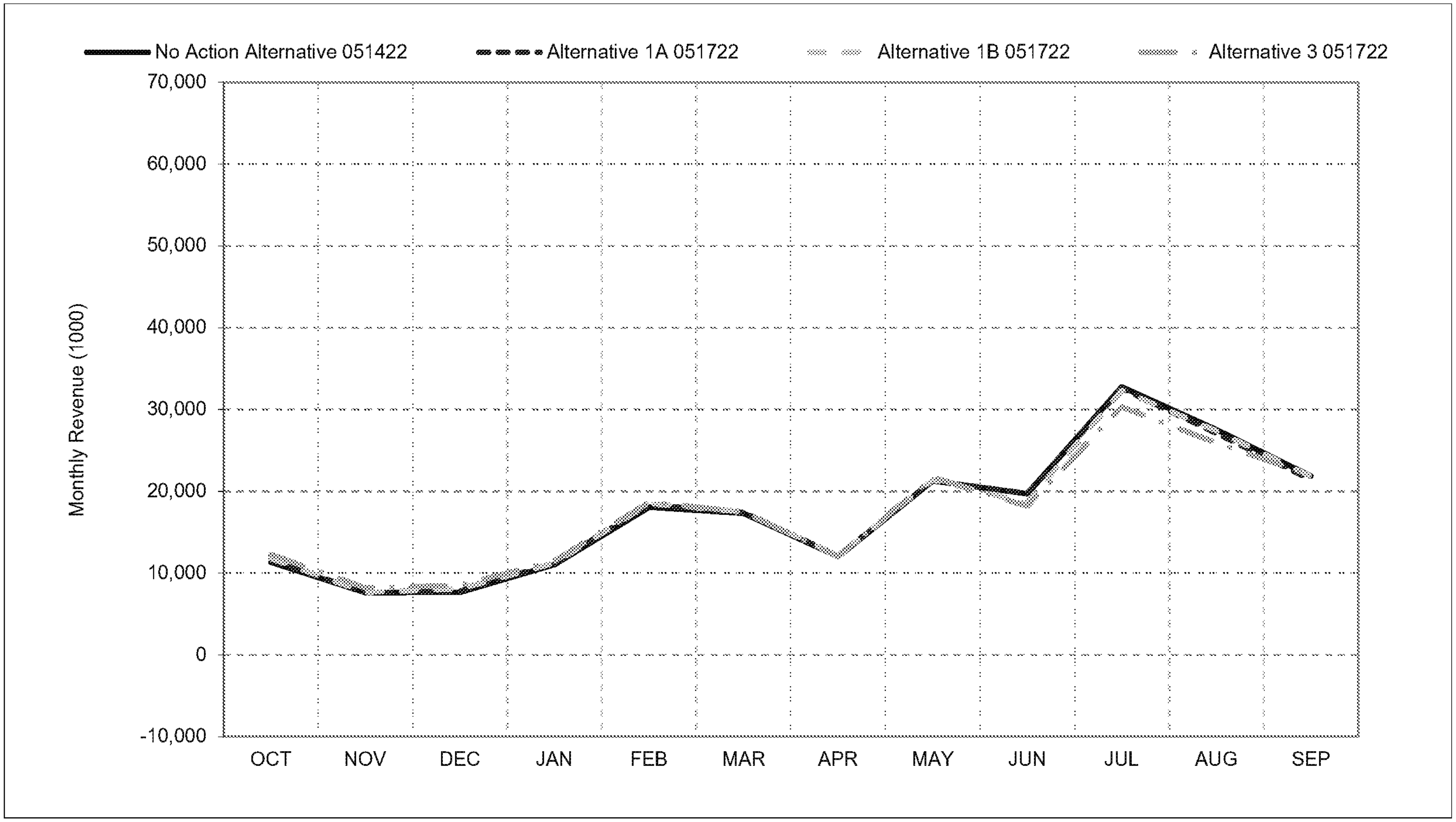


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

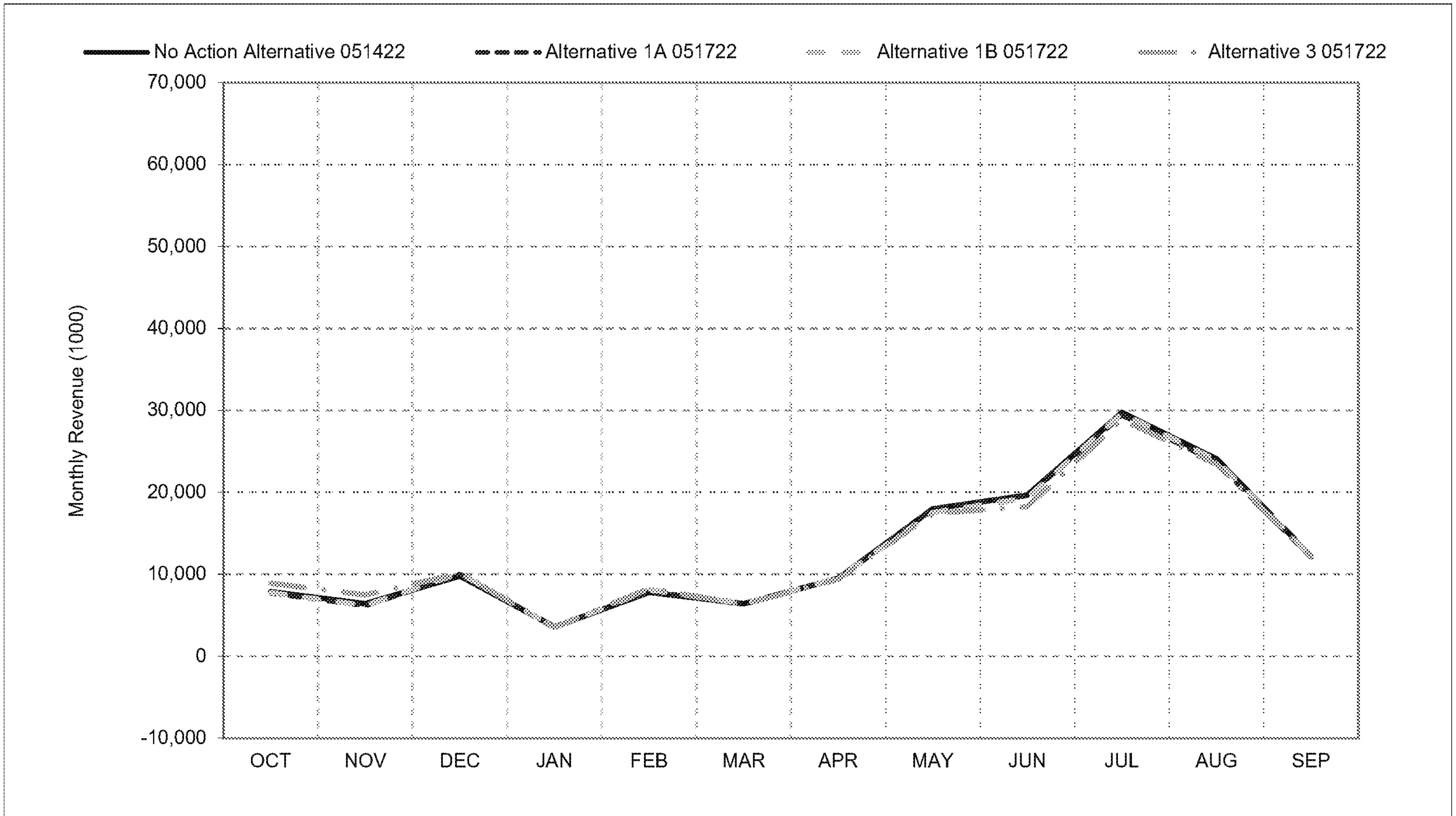
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-3. CVP Facilities Net Revenue, Above Normal Year Average Revenue



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-4. CVP Facilities Net Revenue, Below Normal Year Average Revenue

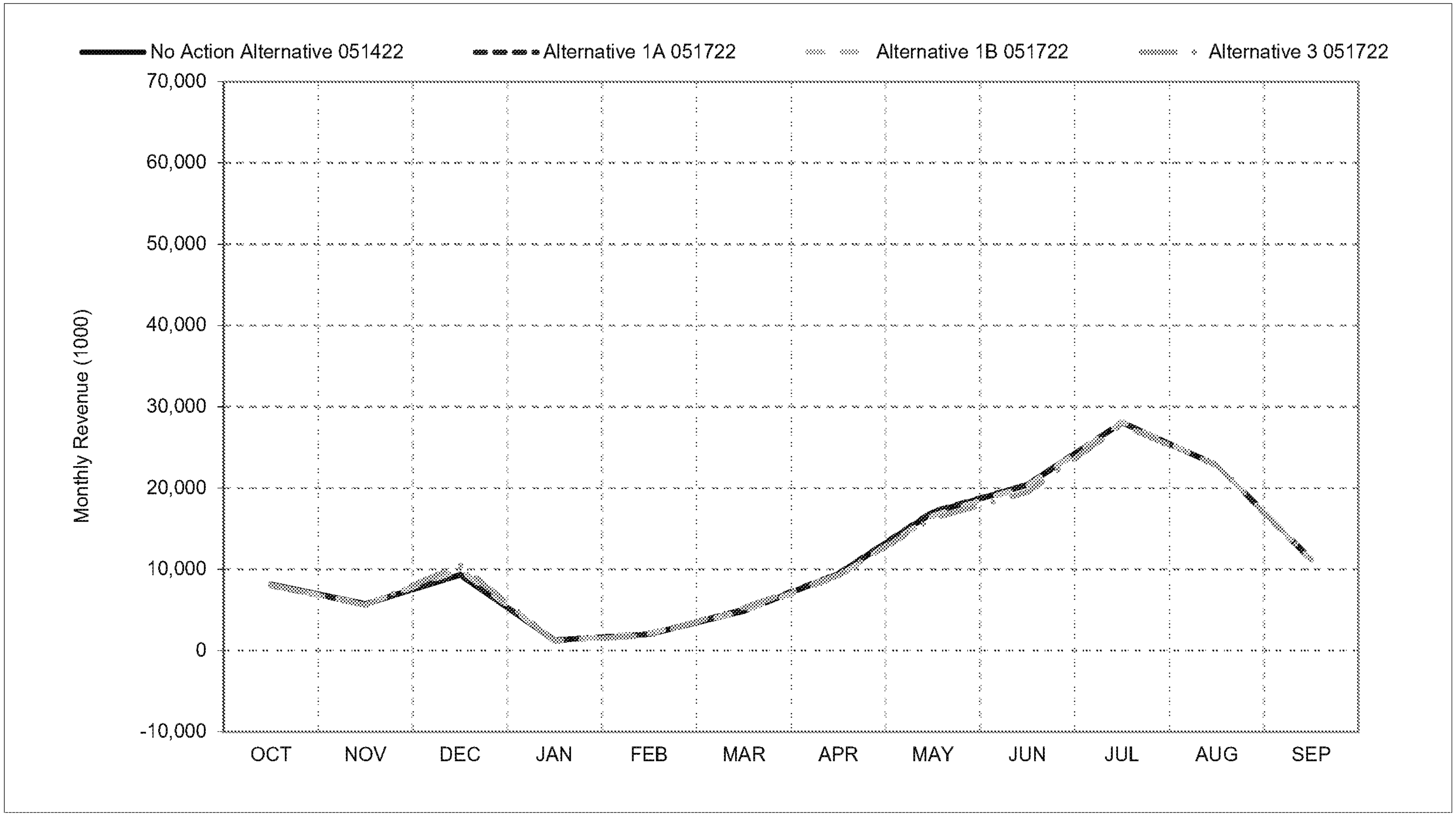


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-5. CVP Facilities Net Revenue, Dry Year Average Revenue

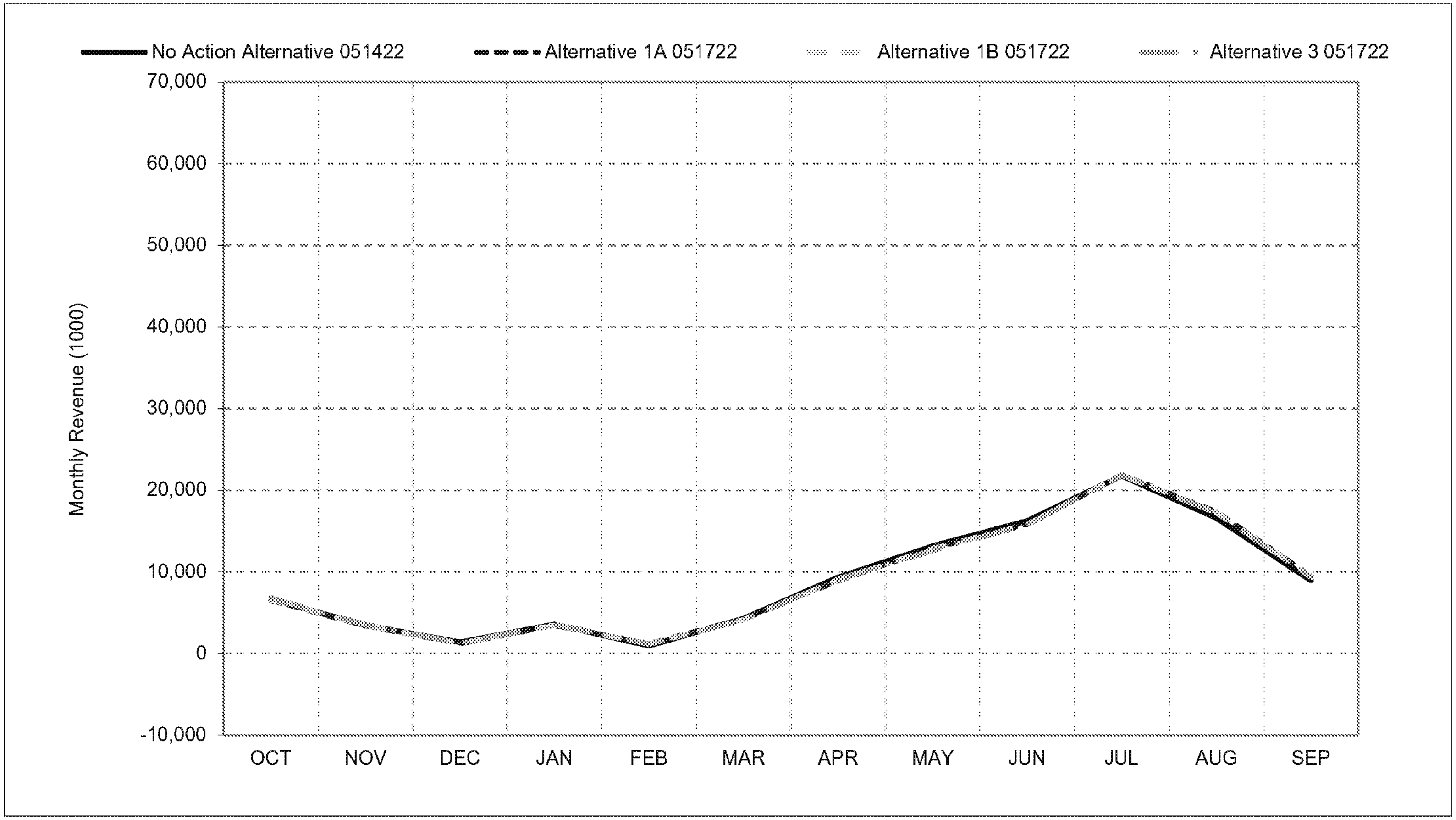


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-6. CVP Facilities Net Revenue, Critical Year Average Revenue

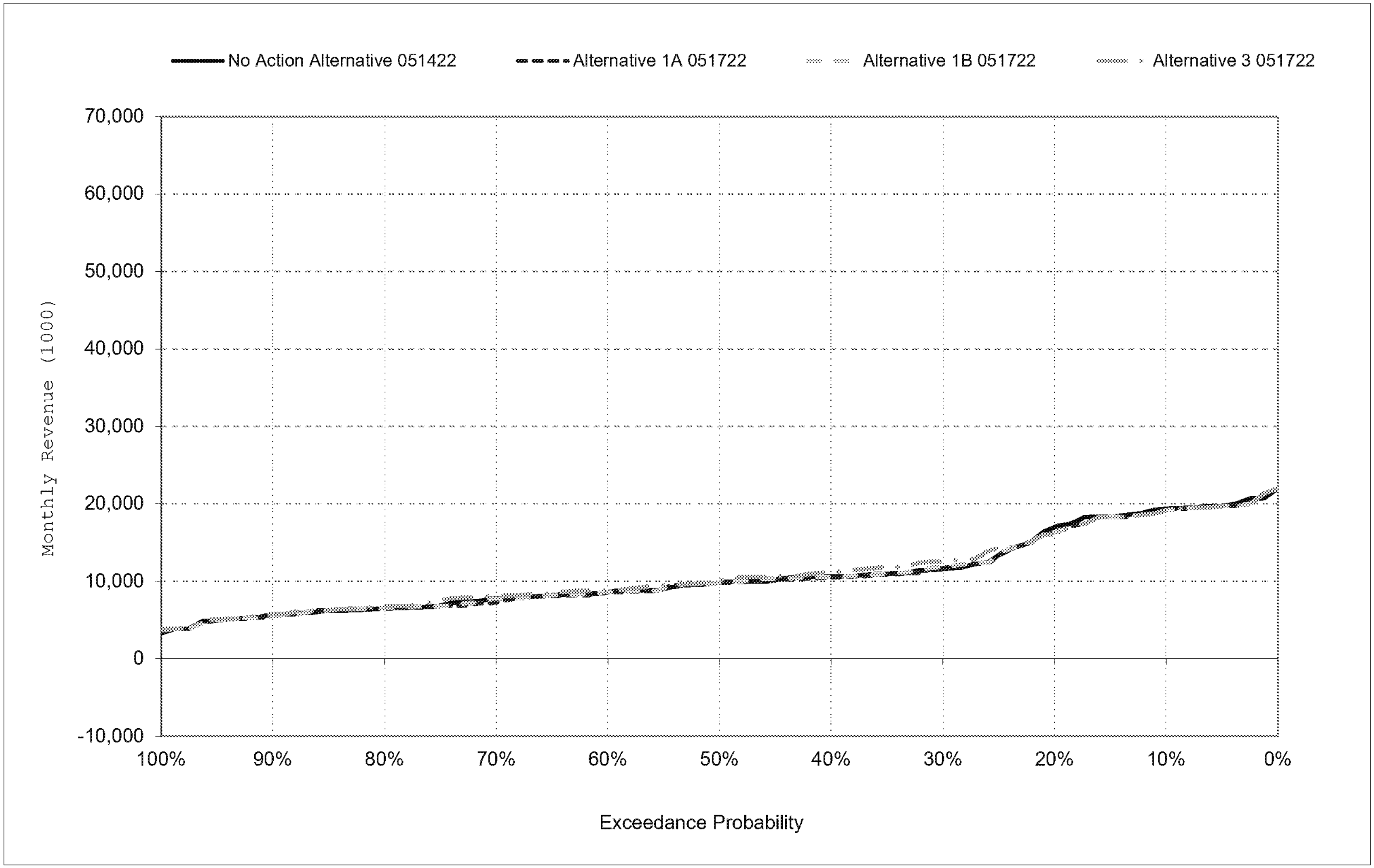


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

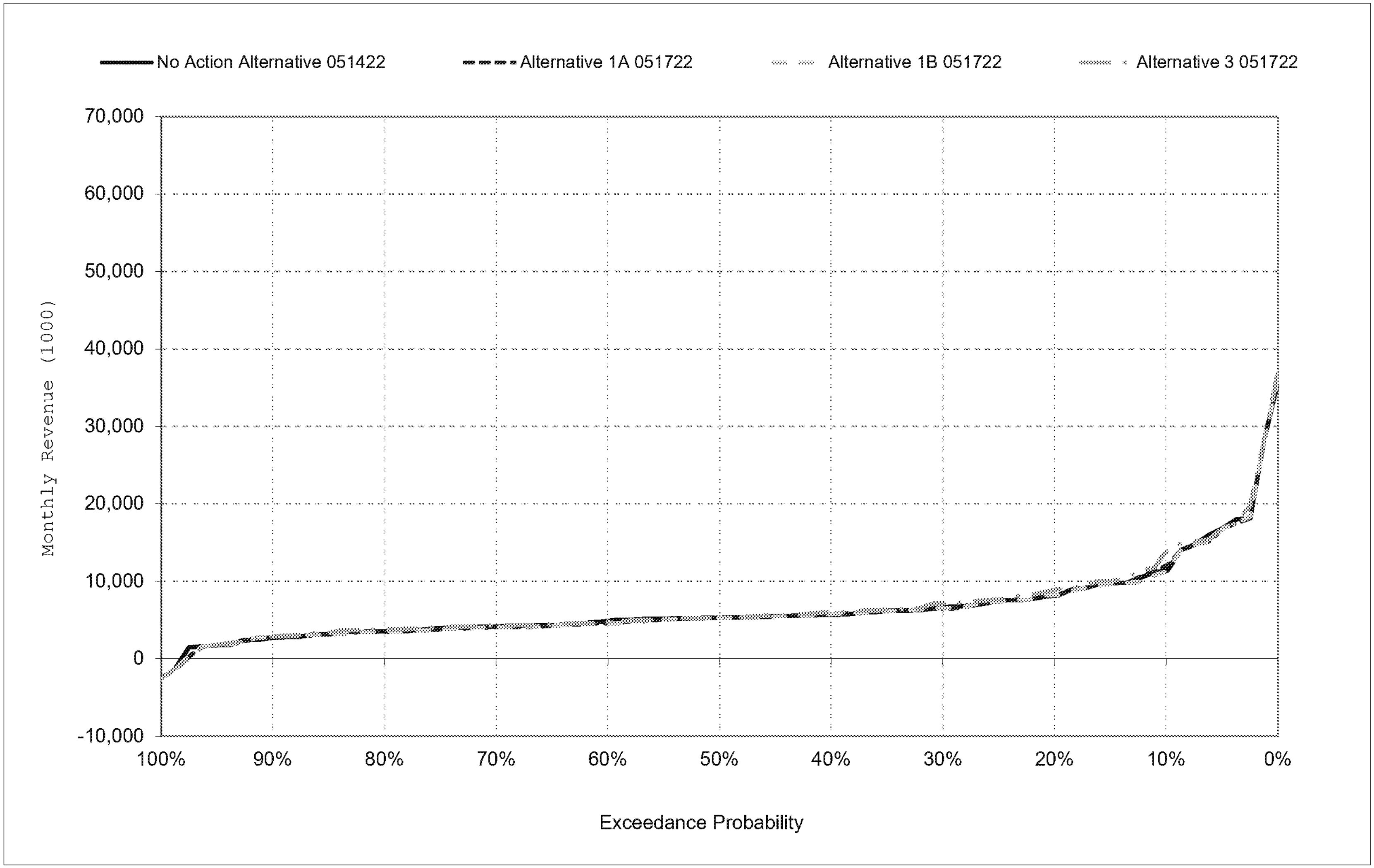
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-7. CVP Facilities Net Revenue, October



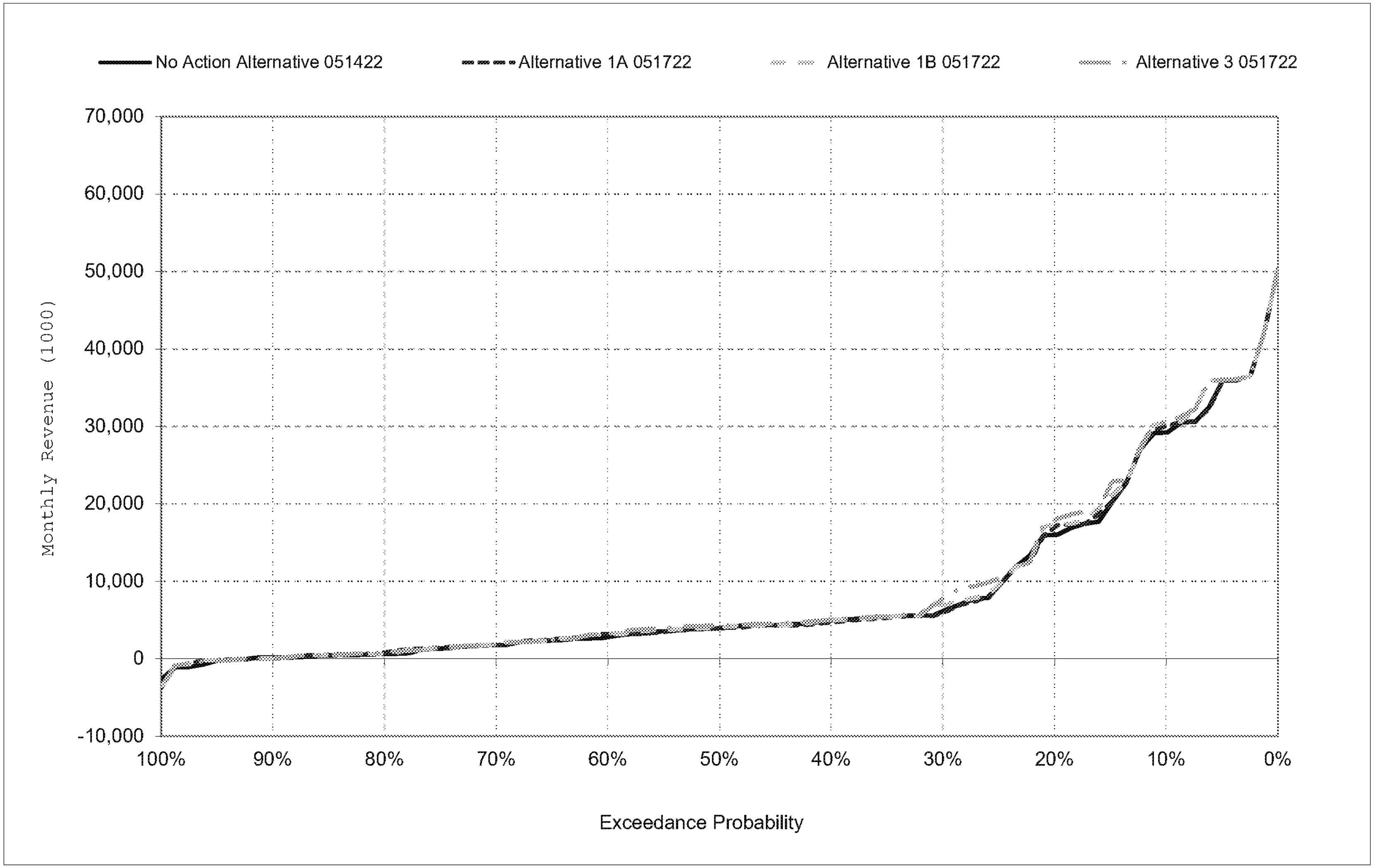
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-8. CVP Facilities Net Revenue, November



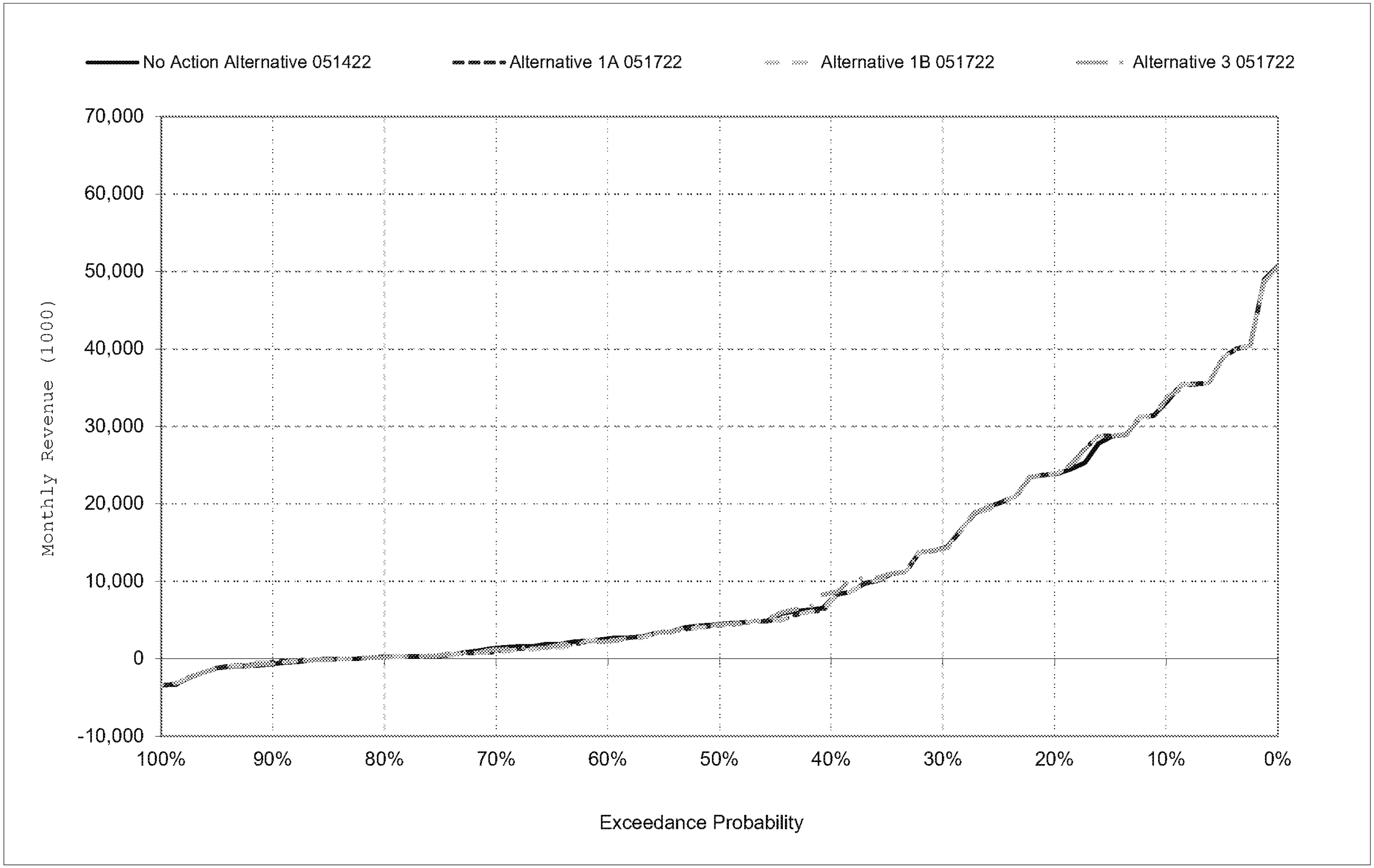
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-9. CVP Facilities Net Revenue, December



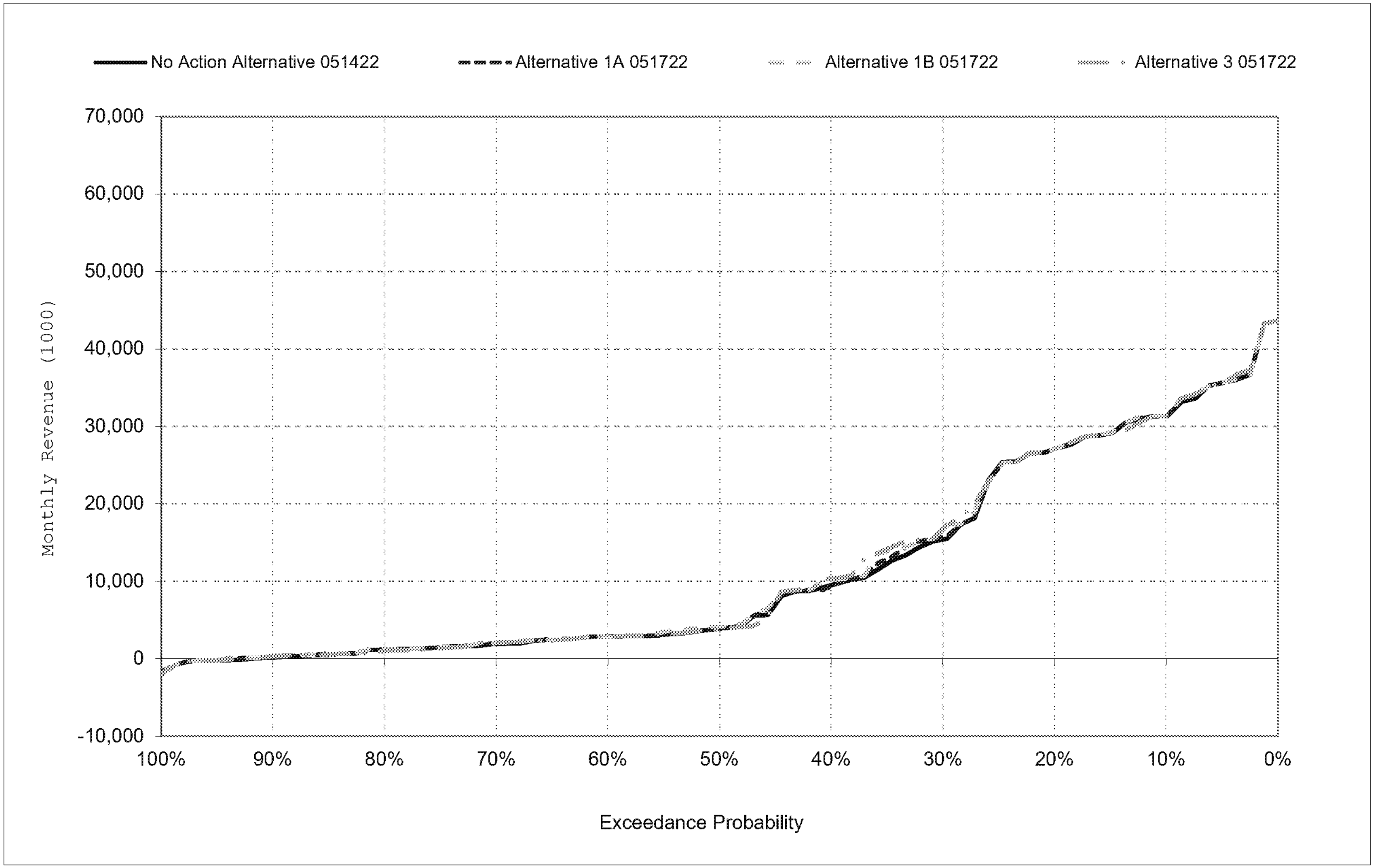
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-10. CVP Facilities Net Revenue, January



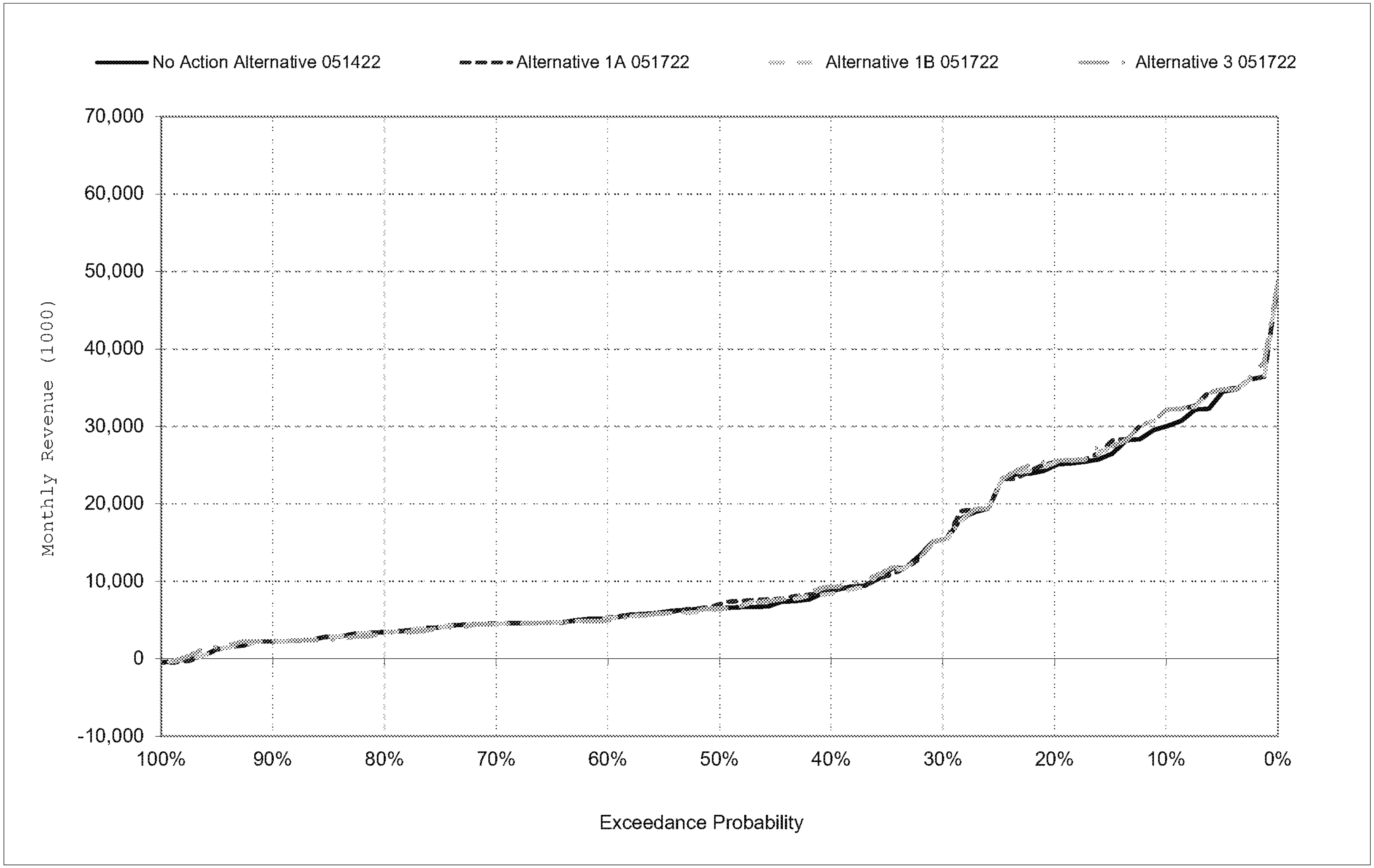
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-11. CVP Facilities Net Revenue, February



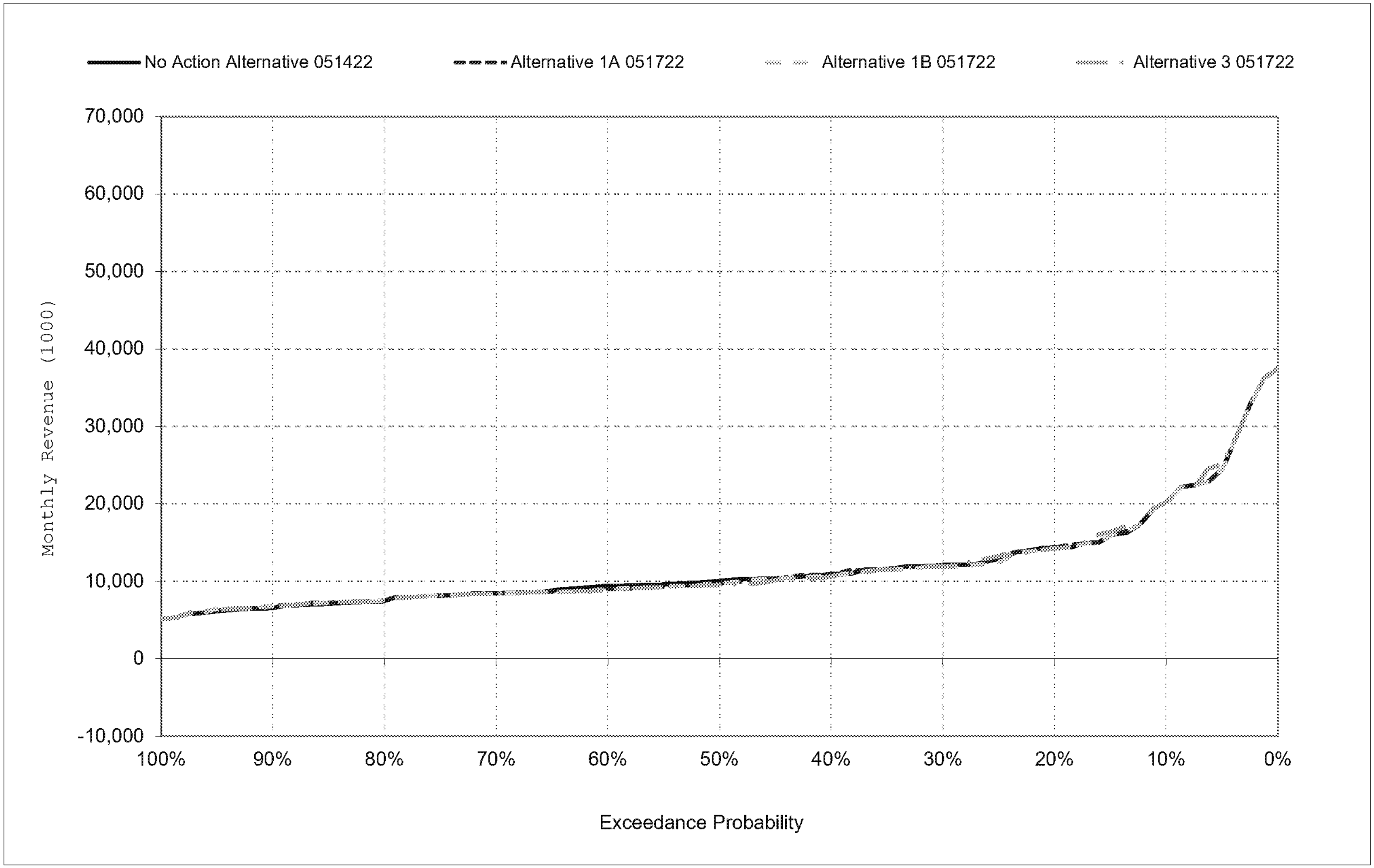
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-12. CVP Facilities Net Revenue, March



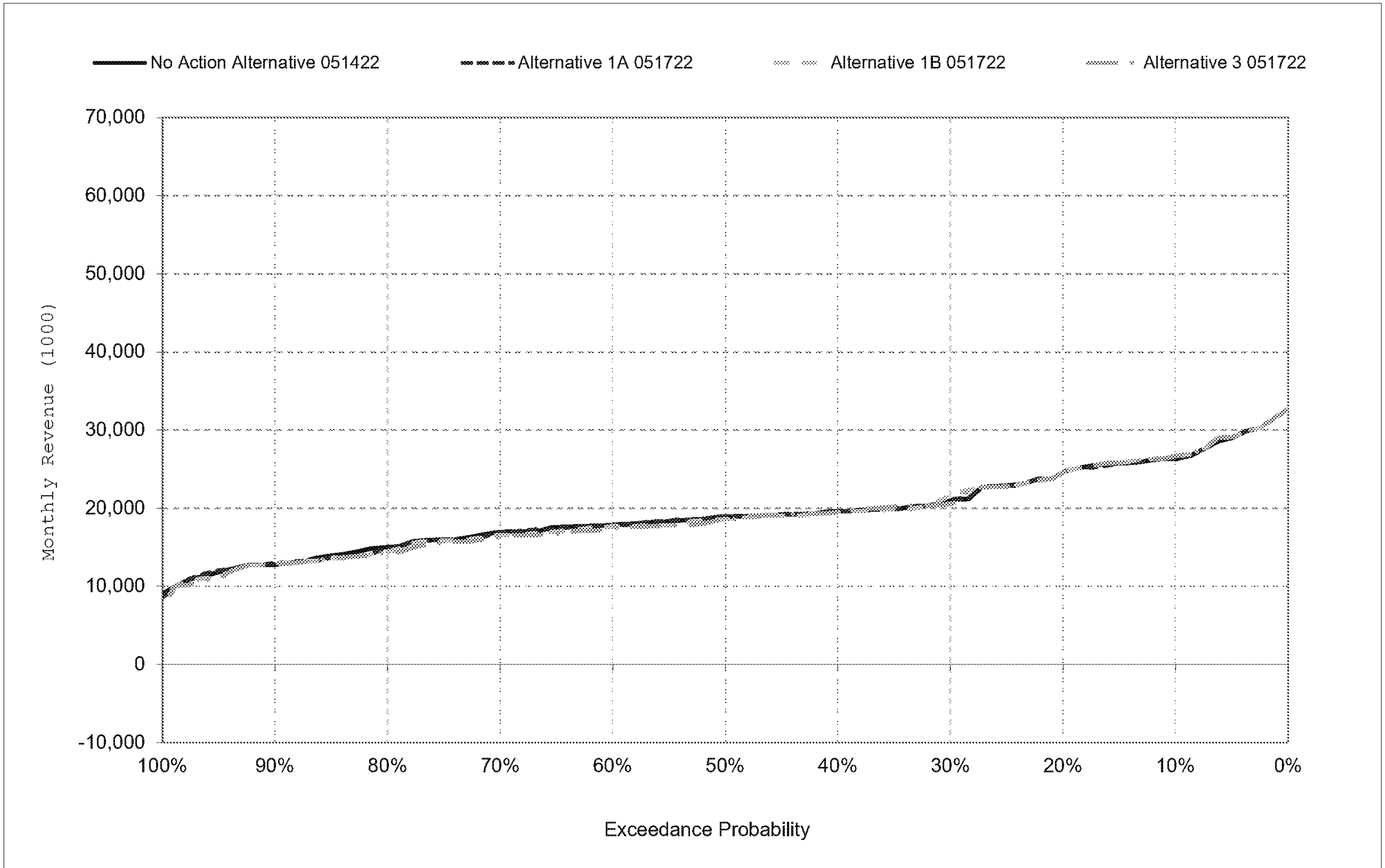
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-13. CVP Facilities Net Revenue, April



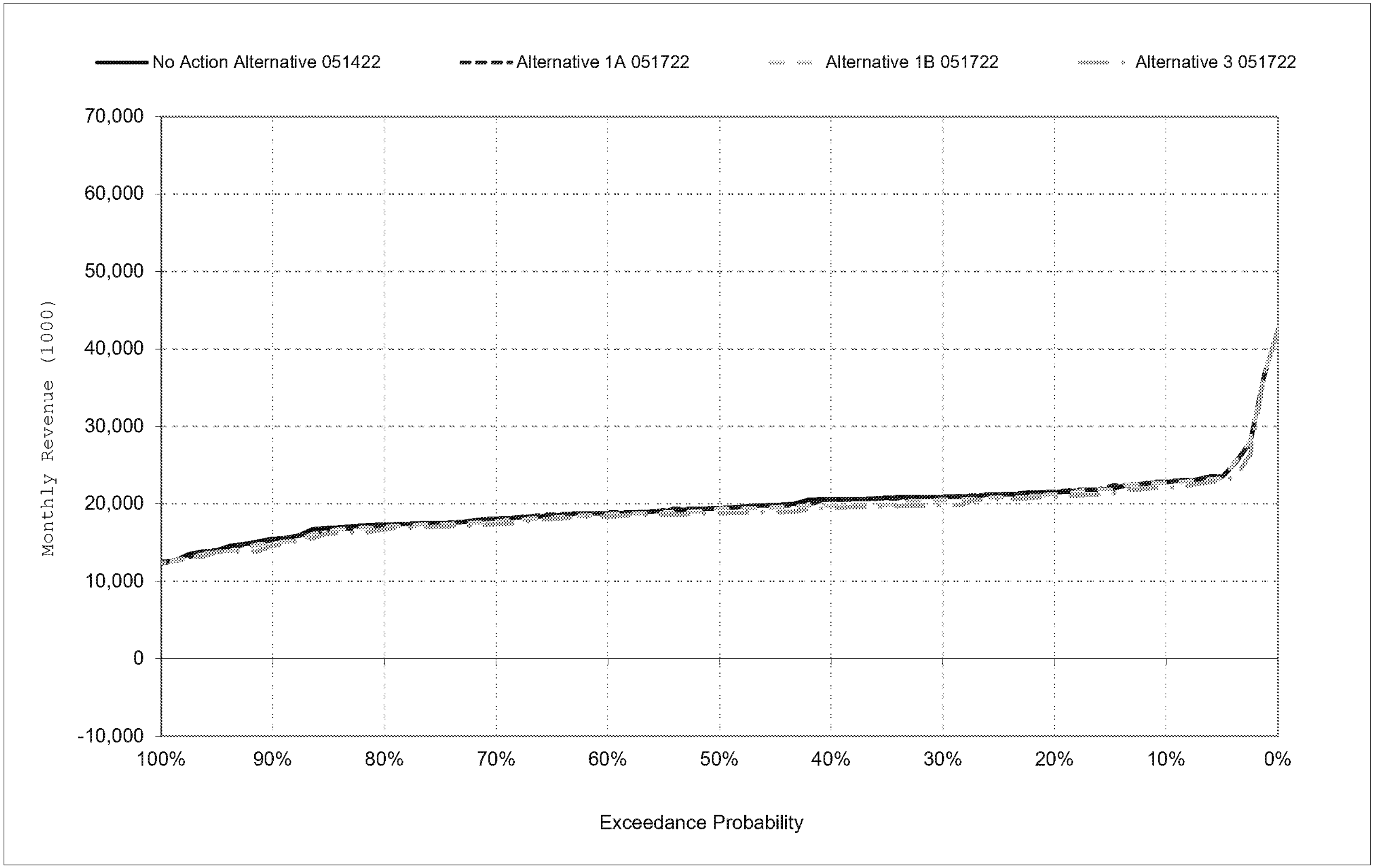
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-14. CVP Facilities Net Revenue, May



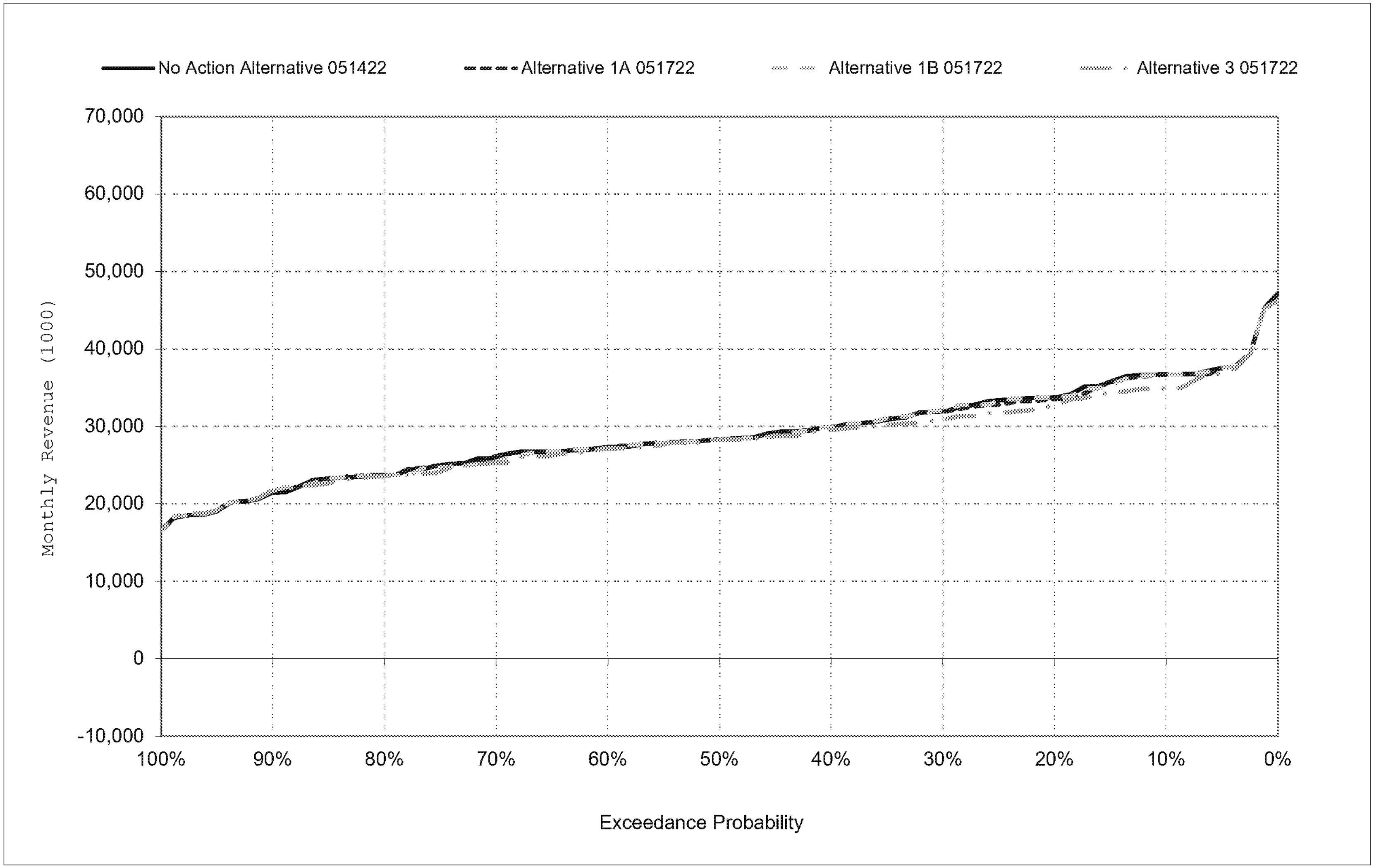
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-15. CVP Facilities Net Revenue, June



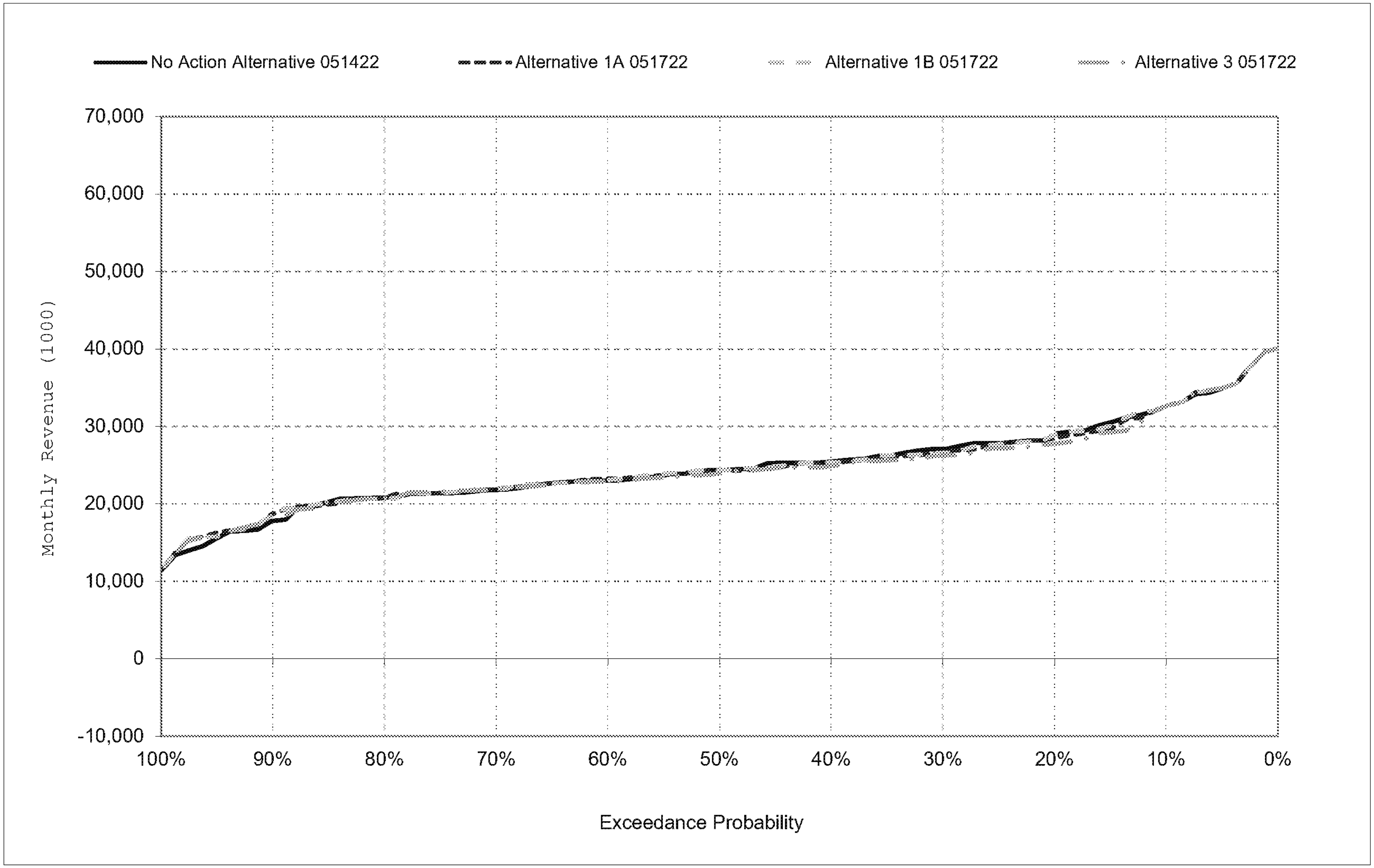
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-16. CVP Facilities Net Revenue, July



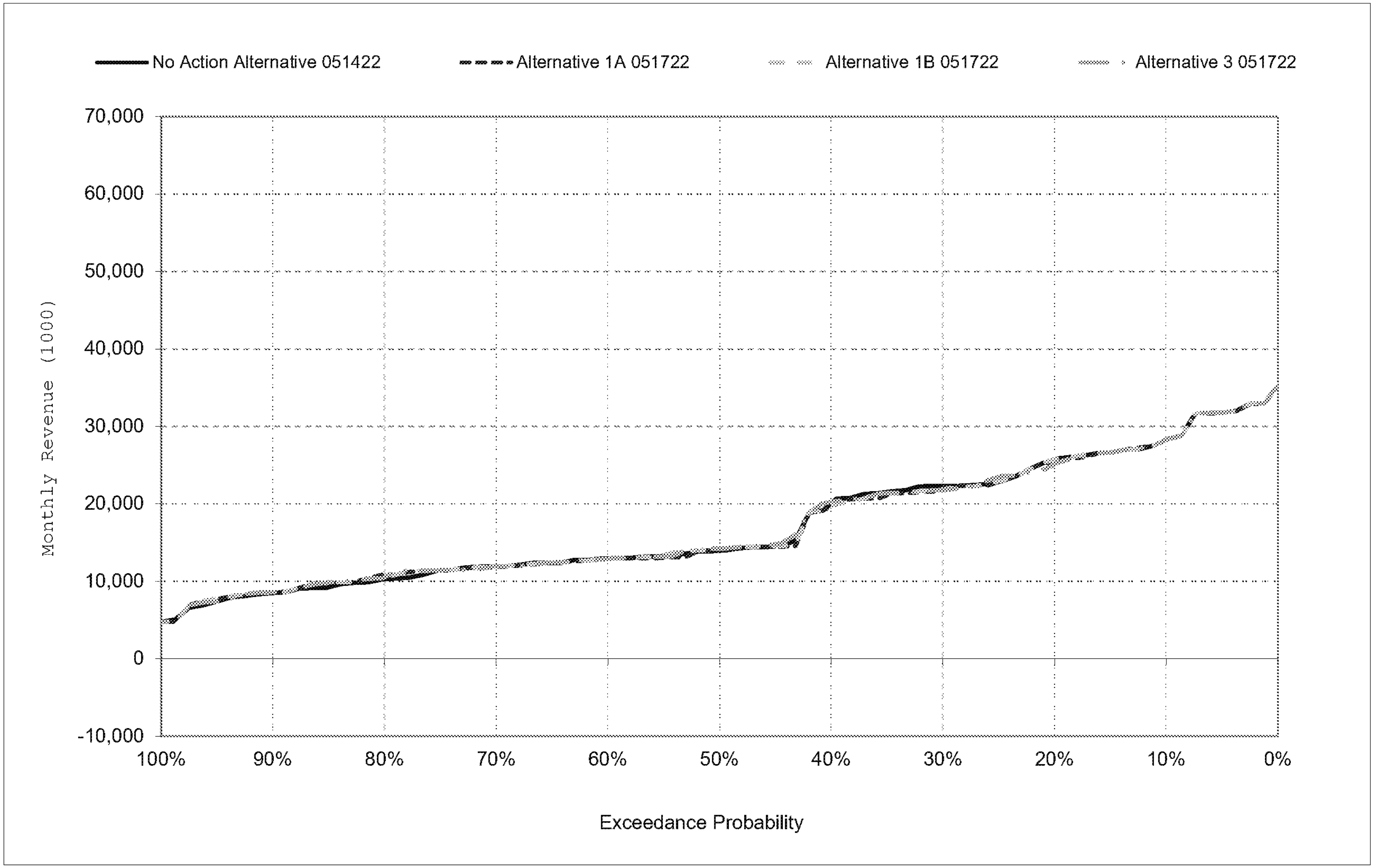
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-17. CVP Facilities Net Revenue, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 5-18. CVP Facilities Net Revenue, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 6-1a. SWP Facilities Total Capacity, No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,165	1,153	1,153	1,358	1,411	1,321	1,267	1,304	1,276	1,249	1,211	1,191
20%	1,087	1,068	1,069	1,180	1,308	1,262	1,226	1,247	1,225	1,202	1,170	1,156
30%	1,039	1,016	1,002	1,107	1,198	1,225	1,203	1,213	1,197	1,187	1,152	1,099
40%	1,000	963	938	1,028	1,124	1,155	1,192	1,203	1,175	1,172	1,129	1,061
50%	959	920	885	910	1,046	1,120	1,179	1,174	1,159	1,161	1,093	1,003
60%	909	876	836	775	906	1,070	1,156	1,155	1,137	1,116	1,033	920
70%	818	757	752	699	807	938	1,123	1,118	1,098	1,047	889	845
80%	731	461	466	588	731	874	977	984	1,006	914	791	755
90%	322	285	323	295	666	778	883	921	880	787	544	403
Long Term												
Full Simulation Period[a]	871	819	811	868	998	1,078	1,130	1,142	1,106	1,052	974	914
Water Year Types[b,c]												
Wet (32%)	1,106	1,087	1,062	1,158	1,272	1,292	1,277	1,285	1,230	1,206	1,181	1,161
Above Normal (15%)	1,024	987	941	870	1,097	1,177	1,186	1,192	1,167	1,181	1,150	1,087
Below Normal (17%)	952	920	906	829	969	1,046	1,149	1,184	1,178	1,175	1,082	971
Dry (22%)	726	605	629	683	783	925	1,062	1,072	1,061	963	838	763
Critical (15%)	335	271	300	558	662	779	839	837	762	575	431	364

Table 6-1b. SWP Facilities Total Capacity, Alternative 1A 051722, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,165	1,152	1,153	1,358	1,410	1,310	1,316	1,303	1,280	1,249	1,213	1,188
20%	1,083	1,074	1,071	1,179	1,308	1,266	1,227	1,247	1,224	1,202	1,169	1,156
30%	1,048	1,019	1,002	1,107	1,207	1,231	1,203	1,215	1,196	1,192	1,152	1,107
40%	1,016	977	940	1,046	1,134	1,153	1,194	1,204	1,174	1,174	1,138	1,065
50%	991	922	897	939	1,046	1,121	1,180	1,176	1,157	1,164	1,096	1,017
60%	962	899	833	781	885	1,087	1,158	1,154	1,136	1,136	1,060	948
70%	910	799	746	689	827	944	1,123	1,122	1,098	1,105	983	900
80%	844	561	463	578	727	881	978	988	1,009	1,013	948	825
90%	428	295	320	296	666	777	883	921	880	883	755	519
Long Term												
Full Simulation Period[a]	911	842	814	874	1,001	1,080	1,135	1,141	1,107	1,085	1,021	946
Water Year Types[b,c]												
Wet (32%)	1,106	1,087	1,062	1,162	1,277	1,295	1,280	1,285	1,230	1,206	1,179	1,163
Above Normal (15%)	1,024	987	941	904	1,107	1,182	1,202	1,180	1,169	1,183	1,151	1,087
Below Normal (17%)	981	949	916	830	966	1,047	1,152	1,184	1,176	1,177	1,094	982
Dry (22%)	858	680	633	687	785	926	1,064	1,075	1,061	1,047	955	853
Critical (15%)	376	283	305	554	661	779	841	839	766	676	559	434

Table 6-1c. SWP Facilities Total Capacity, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	-1	0	0	-1	-11	49	-1	4	0	2	-3
20%	-4	6	2	-1	0	4	2	0	-1	0	-1	0
30%	9	3	0	0	9	6	0	1	-1	5	0	8
40%	16	14	1	18	10	-2	2	1	-1	1	8	4
50%	32	2	12	29	0	1	2	2	-2	3	3	14
60%	52	23	-3	6	-21	17	2	-1	0	20	28	28
70%	91	41	-5	-10	20	6	0	4	0	58	94	55
80%	113	100	-4	-10	-4	8	1	3	3	99	157	70
90%	106	10	-3	2	0	-2	-1	0	0	96	211	116
Long Term												
Full Simulation Period[a]	40	23	3	7	3	2	4	-1	1	34	46	33
Water Year Types[b,c]												
Wet (32%)	0	0	0	4	5	3	3	0	0	0	-2	2
Above Normal (15%)	0	1	1	34	11	5	17	-12	2	1	1	0
Below Normal (17%)	29	29	10	0	-4	1	2	0	-1	2	11	11
Dry (22%)	132	76	4	4	3	1	2	3	0	84	118	90
Critical (15%)	41	11	6	-3	0	1	2	2	4	101	128	71

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 6-2a. SWP Facilities Total Capacity, No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,165	1,153	1,153	1,358	1,411	1,321	1,267	1,304	1,276	1,249	1,211	1,191
20%	1,087	1,068	1,069	1,180	1,308	1,262	1,226	1,247	1,225	1,202	1,170	1,156
30%	1,039	1,016	1,002	1,107	1,198	1,225	1,203	1,213	1,197	1,187	1,152	1,099
40%	1,000	963	938	1,028	1,124	1,155	1,192	1,203	1,175	1,172	1,129	1,061
50%	959	920	885	910	1,046	1,120	1,179	1,174	1,159	1,161	1,093	1,003
60%	909	876	836	775	906	1,070	1,156	1,155	1,137	1,116	1,033	920
70%	818	757	752	699	807	938	1,123	1,118	1,098	1,047	889	845
80%	731	461	466	588	731	874	977	984	1,006	914	791	755
90%	322	285	323	295	666	778	883	921	880	787	544	403
Long Term												
Full Simulation Period[a]	871	819	811	868	998	1,078	1,130	1,142	1,106	1,052	974	914
Water Year Types[b,c]												
Wet (32%)	1,106	1,087	1,062	1,158	1,272	1,292	1,277	1,285	1,230	1,206	1,181	1,161
Above Normal (15%)	1,024	987	941	870	1,097	1,177	1,186	1,192	1,167	1,181	1,150	1,087
Below Normal (17%)	952	920	906	829	969	1,046	1,149	1,184	1,178	1,175	1,082	971
Dry (22%)	726	605	629	683	783	925	1,062	1,072	1,061	963	838	763
Critical (15%)	335	271	300	558	662	779	839	837	762	575	431	364

Table 6-2b. SWP Facilities Total Capacity, Alternative 1B 051722, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,169	1,156	1,153	1,350	1,409	1,310	1,316	1,303	1,280	1,249	1,213	1,191
20%	1,082	1,074	1,070	1,171	1,307	1,256	1,227	1,247	1,227	1,201	1,170	1,156
30%	1,046	1,021	1,007	1,107	1,212	1,228	1,202	1,216	1,196	1,192	1,152	1,106
40%	1,013	977	940	1,049	1,135	1,152	1,191	1,204	1,175	1,174	1,137	1,065
50%	989	922	898	940	1,039	1,120	1,179	1,175	1,159	1,163	1,096	1,018
60%	961	903	836	781	907	1,087	1,159	1,154	1,137	1,133	1,047	949
70%	919	787	754	691	815	942	1,118	1,120	1,097	1,103	980	898
80%	846	560	466	591	727	880	979	995	1,010	1,013	941	827
90%	360	295	321	298	692	785	885	919	883	886	737	520
Long Term												
Full Simulation Period[a]	913	839	816	872	1,002	1,080	1,135	1,141	1,108	1,086	1,019	946
Water Year Types[b,c]												
Wet (32%)	1,107	1,088	1,061	1,150	1,275	1,292	1,279	1,285	1,229	1,206	1,182	1,163
Above Normal (15%)	1,024	988	942	905	1,110	1,182	1,202	1,179	1,168	1,183	1,151	1,088
Below Normal (17%)	978	954	916	833	972	1,049	1,149	1,184	1,176	1,177	1,090	981
Dry (22%)	867	661	637	687	784	928	1,066	1,075	1,063	1,047	950	852
Critical (15%)	372	286	307	560	663	783	845	843	770	678	557	432

Table 6-2c. SWP Facilities Total Capacity, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4	3	0	-8	-2	-11	49	-1	3	0	2	0
20%	-5	6	1	-9	-1	-5	2	0	2	-1	0	0
30%	7	5	5	0	14	4	-1	3	-1	5	0	7
40%	13	14	1	21	11	-3	-1	1	0	1	8	4
50%	30	3	12	30	-7	0	1	1	0	2	3	15
60%	52	27	0	6	1	17	2	-1	1	17	15	28
70%	101	30	2	-8	9	4	-5	2	-1	57	91	54
80%	115	99	0	3	-4	7	2	10	5	100	150	72
90%	38	11	-2	3	26	7	1	-1	4	99	193	118
Long Term												
Full Simulation Period[a]	41	21	5	4	4	2	5	-1	1	34	45	32
Water Year Types[b,c]												
Wet (32%)	1	1	0	-8	3	0	2	0	0	0	1	2
Above Normal (15%)	1	1	1	35	13	4	17	-14	1	1	1	1
Below Normal (17%)	26	34	10	3	3	2	0	-1	-1	2	8	10
Dry (22%)	140	56	8	3	1	2	4	3	2	84	113	88
Critical (15%)	37	15	7	2	2	4	6	5	7	103	126	69

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 6-3a. SWP Facilities Total Capacity, No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,165	1,153	1,153	1,358	1,411	1,321	1,267	1,304	1,276	1,249	1,211	1,191
20%	1,087	1,068	1,069	1,180	1,308	1,262	1,226	1,247	1,225	1,202	1,170	1,156
30%	1,039	1,016	1,002	1,107	1,198	1,225	1,203	1,213	1,197	1,187	1,152	1,099
40%	1,000	963	938	1,028	1,124	1,155	1,192	1,203	1,175	1,172	1,129	1,061
50%	959	920	885	910	1,046	1,120	1,179	1,174	1,159	1,161	1,093	1,003
60%	909	876	836	775	906	1,070	1,156	1,155	1,137	1,116	1,033	920
70%	818	757	752	699	807	938	1,123	1,118	1,098	1,047	889	845
80%	731	461	466	588	731	874	977	984	1,006	914	791	755
90%	322	285	323	295	666	778	883	921	880	787	544	403
Long Term												
Full Simulation Period[d]	871	819	811	868	998	1,078	1,130	1,142	1,106	1,052	974	914
Water Year Types[b,c]												
Wet (32%)	1,106	1,087	1,062	1,158	1,272	1,292	1,277	1,285	1,230	1,206	1,181	1,161
Above Normal (15%)	1,024	987	941	870	1,097	1,177	1,186	1,192	1,167	1,181	1,150	1,087
Below Normal (17%)	952	920	906	829	969	1,046	1,149	1,184	1,178	1,175	1,082	971
Dry (22%)	726	605	629	683	783	925	1,062	1,072	1,061	963	838	763
Critical (15%)	335	271	300	558	662	779	839	837	762	575	431	364

Table 6-3b. SWP Facilities Total Capacity, Alternative 3 051722, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,165	1,151	1,148	1,350	1,403	1,310	1,264	1,340	1,278	1,249	1,213	1,191
20%	1,089	1,059	1,068	1,165	1,293	1,266	1,225	1,246	1,225	1,202	1,170	1,156
30%	1,043	1,021	1,011	1,108	1,205	1,217	1,203	1,220	1,197	1,182	1,152	1,106
40%	1,009	982	941	1,028	1,130	1,157	1,193	1,206	1,175	1,171	1,136	1,066
50%	981	926	891	942	1,045	1,123	1,178	1,176	1,156	1,161	1,097	1,006
60%	952	898	851	779	884	1,097	1,161	1,151	1,137	1,131	1,048	950
70%	913	786	785	690	831	953	1,125	1,121	1,091	1,073	975	899
80%	797	527	520	594	741	886	985	992	1,012	1,018	902	824
90%	354	286	321	293	690	799	870	924	895	904	731	426
Long Term												
Full Simulation Period[d]	905	837	823	868	1,001	1,083	1,133	1,145	1,107	1,084	1,013	938
Water Year Types[b,c]												
Wet (32%)	1,107	1,084	1,061	1,148	1,275	1,296	1,280	1,288	1,231	1,207	1,182	1,164
Above Normal (15%)	1,028	990	964	897	1,103	1,179	1,183	1,194	1,165	1,181	1,152	1,089
Below Normal (17%)	975	956	908	828	962	1,047	1,144	1,181	1,173	1,170	1,085	973
Dry (22%)	832	653	663	690	791	943	1,070	1,080	1,065	1,046	931	848
Critical (15%)	372	284	303	546	669	779	846	842	767	679	543	393

Table 6-3c. SWP Facilities Total Capacity, Alternative 3 051722 minus No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	-2	-5	-8	-8	-11	-3	35	2	-1	2	0
20%	2	-9	-1	-15	-14	5	-1	-1	0	0	1	0
30%	4	5	9	1	7	-8	0	7	0	-5	0	7
40%	9	18	2	0	6	2	2	3	0	-1	7	5
50%	23	6	6	32	-2	3	-1	2	-3	0	4	3
60%	43	22	15	4	-22	27	5	-4	1	15	15	29
70%	95	29	33	-10	25	15	2	3	-7	26	86	54
80%	66	66	54	6	10	12	7	8	6	104	110	69
90%	31	1	-2	-2	24	20	-13	3	15	117	187	24
Long Term												
Full Simulation Period[d]	34	18	12	0	3	6	3	3	1	33	38	25
Water Year Types[b,c]												
Wet (32%)	1	-3	0	-9	2	4	3	3	1	1	1	3
Above Normal (15%)	5	4	23	27	6	1	-3	2	-3	0	2	2
Below Normal (17%)	23	36	2	-1	-8	1	-5	-3	-5	-5	2	3
Dry (22%)	106	48	34	6	9	18	8	8	4	83	93	85
Critical (15%)	37	13	4	-11	8	0	7	5	4	104	112	30

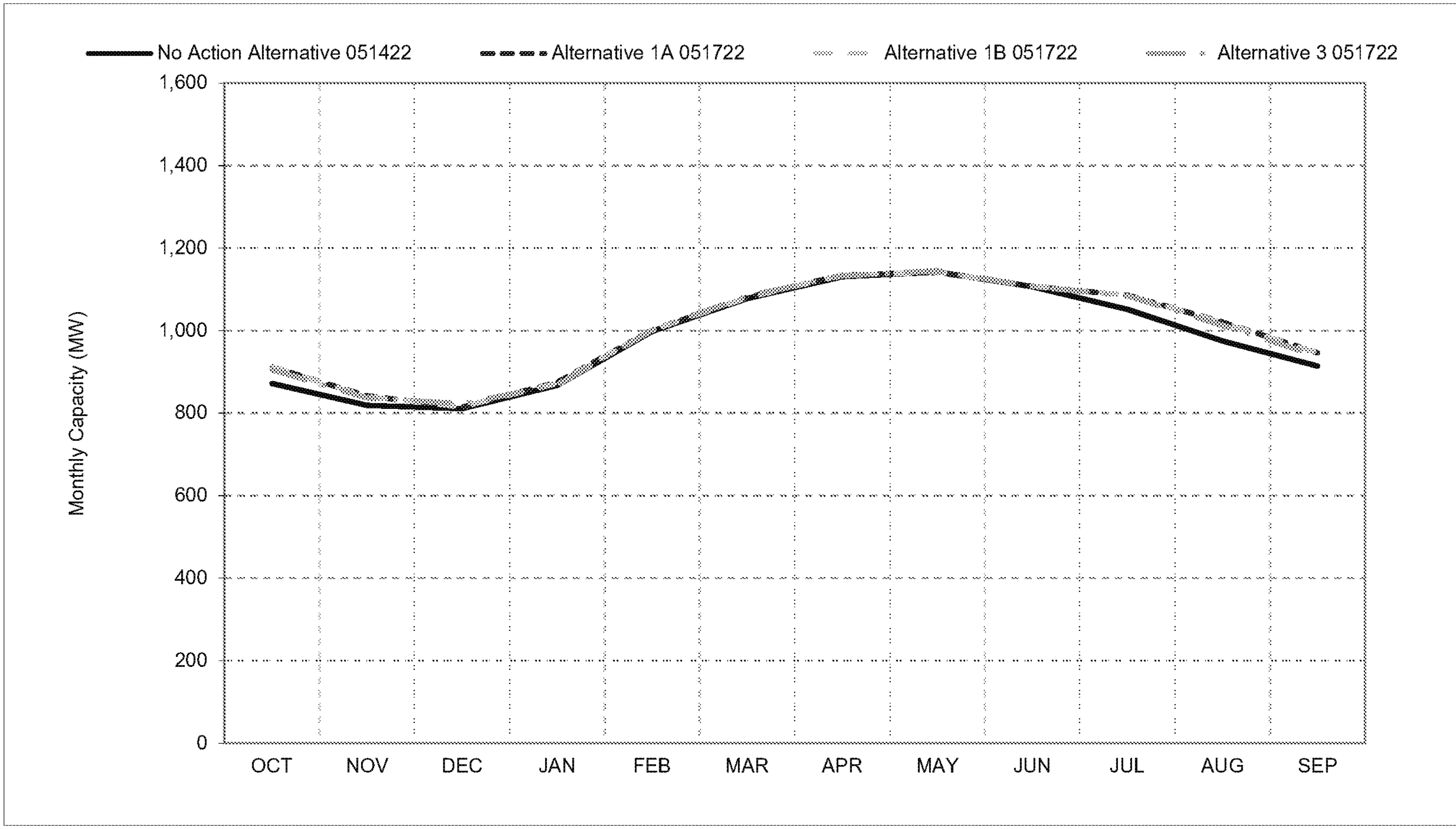
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

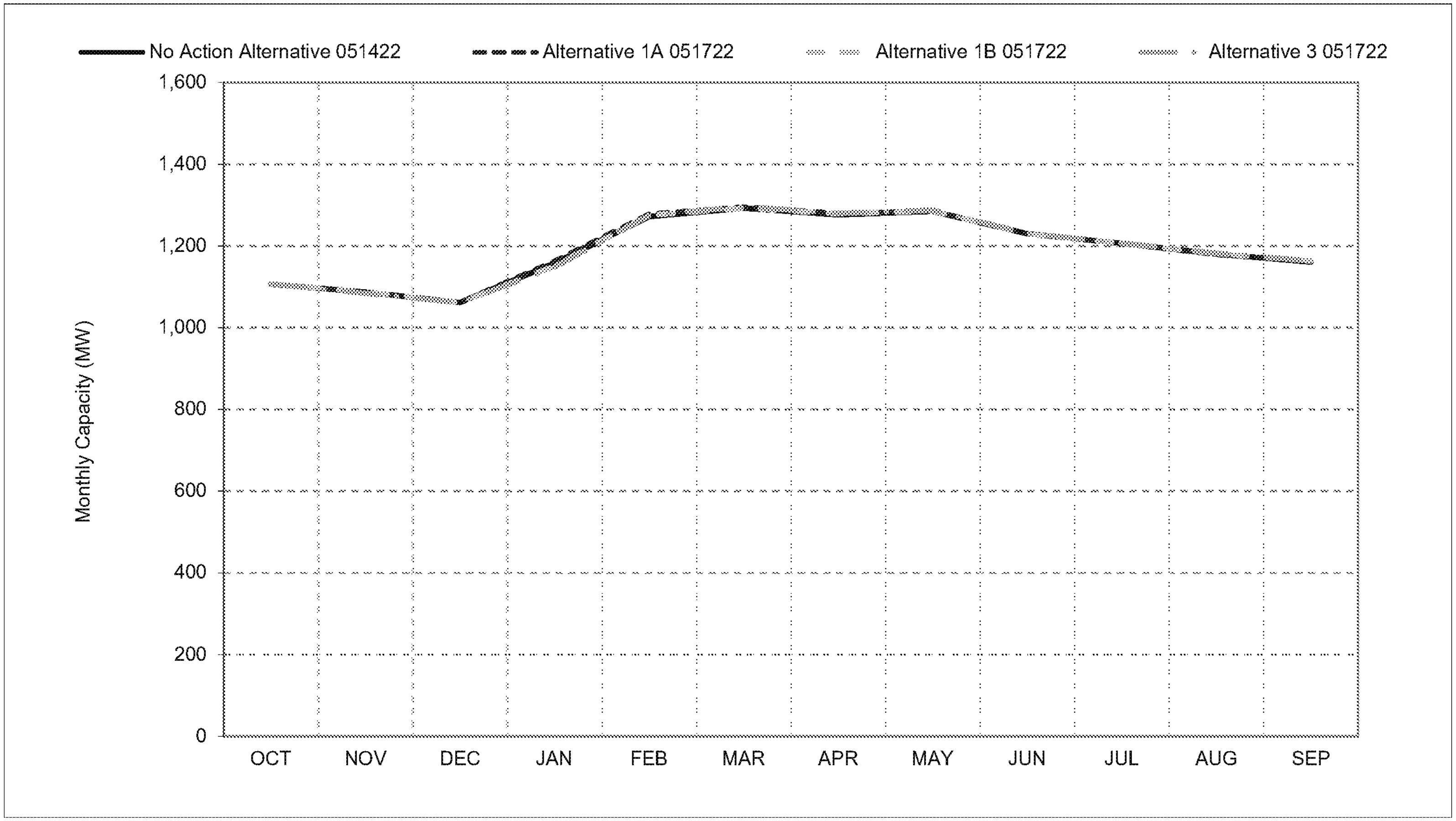
d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-1. SWP Facilities Total Capacity, Long-Term Average Capacity



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-2. SWP Facilities Total Capacity, Wet Year Average Capacity

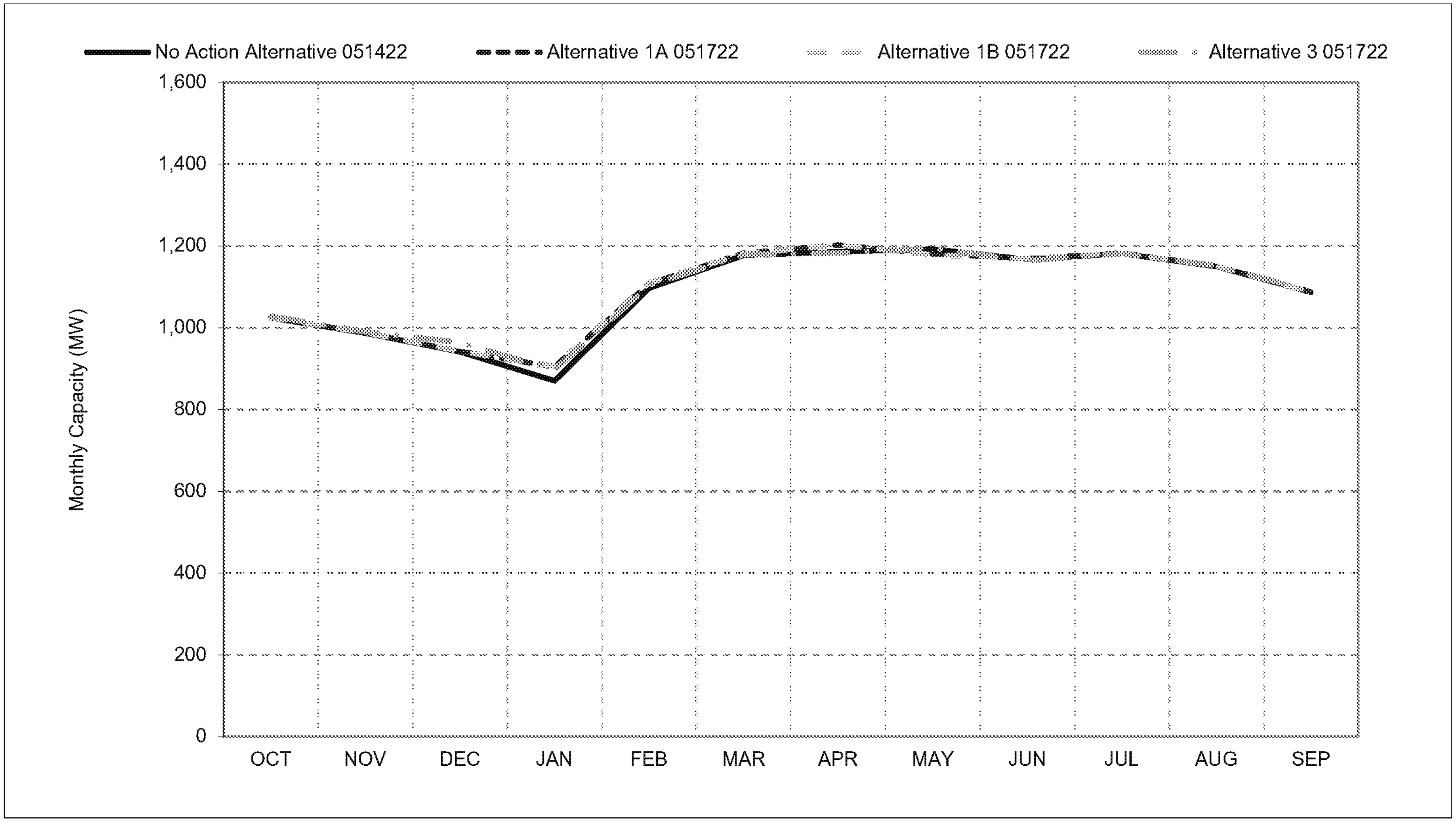


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

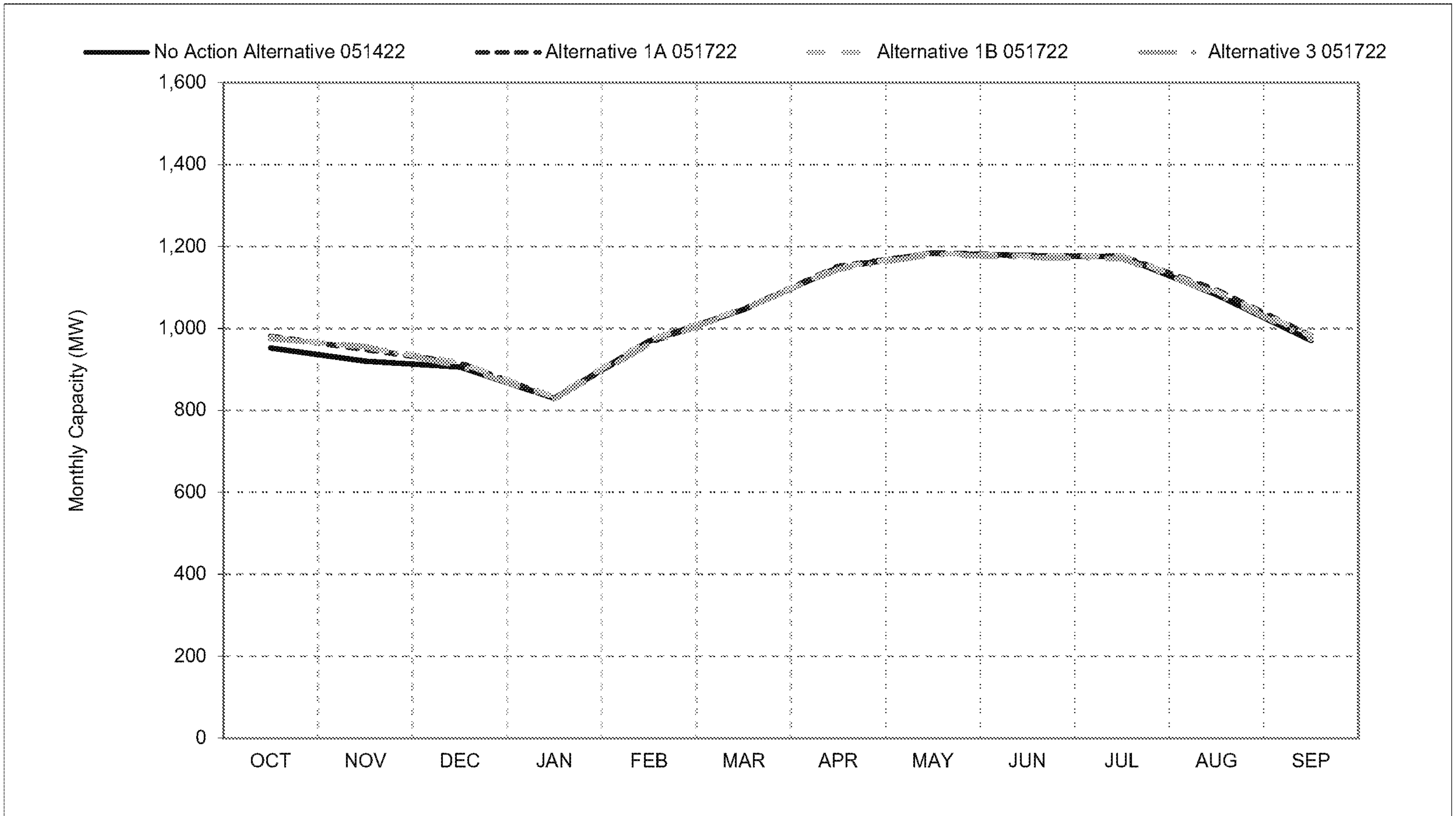
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-3. SWP Facilities Total Capacity, Above Normal Year Average Capacity



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-4. SWP Facilities Total Capacity, Below Normal Year Average Capacity

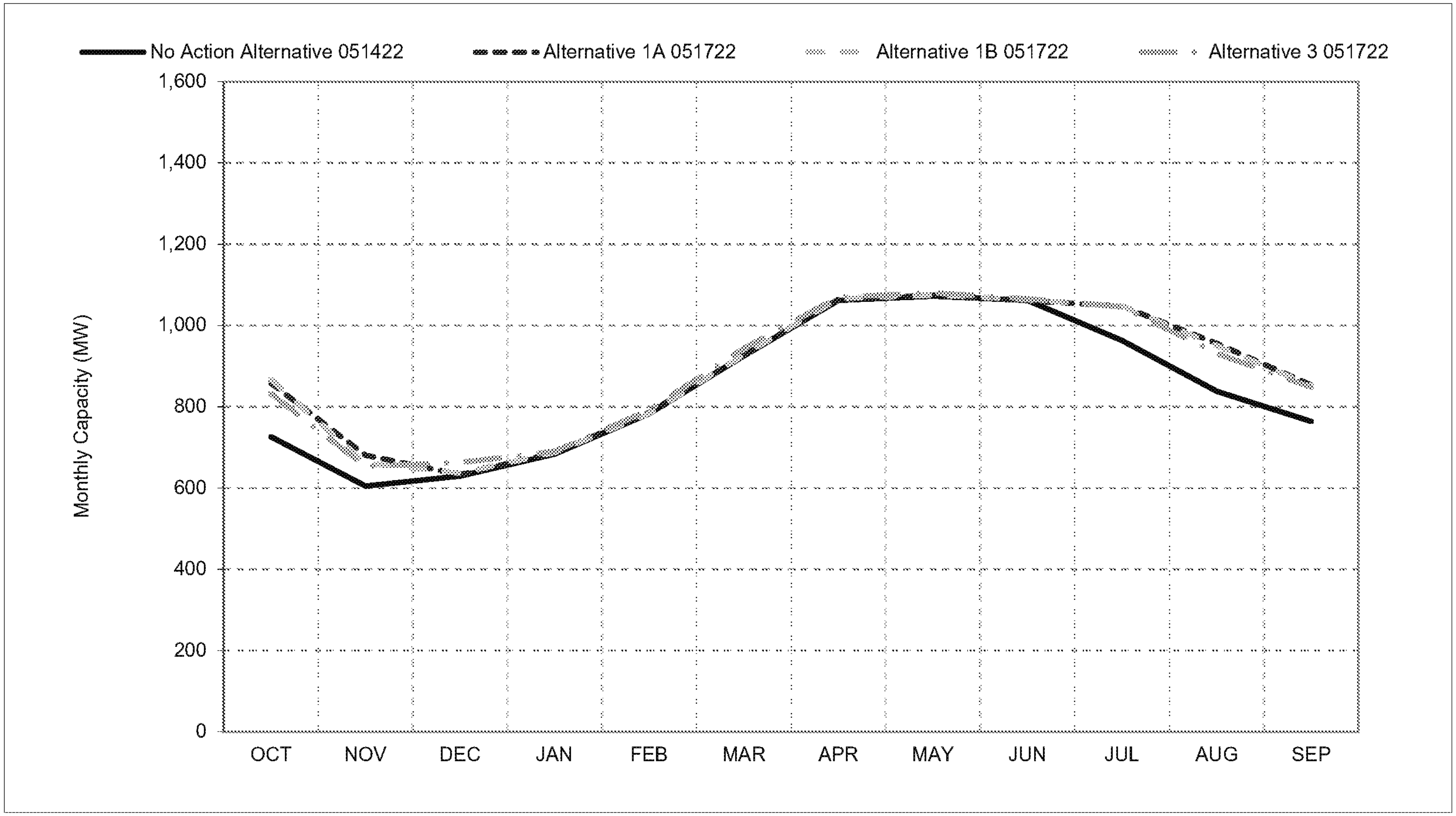


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

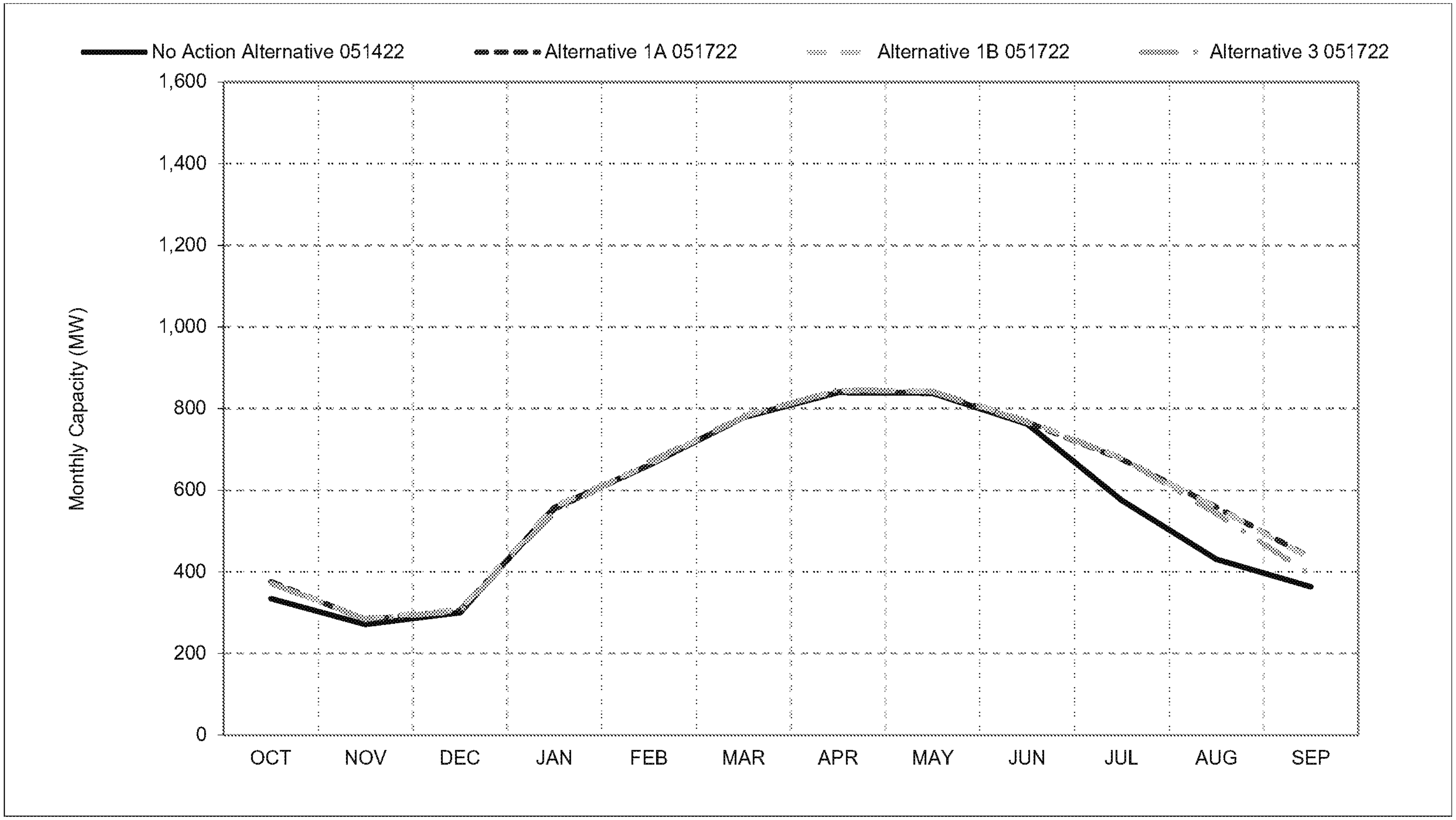
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-5. SWP Facilities Total Capacity, Dry Year Average Capacity



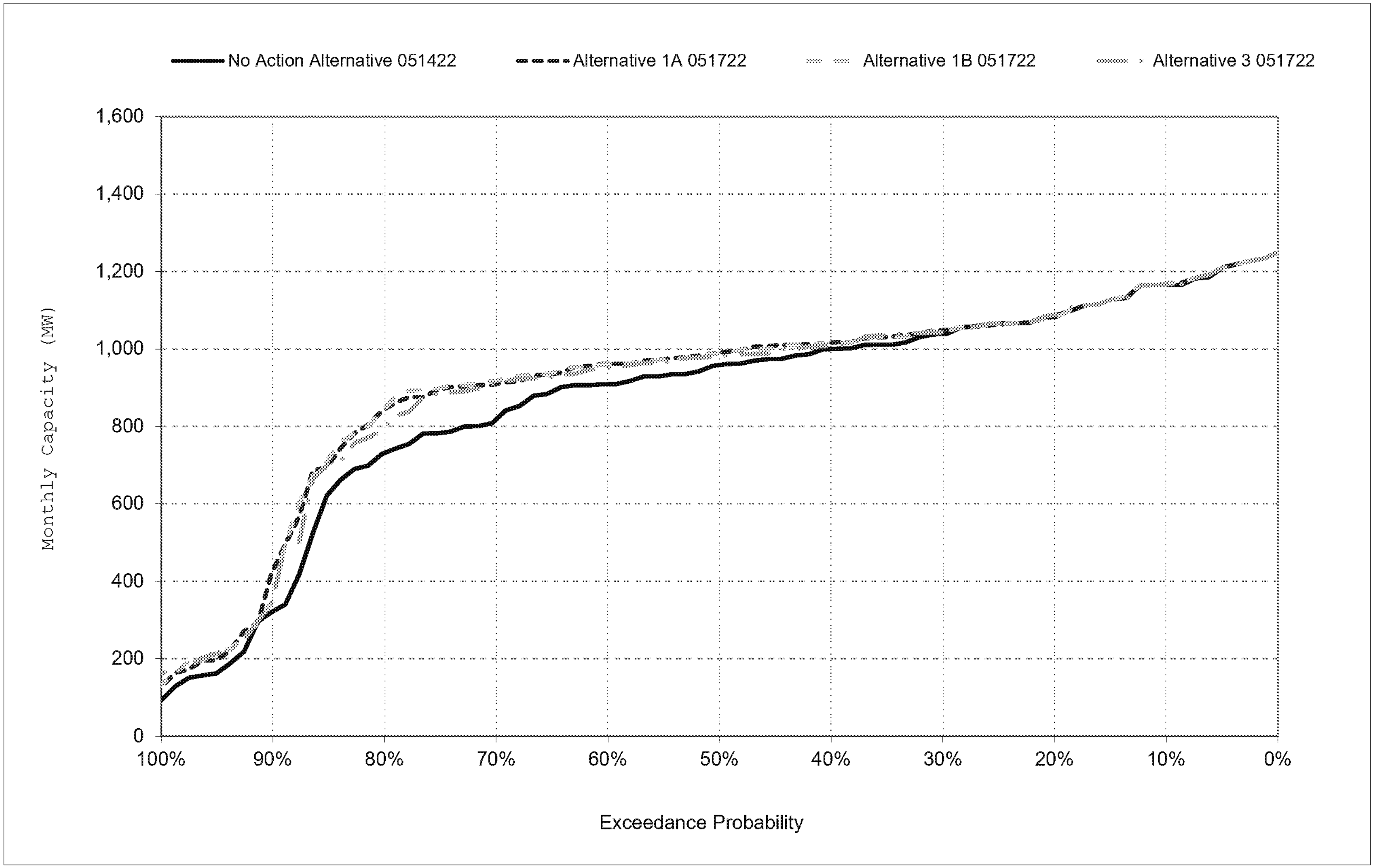
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-6. SWP Facilities Total Capacity, Critical Year Average Capacity



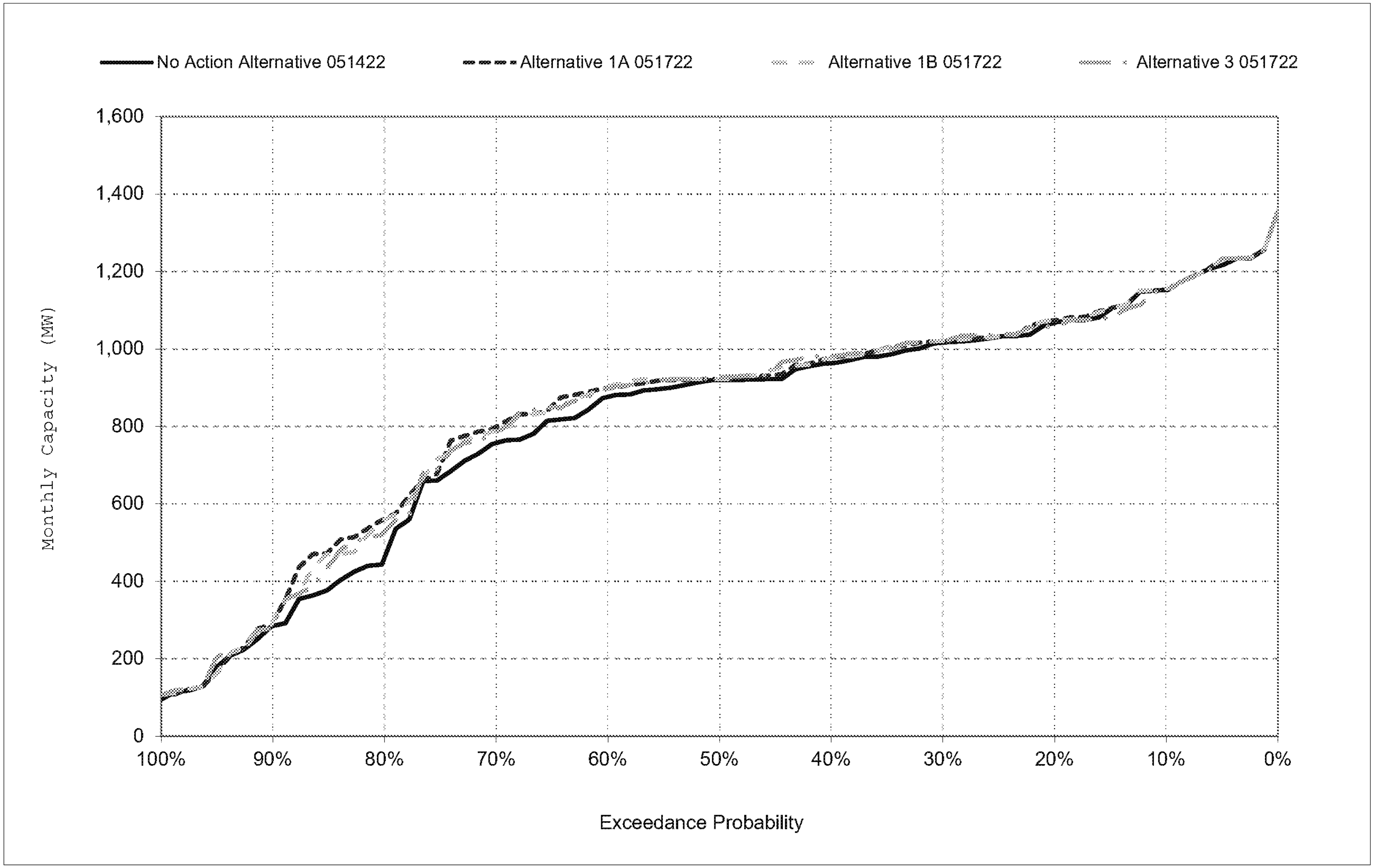
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-7. SWP Facilities Total Capacity, October



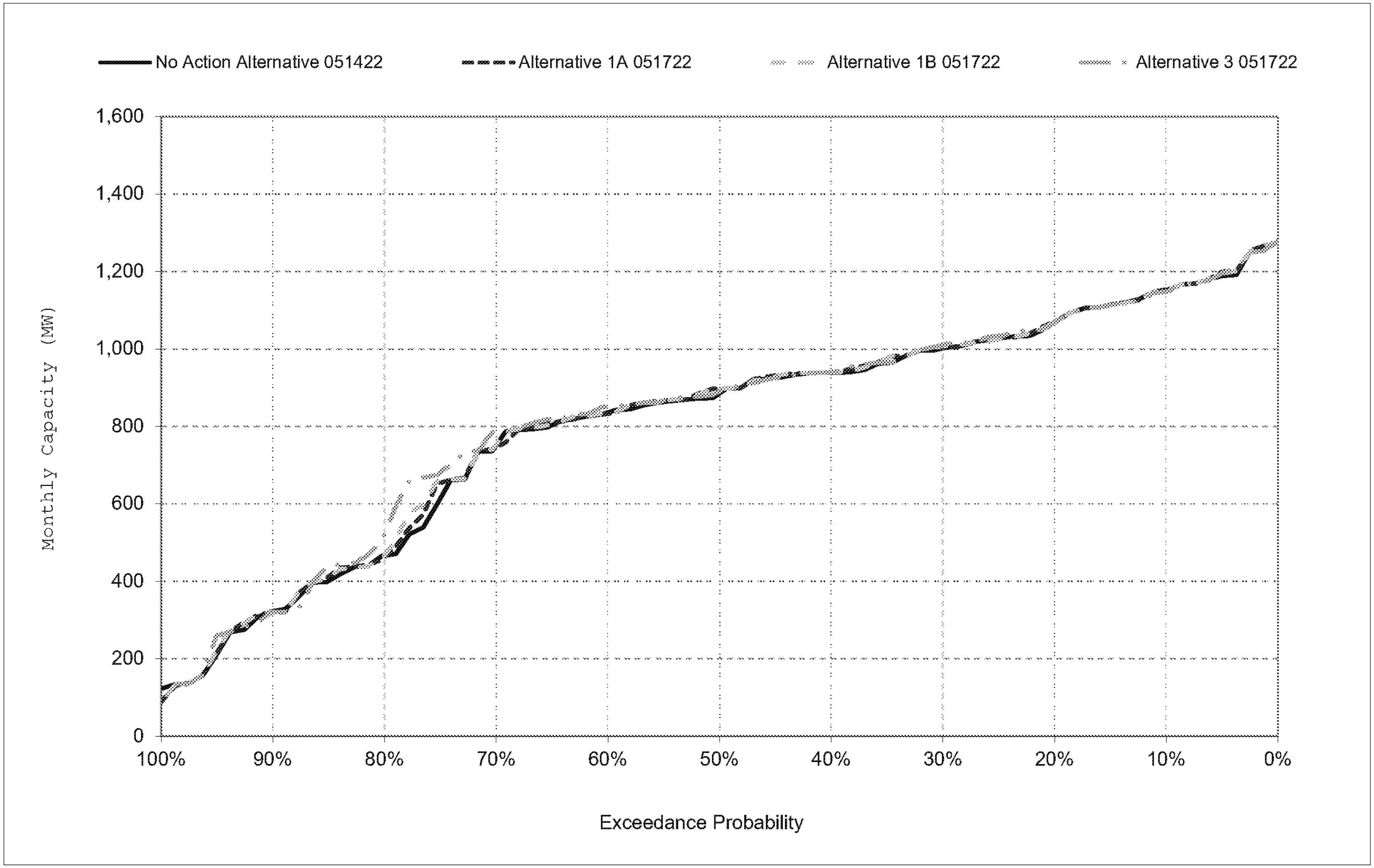
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-8. SWP Facilities Total Capacity, November



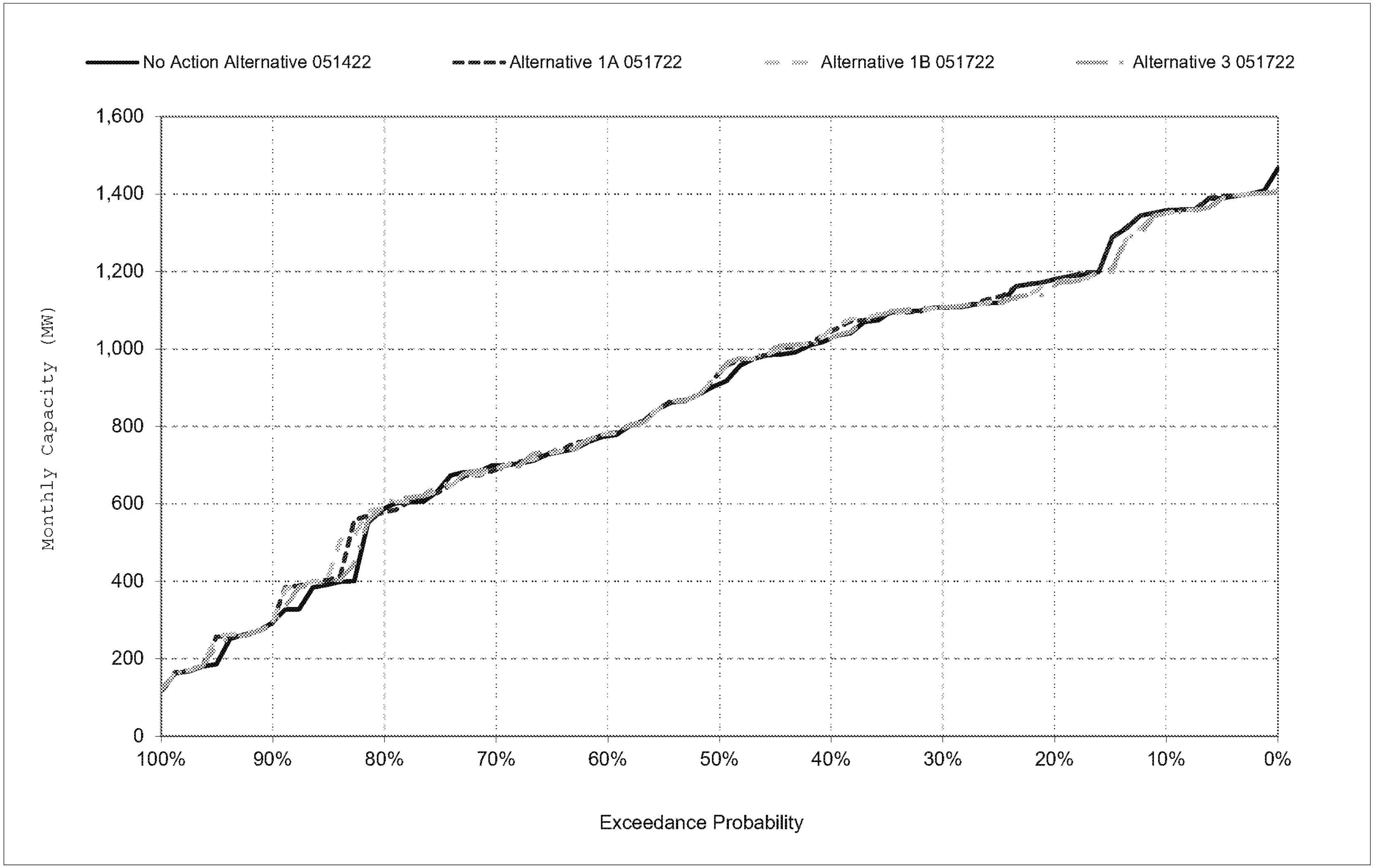
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-9. SWP Facilities Total Capacity, December



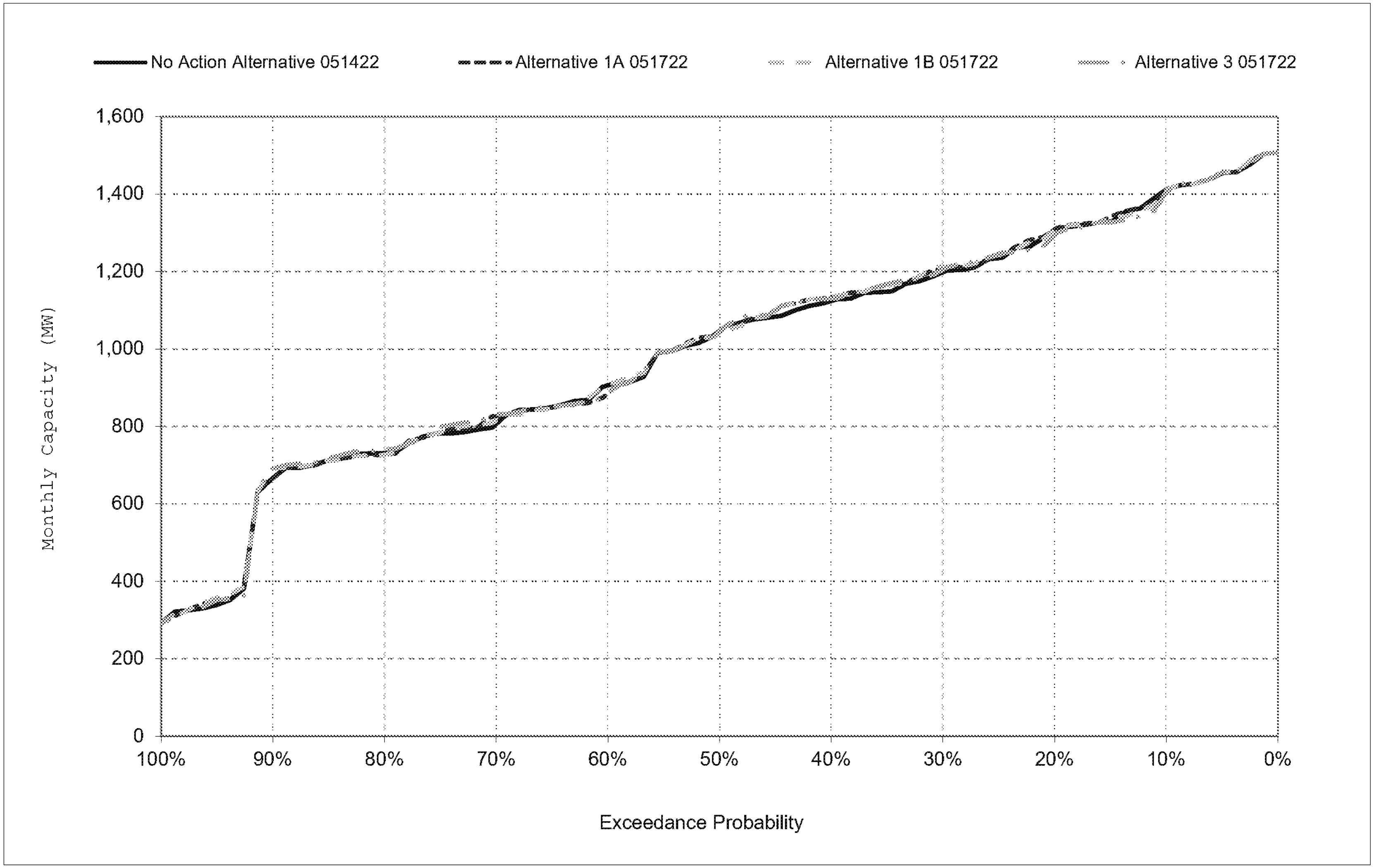
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-10. SWP Facilities Total Capacity, January



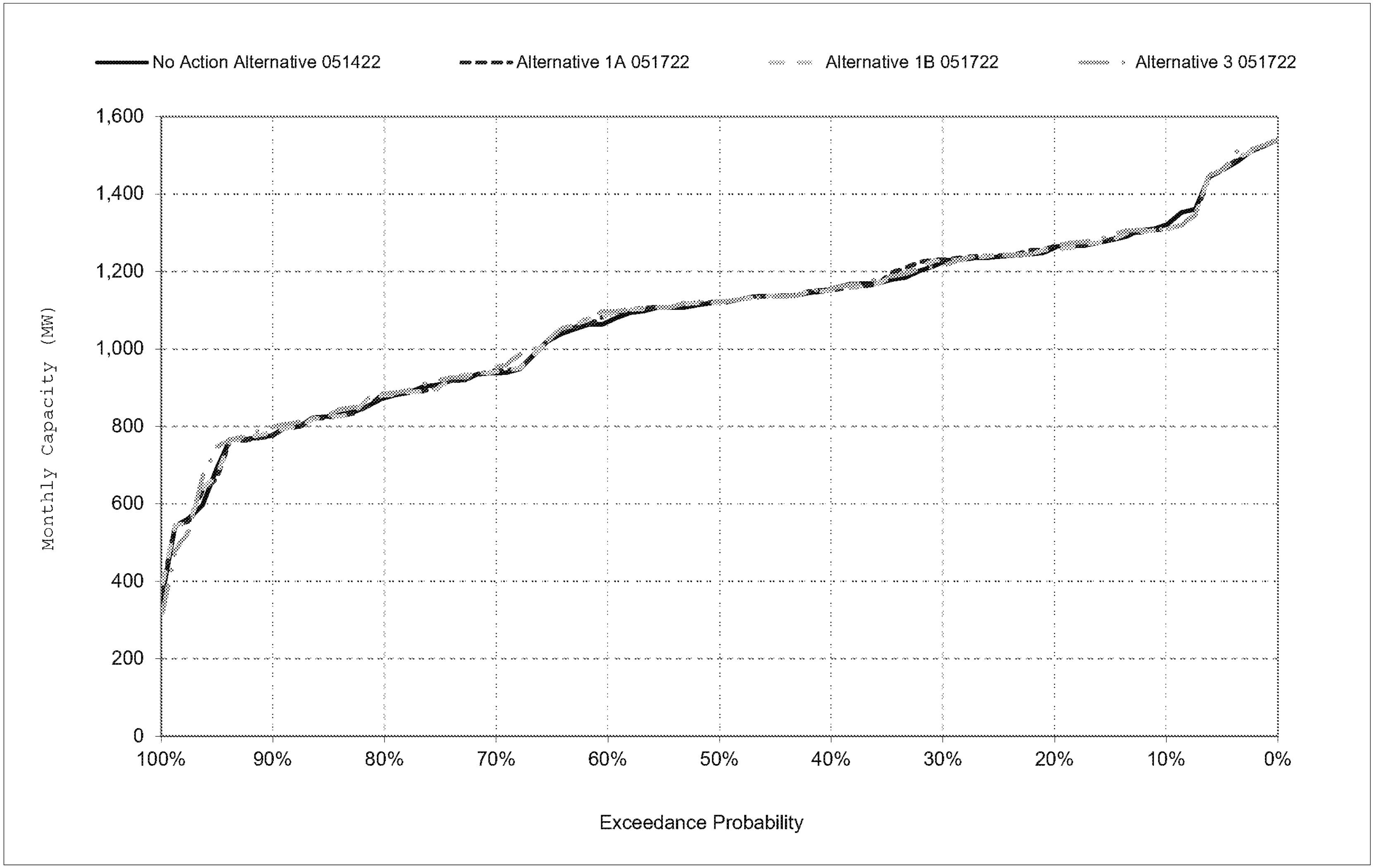
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-11. SWP Facilities Total Capacity, February



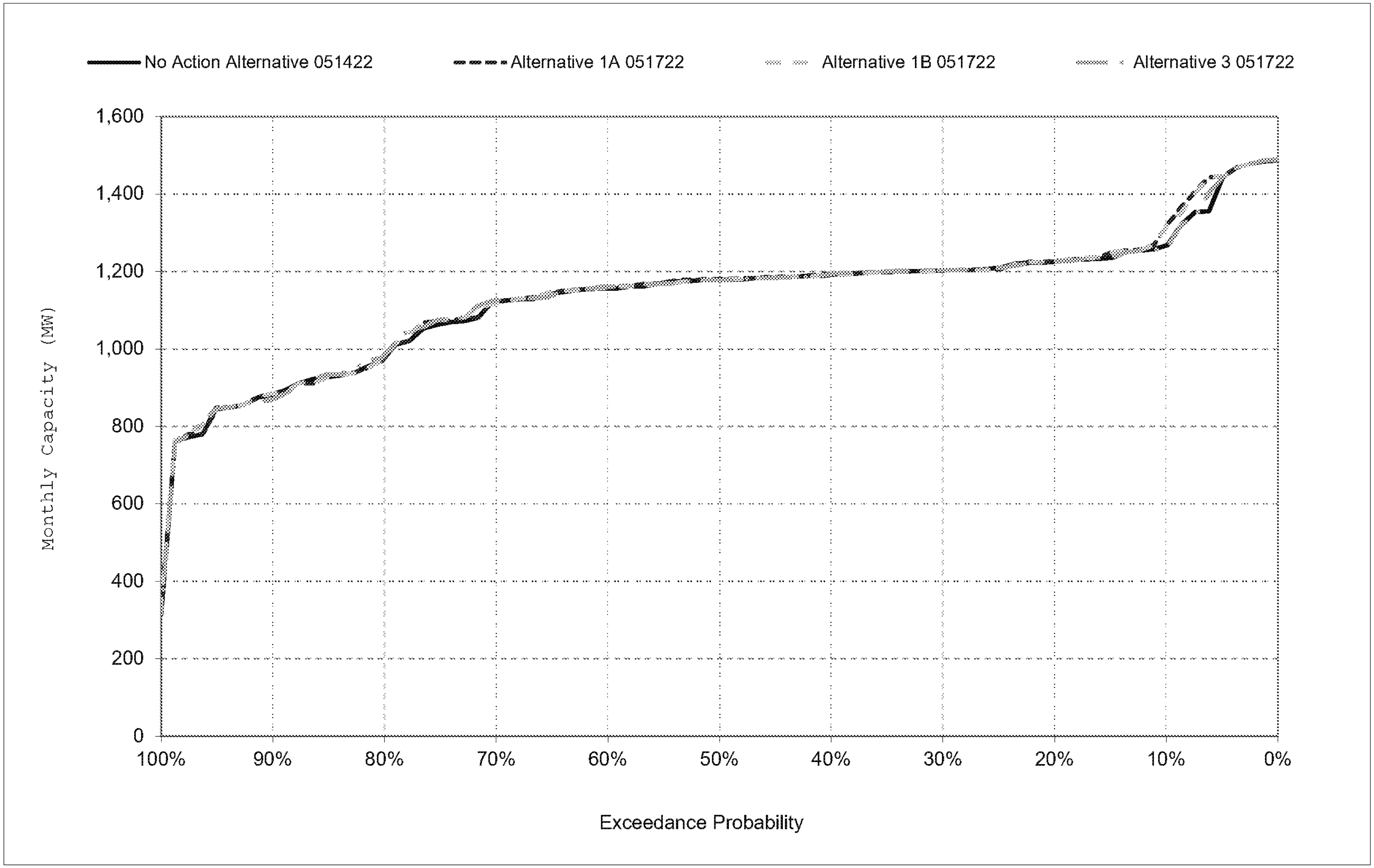
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-12. SWP Facilities Total Capacity, March



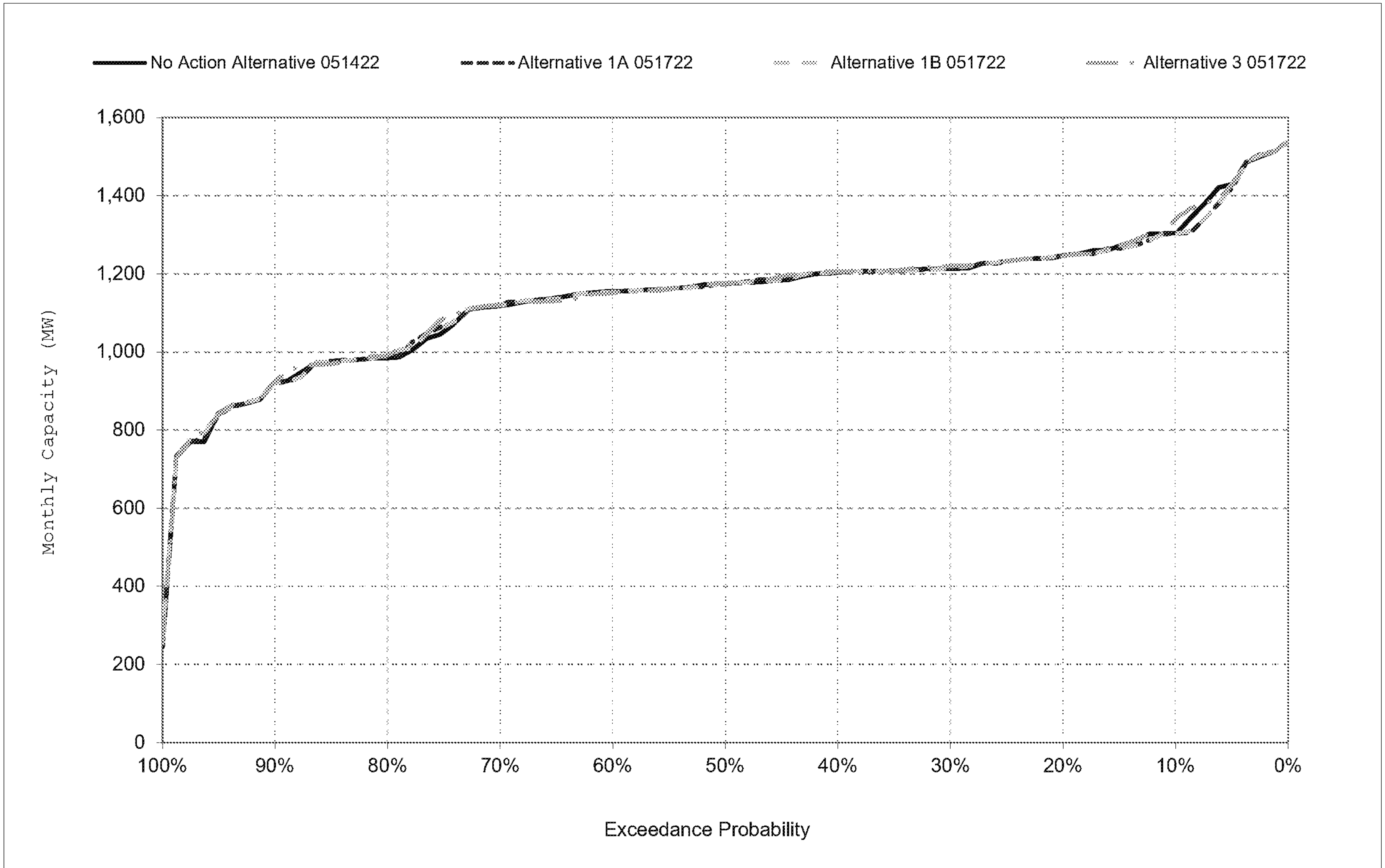
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-13. SWP Facilities Total Capacity, April



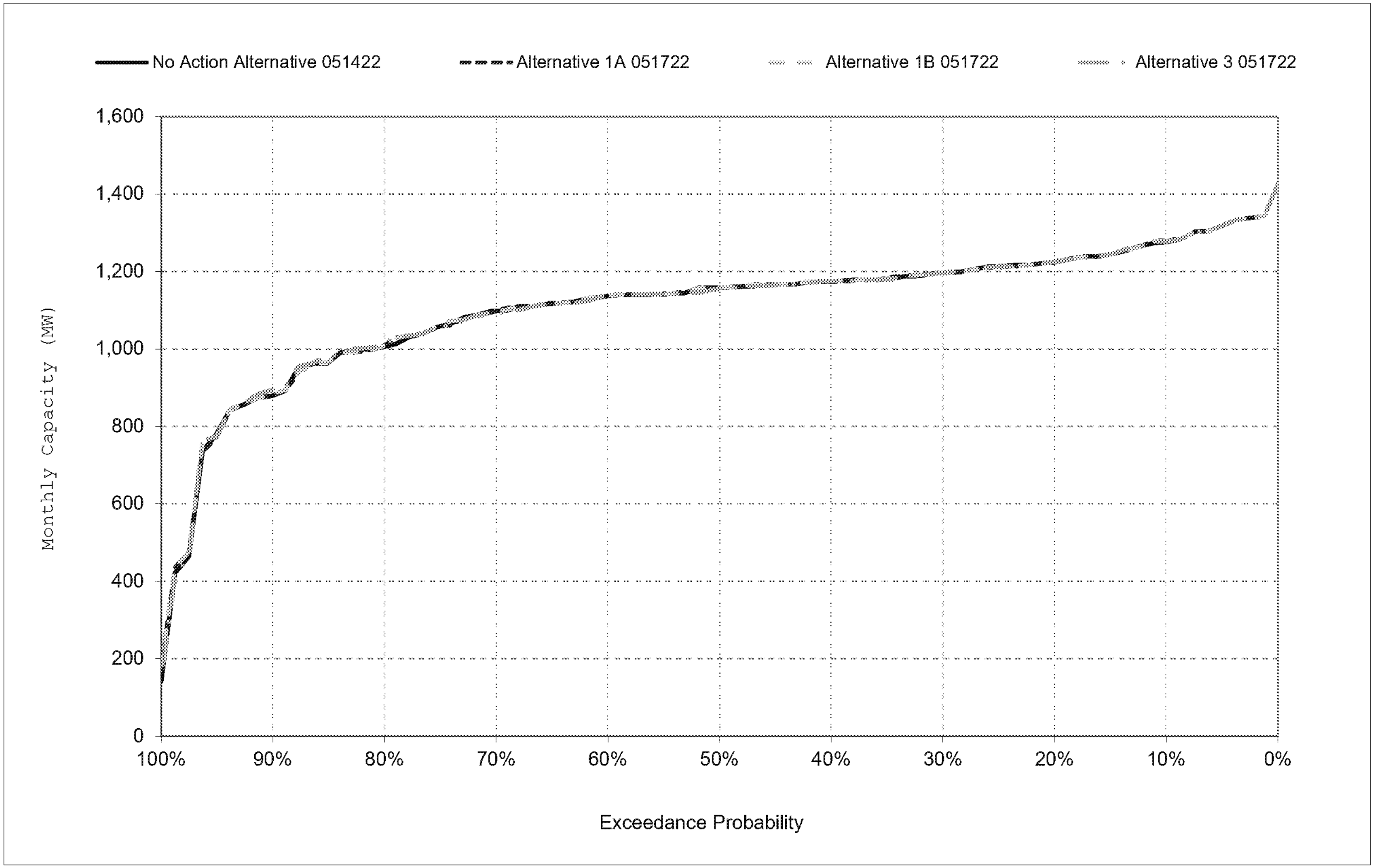
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-14. SWP Facilities Total Capacity, May



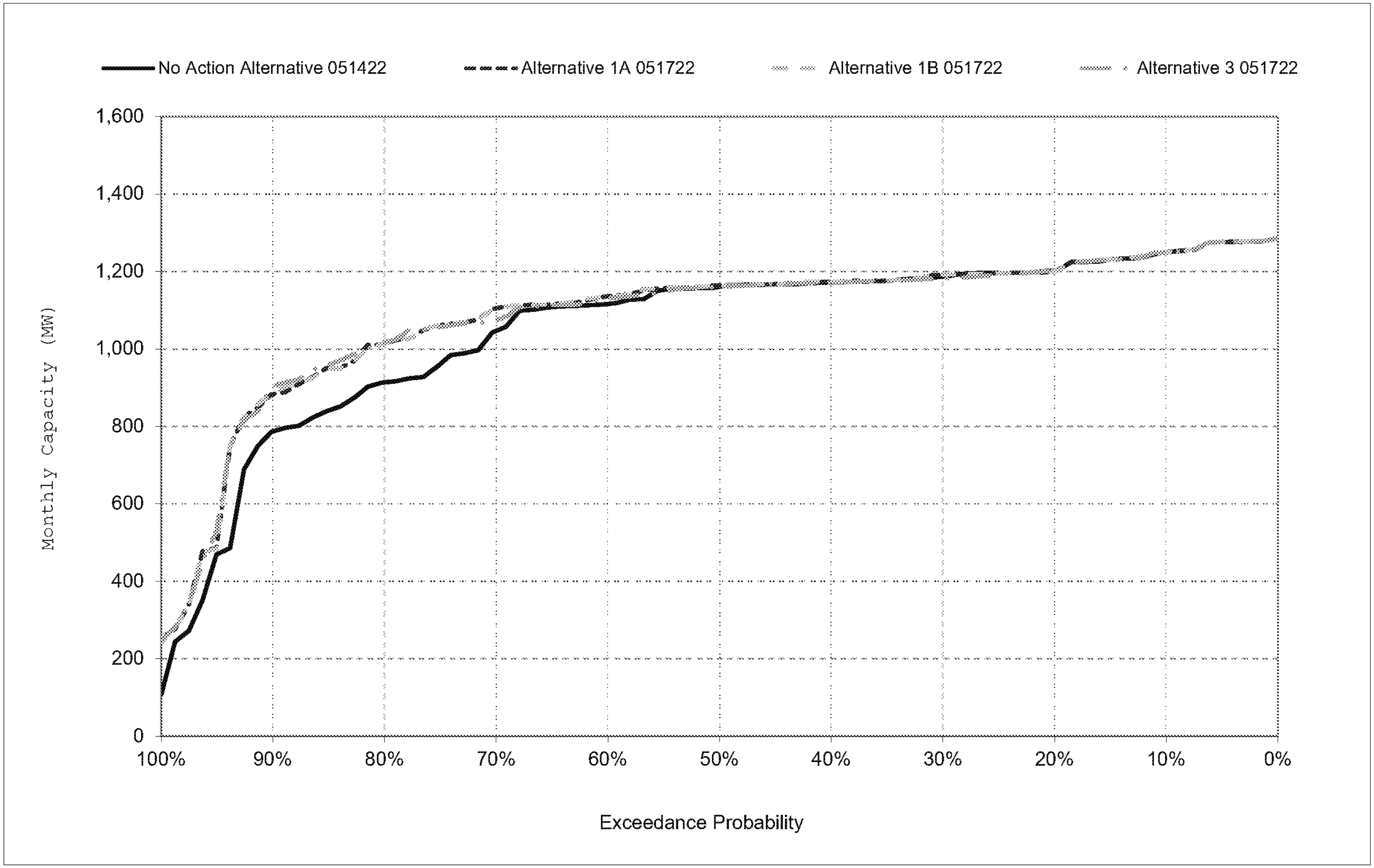
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-15. SWP Facilities Total Capacity, June



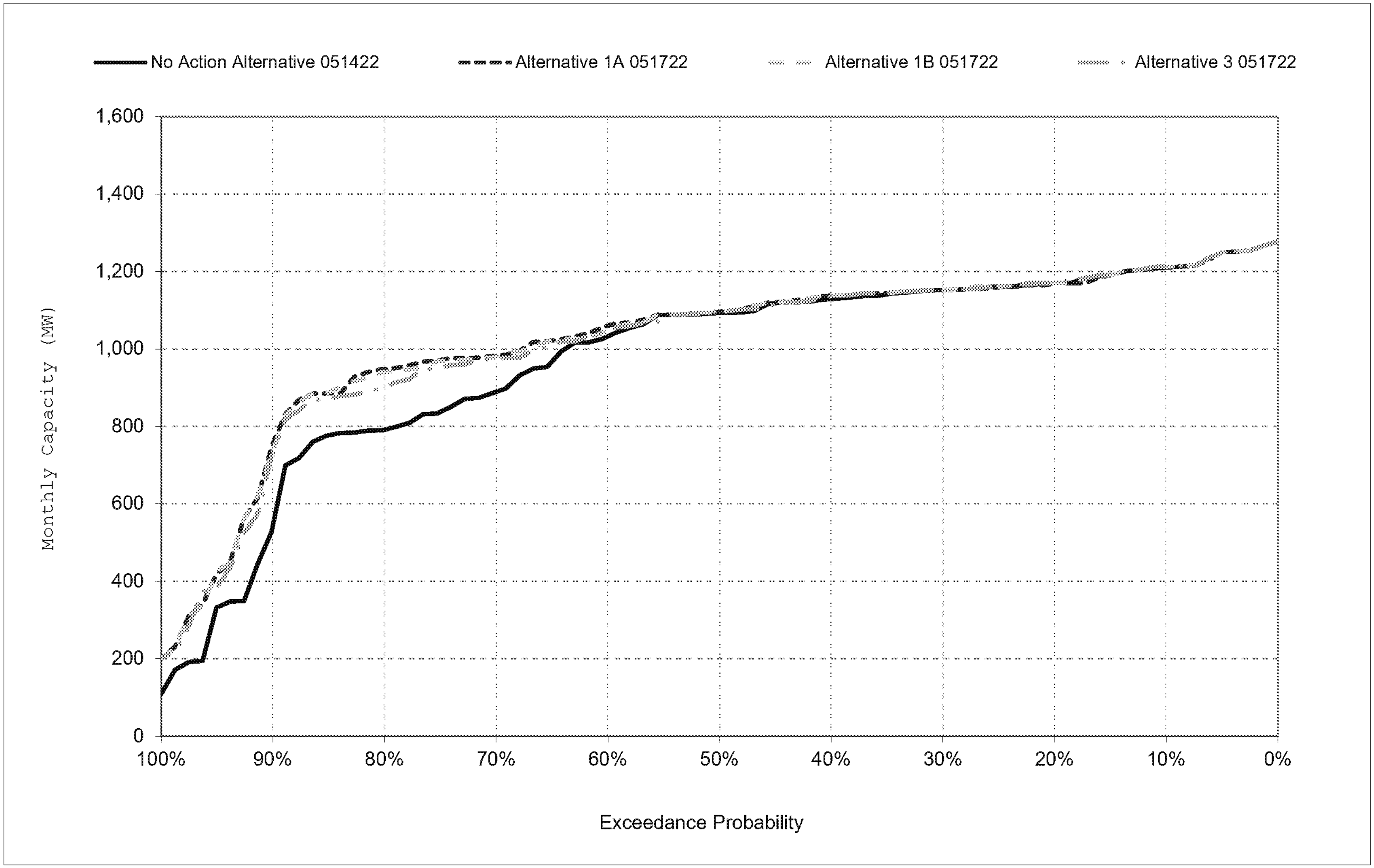
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-16. SWP Facilities Total Capacity, July



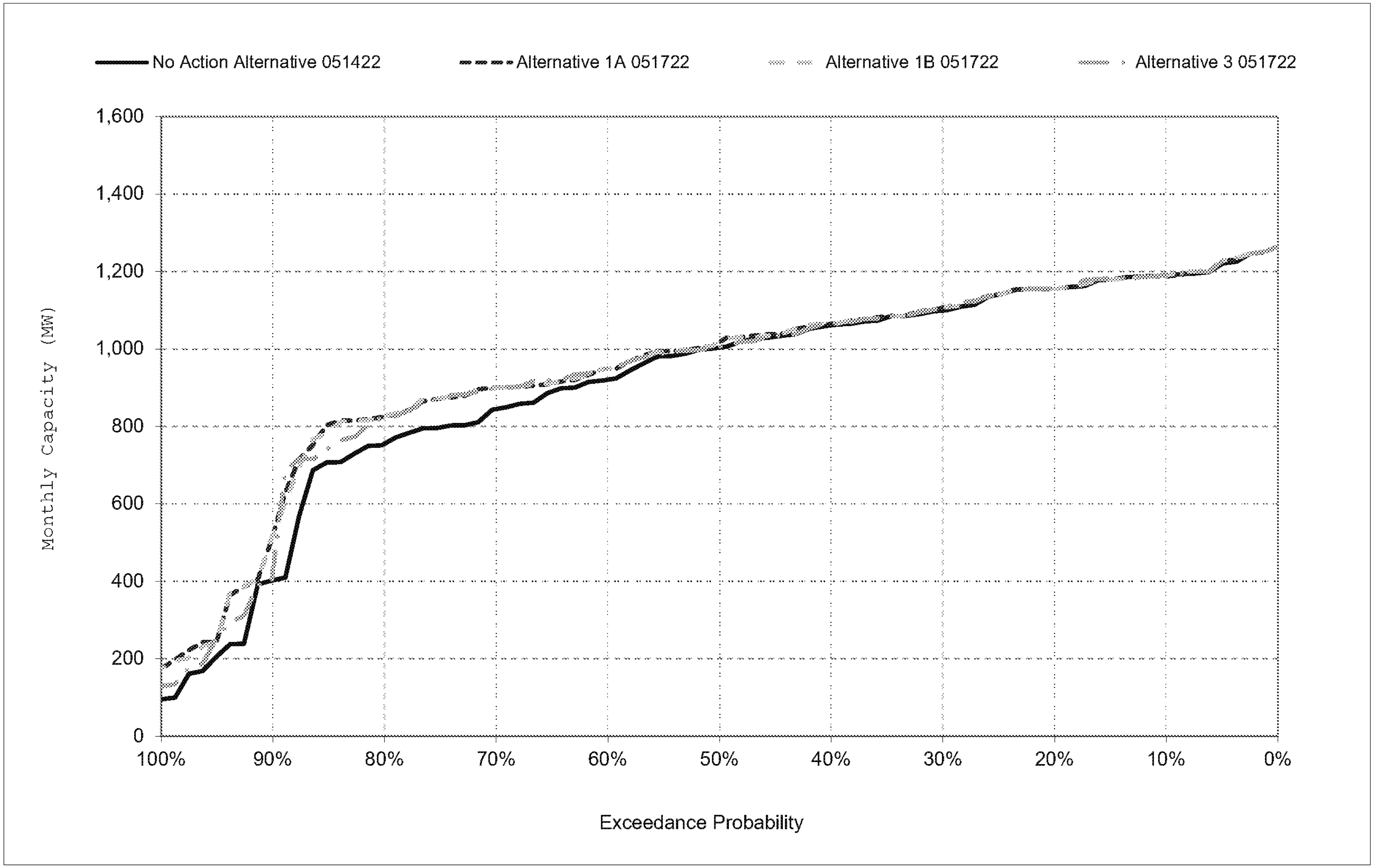
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-17. SWP Facilities Total Capacity, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 6-18. SWP Facilities Total Capacity, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 7-1a. SWP Facilities Total Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	402	323	363	711	620	627	524	646	541	625	546	497
20%	380	304	298	345	535	525	393	515	479	605	526	488
30%	362	291	260	235	368	423	319	411	453	589	511	462
40%	335	278	248	196	226	324	295	365	439	570	487	432
50%	296	264	232	152	149	188	283	345	417	544	396	340
60%	285	240	216	113	117	168	275	329	388	462	353	268
70%	251	208	186	89	91	145	251	312	368	415	315	240
80%	202	167	148	59	73	109	211	281	341	355	248	191
90%	125	107	95	43	49	88	162	210	297	284	209	142
Long Term												
Full Simulation Period[a]	290	246	242	240	268	311	321	399	417	482	389	335
Water Year Types[b,c]												
Wet (32%)	367	317	322	461	511	575	474	572	492	505	440	460
Above Normal (15%)	374	298	267	212	283	343	306	406	416	584	522	495
Below Normal (17%)	303	269	243	172	199	193	273	350	414	596	519	315
Dry (22%)	224	192	197	98	95	130	242	306	408	451	268	202
Critical (15%)	124	96	108	79	66	114	179	213	276	246	176	129

Table 7-1b. SWP Facilities Total Generation, Alternative 1A 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	403	333	362	711	620	628	557	646	533	627	546	498
20%	381	310	301	345	535	525	410	516	469	613	525	488
30%	369	299	260	236	370	419	327	409	451	587	512	464
40%	357	285	250	200	225	331	299	361	439	570	496	434
50%	344	274	233	155	151	186	285	345	413	546	419	360
60%	324	261	217	115	113	168	274	332	380	475	370	299
70%	300	235	188	89	91	149	259	313	354	433	355	268
80%	266	201	154	59	73	110	212	281	335	412	346	222
90%	148	110	93	43	49	86	163	212	276	330	268	189
Long Term												
Full Simulation Period[a]	315	260	242	241	269	311	324	398	410	499	418	354
Water Year Types[b,c]												
Wet (32%)	366	317	320	463	514	577	476	572	492	505	440	464
Above Normal (15%)	374	298	267	216	286	345	320	398	417	585	522	495
Below Normal (17%)	320	289	243	172	197	193	275	350	409	590	522	324
Dry (22%)	307	236	199	99	96	130	243	308	386	495	346	247
Critical (15%)	152	105	113	79	66	112	180	214	266	298	251	172

Table 7-1c. SWP Facilities Total Generation, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	10	-1	0	0	1	33	0	-8	3	0	0
20%	1	6	4	0	1	0	16	0	-11	9	-1	0
30%	6	9	0	1	2	-4	7	-2	-2	-1	1	2
40%	22	6	3	4	0	7	4	-4	0	1	9	2
50%	48	9	1	3	2	-2	2	0	-3	2	23	20
60%	39	20	1	2	-4	0	0	3	-8	13	17	31
70%	49	28	2	0	1	4	8	1	-14	18	40	28
80%	64	34	6	0	1	0	1	0	-6	57	99	31
90%	23	2	-3	0	0	-2	1	2	-20	45	59	47
Long Term												
Full Simulation Period[a]	25	14	1	1	2	0	3	-1	-7	16	28	19
Water Year Types[b,c]												
Wet (32%)	-1	0	-2	1	3	1	2	0	0	0	0	4
Above Normal (15%)	0	0	-1	4	3	1	14	-8	1	0	0	0
Below Normal (17%)	17	19	0	1	-2	0	2	0	-4	-6	4	10
Dry (22%)	83	44	3	1	1	0	1	3	-22	44	77	45
Critical (15%)	28	9	6	0	0	-2	1	0	-10	53	75	43

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 7-2a. SWP Facilities Total Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	402	323	363	711	620	627	524	646	541	625	546	497
20%	380	304	298	345	535	525	393	515	479	605	526	488
30%	362	291	260	235	368	423	319	411	453	589	511	462
40%	335	278	248	196	226	324	295	365	439	570	487	432
50%	296	264	232	152	149	188	283	345	417	544	396	340
60%	285	240	216	113	117	168	275	329	388	462	353	268
70%	251	208	186	89	91	145	251	312	368	415	315	240
80%	202	167	148	59	73	109	211	281	341	355	248	191
90%	125	107	95	43	49	88	162	210	297	284	209	142
Long Term												
Full Simulation Period[a]	290	246	242	240	268	311	321	399	417	482	389	335
Water Year Types[b,c]												
Wet (32%)	367	317	322	461	511	575	474	572	492	505	440	460
Above Normal (15%)	374	298	267	212	283	343	306	406	416	584	522	495
Below Normal (17%)	303	269	243	172	199	193	273	350	414	596	519	315
Dry (22%)	224	192	197	98	95	130	242	306	408	451	268	202
Critical (15%)	124	96	108	79	66	114	179	213	276	246	176	129

Table 7-2b. SWP Facilities Total Generation, Alternative 1B 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	403	331	342	692	620	628	549	647	533	627	546	506
20%	383	308	300	333	535	525	410	515	470	610	526	488
30%	373	298	261	238	369	416	326	410	451	586	513	464
40%	358	283	251	199	230	332	296	360	435	572	493	446
50%	343	273	233	154	153	186	283	345	414	546	410	364
60%	326	260	218	116	116	169	274	330	380	475	374	301
70%	301	230	189	89	90	148	260	310	354	433	353	277
80%	266	193	155	59	73	112	212	282	336	412	336	213
90%	142	131	93	43	50	86	163	213	278	330	269	189
Long Term												
Full Simulation Period[a]	316	257	242	238	269	311	324	397	410	499	417	355
Water Year Types[b,c]												
Wet (32%)	366	317	318	456	513	575	476	572	492	506	442	466
Above Normal (15%)	374	297	267	216	287	347	320	396	415	585	522	497
Below Normal (17%)	317	290	242	170	201	194	272	349	408	590	522	326
Dry (22%)	314	220	202	98	95	131	244	305	387	496	340	246
Critical (15%)	148	106	113	80	66	112	180	214	267	299	248	171

Table 7-2c. SWP Facilities Total Generation, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	8	-21	-19	-1	1	25	0	-8	3	0	9
20%	4	4	3	-12	0	0	16	-1	-9	5	0	0
30%	10	8	1	3	1	-7	7	-2	-3	-2	1	3
40%	23	4	3	3	4	8	0	-6	-4	3	6	14
50%	47	9	1	3	4	-2	0	-1	-3	2	14	24
60%	41	20	1	3	-1	1	0	1	-8	13	20	33
70%	50	23	3	0	-1	3	9	-2	-14	18	38	38
80%	64	26	7	0	1	3	1	1	-5	57	88	22
90%	16	23	-3	-1	0	-2	1	3	-19	46	60	47
Long Term												
Full Simulation Period[a]	26	11	0	-1	2	0	3	-2	-7	17	28	20
Water Year Types[b,c]												
Wet (32%)	0	0	-4	-5	2	-1	1	0	0	0	2	6
Above Normal (15%)	0	0	0	4	4	4	15	-9	0	1	0	2
Below Normal (17%)	14	21	-1	-1	2	1	-1	-1	-5	-6	3	11
Dry (22%)	91	28	5	0	-1	1	2	0	-21	45	72	44
Critical (15%)	24	10	6	0	0	-2	2	0	-8	54	73	42

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 7-3a. SWP Facilities Total Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	402	323	363	711	620	627	524	646	541	625	546	497
20%	380	304	298	345	535	525	393	515	479	605	526	488
30%	362	291	260	235	368	423	319	411	453	589	511	462
40%	335	278	248	196	226	324	295	365	439	570	487	432
50%	296	264	232	152	149	188	283	345	417	544	396	340
60%	285	240	216	113	117	168	275	329	388	462	353	268
70%	251	208	186	89	91	145	251	312	368	415	315	240
80%	202	167	148	59	73	109	211	281	341	355	248	191
90%	125	107	95	43	49	88	162	210	297	284	209	142
Long Term												
Full Simulation Period[a]	290	246	242	240	268	311	321	399	417	482	389	335
Water Year Types[b,c]												
Wet (32%)	367	317	322	461	511	575	474	572	492	505	440	460
Above Normal (15%)	374	298	267	212	283	343	306	406	416	584	522	495
Below Normal (17%)	303	269	243	172	199	193	273	350	414	596	519	315
Dry (22%)	224	192	197	98	95	130	242	306	408	451	268	202
Critical (15%)	124	96	108	79	66	114	179	213	276	246	176	129

Table 7-3b. SWP Facilities Total Generation, Alternative 3 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	400	333	358	692	628	630	548	638	533	619	546	508
20%	384	308	300	345	528	527	392	515	467	603	526	491
30%	367	301	260	244	374	414	322	412	449	585	514	462
40%	349	283	247	198	221	334	296	369	433	571	496	440
50%	335	271	233	154	151	208	283	349	412	541	409	355
60%	310	255	220	106	115	170	273	335	386	478	373	303
70%	293	230	189	85	92	149	259	311	358	436	351	273
80%	252	189	160	56	72	109	208	280	340	413	310	214
90%	134	112	103	44	50	87	162	207	273	328	249	162
Long Term												
Full Simulation Period[a]	309	257	242	238	269	313	322	399	411	497	413	350
Water Year Types[b,c]												
Wet (32%)	367	317	319	454	513	577	475	573	492	506	442	466
Above Normal (15%)	373	297	268	213	285	341	305	406	413	576	524	498
Below Normal (17%)	315	295	240	176	197	198	272	350	408	587	520	324
Dry (22%)	286	215	203	99	97	130	245	306	389	497	326	242
Critical (15%)	148	105	110	77	69	123	182	213	267	296	241	145

Table 7-3c. SWP Facilities Total Generation, Alternative 3 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1	11	-5	-19	7	3	24	-8	-8	-6	0	11
20%	4	4	2	0	-7	2	-1	0	-12	-1	0	3
30%	5	11	0	10	6	-10	3	1	-5	-4	3	0
40%	14	4	0	2	-4	10	1	4	-6	1	8	8
50%	40	6	1	3	2	19	0	4	-4	-3	14	15
60%	26	14	4	-7	-2	3	-2	6	-2	16	19	35
70%	42	23	3	-4	2	4	8	-1	-11	21	36	33
80%	50	22	12	-3	-1	0	-3	-1	-2	58	62	23
90%	9	5	7	1	1	-1	1	-3	-23	44	40	20
Long Term												
Full Simulation Period[a]	19	11	0	-2	1	2	1	0	-7	15	24	15
Water Year Types[b,c]												
Wet (32%)	1	0	-4	-7	2	2	1	1	0	0	2	5
Above Normal (15%)	-1	-1	1	1	3	-2	0	1	-2	-9	3	3
Below Normal (17%)	12	25	-3	5	-2	4	-1	0	-6	-9	1	9
Dry (22%)	62	23	6	0	1	0	3	0	-19	45	58	39
Critical (15%)	24	9	2	-3	3	9	3	-1	-8	51	65	17

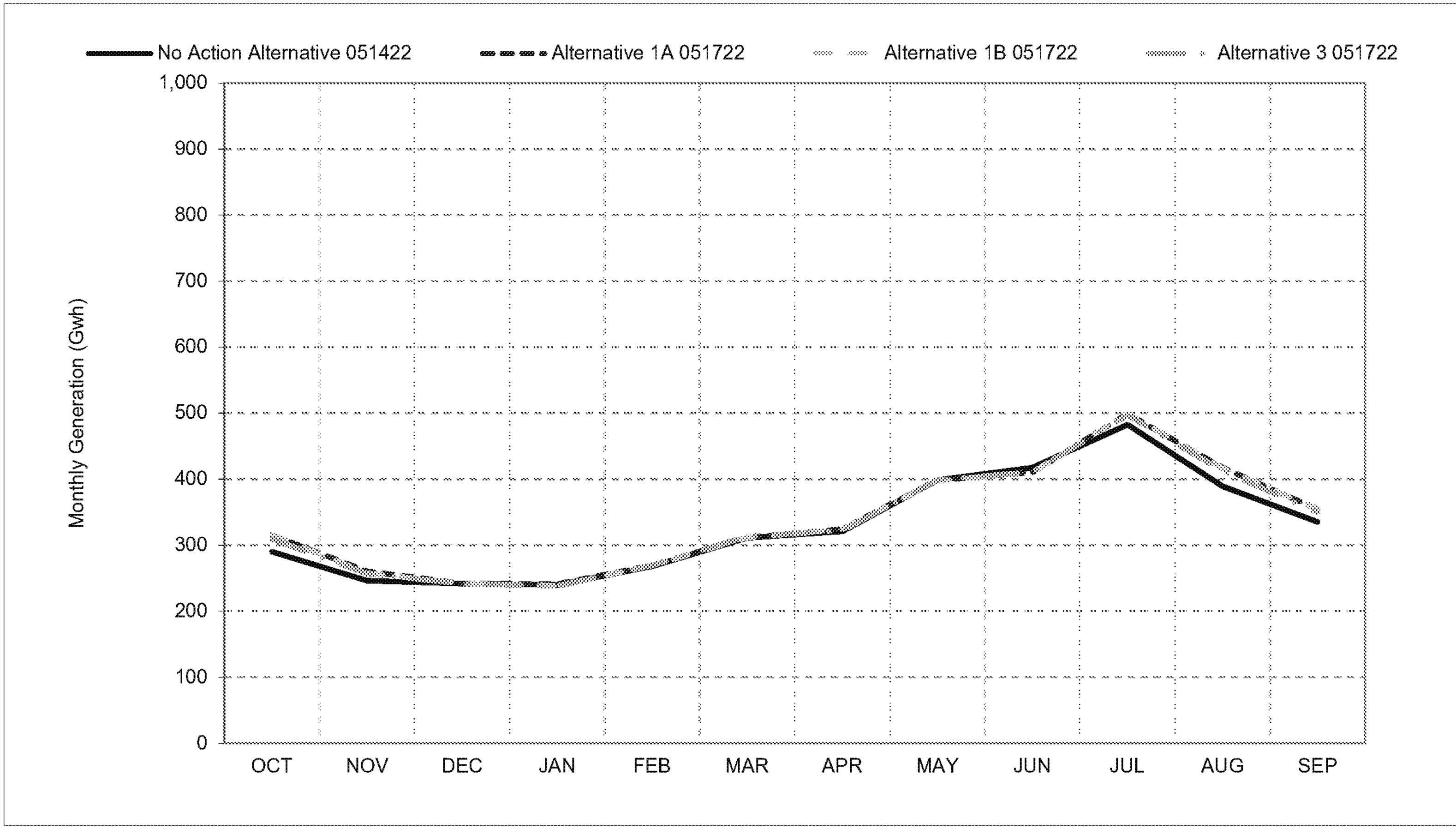
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

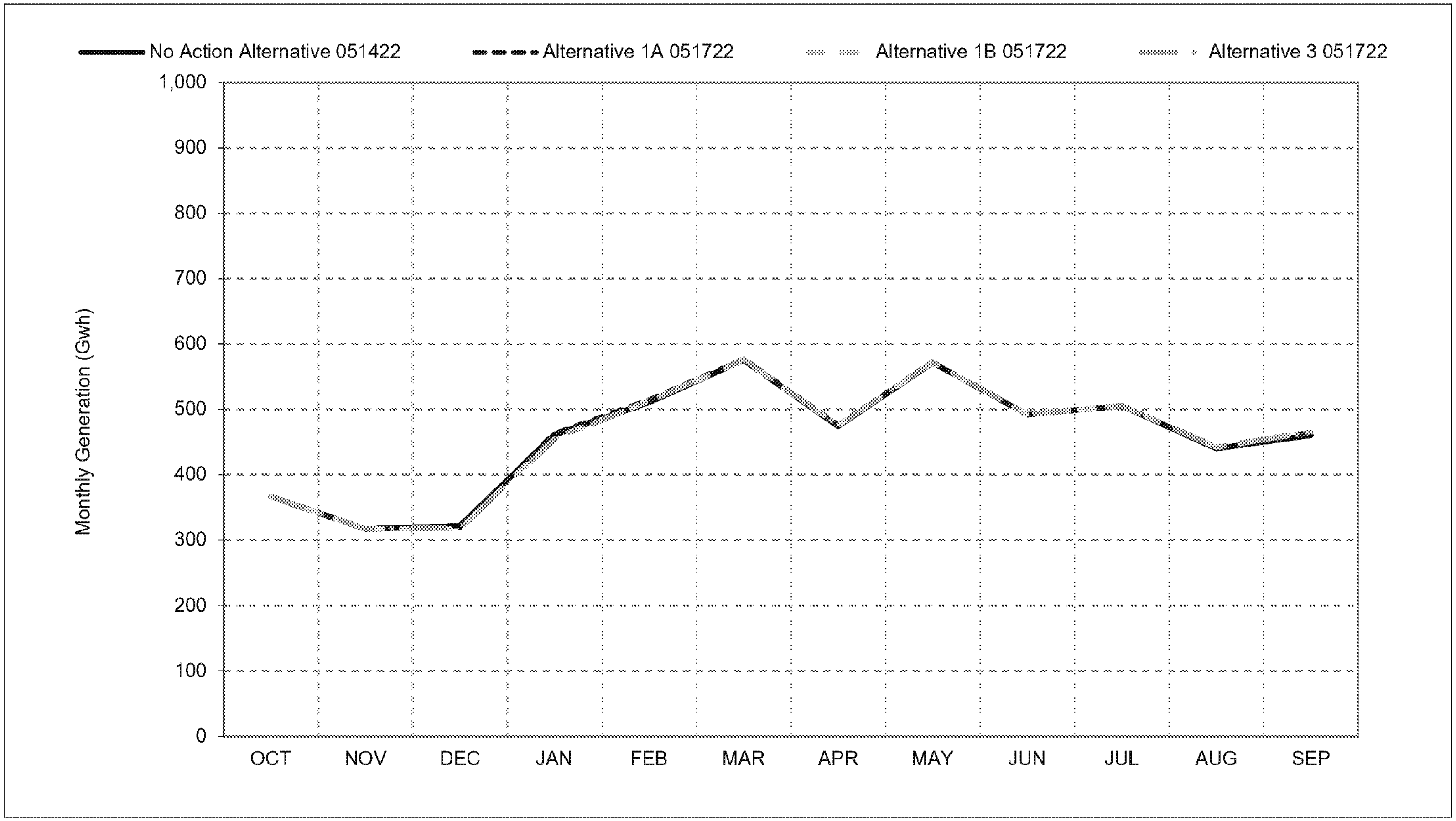
d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-1. SWP Facilities Total Generation, Long-Term Average Generation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-2. SWP Facilities Total Generation, Wet Year Average Generation

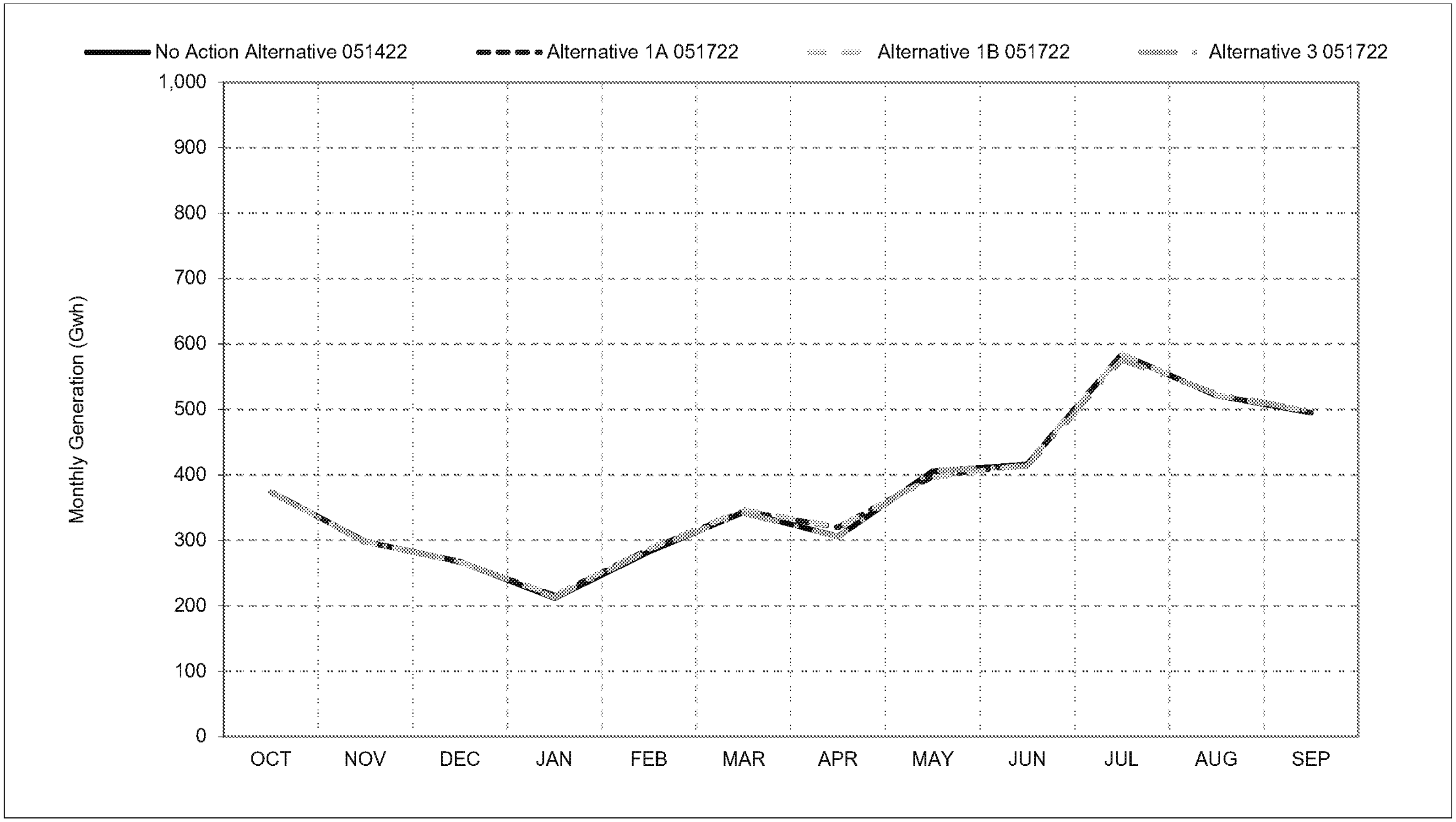


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

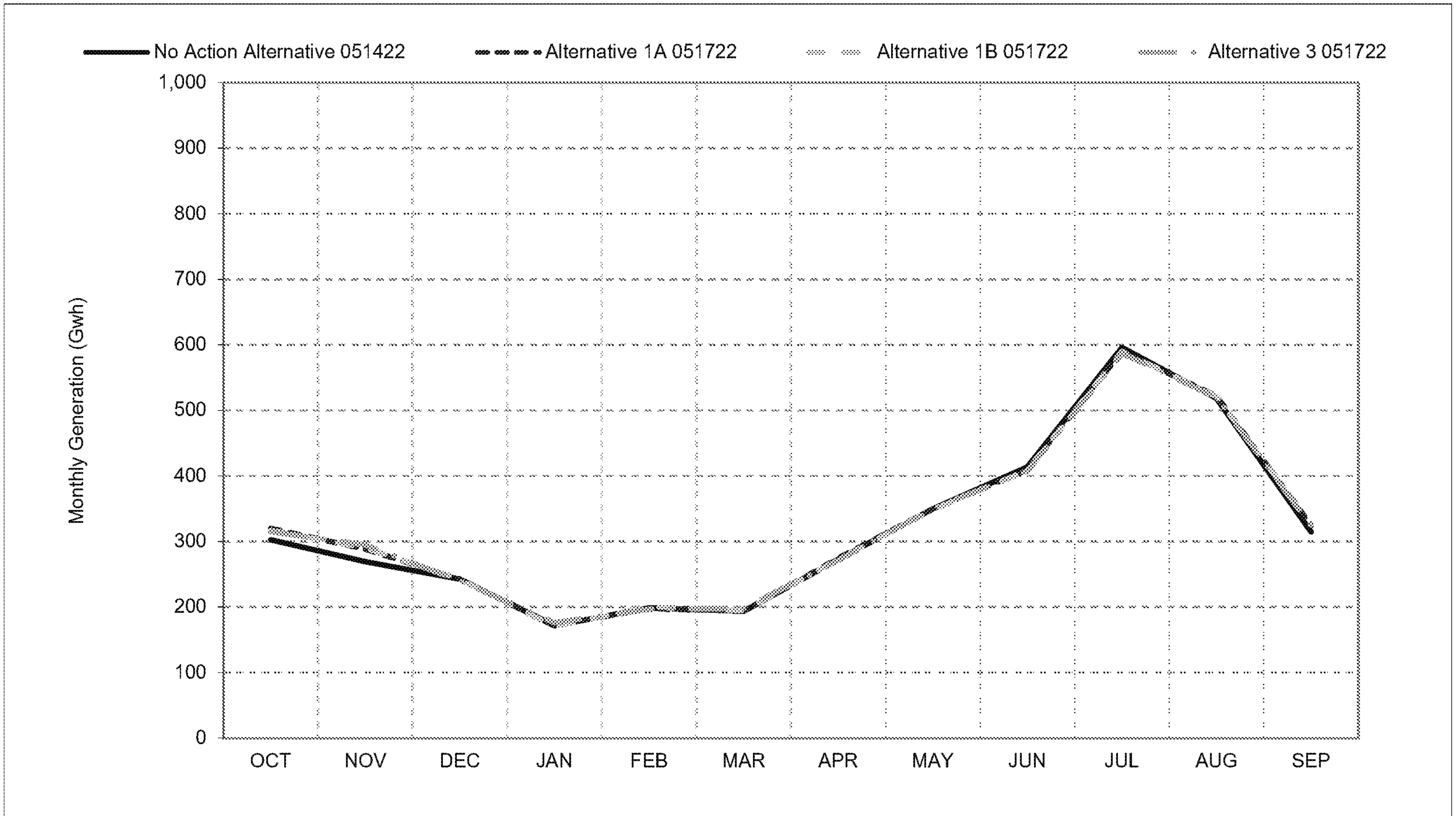
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-3. SWP Facilities Total Generation, Above Normal Year Average Generation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-4. SWP Facilities Total Generation, Below Normal Year Average Generation

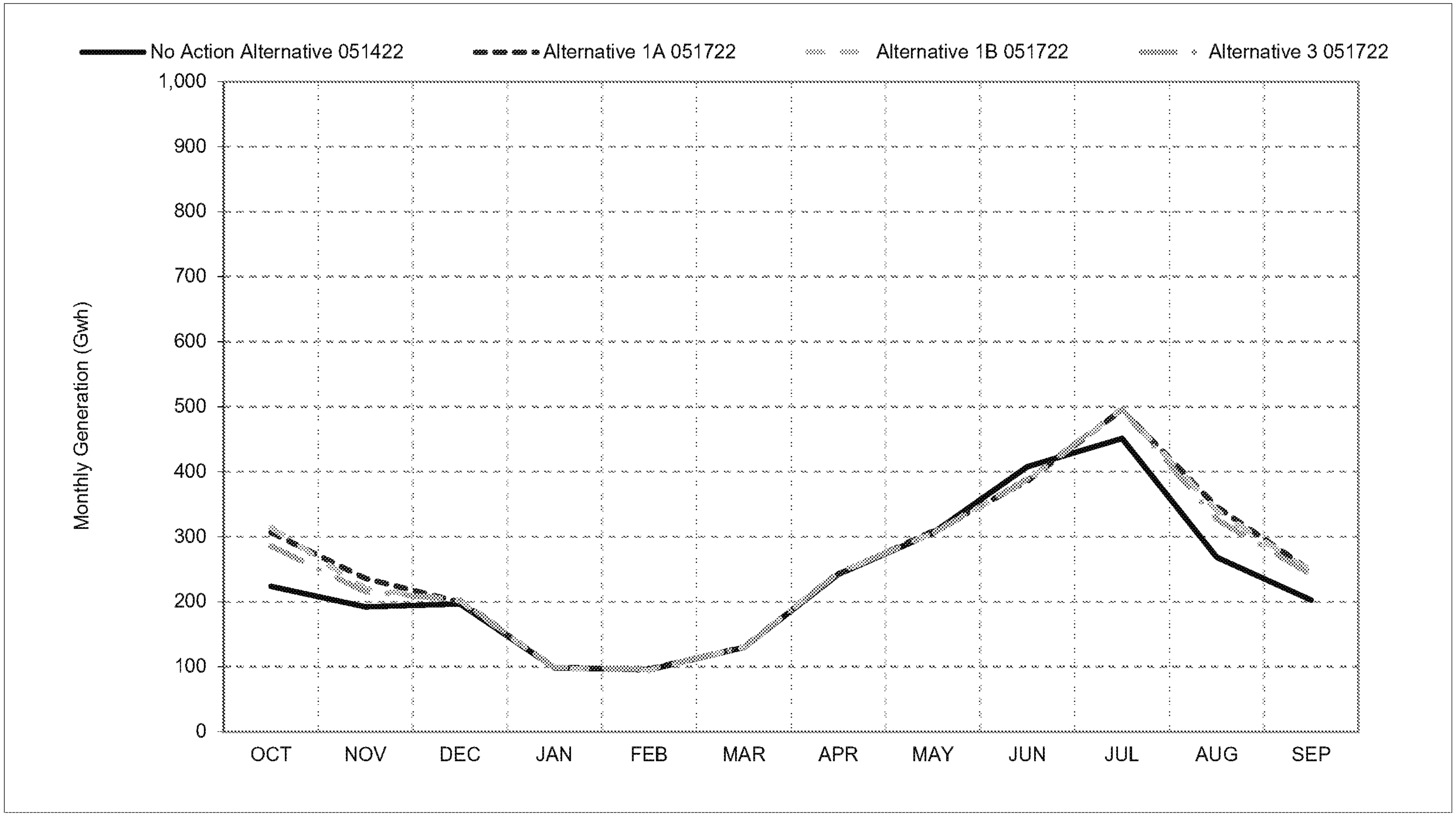


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-5. SWP Facilities Total Generation, Dry Year Average Generation

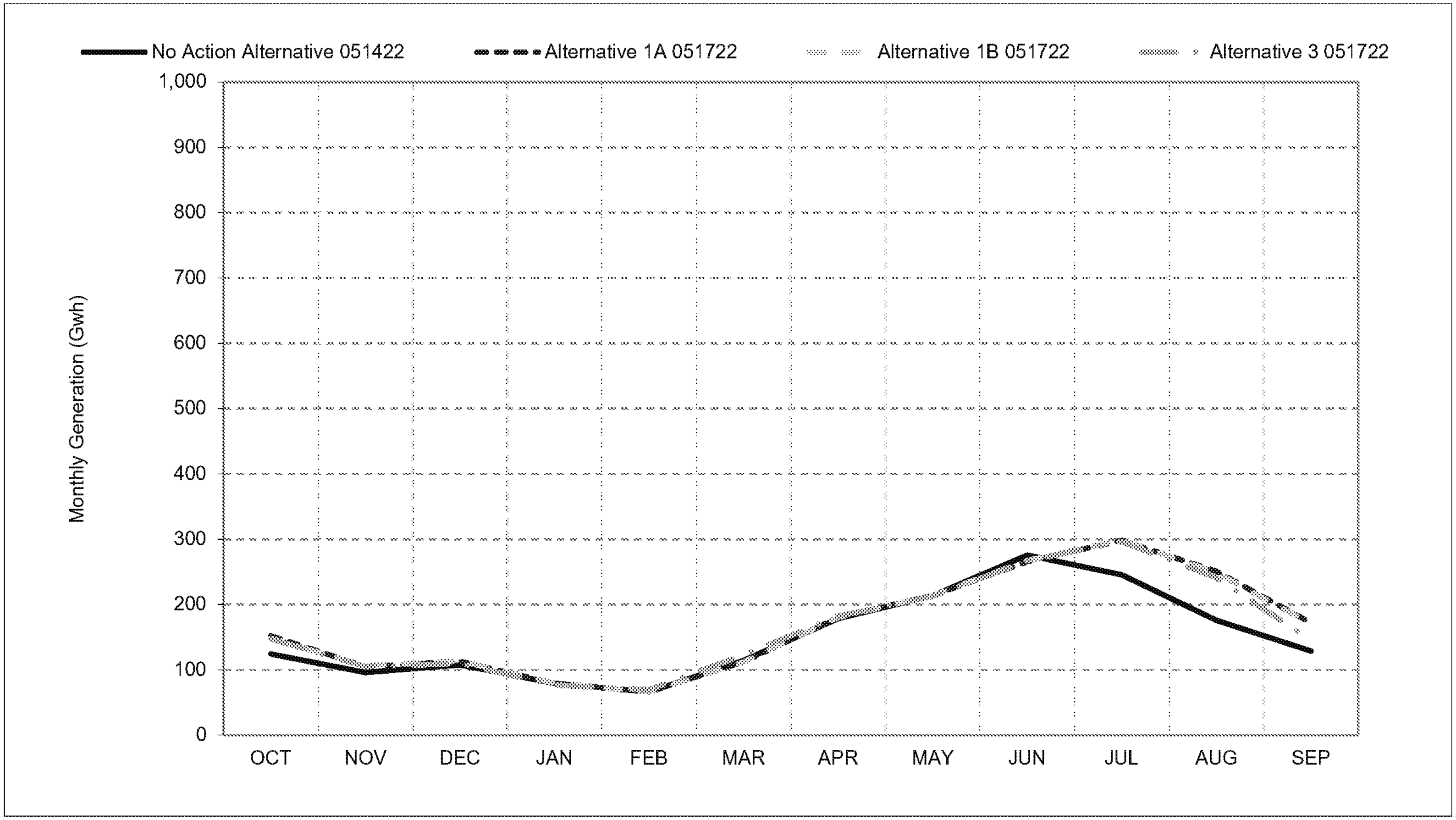


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-6. SWP Facilities Total Generation, Critical Year Average Generation

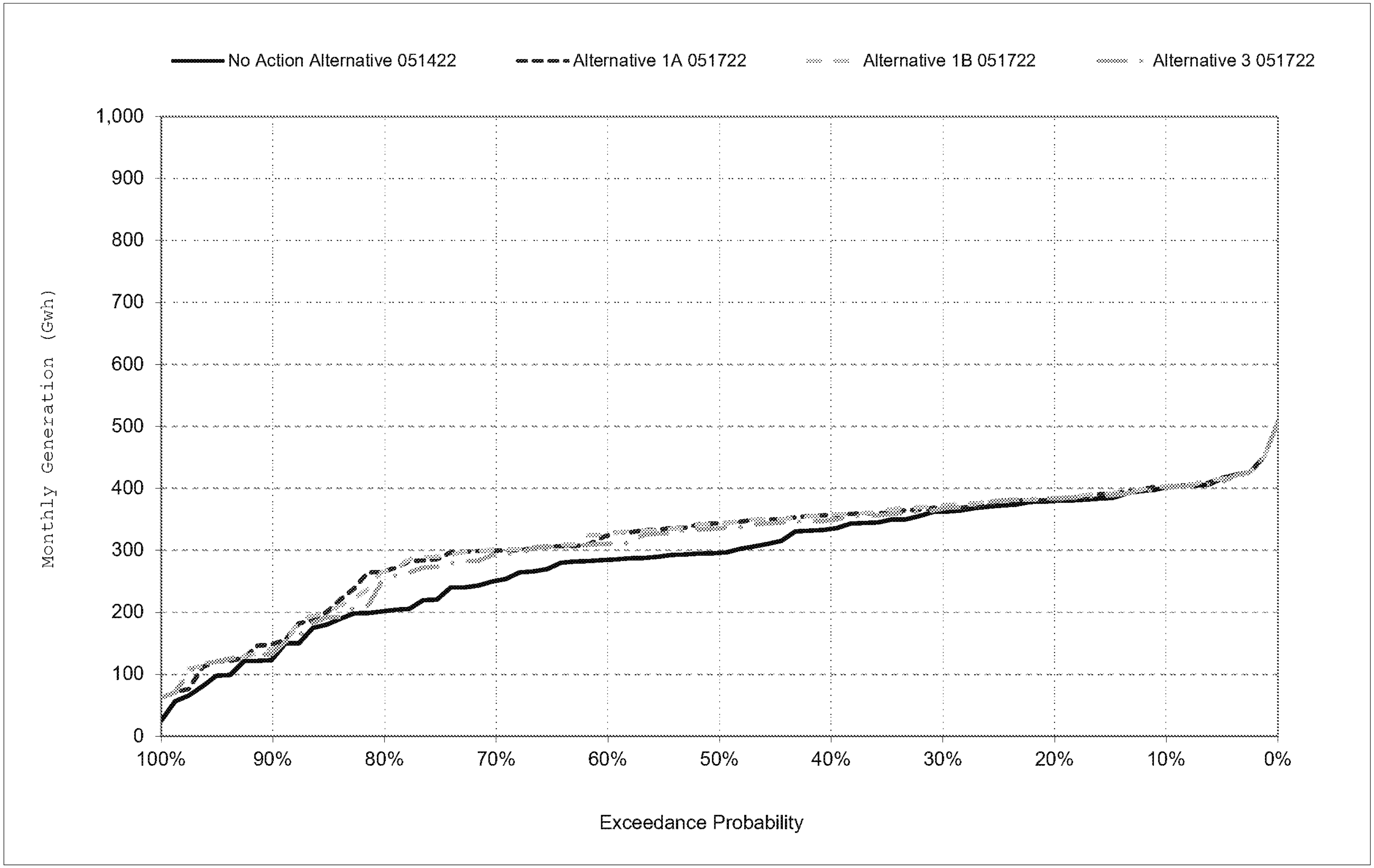


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

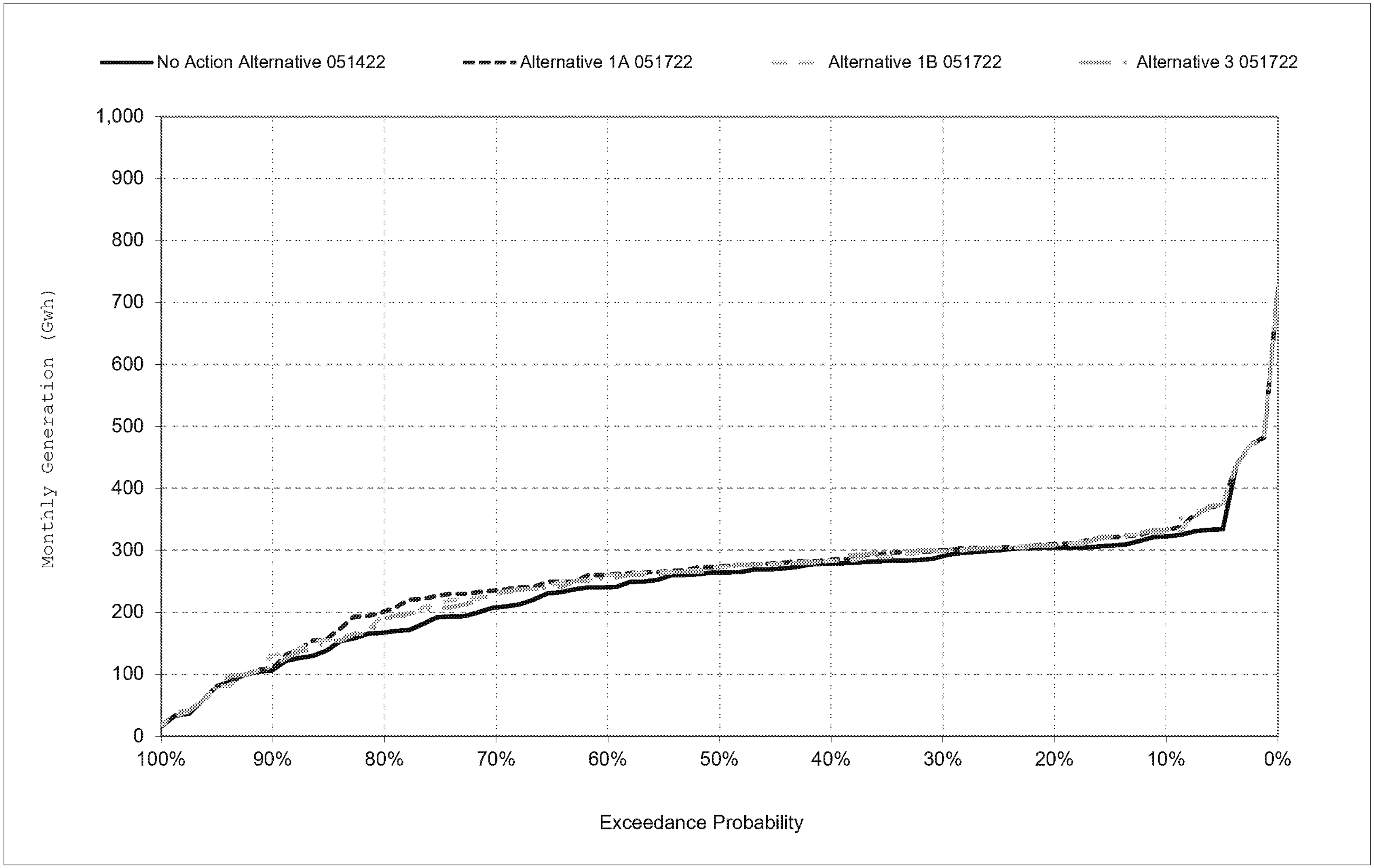
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-7. SWP Facilities Total Generation, October



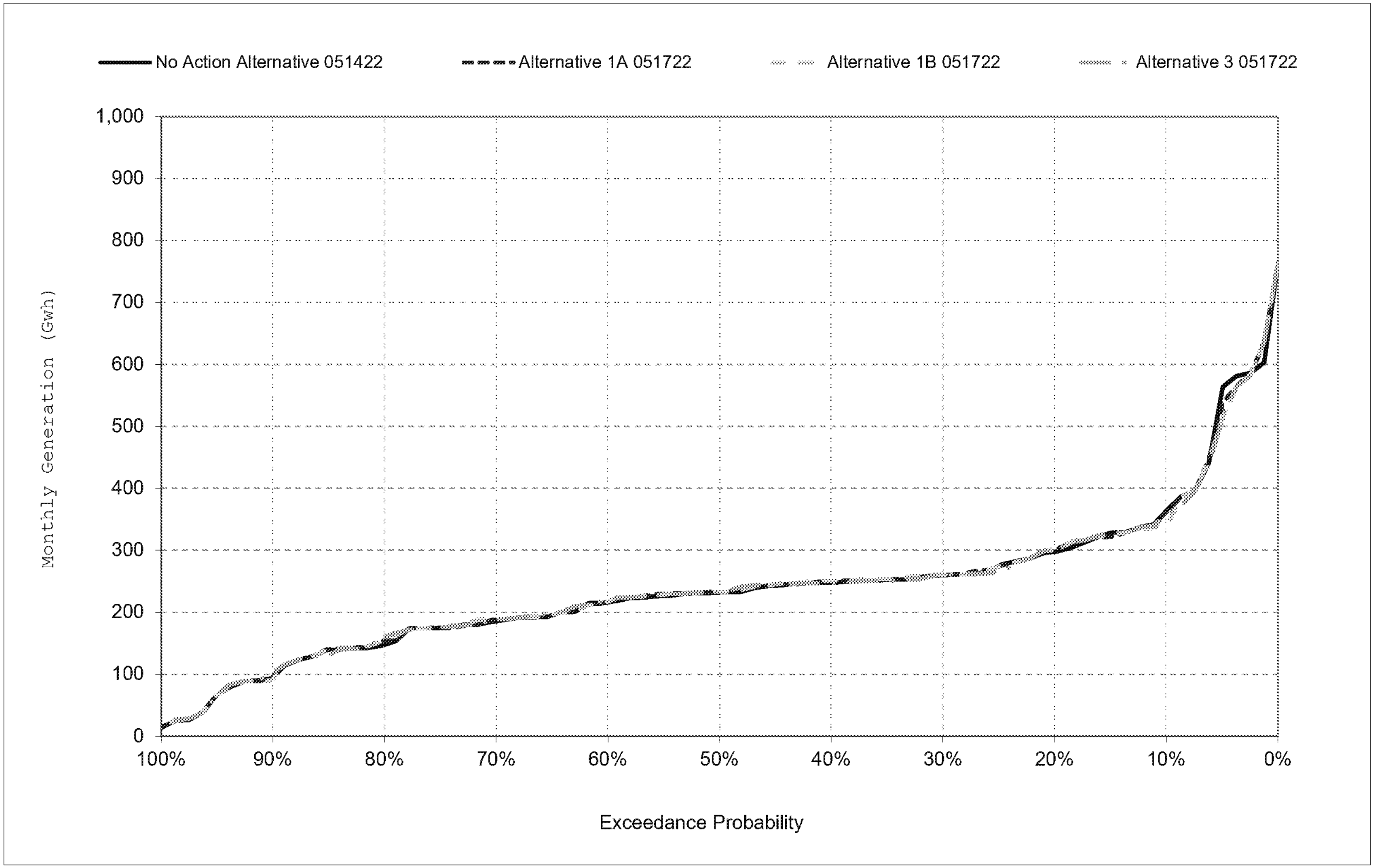
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-8. SWP Facilities Total Generation, November



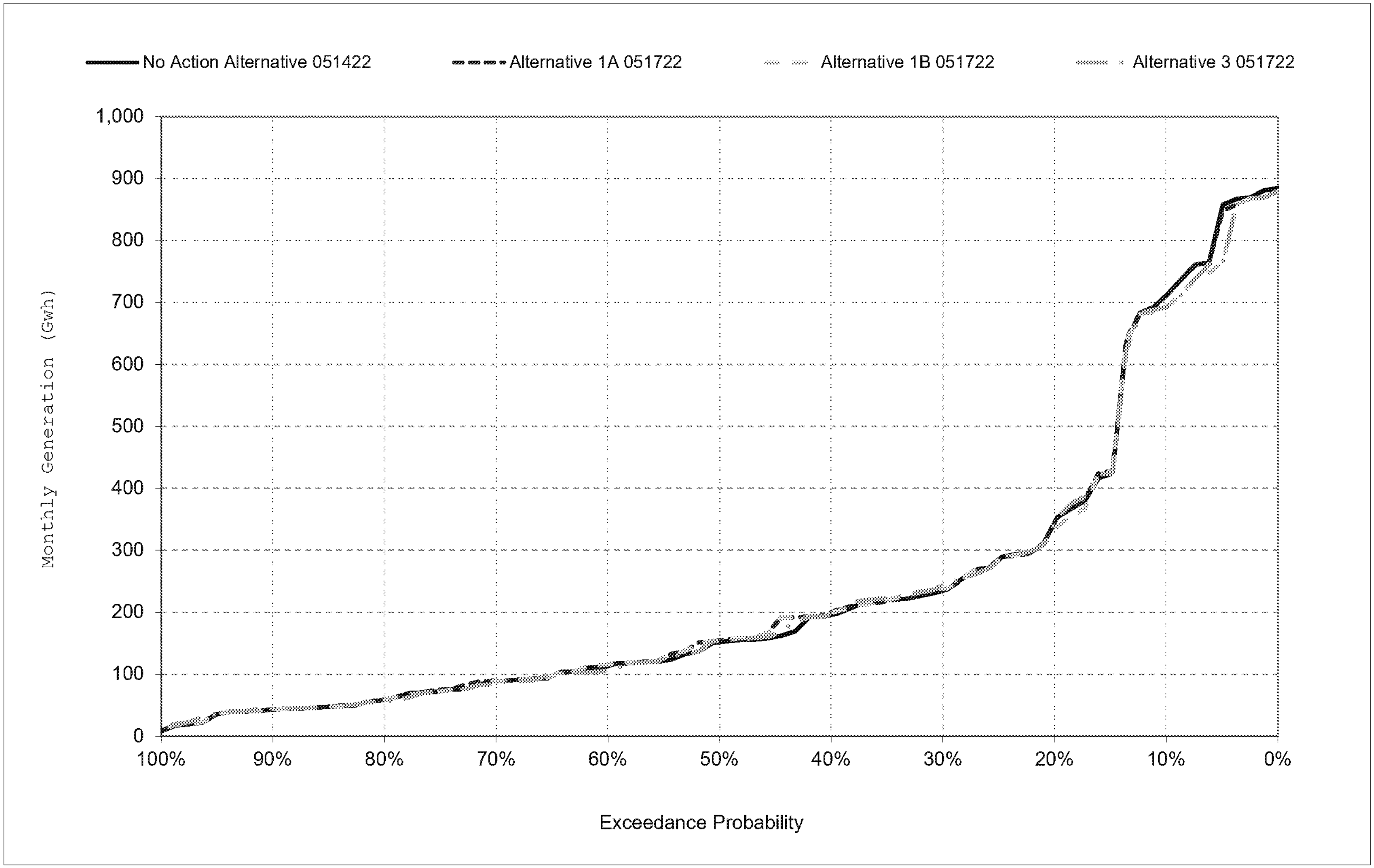
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-9. SWP Facilities Total Generation, December



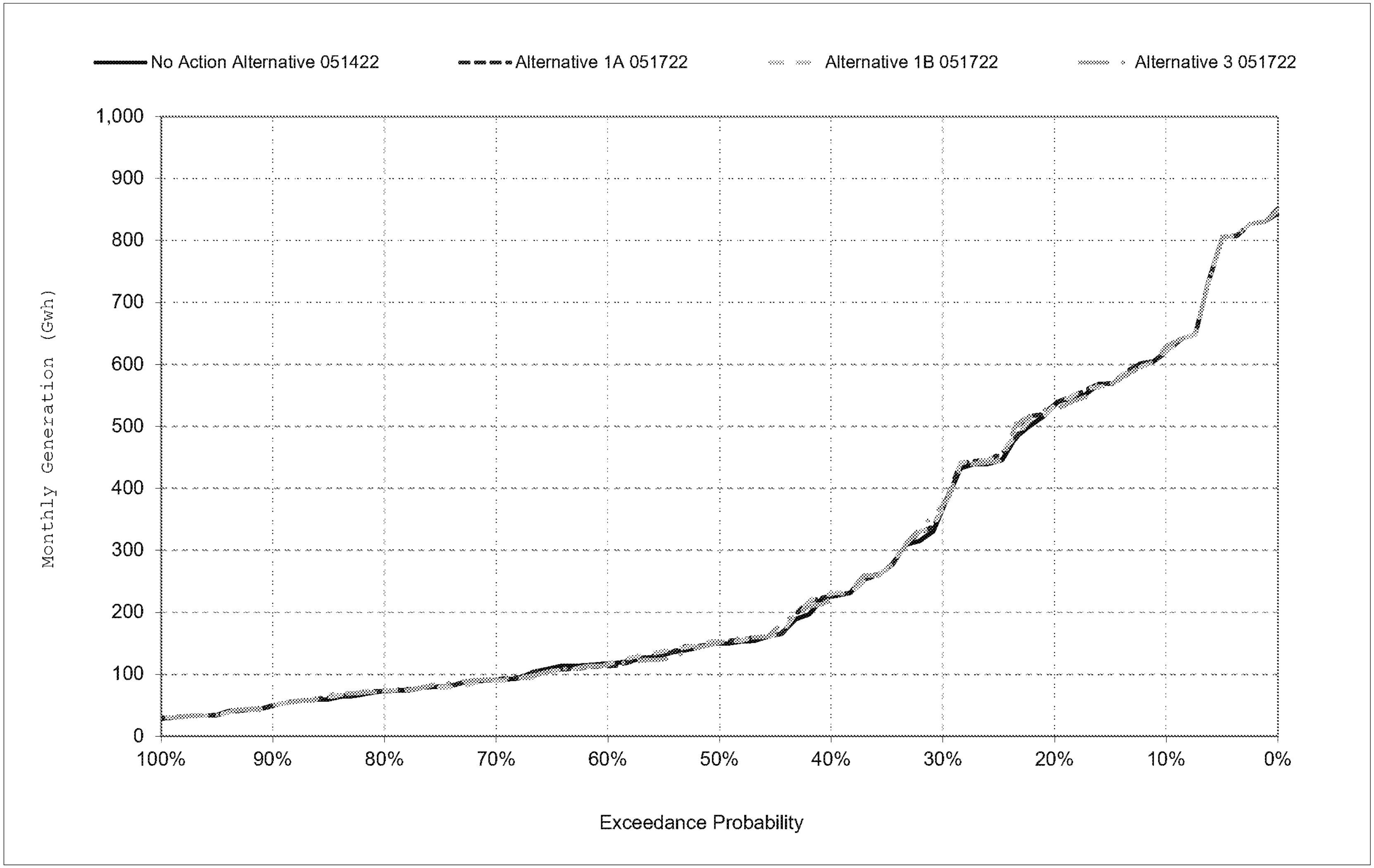
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-10. SWP Facilities Total Generation, January



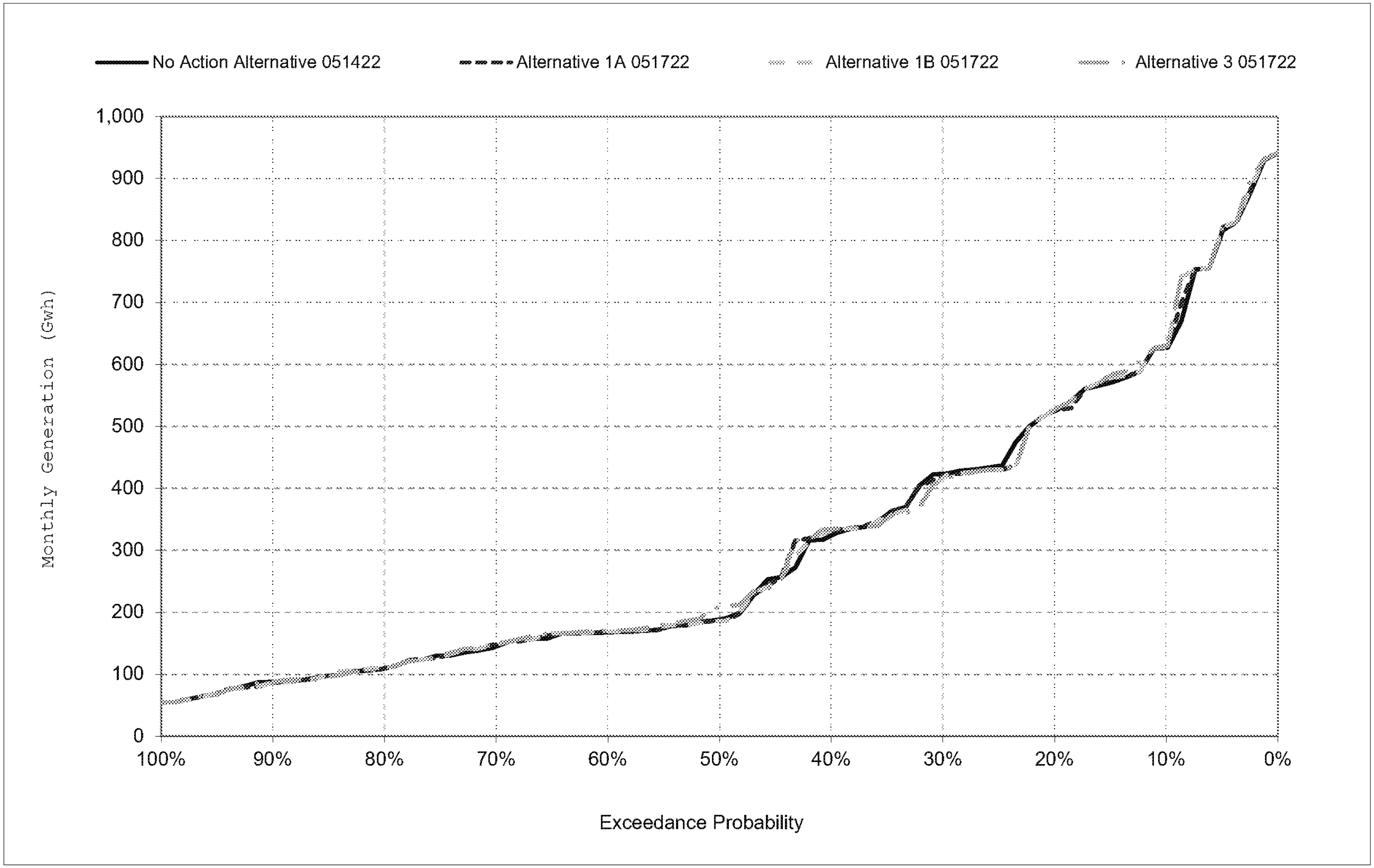
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-11. SWP Facilities Total Generation, February



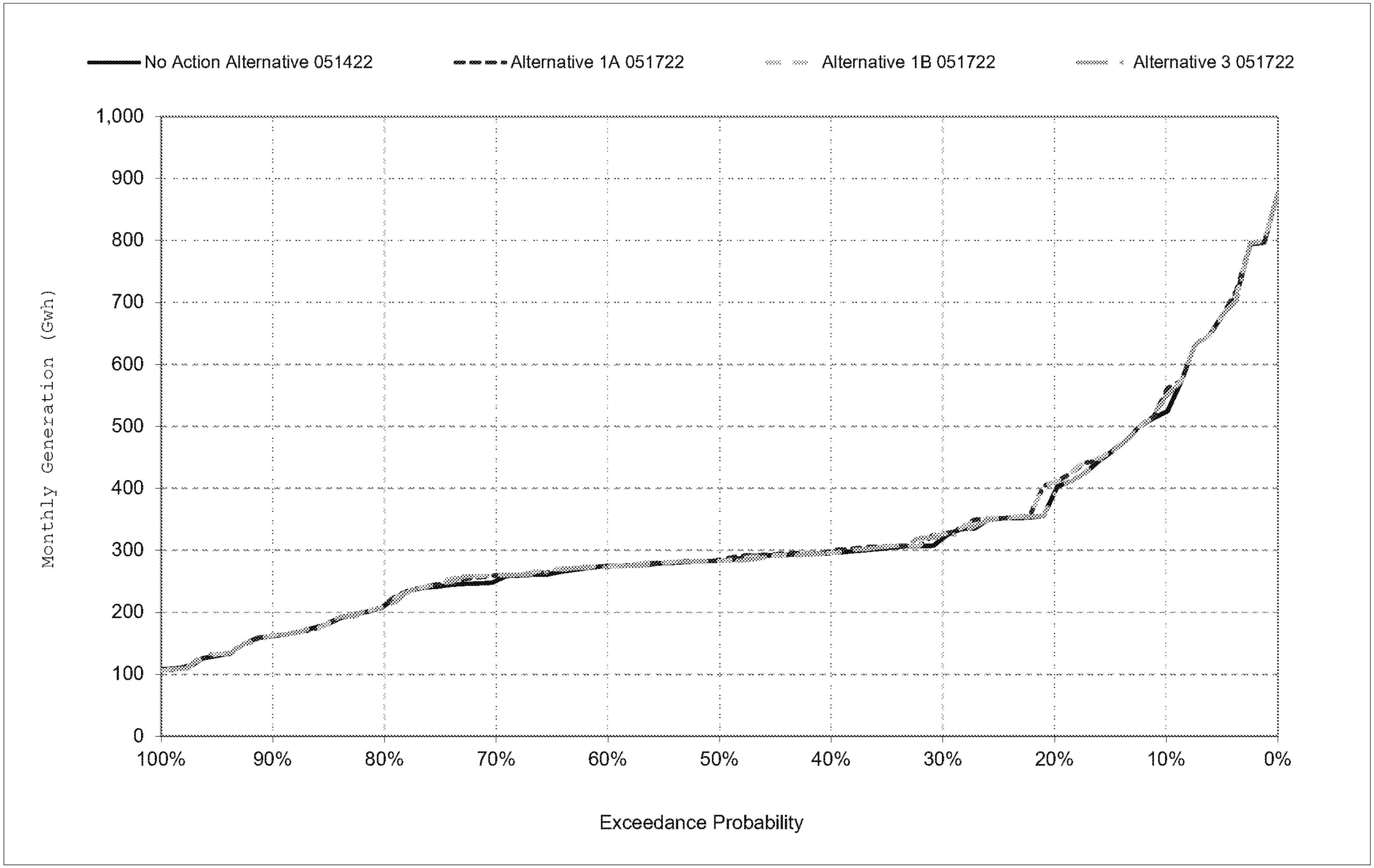
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-12. SWP Facilities Total Generation, March



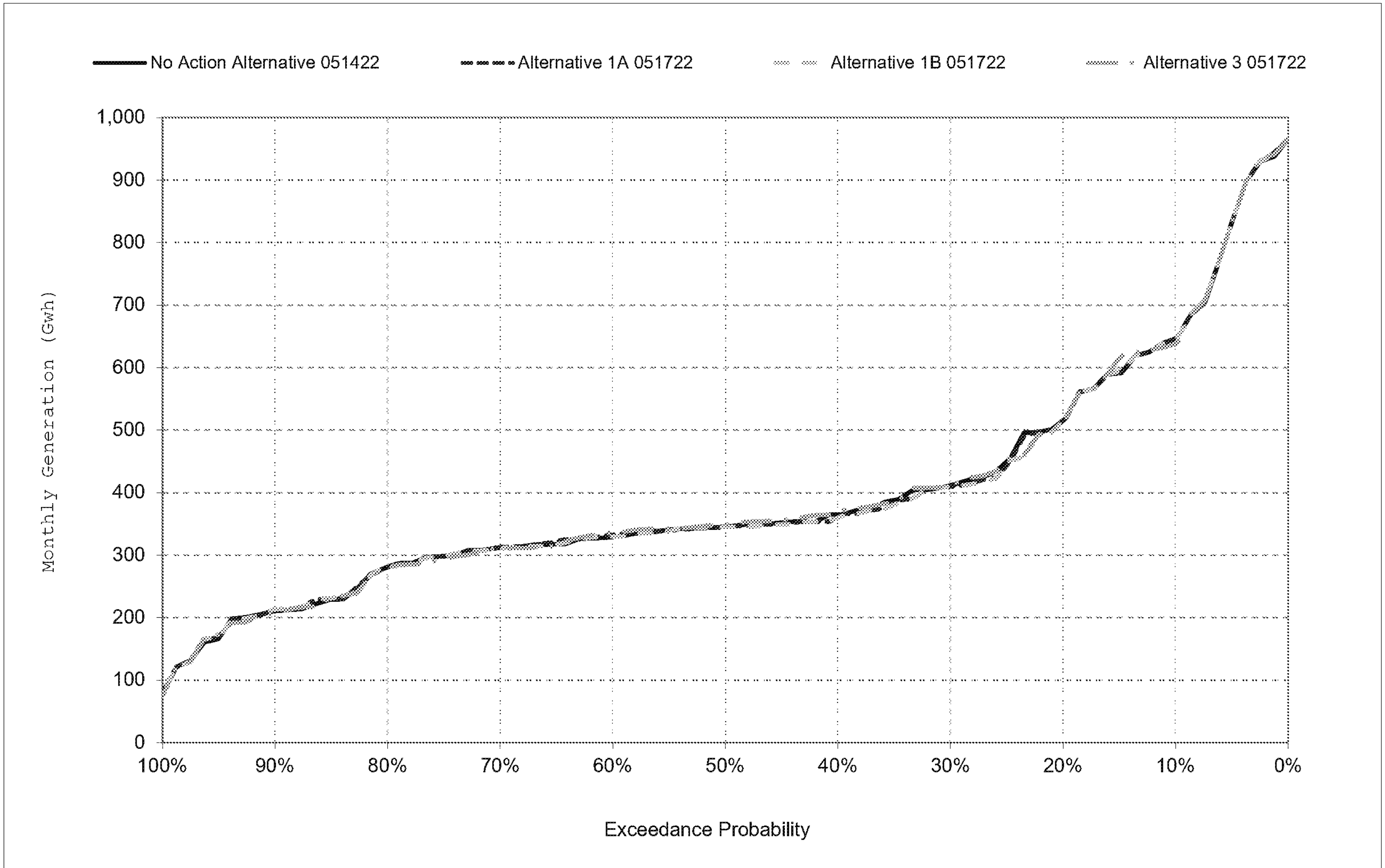
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-13. SWP Facilities Total Generation, April



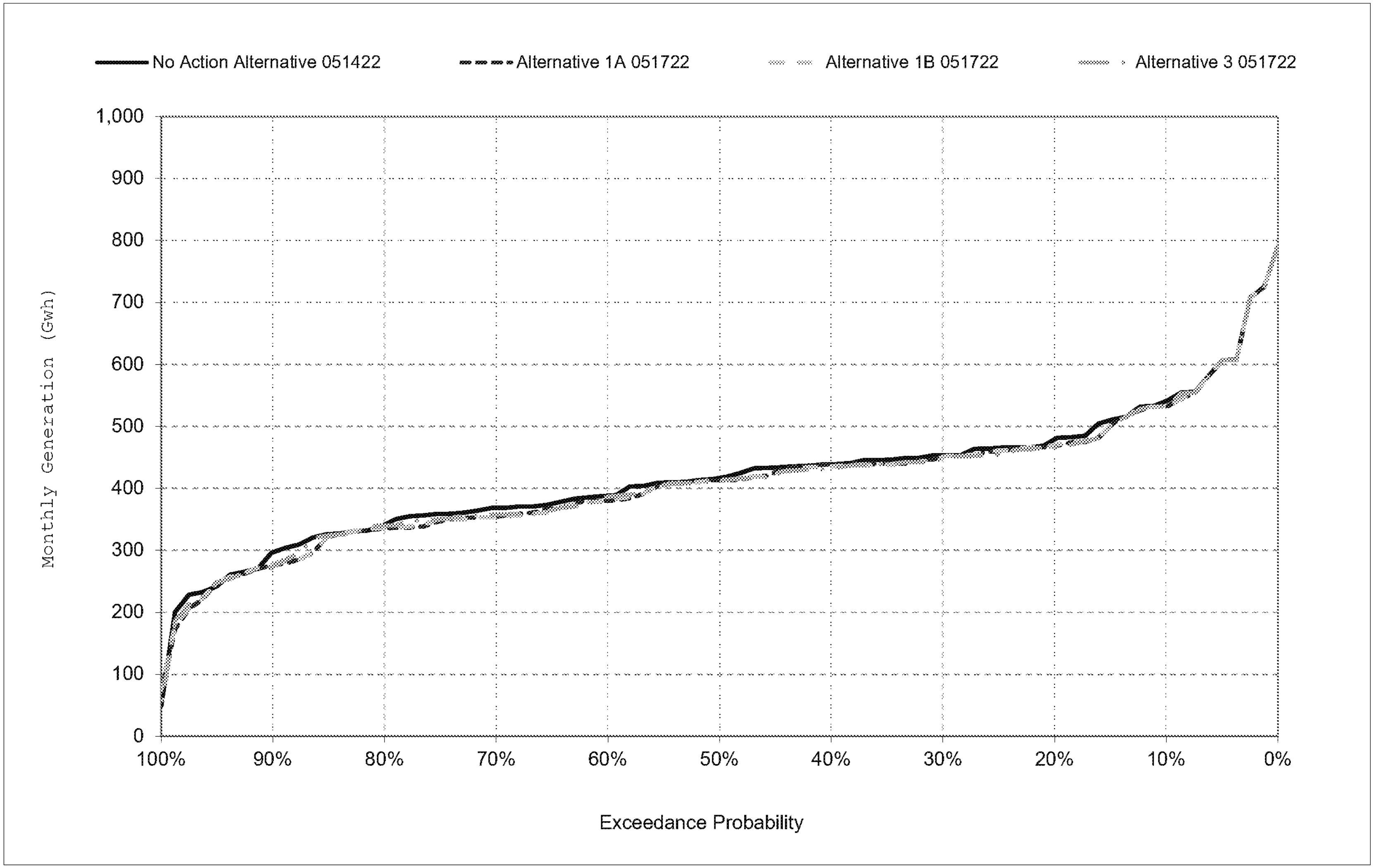
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-14. SWP Facilities Total Generation, May



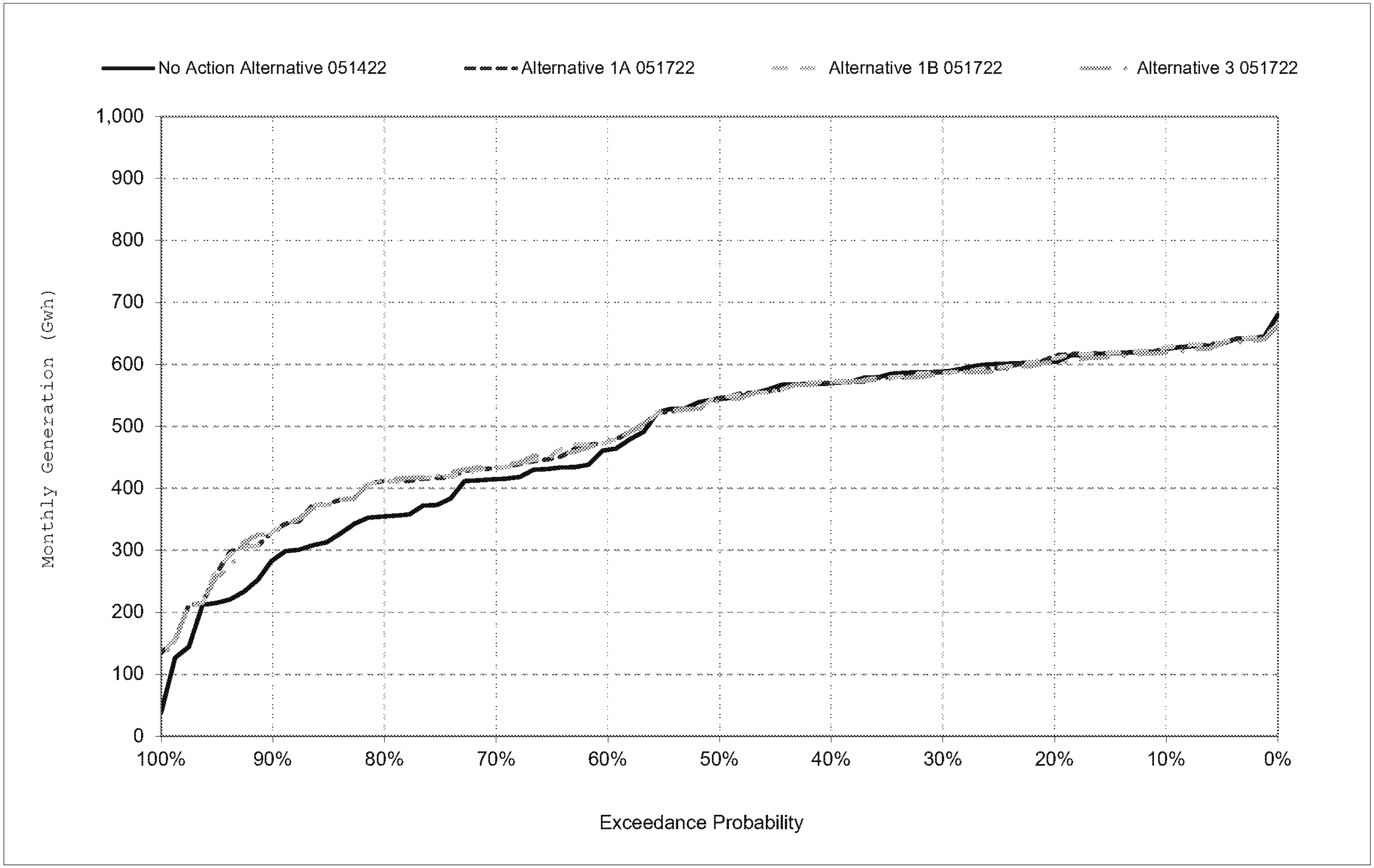
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-15. SWP Facilities Total Generation, June



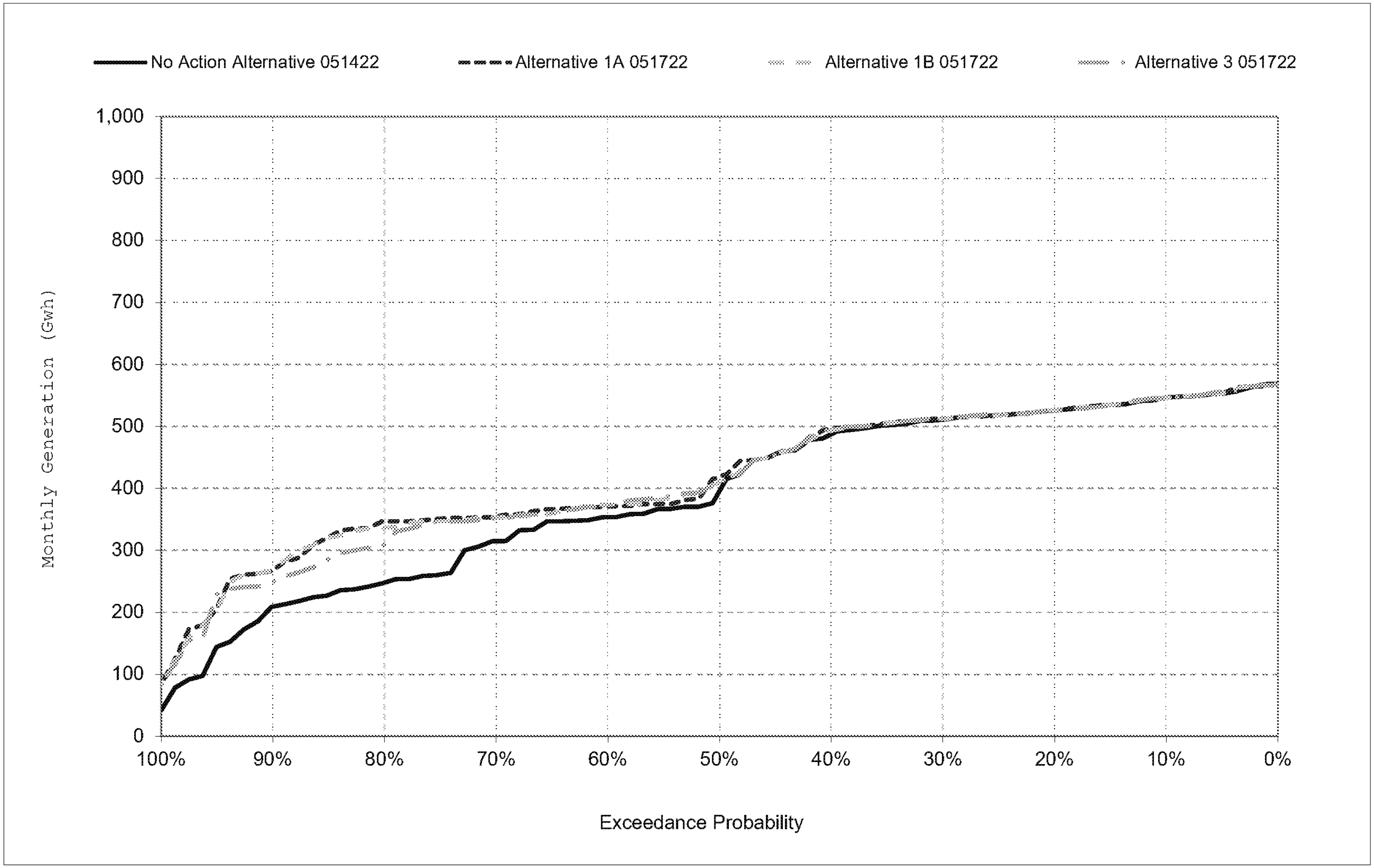
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-16. SWP Facilities Total Generation, July



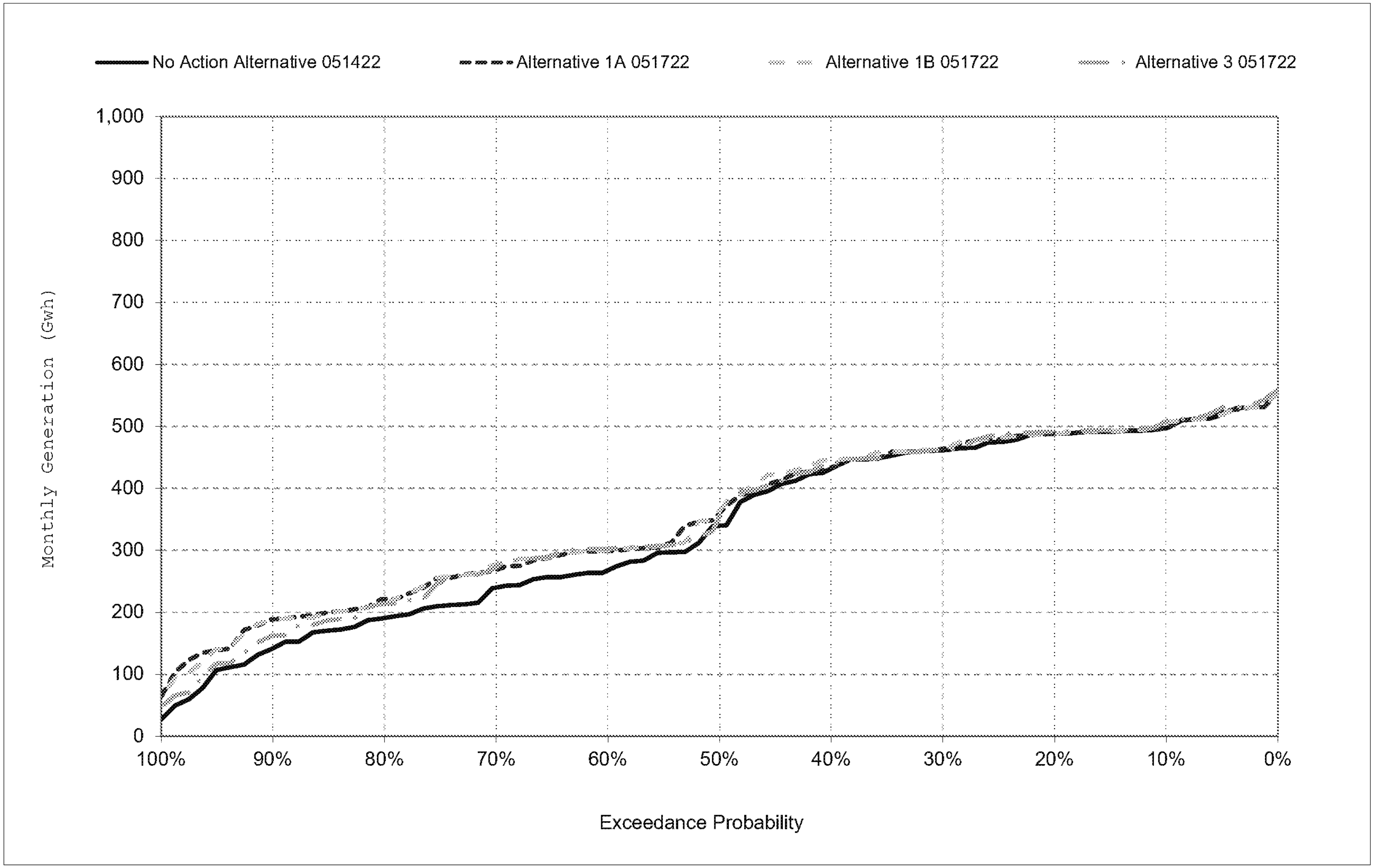
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-17. SWP Facilities Total Generation, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 7-18. SWP Facilities Total Generation, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 8-1a. SWP Facilities Total Energy Use, No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	832	774	711	961	936	884	734	801	768	872	870	843
20%	805	737	666	862	814	686	598	653	722	851	861	813
30%	774	704	632	598	680	613	568	614	689	819	825	795
40%	740	672	595	458	470	548	544	586	662	797	793	773
50%	717	658	548	357	388	460	527	579	649	784	773	763
60%	691	623	500	248	309	401	490	570	628	772	765	744
70%	620	499	444	192	248	331	460	533	571	669	655	641
80%	431	405	392	147	189	269	352	395	477	492	478	471
90%	283	271	229	110	116	210	289	304	359	380	366	361
Long Term												
Full Simulation Period[d]	645	587	526	452	475	507	523	568	602	695	687	664
Water Year Types[b,c]												
Wet (32%)	748	695	578	711	737	745	678	718	700	800	802	790
Above Normal (15%)	783	727	627	496	555	573	540	610	655	797	816	807
Below Normal (17%)	783	686	606	435	478	492	536	608	668	827	857	765
Dry (22%)	526	476	455	240	238	305	440	467	535	606	519	527
Critical (15%)	306	263	329	181	176	242	278	308	358	347	361	336

Table 8-1b. SWP Facilities Total Energy Use, Alternative 1A 051722, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	940	808	719	961	936	865	756	764	769	877	904	847
20%	876	750	666	862	832	688	603	650	722	866	868	826
30%	823	728	629	620	679	621	570	617	693	837	851	802
40%	786	693	591	493	497	561	546	585	662	816	828	789
50%	743	664	542	371	383	460	528	579	649	797	807	769
60%	716	648	501	241	318	401	487	569	628	786	777	761
70%	687	606	446	191	248	332	461	532	579	772	765	742
80%	600	533	396	154	189	267	358	400	475	716	741	588
90%	353	320	225	110	121	208	288	307	351	488	566	470
Long Term												
Full Simulation Period[d]	714	627	527	454	477	510	530	564	602	759	776	718
Water Year Types[b,c]												
Wet (32%)	748	694	577	714	744	752	682	718	699	800	801	793
Above Normal (15%)	785	728	626	505	561	582	575	573	656	798	817	808
Below Normal (17%)	837	754	606	436	471	490	540	607	668	832	868	777
Dry (22%)	746	593	452	242	242	306	442	472	536	777	761	663
Critical (15%)	381	285	340	180	176	241	280	309	359	521	598	478

Table 8-1c. SWP Facilities Total Energy Use, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	108	34	7	0	0	-19	22	-38	1	4	34	3
20%	71	14	0	0	18	1	5	-3	0	15	7	14
30%	49	25	-3	22	-1	8	3	3	4	18	26	7
40%	45	22	-3	35	27	13	2	-1	0	18	34	16
50%	26	7	-6	14	-6	0	1	1	0	13	34	7
60%	25	25	1	-6	9	0	-4	-1	1	14	13	17
70%	67	106	2	0	0	1	1	-1	8	103	110	101
80%	169	128	5	6	0	-2	7	5	-2	224	263	117
90%	70	49	-4	0	5	-2	-2	4	-8	108	200	109
Long Term												
Full Simulation Period[d]	69	40	1	3	3	3	8	-5	0	64	90	53
Water Year Types[b,c]												
Wet (32%)	0	0	-1	3	7	7	4	0	-1	0	-1	2
Above Normal (15%)	2	1	-1	9	6	9	35	-37	1	1	1	0
Below Normal (17%)	54	67	-1	1	-7	-2	5	-1	0	4	11	12
Dry (22%)	220	116	-3	2	4	0	2	4	1	171	243	135
Critical (15%)	75	22	11	0	-1	0	1	1	2	173	237	142

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 8-2a. SWP Facilities Total Energy Use, No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	832	774	711	961	936	884	734	801	768	872	870	843
20%	805	737	666	862	814	686	598	653	722	851	861	813
30%	774	704	632	598	680	613	568	614	689	819	825	795
40%	740	672	595	458	470	548	544	586	662	797	793	773
50%	717	658	548	357	388	460	527	579	649	784	773	763
60%	691	623	500	248	309	401	490	570	628	772	765	744
70%	620	499	444	192	248	331	460	533	571	669	655	641
80%	431	405	392	147	189	269	352	395	477	492	478	471
90%	283	271	229	110	116	210	289	304	359	380	366	361
Long Term												
Full Simulation Period[a]	645	587	526	452	475	507	523	568	602	695	687	664
Water Year Types[b,c]												
Wet (32%)	748	695	578	711	737	745	678	718	700	800	802	790
Above Normal (15%)	783	727	627	496	555	573	540	610	655	797	816	807
Below Normal (17%)	783	686	606	435	478	492	536	608	668	827	857	765
Dry (22%)	526	476	455	240	238	305	440	467	535	606	519	527
Critical (15%)	306	263	329	181	176	242	278	308	358	347	361	336

Table 8-2b. SWP Facilities Total Energy Use, Alternative 1B 051722, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	945	800	719	945	936	865	756	771	769	877	900	847
20%	870	750	661	835	820	688	603	650	720	866	865	826
30%	828	728	628	610	695	608	569	611	689	840	840	805
40%	782	703	584	482	497	559	546	586	661	817	822	796
50%	750	667	548	371	389	463	527	580	647	797	799	769
60%	724	652	511	243	317	402	492	569	629	784	776	758
70%	703	598	445	189	240	332	461	533	579	774	766	741
80%	600	490	389	154	184	270	356	400	475	719	741	573
90%	352	294	220	112	122	209	287	304	353	488	566	464
Long Term												
Full Simulation Period[a]	715	622	524	448	477	508	530	563	602	759	772	716
Water Year Types[b,c]												
Wet (32%)	749	695	577	693	741	745	681	718	699	800	802	792
Above Normal (15%)	788	729	628	505	562	582	575	570	656	799	818	808
Below Normal (17%)	830	760	601	440	482	495	534	605	666	830	866	774
Dry (22%)	758	560	439	238	237	307	446	472	536	775	745	662
Critical (15%)	371	289	341	181	176	239	280	309	360	523	592	471

Table 8-2c. SWP Facilities Total Energy Use, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	112	25	8	-15	0	-19	22	-30	1	4	30	3
20%	65	14	-5	-27	6	1	5	-3	-2	14	3	13
30%	54	25	-4	13	16	-5	1	-3	0	21	14	10
40%	41	31	-10	24	27	10	2	0	-1	19	29	23
50%	33	9	1	14	1	3	0	1	-2	13	26	6
60%	33	28	10	-5	8	1	2	-1	1	12	12	14
70%	83	99	1	-3	-8	1	1	0	8	106	111	100
80%	169	85	-3	6	-6	1	4	4	-2	227	263	102
90%	69	23	-10	2	5	-1	-2	1	-6	108	201	103
Long Term												
Full Simulation Period[a]	70	35	-3	-4	3	2	7	-5	0	64	85	52
Water Year Types[b,c]												
Wet (32%)	1	0	-1	-18	4	-1	3	0	-1	0	0	2
Above Normal (15%)	5	2	1	9	7	9	35	-40	1	2	2	1
Below Normal (17%)	47	73	-5	5	4	3	-2	-3	-3	2	8	9
Dry (22%)	233	84	-16	-1	-1	1	6	4	1	169	226	134
Critical (15%)	65	26	12	0	0	-3	1	1	2	176	230	135

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 8-3a. SWP Facilities Total Energy Use, No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	832	774	711	961	936	884	734	801	768	872	870	843
20%	805	737	666	862	814	686	598	653	722	851	861	813
30%	774	704	632	598	680	613	568	614	689	819	825	795
40%	740	672	595	458	470	548	544	586	662	797	793	773
50%	717	658	548	357	388	460	527	579	649	784	773	763
60%	691	623	500	248	309	401	490	570	628	772	765	744
70%	620	499	444	192	248	331	460	533	571	669	655	641
80%	431	405	392	147	189	269	352	395	477	492	478	471
90%	283	271	229	110	116	210	289	304	359	380	366	361
Long Term												
Full Simulation Period[a]	645	587	526	452	475	507	523	568	602	695	687	664
Water Year Types[b,c]												
Wet (32%)	748	695	578	711	737	745	678	718	700	800	802	790
Above Normal (15%)	783	727	627	496	555	573	540	610	655	797	816	807
Below Normal (17%)	783	686	606	435	478	492	536	608	668	827	857	765
Dry (22%)	526	476	455	240	238	305	440	467	535	606	519	527
Critical (15%)	306	263	329	181	176	242	278	308	358	347	361	336

Table 8-3b. SWP Facilities Total Energy Use, Alternative 3 051722, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	905	808	705	941	936	864	734	803	764	872	886	845
20%	838	749	666	825	800	697	605	656	723	856	864	822
30%	813	711	620	593	633	664	565	613	689	822	838	805
40%	772	693	593	485	506	557	543	590	662	806	818	796
50%	741	665	552	358	383	462	527	580	649	793	794	771
60%	725	648	498	232	313	409	495	569	631	781	769	761
70%	701	600	453	191	251	332	461	537	580	768	758	746
80%	541	447	391	150	193	272	349	378	457	719	694	572
90%	389	299	240	111	122	211	290	306	375	485	486	391
Long Term												
Full Simulation Period[a]	699	616	525	445	474	513	524	571	603	754	754	698
Water Year Types[b,c]												
Wet (32%)	752	696	578	686	732	750	680	720	700	801	803	793
Above Normal (15%)	791	732	629	498	556	577	528	609	656	793	819	809
Below Normal (17%)	819	757	604	445	470	502	532	607	666	818	856	759
Dry (22%)	686	536	446	239	239	305	446	476	538	766	698	646
Critical (15%)	370	282	334	175	189	263	284	309	359	520	547	388

Table 8-3c. SWP Facilities Total Energy Use, Alternative 3 051722 minus No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	73	34	-6	-19	0	-19	0	2	-4	0	16	2
20%	33	12	1	-37	-14	10	7	3	1	5	2	10
30%	39	7	-12	-5	-47	51	-2	-1	0	4	12	10
40%	32	21	-2	27	36	9	-1	5	0	9	24	22
50%	25	8	4	1	-5	2	0	1	0	9	22	8
60%	35	25	-2	-15	4	8	5	-1	4	9	5	18
70%	81	101	9	-1	2	1	1	4	9	100	103	104
80%	110	42	0	3	3	3	-3	-17	-20	227	216	102
90%	105	29	11	1	6	1	1	2	16	105	121	30
Long Term												
Full Simulation Period[a]	53	29	-1	-7	-1	7	1	2	1	59	67	34
Water Year Types[b,c]												
Wet (32%)	4	1	1	-26	-5	5	2	2	1	1	1	3
Above Normal (15%)	8	5	2	2	1	4	-12	-1	1	-4	2	2
Below Normal (17%)	36	71	-3	10	-8	10	-3	0	-3	-10	-1	-6
Dry (22%)	160	59	-9	-1	1	-1	6	9	3	160	180	118
Critical (15%)	64	20	5	-5	13	21	6	1	2	172	186	52

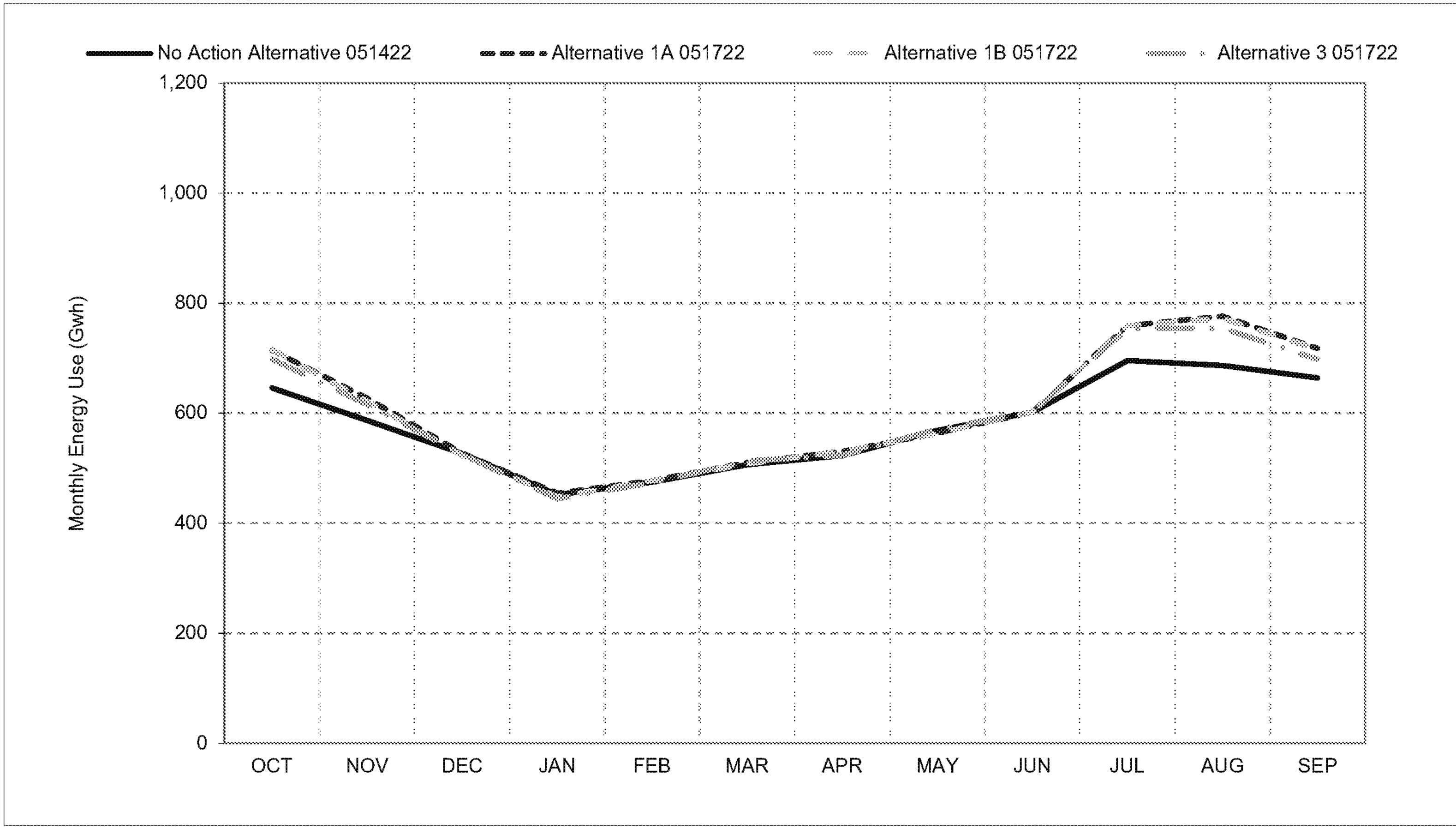
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-1. SWP Facilities Total Energy Use, Long-Term Average Energy Use

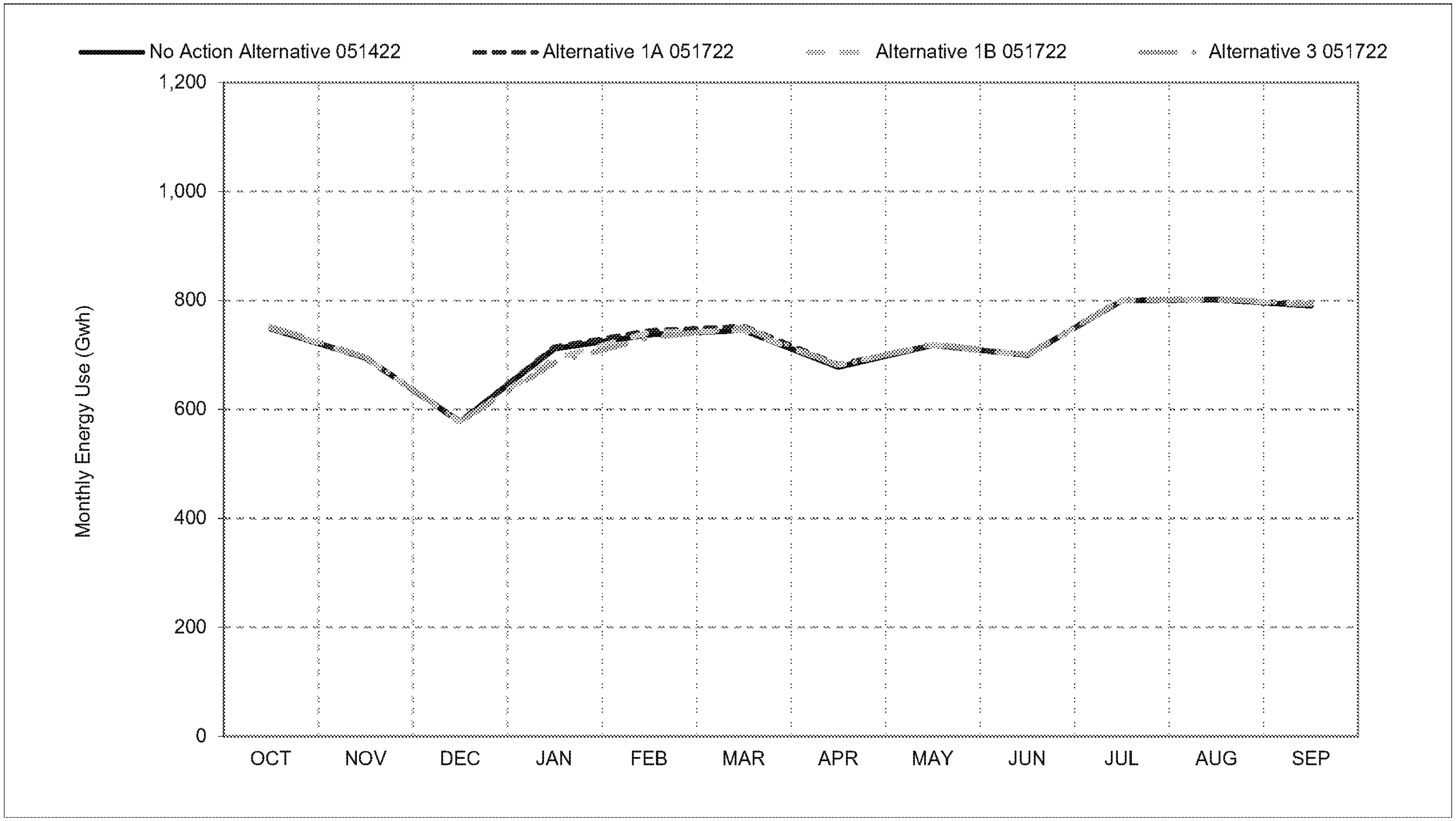


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-2. SWP Facilities Total Energy Use, Wet Year Average Energy Use

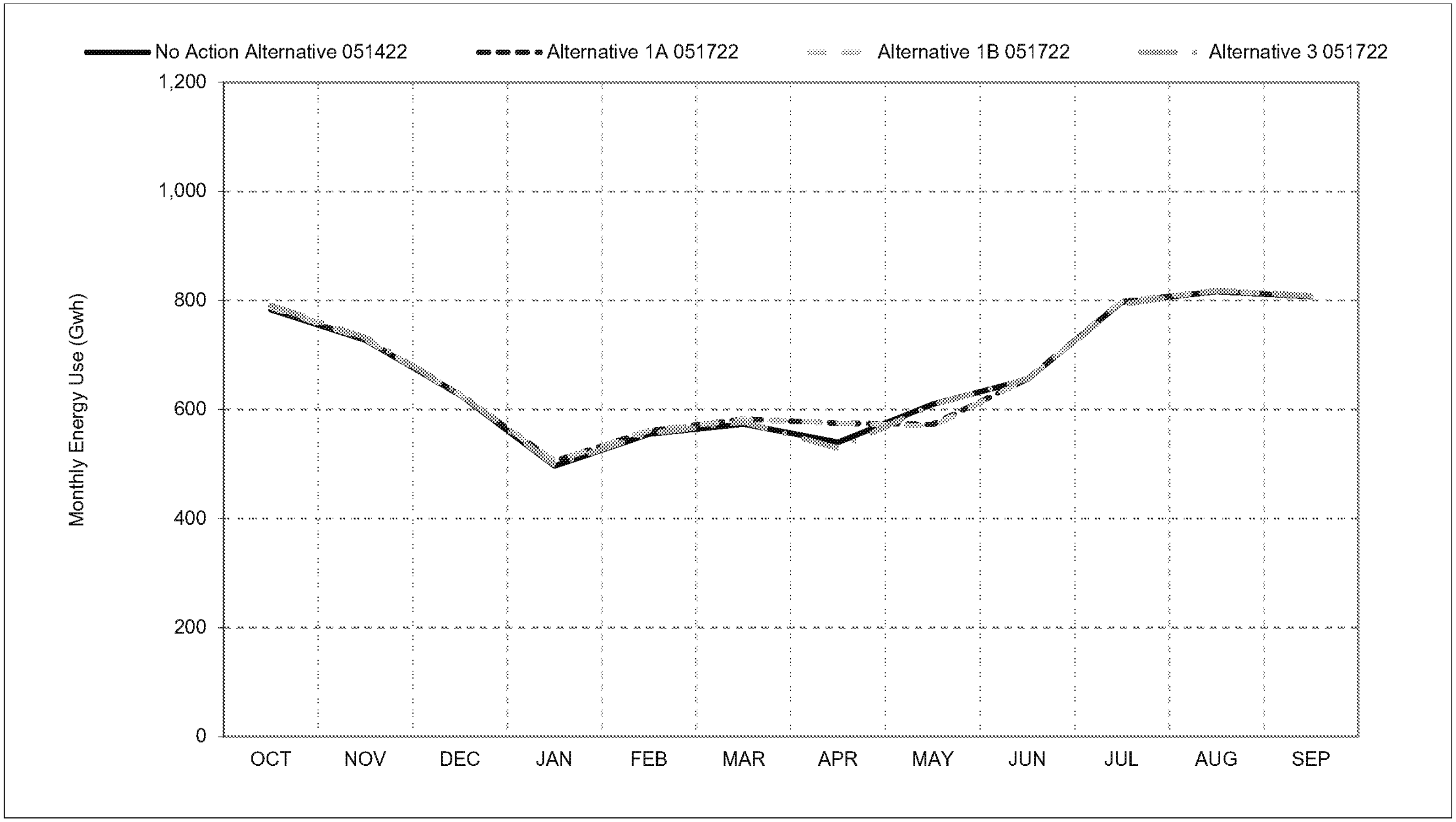


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-3. SWP Facilities Total Energy Use, Above Normal Year Average Energy Use

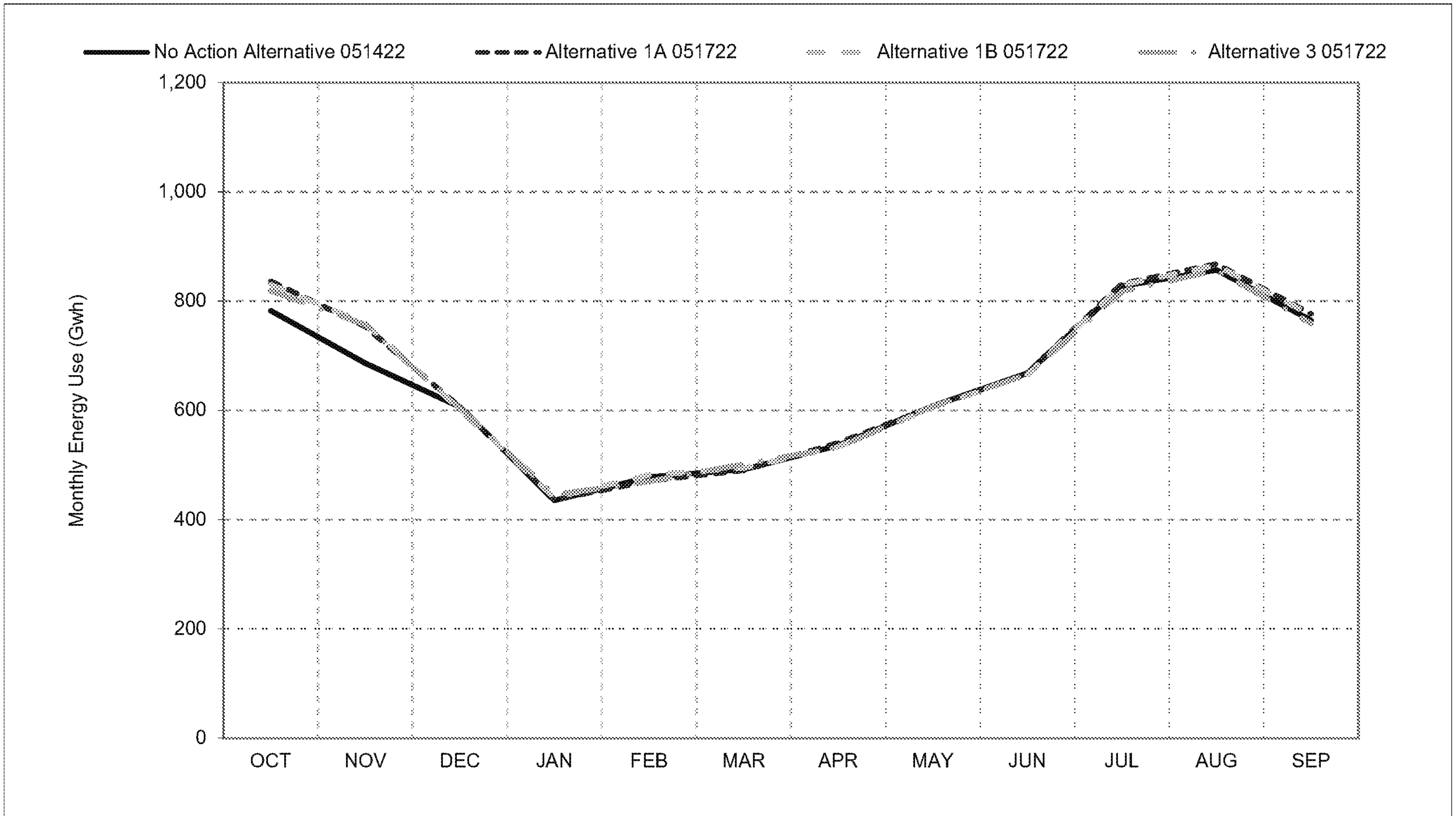


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

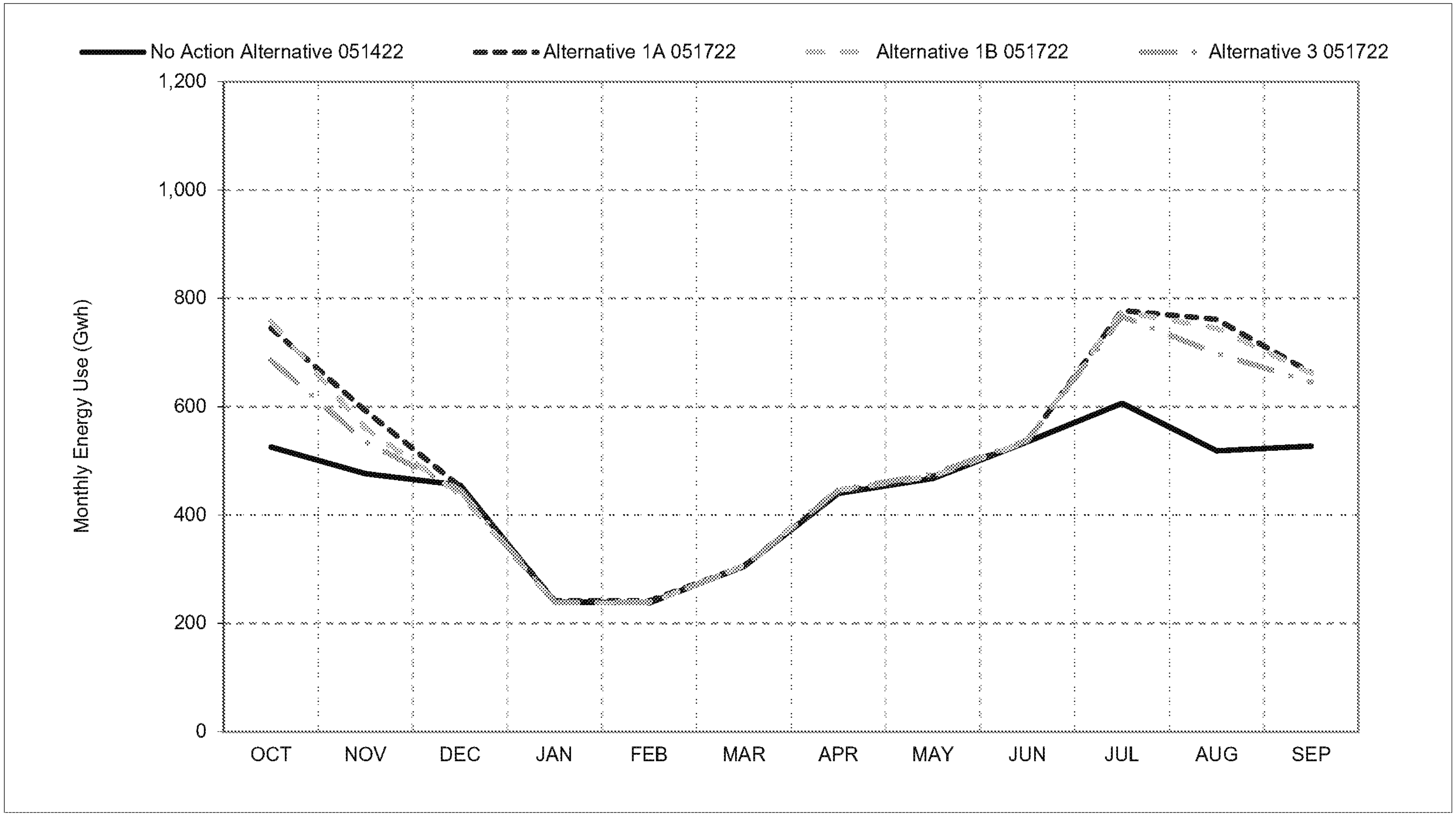
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-4. SWP Facilities Total Energy Use, Below Normal Year Average Energy Use



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-5. SWP Facilities Total Energy Use, Dry Year Average Energy Use

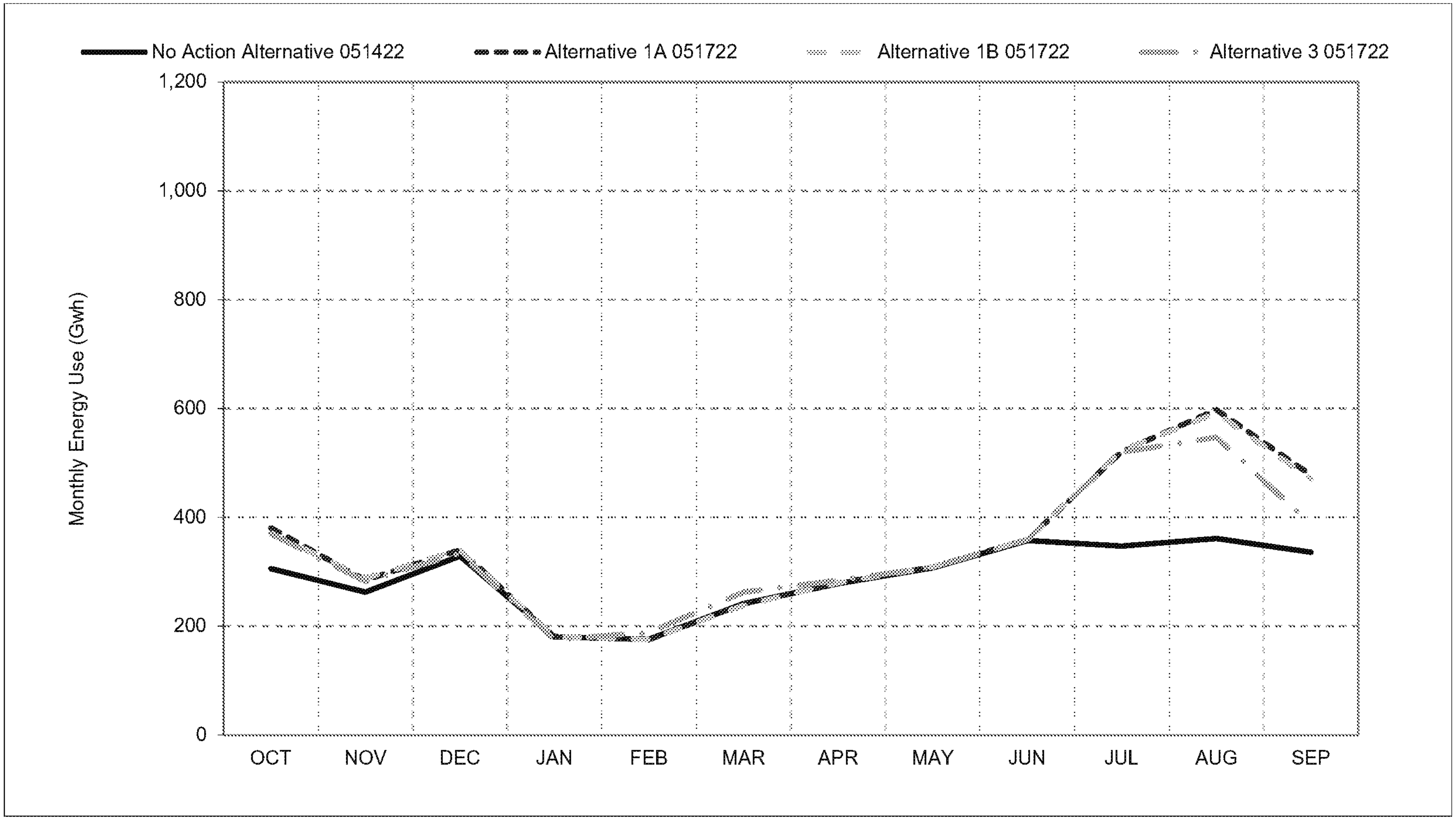


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

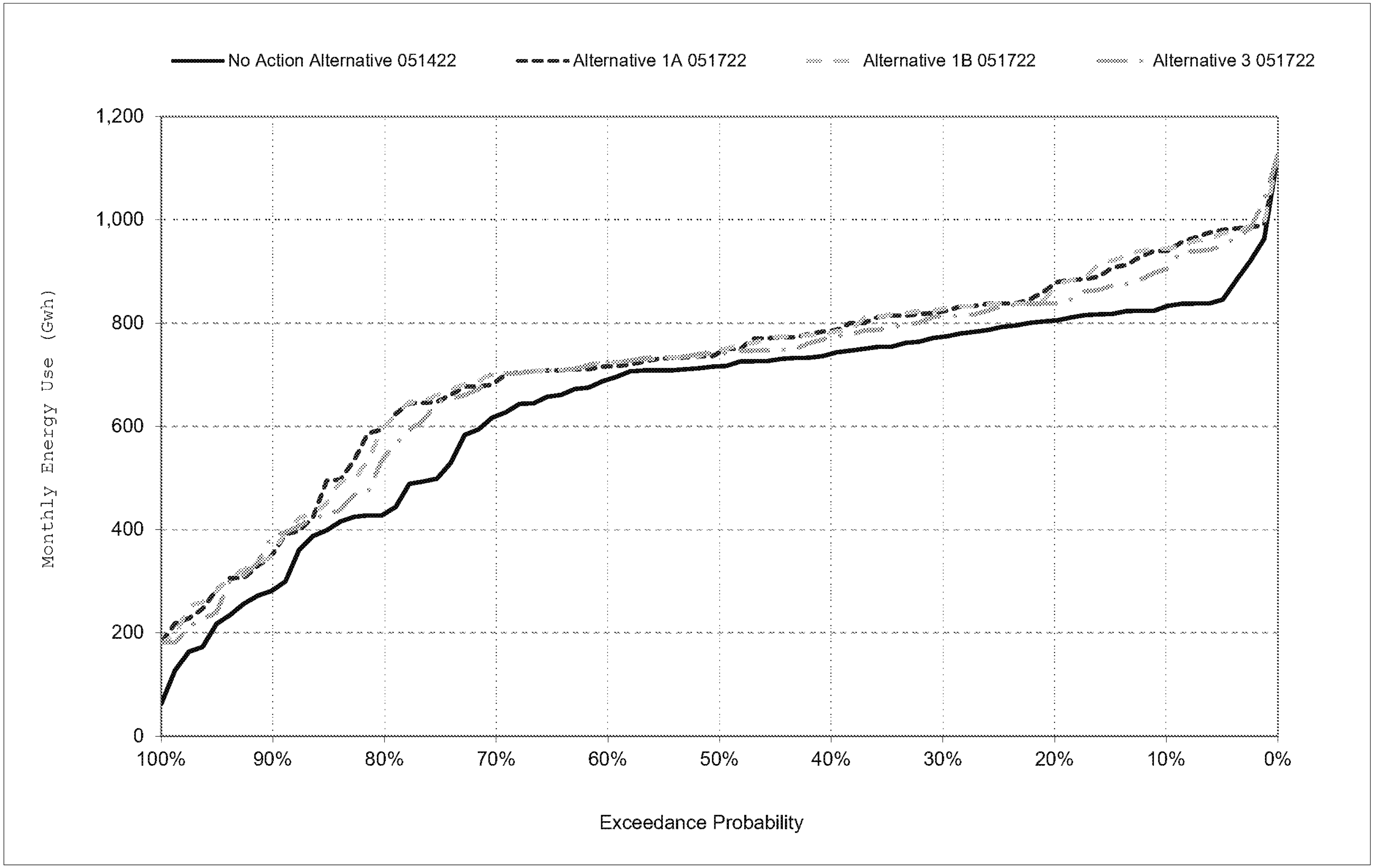
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-6. SWP Facilities Total Energy Use, Critical Year Average Energy Use



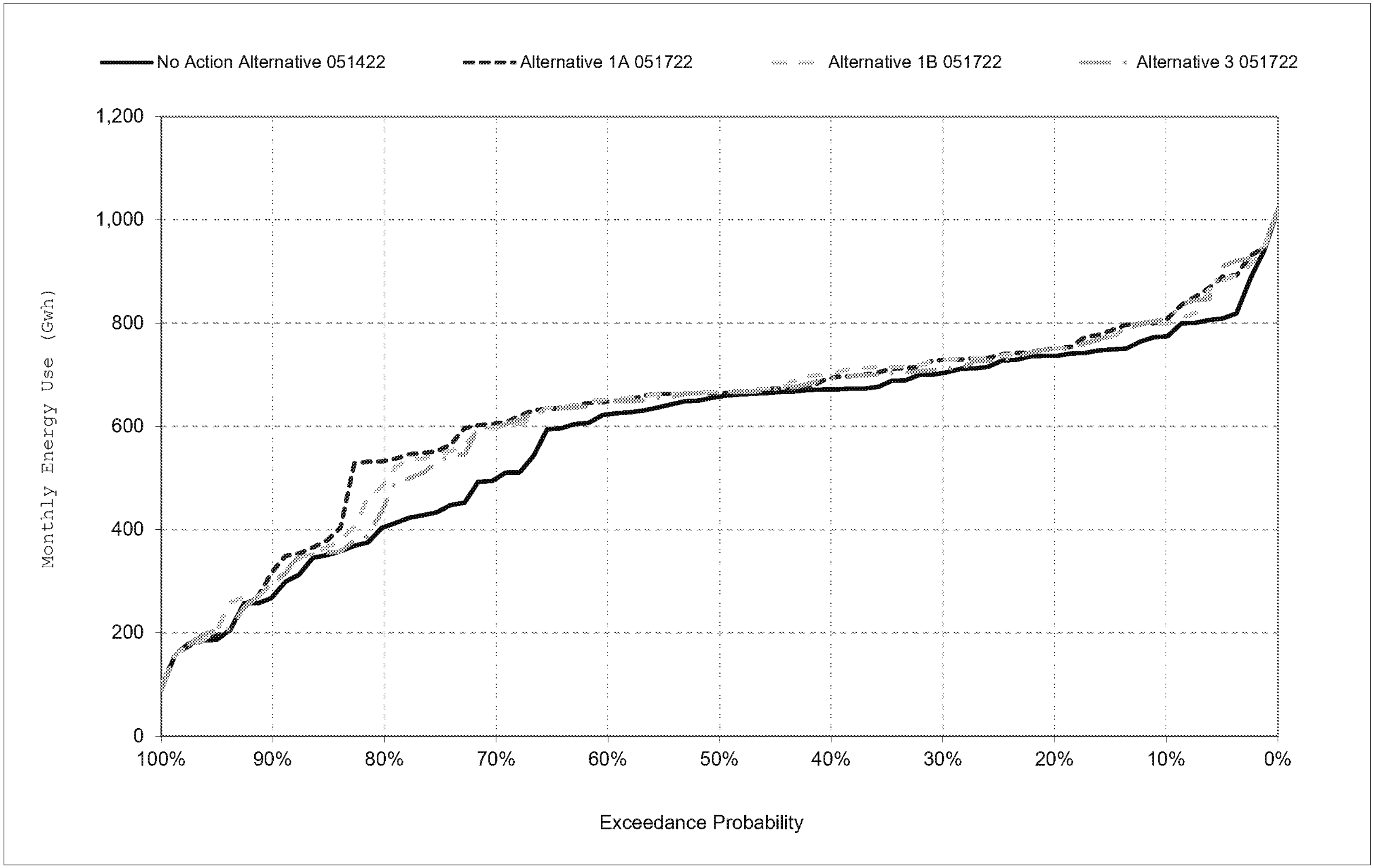
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-7. SWP Facilities Total Energy Use, October



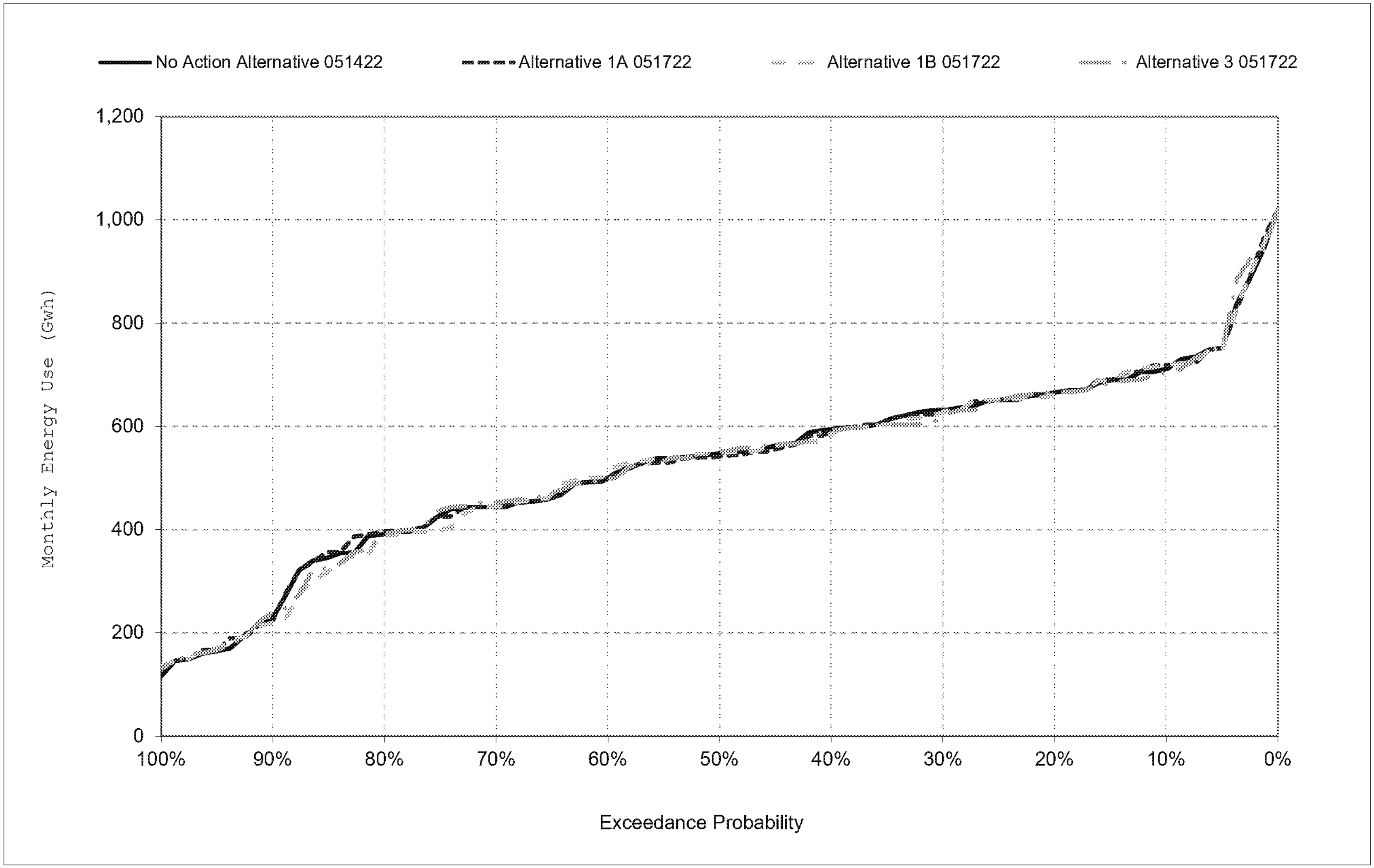
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-8. SWP Facilities Total Energy Use, November



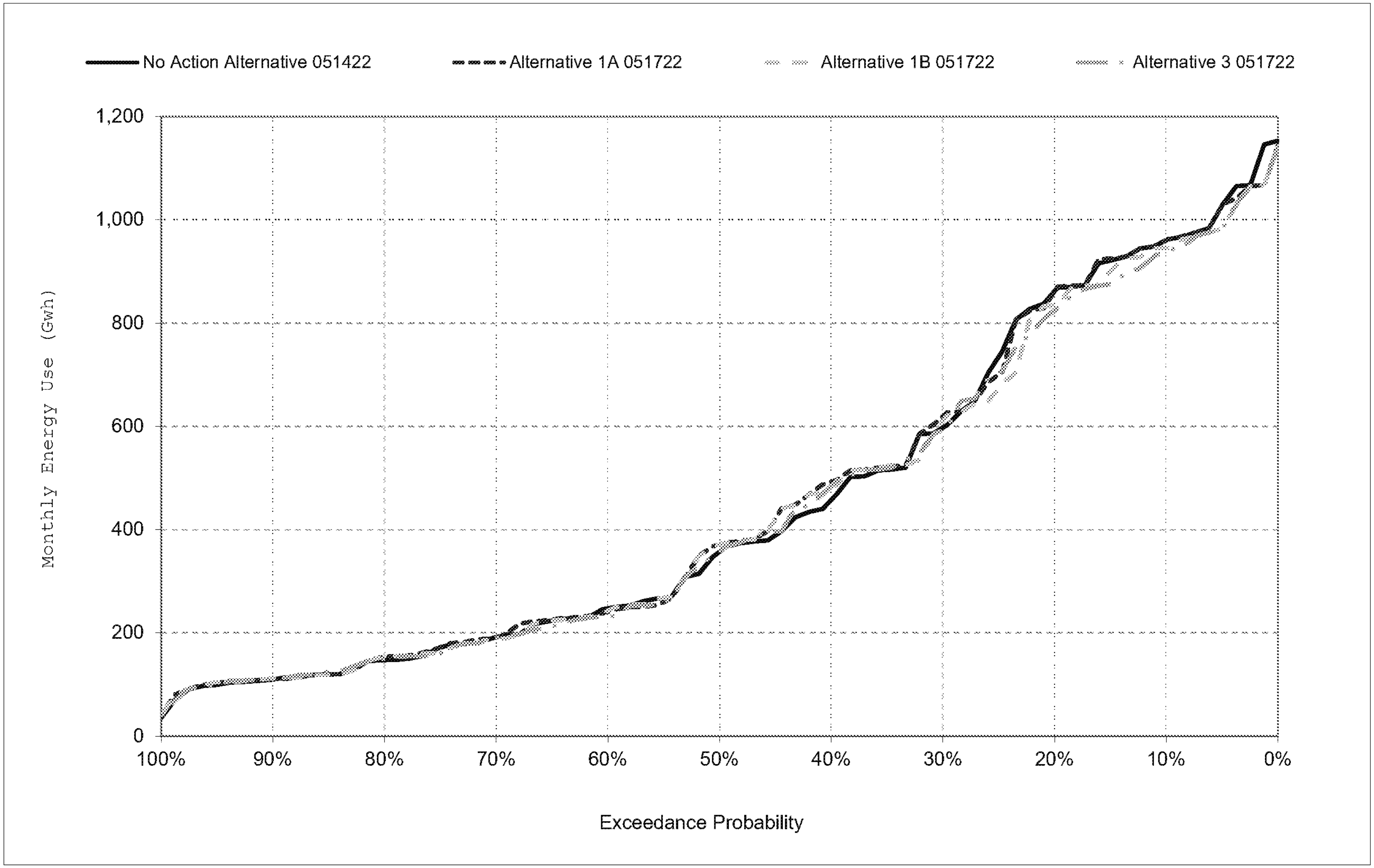
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-9. SWP Facilities Total Energy Use, December



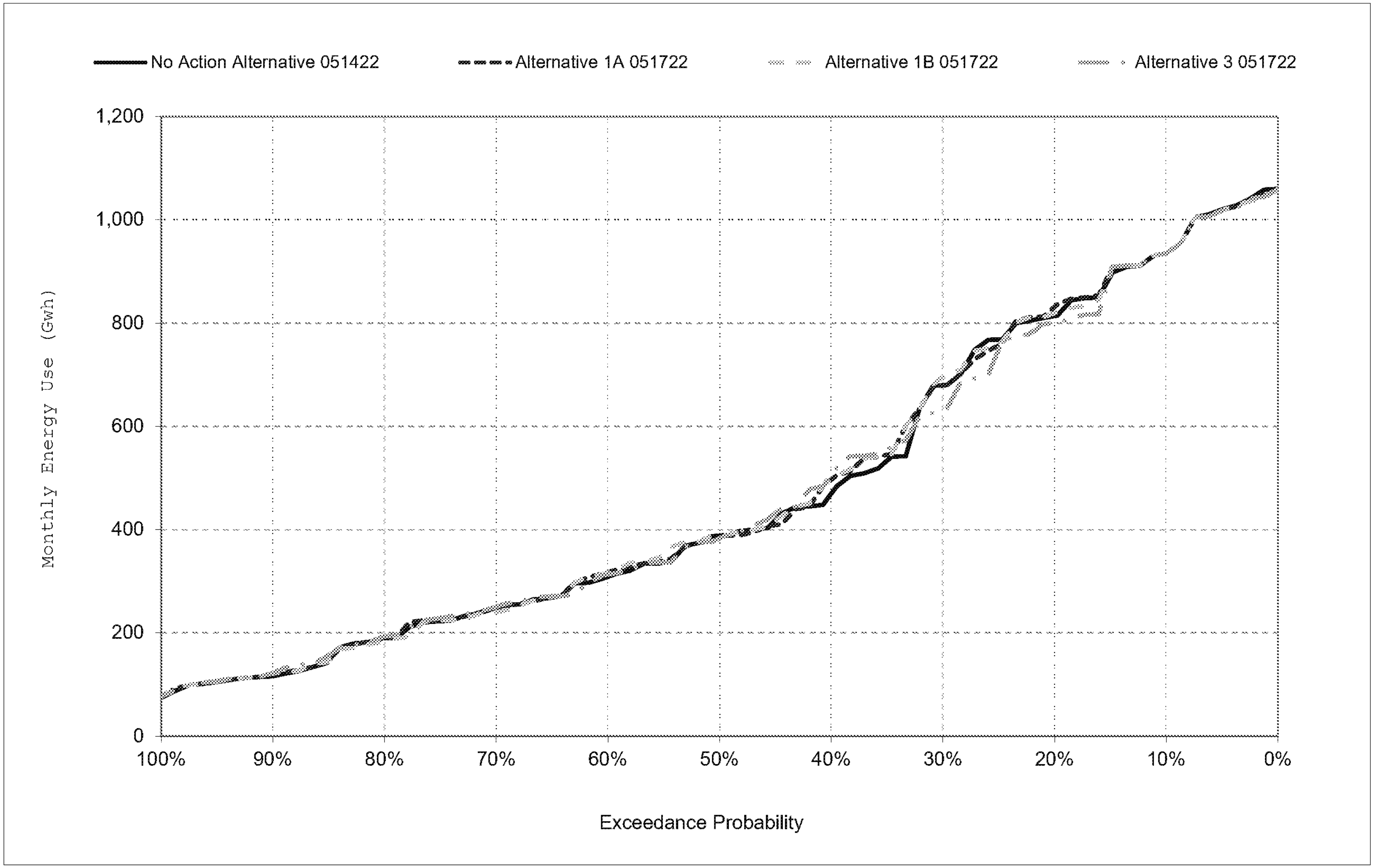
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-10. SWP Facilities Total Energy Use, January



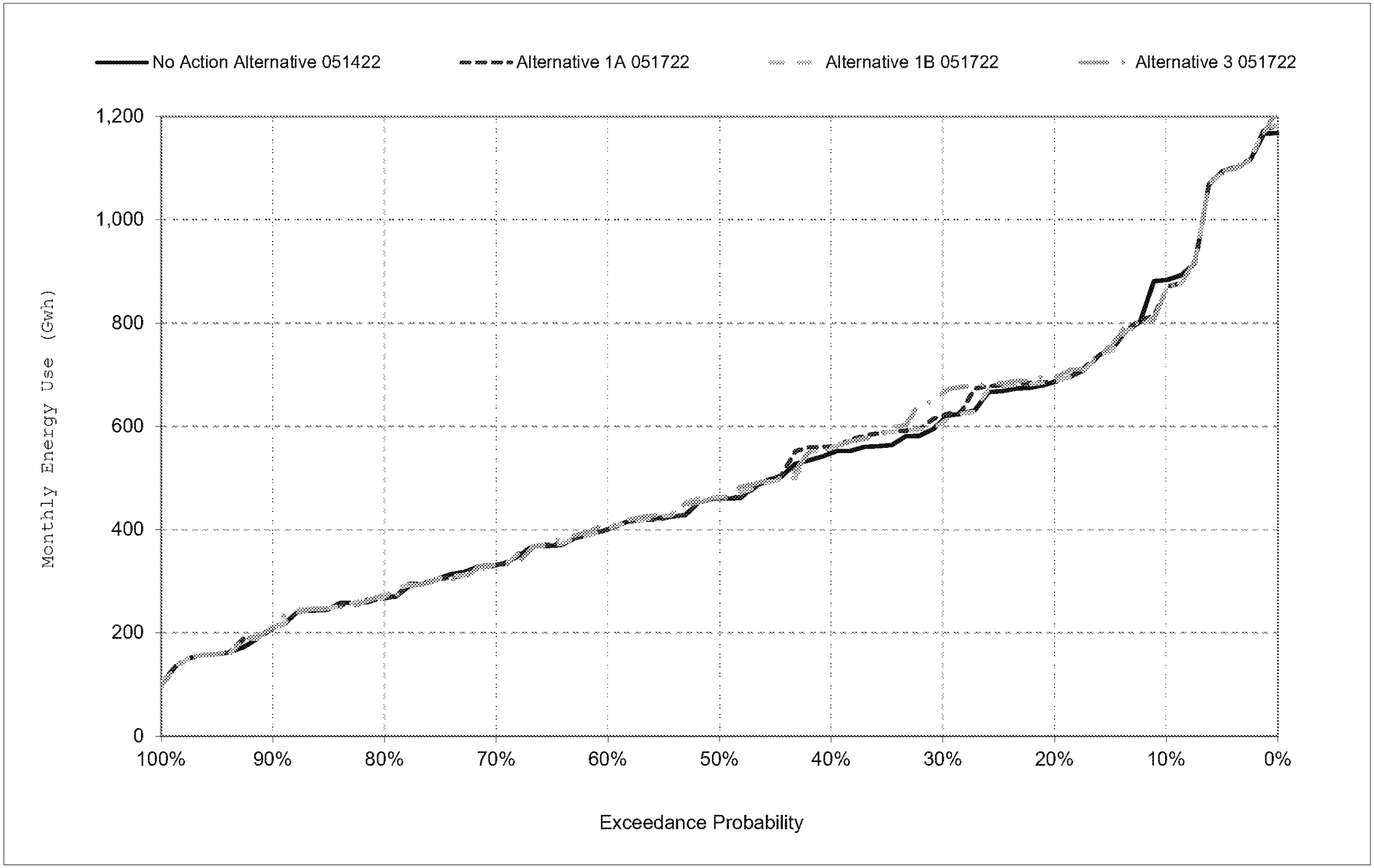
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-11. SWP Facilities Total Energy Use, February



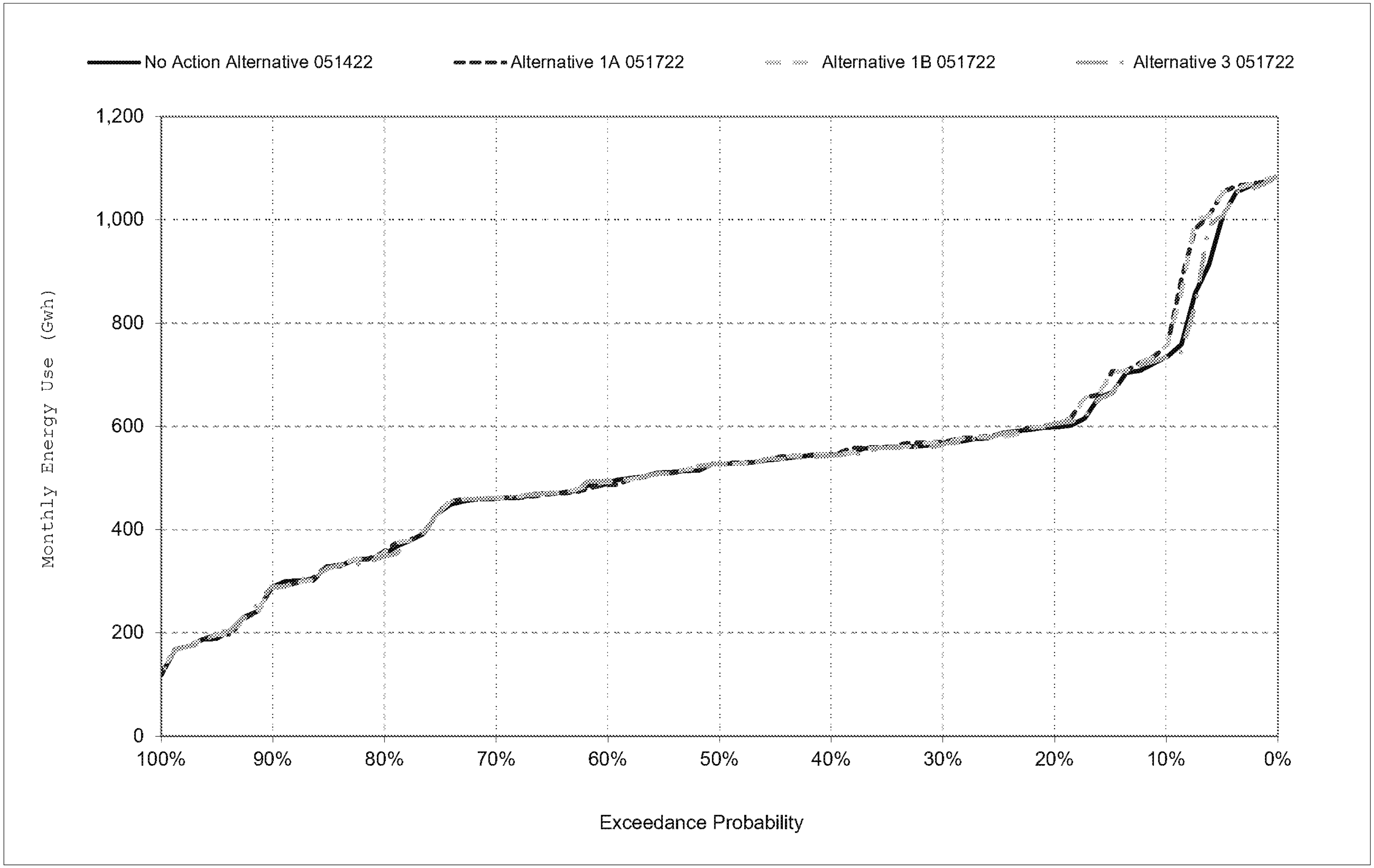
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-12. SWP Facilities Total Energy Use, March



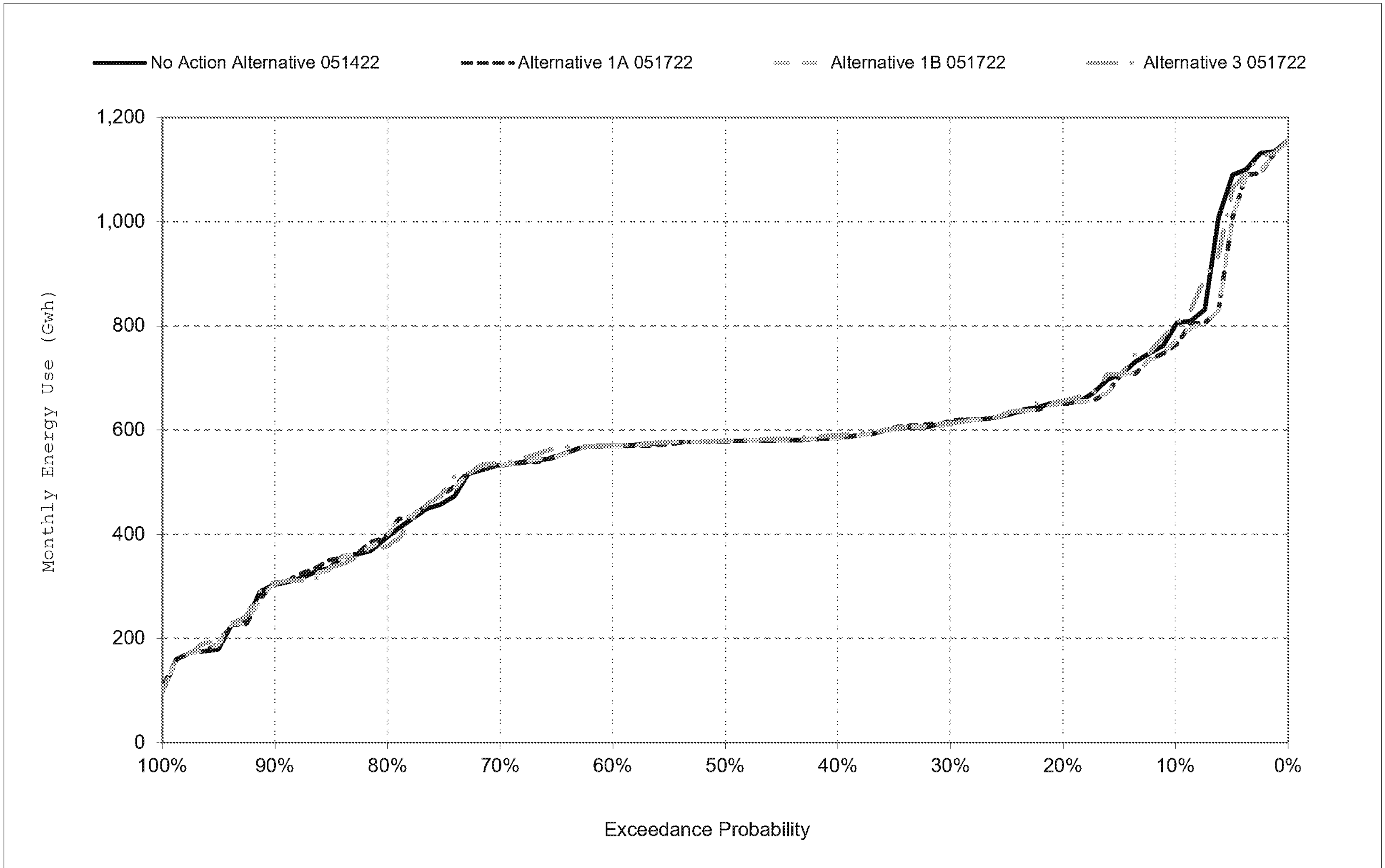
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-13. SWP Facilities Total Energy Use, April



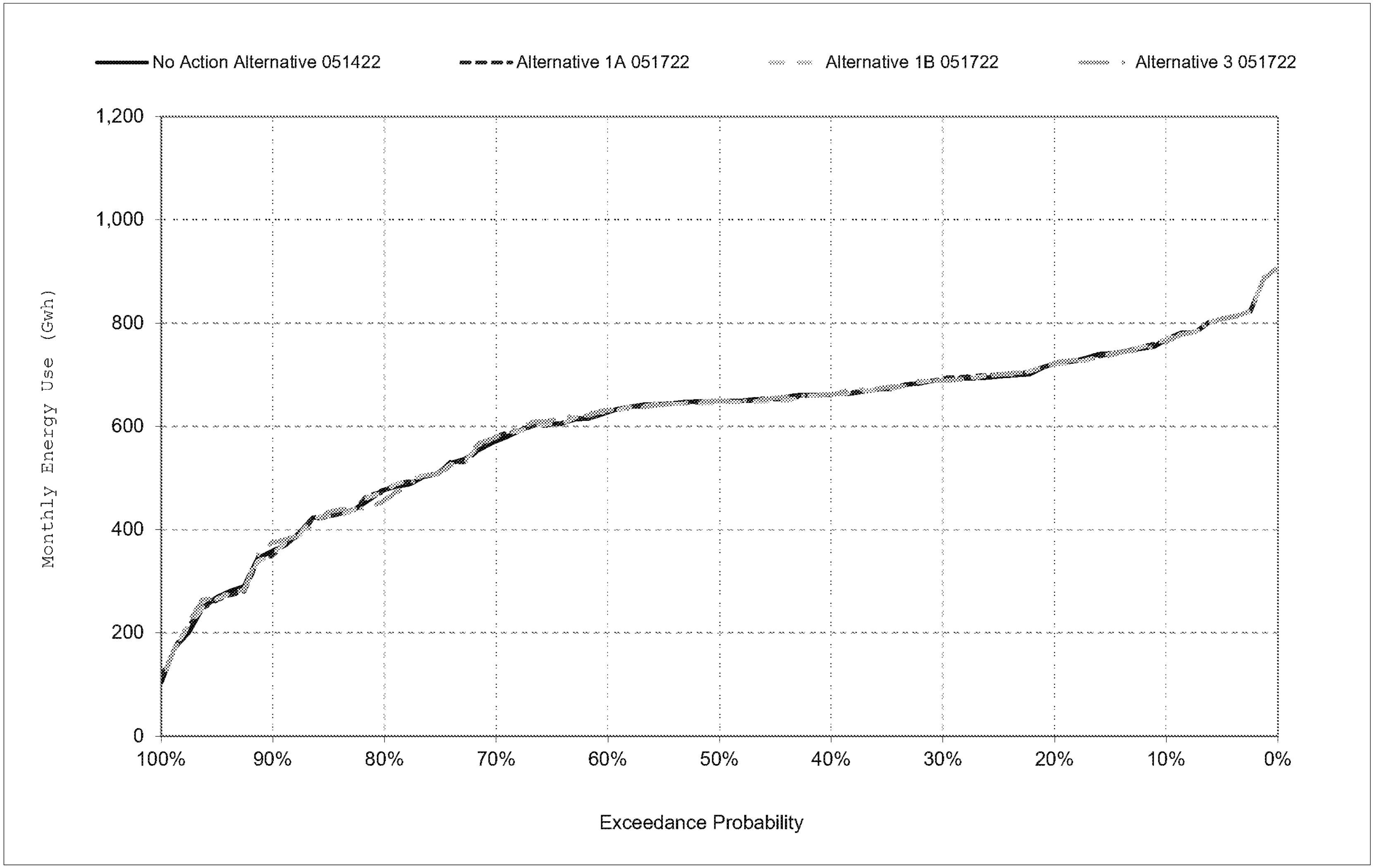
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-14. SWP Facilities Total Energy Use, May



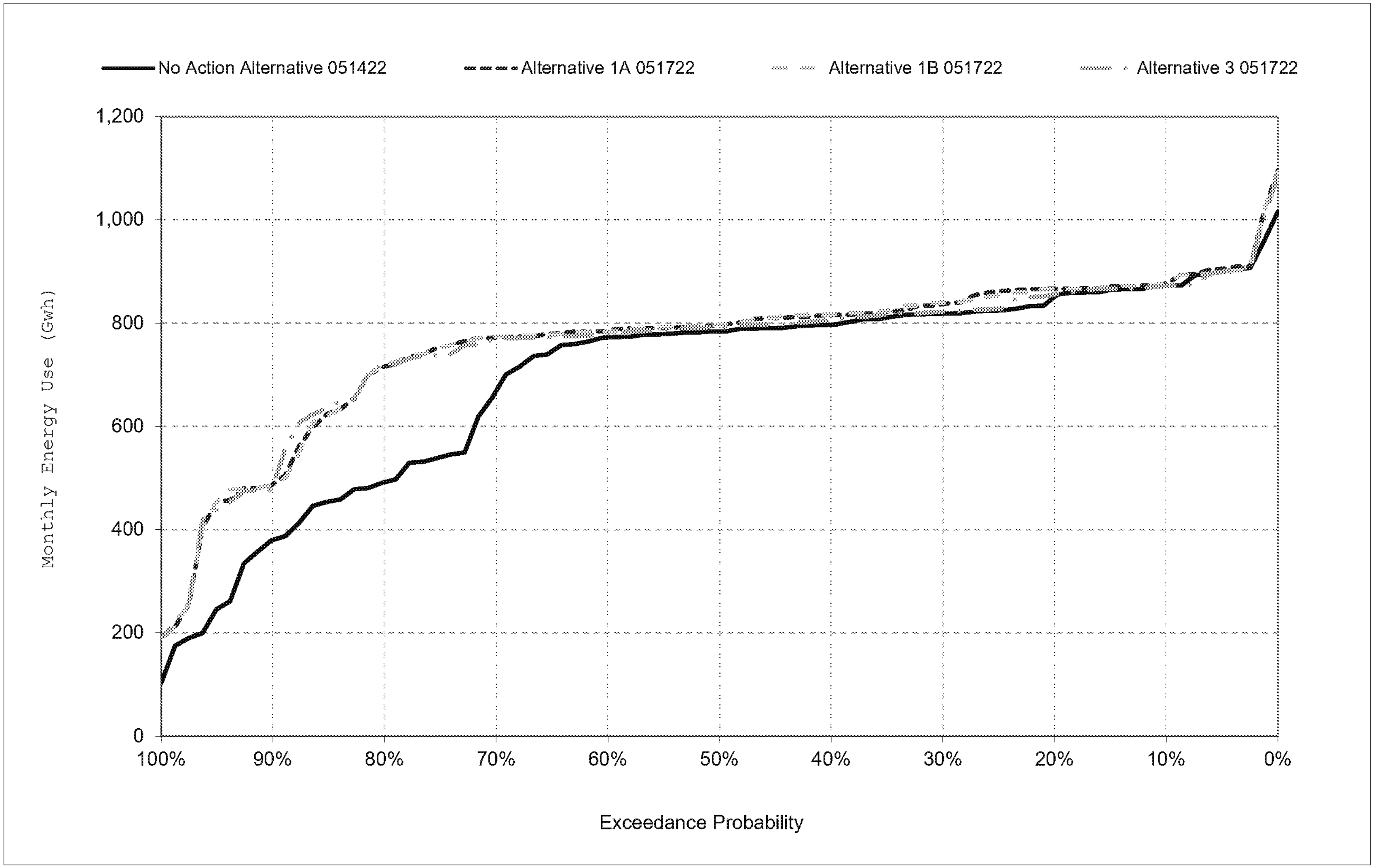
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-15. SWP Facilities Total Energy Use, June



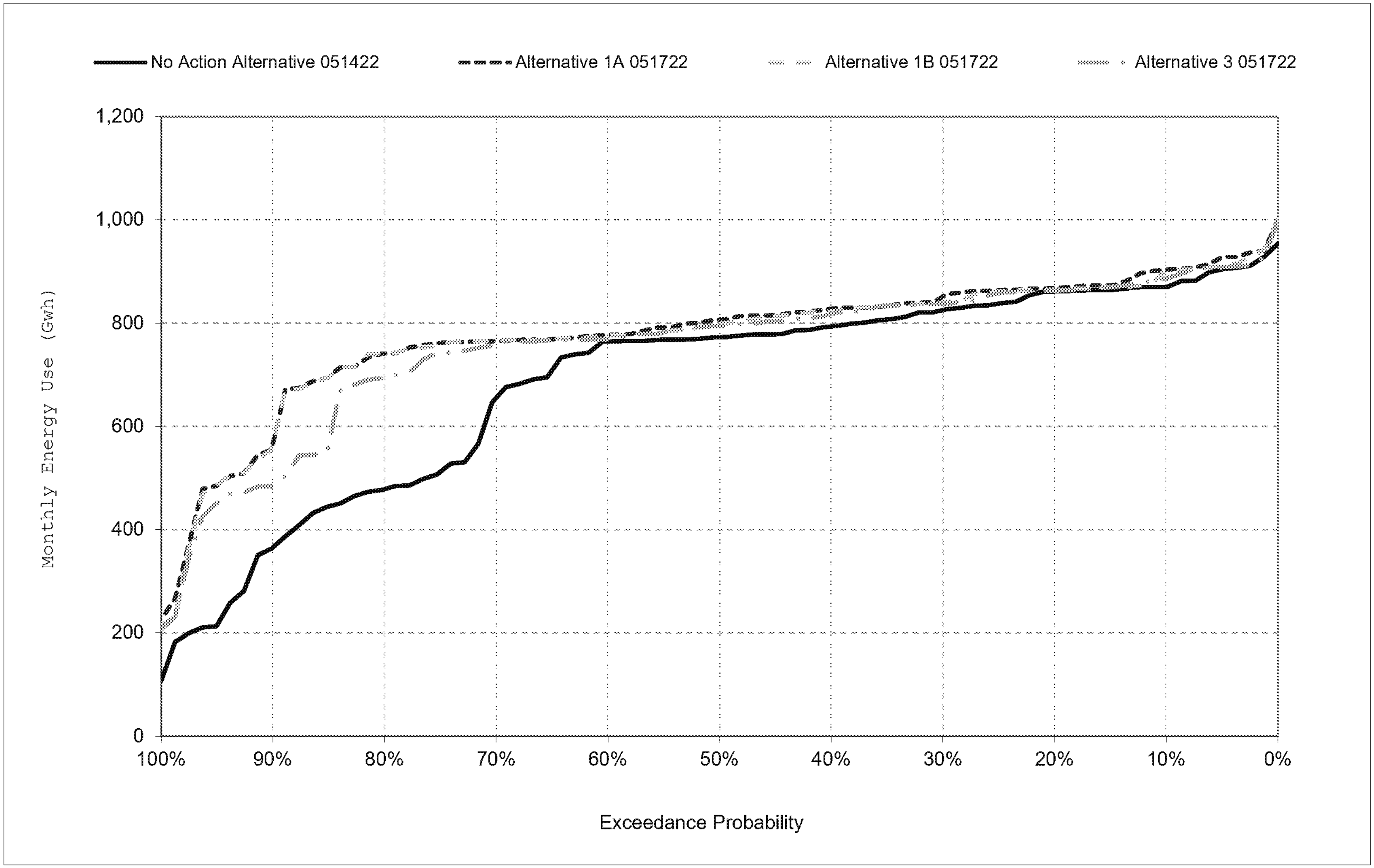
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-16. SWP Facilities Total Energy Use, July



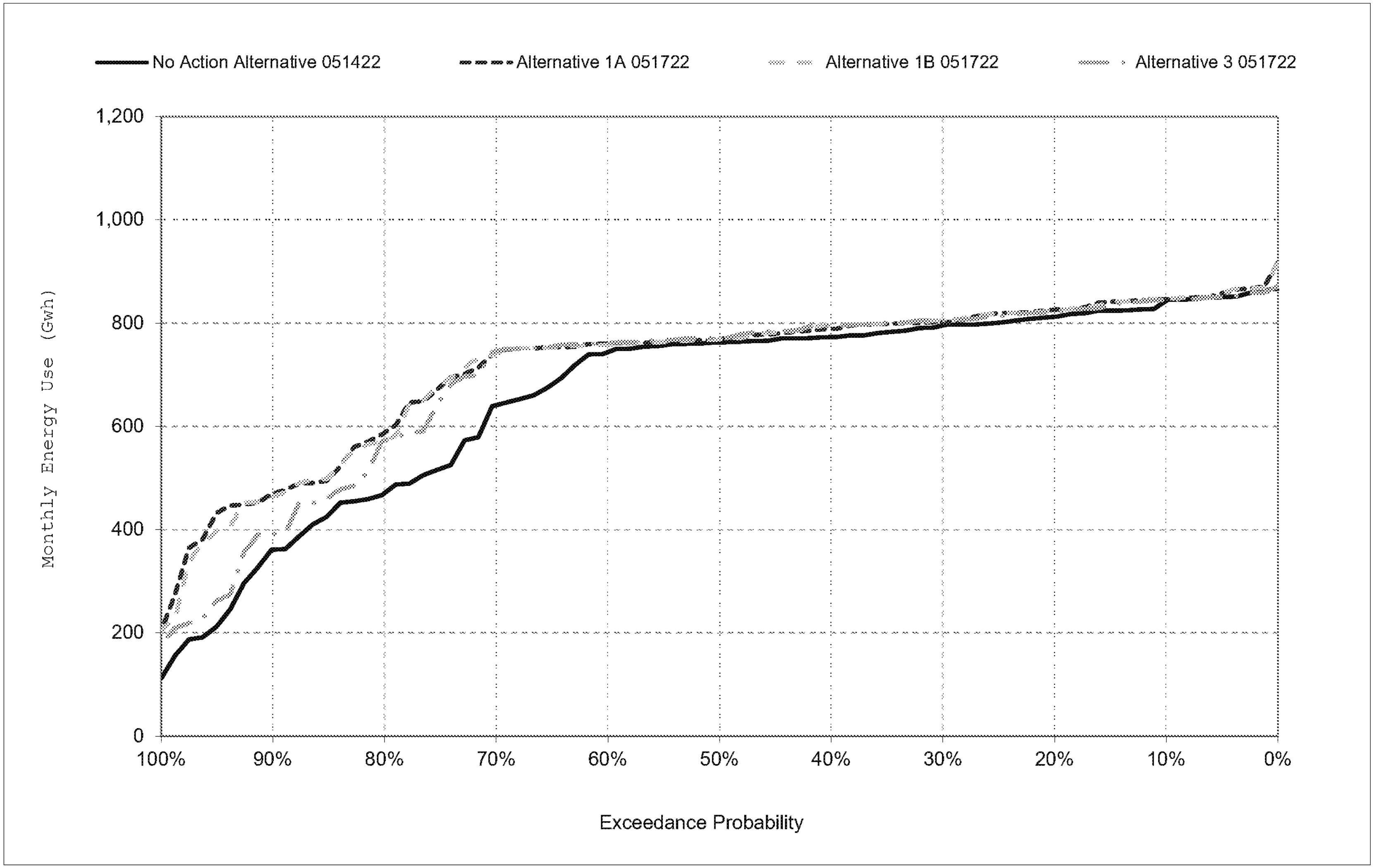
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-17. SWP Facilities Total Energy Use, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 8-18. SWP Facilities Total Energy Use, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 9-1a. SWP Facilities Net Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-185	-161	-115	-55	-57	-30	-60	-15	-36	-75	-170	-200
20%	-239	-222	-161	-77	-84	-98	-121	-58	-121	-126	-226	-263
30%	-311	-269	-218	-98	-117	-128	-139	-122	-143	-156	-253	-279
40%	-345	-337	-242	-127	-149	-165	-159	-152	-174	-175	-268	-299
50%	-369	-365	-280	-183	-180	-186	-191	-181	-199	-192	-289	-312
60%	-390	-393	-329	-223	-216	-214	-219	-225	-213	-218	-323	-341
70%	-442	-417	-375	-275	-252	-248	-242	-235	-229	-263	-344	-388
80%	-476	-430	-399	-309	-338	-286	-278	-246	-253	-298	-379	-420
90%	-498	-485	-465	-516	-436	-414	-355	-289	-297	-399	-447	-476
Long Term												
Full Simulation Period[d]	-356	-341	-285	-212	-207	-196	-202	-170	-184	-213	-298	-329
Water Year Types[b,c]												
Wet (32%)	-381	-377	-256	-250	-226	-170	-204	-146	-208	-294	-361	-330
Above Normal (15%)	-409	-429	-360	-285	-272	-230	-234	-204	-239	-213	-295	-312
Below Normal (17%)	-480	-417	-364	-264	-279	-298	-263	-258	-255	-231	-338	-451
Dry (22%)	-302	-284	-258	-141	-143	-176	-198	-162	-127	-155	-250	-325
Critical (15%)	-182	-167	-221	-102	-110	-127	-100	-94	-82	-102	-186	-207

Table 9-1b. SWP Facilities Net Generation, Alternative 1A 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-213	-172	-123	-56	-61	-32	-62	-16	-48	-122	-249	-267
20%	-298	-283	-164	-80	-90	-98	-119	-59	-130	-167	-261	-278
30%	-333	-337	-223	-98	-120	-127	-135	-120	-155	-190	-285	-302
40%	-364	-361	-244	-130	-157	-166	-164	-152	-185	-220	-321	-314
50%	-386	-381	-277	-183	-182	-189	-191	-180	-204	-257	-346	-347
60%	-430	-412	-324	-226	-214	-221	-220	-224	-218	-288	-378	-384
70%	-481	-428	-362	-278	-250	-252	-252	-235	-233	-326	-421	-417
80%	-531	-451	-401	-321	-344	-286	-282	-246	-260	-368	-450	-466
90%	-584	-508	-468	-495	-431	-426	-370	-291	-298	-428	-503	-497
Long Term												
Full Simulation Period[d]	-399	-367	-285	-213	-208	-198	-206	-166	-192	-260	-359	-363
Water Year Types[b,c]												
Wet (32%)	-382	-377	-257	-252	-230	-175	-206	-146	-207	-294	-361	-329
Above Normal (15%)	-411	-430	-360	-290	-275	-238	-255	-175	-239	-213	-295	-313
Below Normal (17%)	-517	-465	-363	-264	-273	-297	-266	-257	-259	-242	-346	-452
Dry (22%)	-439	-357	-253	-143	-145	-176	-199	-163	-150	-282	-415	-416
Critical (15%)	-229	-180	-227	-101	-109	-129	-100	-95	-93	-223	-347	-306

Table 9-1c. SWP Facilities Net Generation, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-28	-11	-8	0	-3	-2	-2	0	-12	-47	-79	-67
20%	-60	-61	-3	-3	-6	0	2	-1	-9	-41	-35	-15
30%	-22	-68	-6	0	-4	0	4	2	-12	-34	-32	-24
40%	-19	-24	-2	-3	-9	-1	-5	0	-11	-45	-53	-15
50%	-16	-17	3	0	-2	-3	0	1	-5	-66	-57	-35
60%	-40	-19	4	-3	2	-7	-2	1	-5	-70	-55	-42
70%	-39	-11	13	-4	2	-4	-10	0	-4	-63	-77	-29
80%	-55	-21	-2	-12	-6	0	-4	0	-7	-70	-70	-46
90%	-86	-23	-2	22	5	-12	-15	-1	-1	-29	-57	-21
Long Term												
Full Simulation Period[d]	-44	-26	0	-1	-1	-3	-4	4	-7	-47	-61	-34
Water Year Types[b,c]												
Wet (32%)	-1	0	-2	-1	-3	-5	-2	0	1	0	0	1
Above Normal (15%)	-3	0	0	-5	-2	-8	-20	29	0	-1	-1	0
Below Normal (17%)	-37	-48	1	-1	5	1	-3	0	-4	-11	-7	-2
Dry (22%)	-137	-73	5	-1	-2	0	-1	-1	-23	-127	-165	-91
Critical (15%)	-47	-13	-6	1	0	-1	0	-1	-11	-121	-161	-99

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 9-2a. SWP Facilities Net Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-185	-161	-115	-55	-57	-30	-60	-15	-36	-75	-170	-200
20%	-239	-222	-161	-77	-84	-98	-121	-58	-121	-126	-226	-263
30%	-311	-269	-218	-98	-117	-128	-139	-122	-143	-156	-253	-279
40%	-345	-337	-242	-127	-149	-165	-159	-152	-174	-175	-268	-299
50%	-369	-365	-280	-183	-180	-186	-191	-181	-199	-192	-289	-312
60%	-390	-393	-329	-223	-216	-214	-219	-225	-213	-218	-323	-341
70%	-442	-417	-375	-275	-252	-248	-242	-235	-229	-263	-344	-388
80%	-476	-430	-399	-309	-338	-286	-278	-246	-253	-298	-379	-420
90%	-498	-485	-465	-516	-436	-414	-355	-289	-297	-399	-447	-476
Long Term												
Full Simulation Period[a]	-356	-341	-285	-212	-207	-196	-202	-170	-184	-213	-298	-329
Water Year Types[b,c]												
Wet (32%)	-381	-377	-256	-250	-226	-170	-204	-146	-208	-294	-361	-330
Above Normal (15%)	-409	-429	-360	-285	-272	-230	-234	-204	-239	-213	-295	-312
Below Normal (17%)	-480	-417	-364	-264	-279	-298	-263	-258	-255	-231	-338	-451
Dry (22%)	-302	-284	-258	-141	-143	-176	-198	-162	-127	-155	-250	-325
Critical (15%)	-182	-167	-221	-102	-110	-127	-100	-94	-82	-102	-186	-207

Table 9-2b. SWP Facilities Net Generation, Alternative 1B 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-224	-164	-118	-48	-61	-33	-62	-10	-44	-122	-246	-262
20%	-281	-270	-155	-79	-89	-95	-119	-64	-130	-167	-261	-275
30%	-335	-334	-211	-94	-112	-128	-134	-119	-154	-190	-288	-303
40%	-369	-361	-243	-127	-152	-161	-160	-154	-185	-222	-320	-316
50%	-390	-384	-274	-165	-182	-182	-191	-184	-205	-255	-347	-341
60%	-427	-415	-328	-230	-215	-211	-220	-224	-219	-283	-376	-363
70%	-478	-430	-360	-278	-254	-248	-252	-236	-233	-326	-417	-412
80%	-530	-452	-398	-321	-348	-296	-283	-253	-260	-369	-445	-465
90%	-584	-503	-469	-494	-433	-426	-369	-291	-297	-429	-492	-499
Long Term												
Full Simulation Period[a]	-400	-364	-281	-209	-208	-197	-206	-166	-191	-260	-355	-361
Water Year Types[b,c]												
Wet (32%)	-383	-378	-259	-237	-228	-170	-206	-147	-207	-294	-360	-326
Above Normal (15%)	-414	-431	-361	-290	-274	-235	-255	-173	-241	-214	-296	-312
Below Normal (17%)	-513	-470	-359	-270	-281	-301	-262	-256	-257	-240	-344	-449
Dry (22%)	-444	-340	-237	-141	-143	-176	-202	-167	-150	-279	-405	-415
Critical (15%)	-223	-183	-227	-101	-110	-126	-100	-95	-93	-224	-343	-300

Table 9-2c. SWP Facilities Net Generation, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-39	-3	-4	7	-4	-2	-2	5	-7	-47	-76	-62
20%	-43	-49	6	-2	-5	3	2	-6	-9	-41	-35	-12
30%	-24	-65	7	4	4	0	5	3	-11	-34	-35	-24
40%	-24	-25	-1	0	-3	3	0	-2	-11	-46	-52	-17
50%	-21	-19	6	18	-2	4	0	-3	-6	-63	-57	-29
60%	-37	-22	1	-6	1	3	-2	1	-6	-65	-53	-22
70%	-36	-13	15	-4	-1	0	-10	-1	-3	-63	-74	-24
80%	-54	-22	0	-12	-11	-11	-5	-8	-7	-71	-65	-44
90%	-86	-18	-4	22	3	-11	-14	-2	1	-30	-45	-24
Long Term												
Full Simulation Period[a]	-44	-24	3	2	-1	-1	-4	4	-7	-47	-58	-32
Water Year Types[b,c]												
Wet (32%)	-2	0	-3	13	-2	0	-2	0	0	0	1	4
Above Normal (15%)	-5	-2	-1	-5	-2	-5	-20	31	-1	-1	-1	1
Below Normal (17%)	-33	-53	4	-6	-2	-2	1	1	-3	-9	-5	2
Dry (22%)	-142	-56	22	1	0	0	-4	-5	-23	-124	-154	-90
Critical (15%)	-42	-16	-6	0	0	1	0	-1	-11	-122	-158	-93

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 9-3a. SWP Facilities Net Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-185	-161	-115	-55	-57	-30	-60	-15	-36	-75	-170	-200
20%	-239	-222	-161	-77	-84	-98	-121	-58	-121	-126	-226	-263
30%	-311	-269	-218	-98	-117	-128	-139	-122	-143	-156	-253	-279
40%	-345	-337	-242	-127	-149	-165	-159	-152	-174	-175	-268	-299
50%	-369	-365	-280	-183	-180	-186	-191	-181	-199	-192	-289	-312
60%	-390	-393	-329	-223	-216	-214	-219	-225	-213	-218	-323	-341
70%	-442	-417	-375	-275	-252	-248	-242	-235	-229	-263	-344	-388
80%	-476	-430	-399	-309	-338	-286	-278	-246	-253	-298	-379	-420
90%	-498	-485	-465	-516	-436	-414	-355	-289	-297	-399	-447	-476
Long Term												
Full Simulation Period[d]	-356	-341	-285	-212	-207	-196	-202	-170	-184	-213	-298	-329
Water Year Types[b,c]												
Wet (32%)	-381	-377	-256	-250	-226	-170	-204	-146	-208	-294	-361	-330
Above Normal (15%)	-409	-429	-360	-285	-272	-230	-234	-204	-239	-213	-295	-312
Below Normal (17%)	-480	-417	-364	-264	-279	-298	-263	-258	-255	-231	-338	-451
Dry (22%)	-302	-284	-258	-141	-143	-176	-198	-162	-127	-155	-250	-325
Critical (15%)	-182	-167	-221	-102	-110	-127	-100	-94	-82	-102	-186	-207

Table 9-3b. SWP Facilities Net Generation, Alternative 3 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-225	-161	-110	-48	-59	-31	-64	-17	-57	-141	-235	-228
20%	-279	-240	-156	-79	-88	-100	-120	-63	-128	-162	-255	-266
30%	-334	-334	-217	-101	-118	-133	-132	-120	-149	-183	-269	-288
40%	-364	-360	-245	-115	-153	-161	-158	-152	-180	-203	-290	-307
50%	-385	-384	-276	-162	-183	-175	-193	-190	-205	-235	-332	-340
60%	-422	-404	-325	-221	-206	-203	-218	-224	-219	-273	-354	-362
70%	-455	-425	-362	-274	-231	-255	-249	-236	-232	-323	-397	-399
80%	-517	-449	-402	-321	-335	-307	-276	-255	-267	-370	-440	-461
90%	-559	-492	-457	-514	-419	-433	-354	-303	-314	-426	-478	-498
Long Term												
Full Simulation Period[d]	-389	-359	-283	-206	-204	-200	-201	-172	-192	-257	-341	-348
Water Year Types[b,c]												
Wet (32%)	-384	-378	-260	-231	-219	-173	-205	-147	-208	-295	-361	-328
Above Normal (15%)	-418	-435	-361	-285	-271	-236	-223	-202	-243	-217	-294	-311
Below Normal (17%)	-504	-462	-364	-269	-273	-304	-261	-257	-258	-230	-337	-435
Dry (22%)	-400	-320	-243	-140	-142	-175	-201	-170	-149	-270	-372	-404
Critical (15%)	-222	-178	-224	-99	-119	-140	-102	-96	-92	-224	-306	-243

Table 9-3c. SWP Facilities Net Generation, Alternative 3 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-40	-1	5	8	-2	-1	-4	-2	-21	-67	-66	-28
20%	-40	-18	6	-2	-4	-2	1	-5	-7	-36	-29	-3
30%	-22	-64	1	-2	-2	-5	7	2	-7	-27	-16	-9
40%	-19	-23	-2	12	-4	3	2	0	-6	-28	-22	-8
50%	-15	-19	4	22	-3	11	-3	-8	-6	-44	-43	-28
60%	-32	-11	3	2	10	11	1	1	-6	-55	-31	-21
70%	-13	-8	13	0	21	-7	-7	-1	-3	-60	-54	-11
80%	-40	-18	-3	-12	3	-22	2	-10	-14	-72	-61	-40
90%	-61	-7	8	2	17	-19	1	-14	-17	-27	-31	-22
Long Term												
Full Simulation Period[d]	-34	-18	2	5	2	-5	0	-2	-7	-44	-44	-19
Water Year Types[b,c]												
Wet (32%)	-3	-1	-4	19	7	-3	-1	-1	0	-1	1	2
Above Normal (15%)	-9	-6	-1	-1	2	-6	11	2	-4	-4	0	1
Below Normal (17%)	-24	-45	0	-6	6	-6	2	0	-3	1	2	15
Dry (22%)	-98	-36	15	1	0	1	-3	-9	-22	-115	-122	-79
Critical (15%)	-41	-11	-3	3	-9	-13	-3	-2	-10	-122	-121	-36

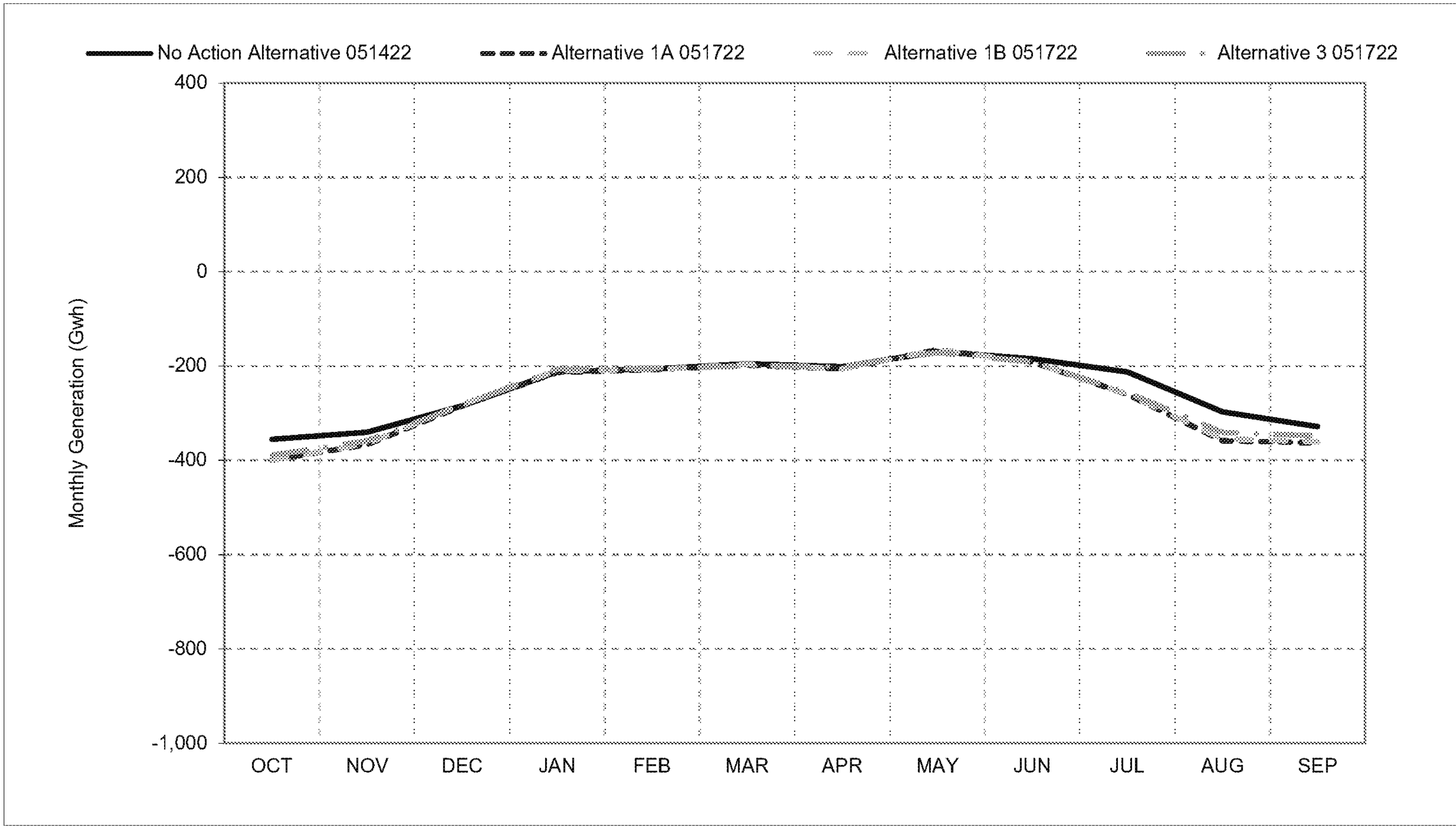
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

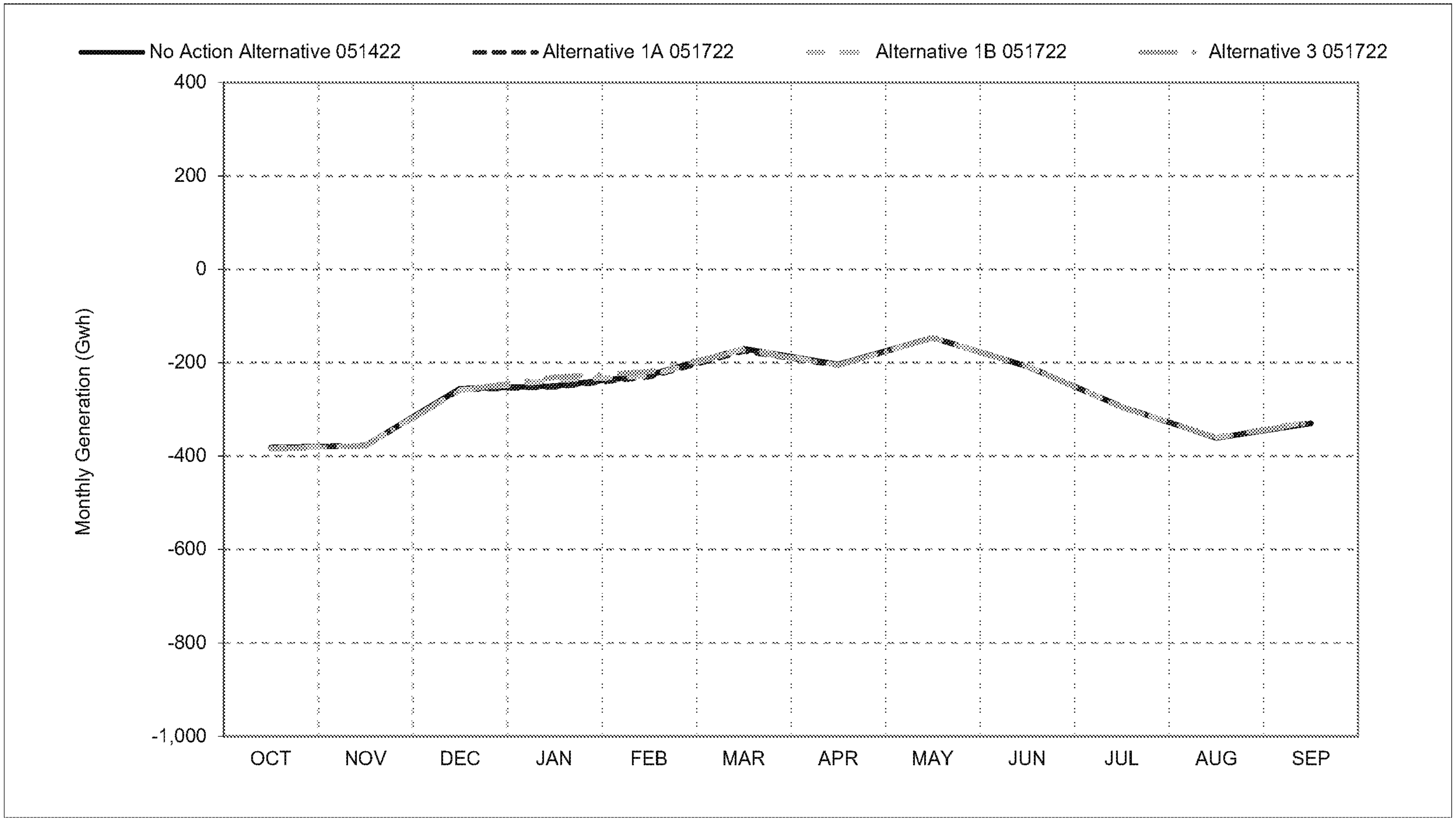
d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-1. SWP Facilities Net Generation, Long-Term Average Generation



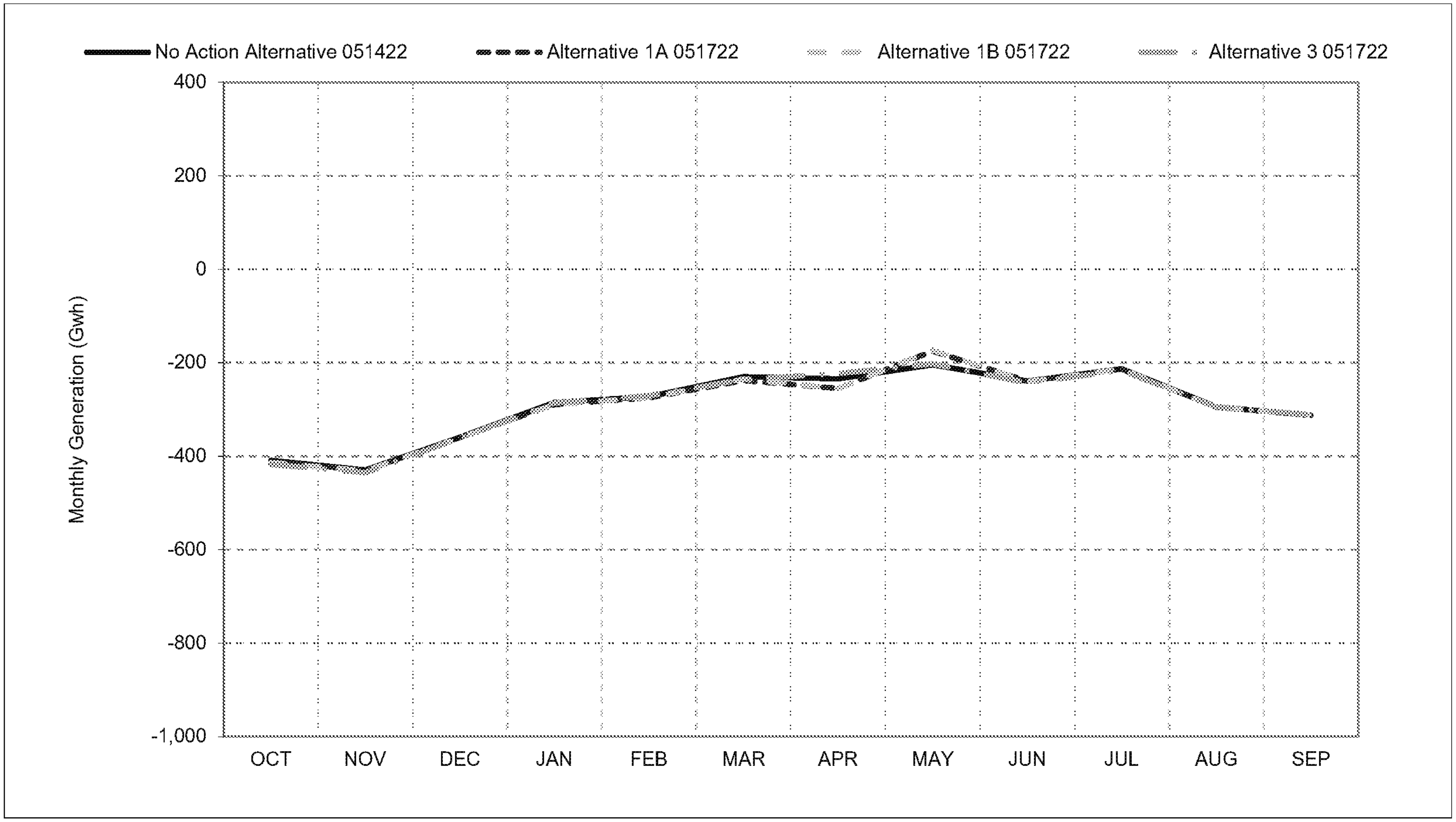
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-2. SWP Facilities Net Generation, Wet Year Average Generation



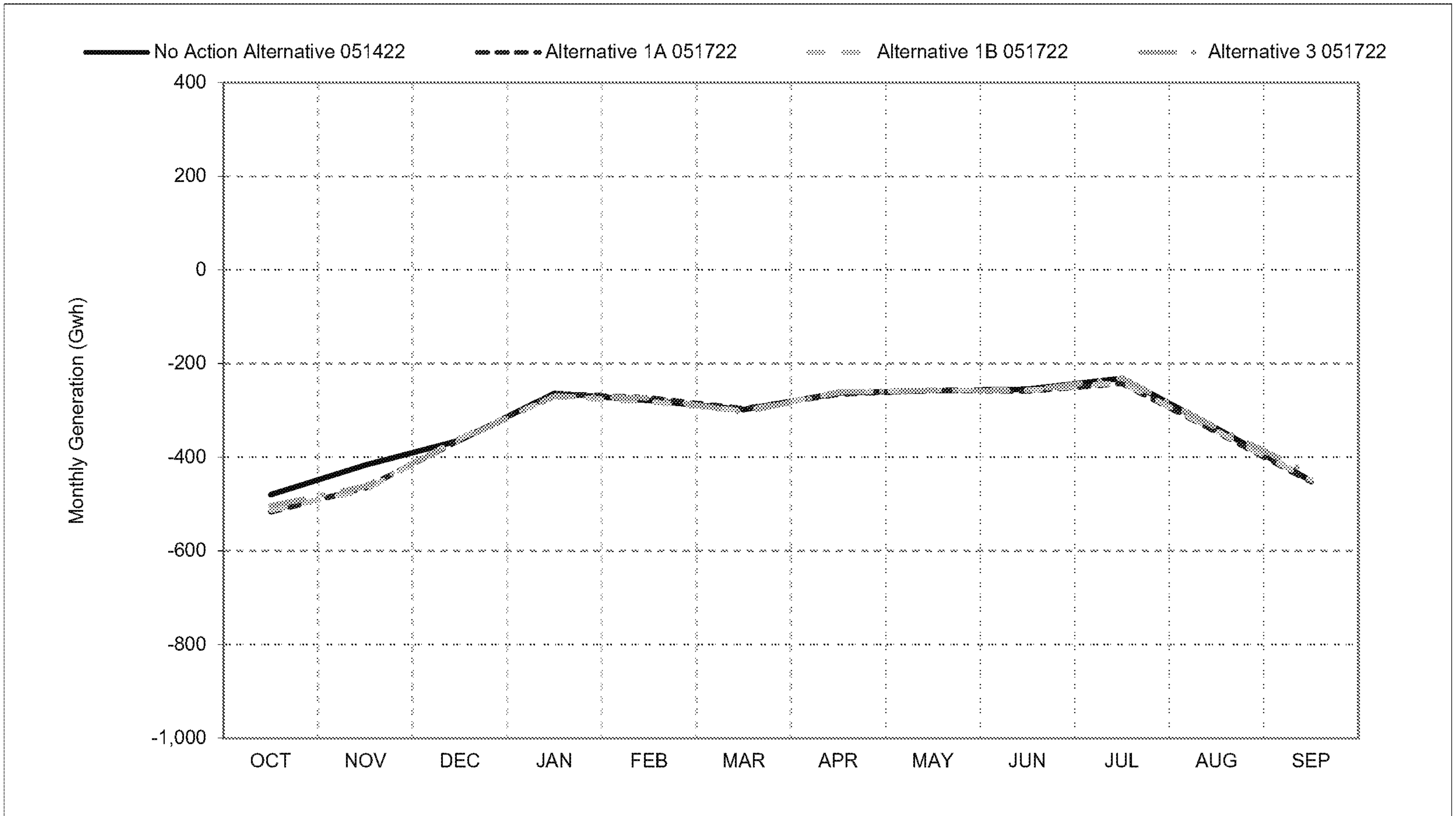
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-3. SWP Facilities Net Generation, Above Normal Year Average Generation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-4. SWP Facilities Net Generation, Below Normal Year Average Generation

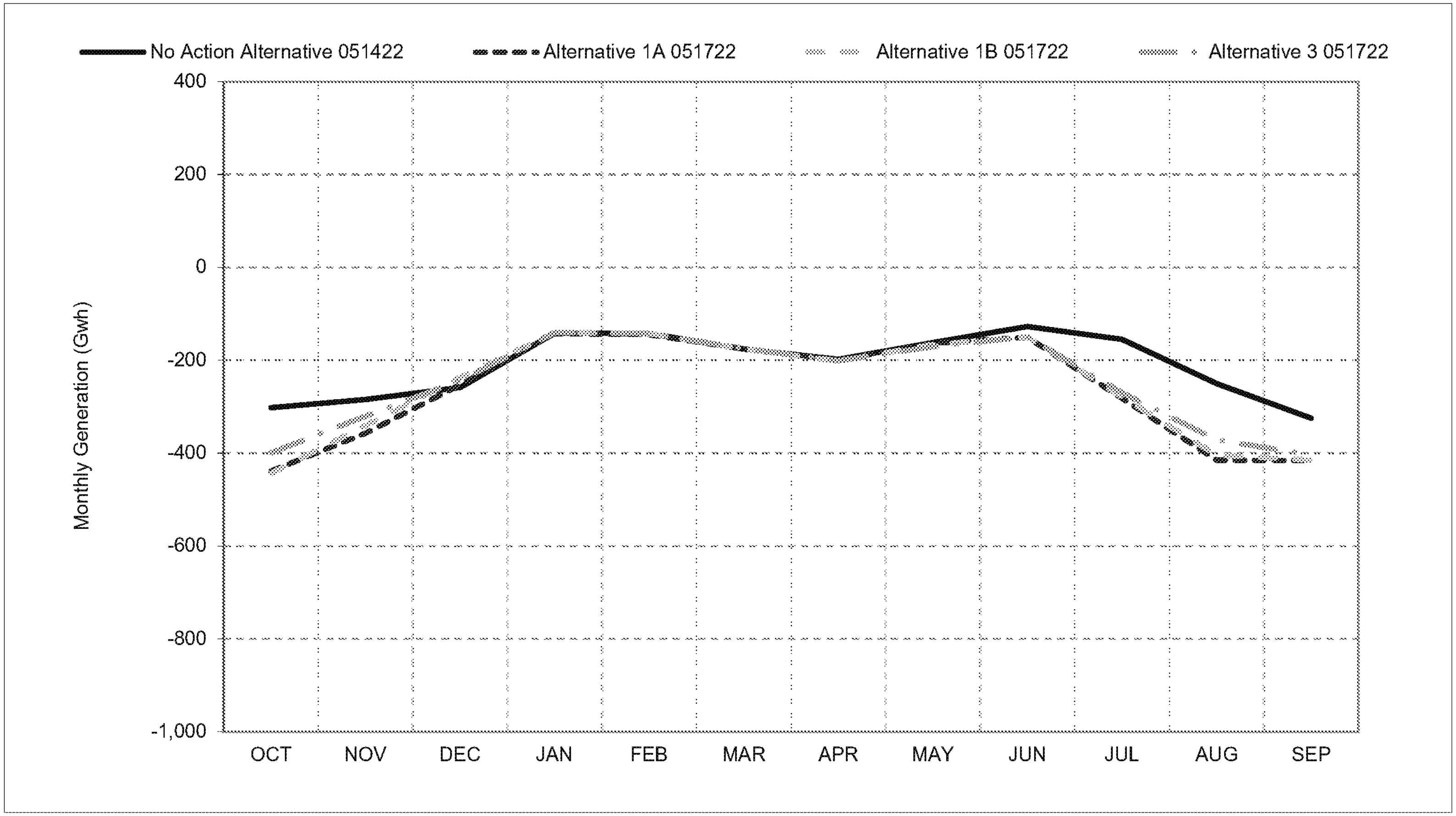


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

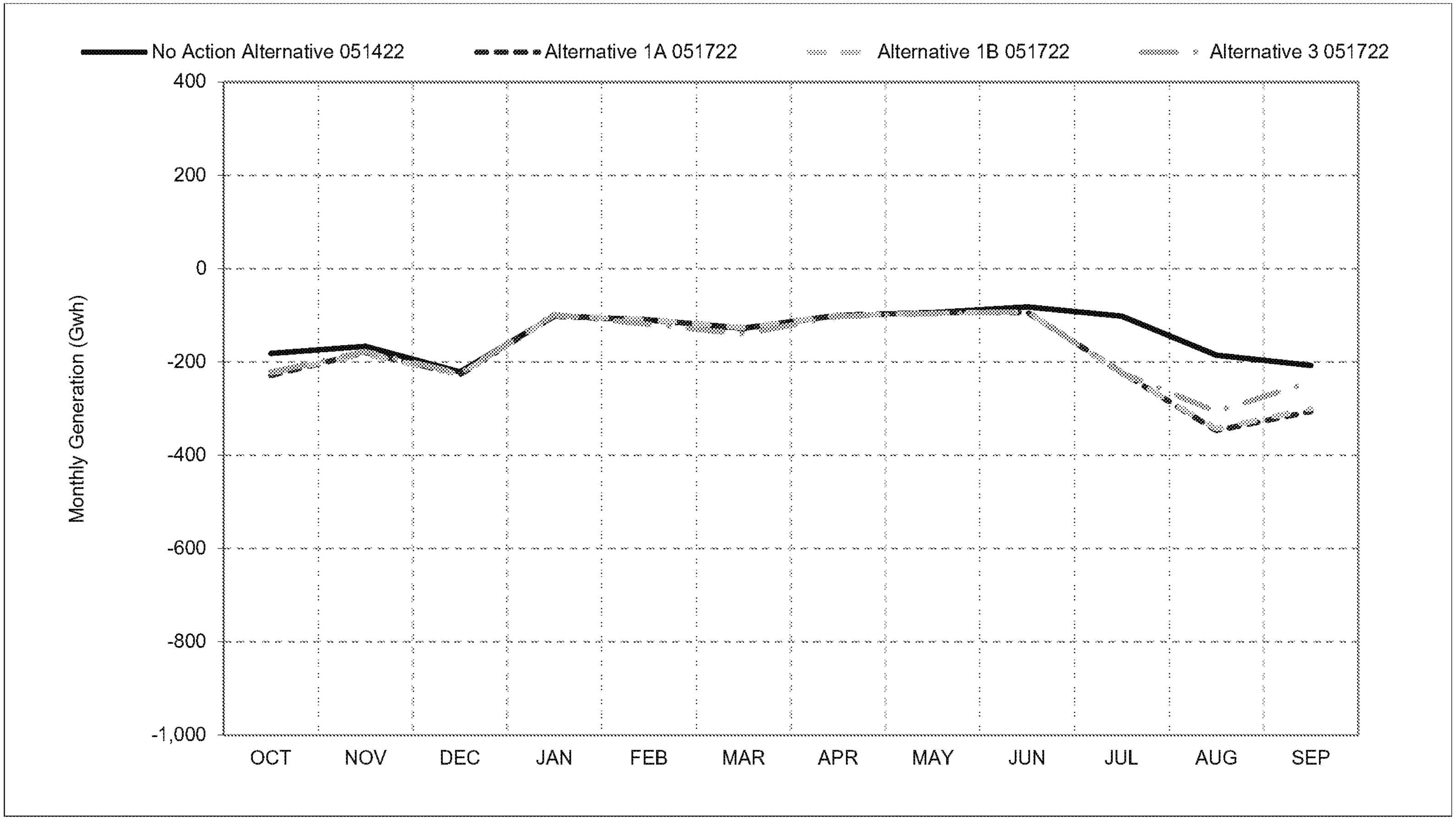
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-5. SWP Facilities Net Generation, Dry Year Average Generation



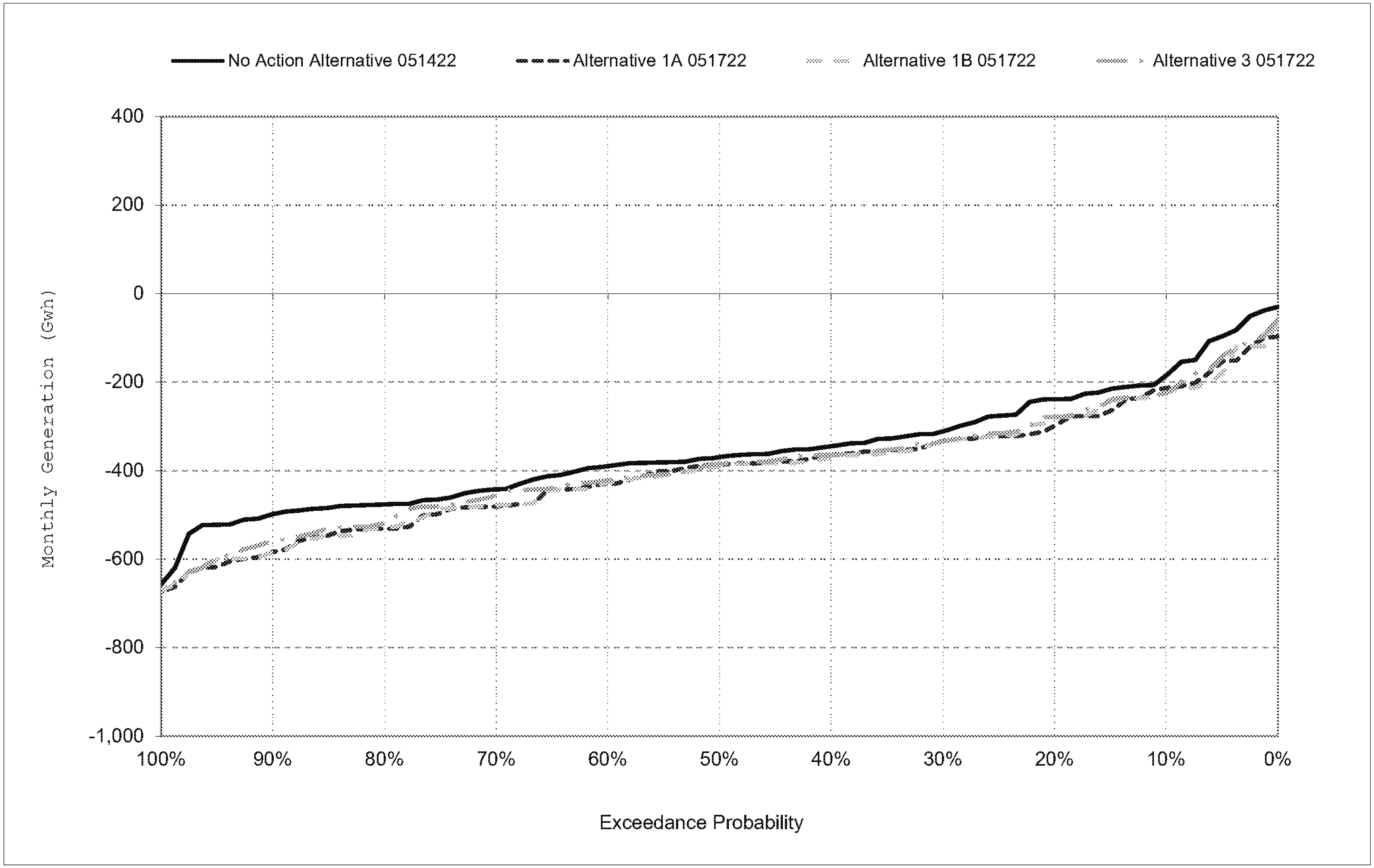
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-6. SWP Facilities Net Generation, Critical Year Average Generation



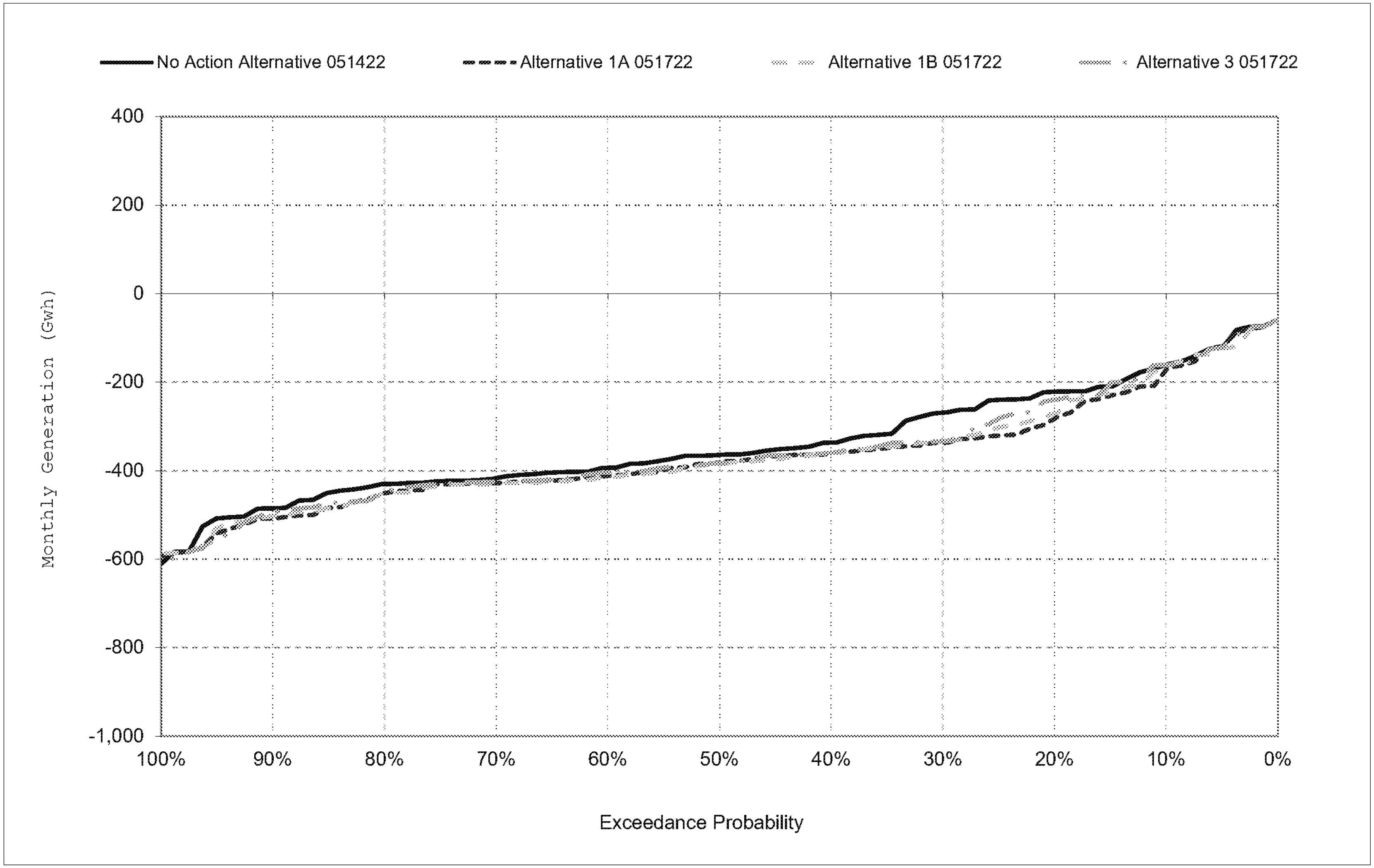
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-7. SWP Facilities Net Generation, October



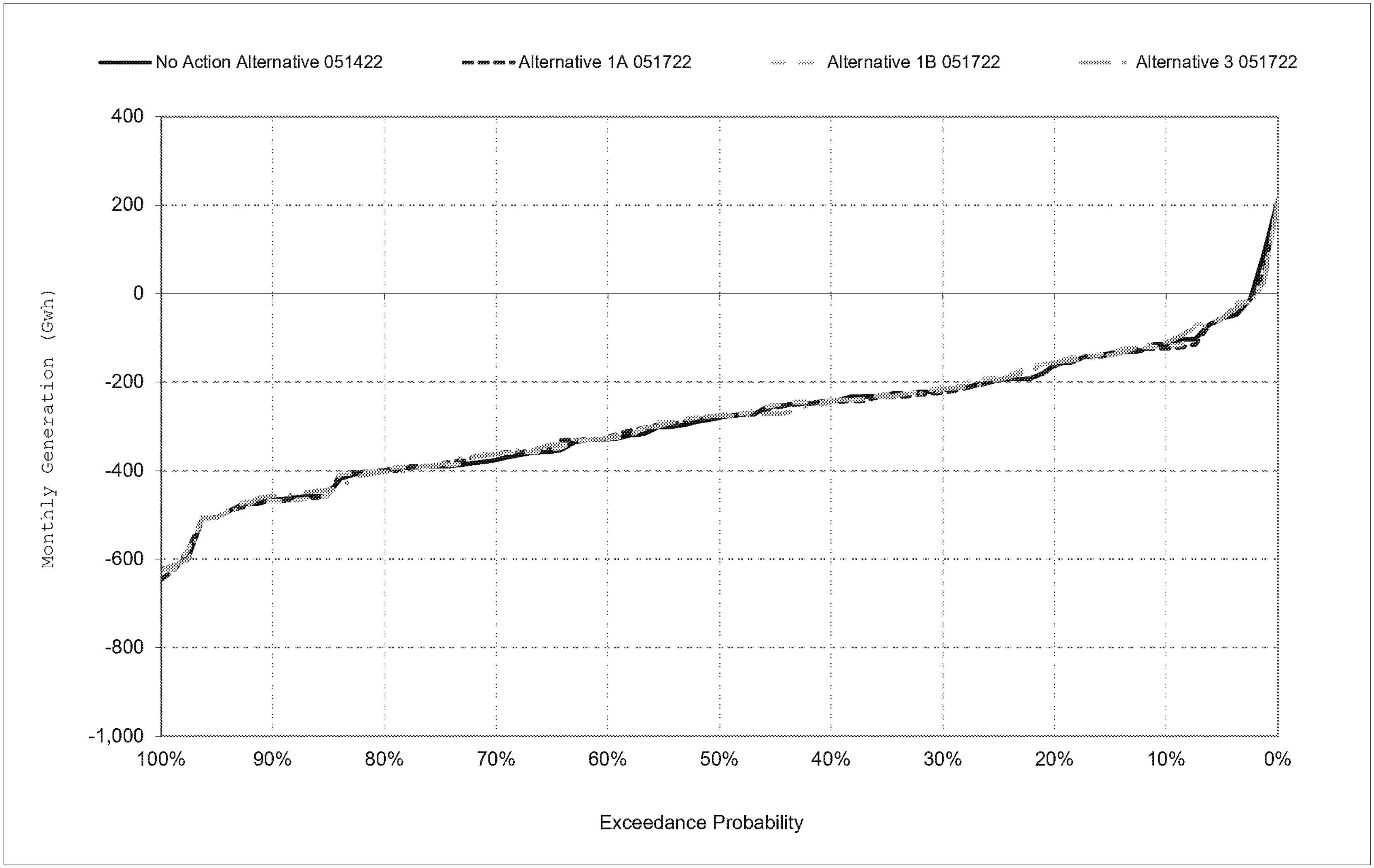
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-8. SWP Facilities Net Generation, November



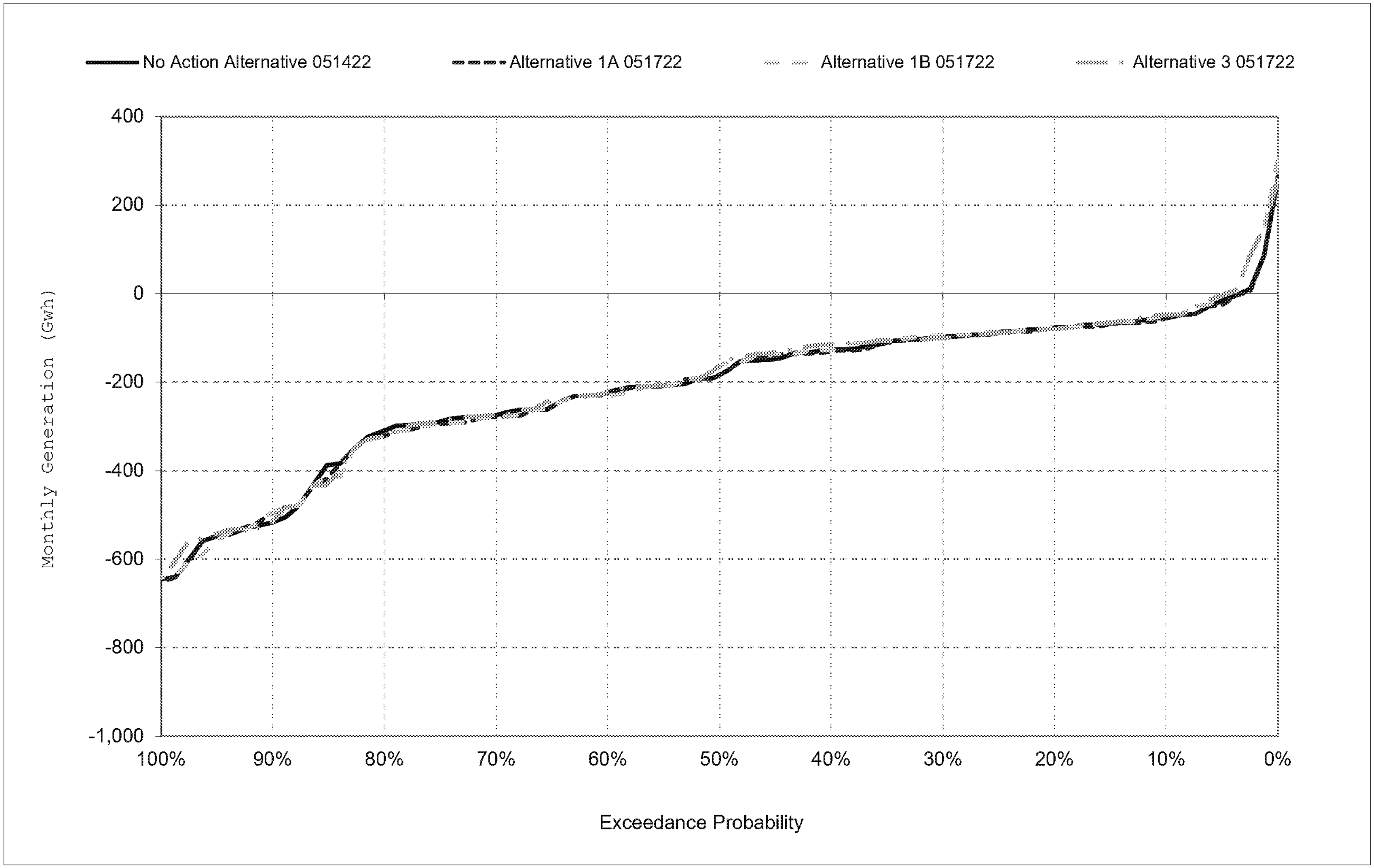
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-9. SWP Facilities Net Generation, December



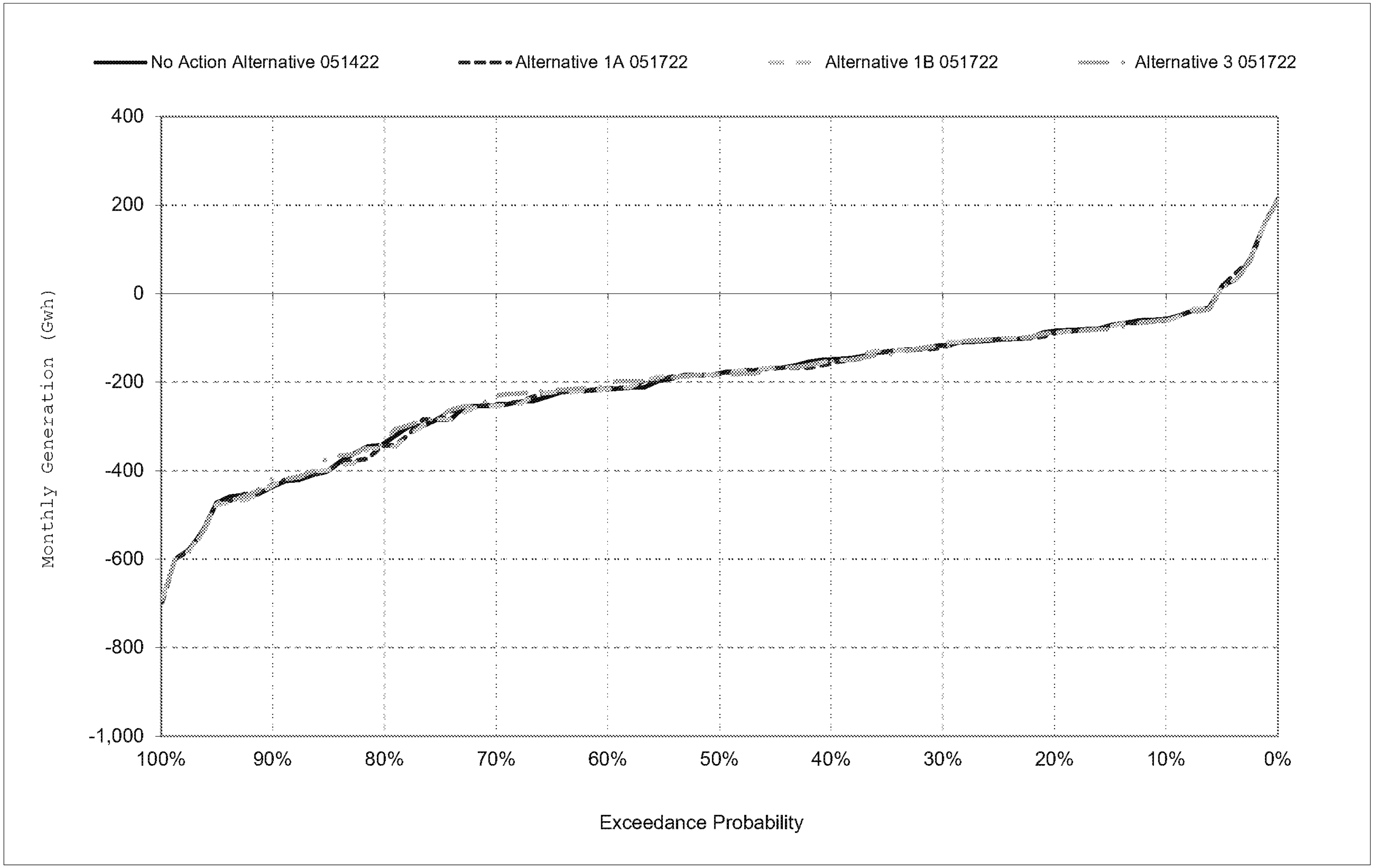
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-10. SWP Facilities Net Generation, January



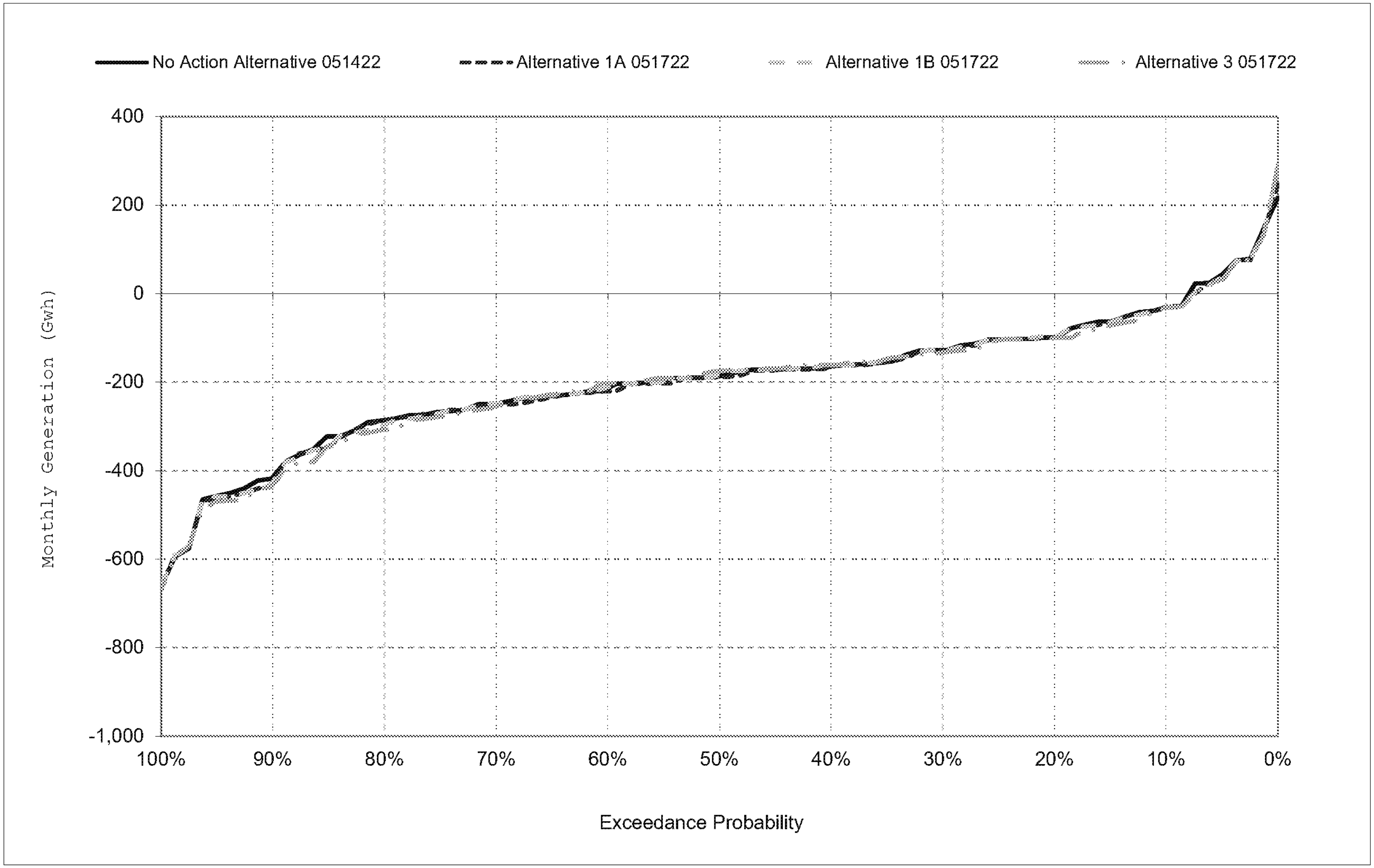
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-11. SWP Facilities Net Generation, February



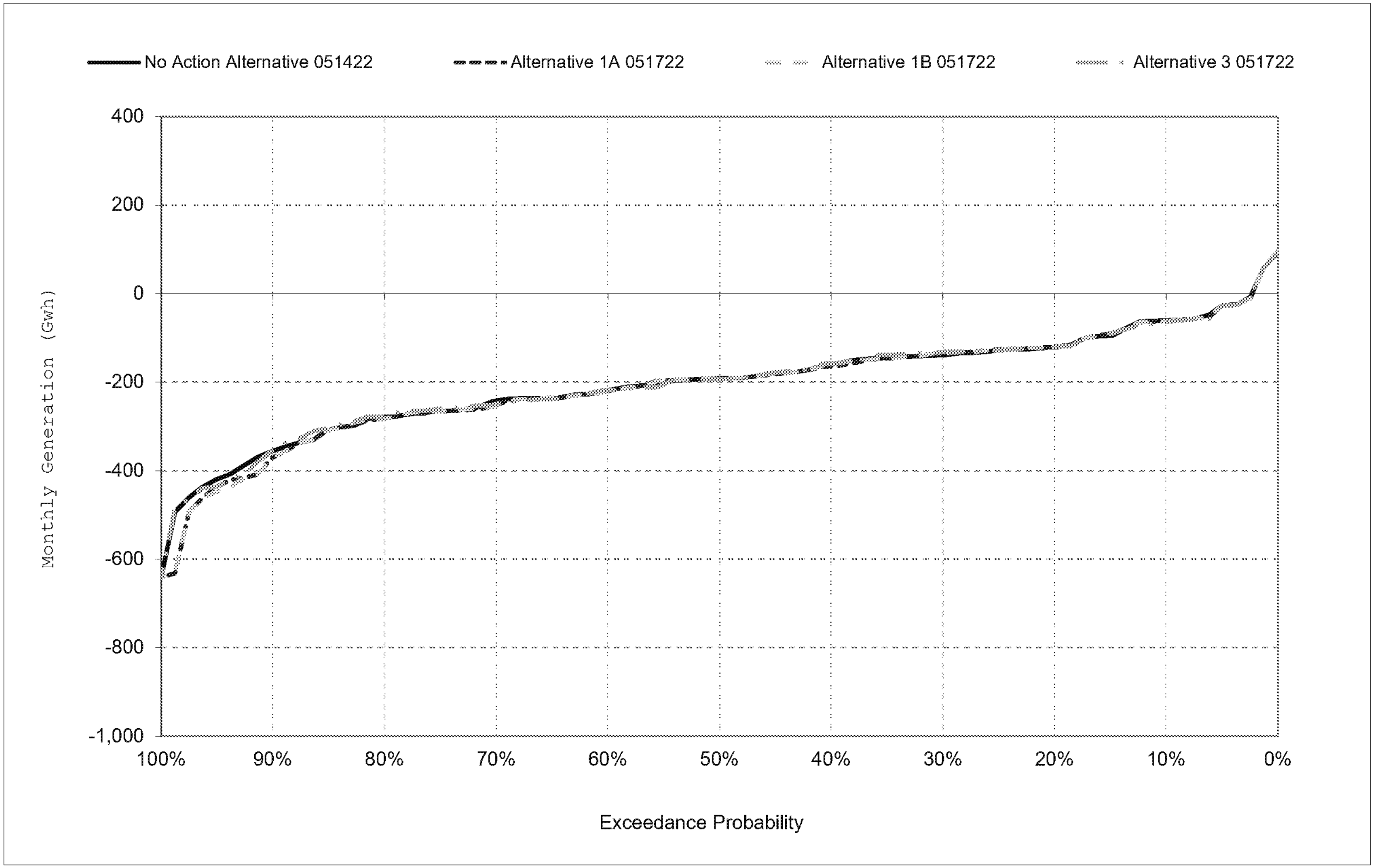
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-12. SWP Facilities Net Generation, March



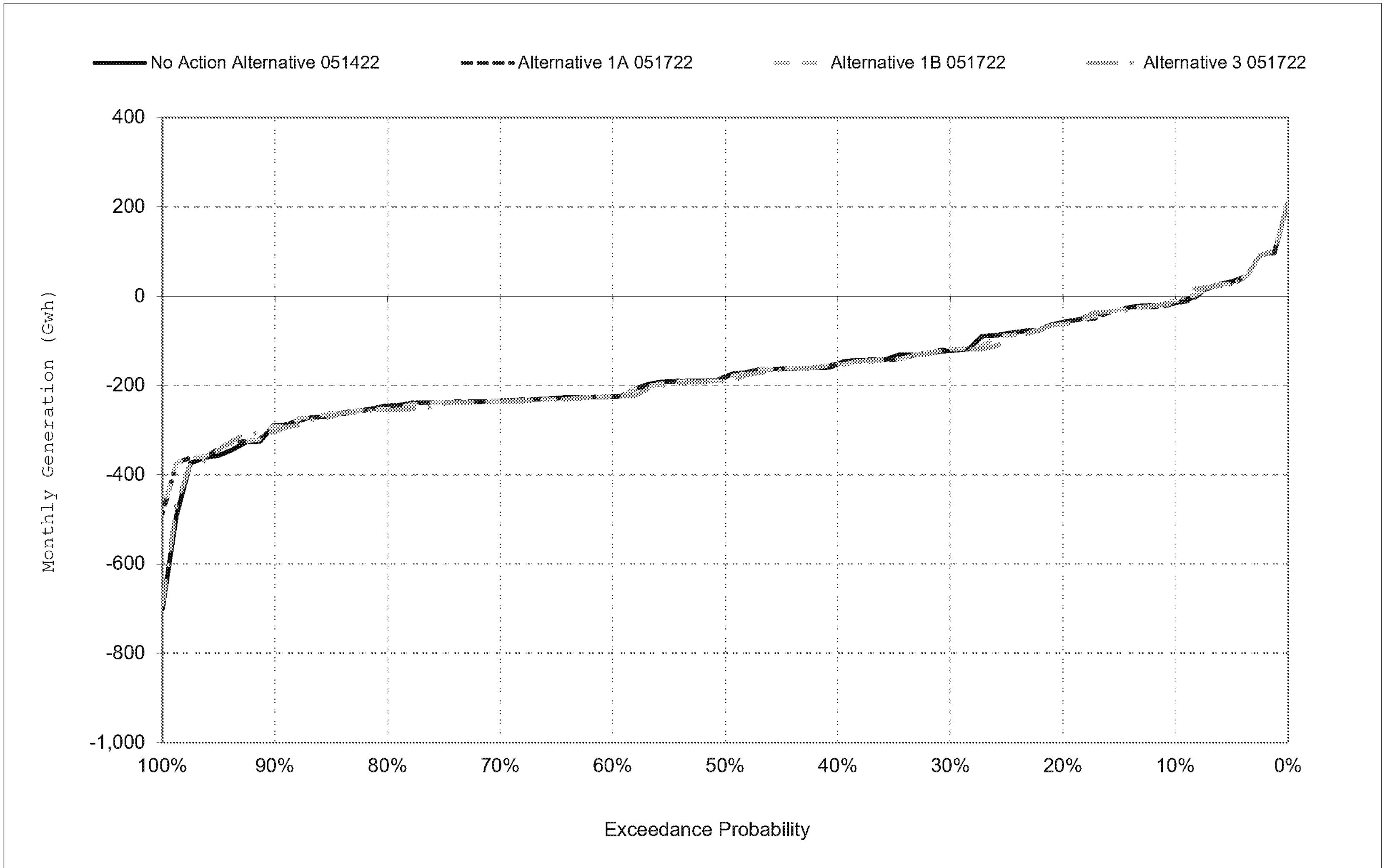
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-13. SWP Facilities Net Generation, April



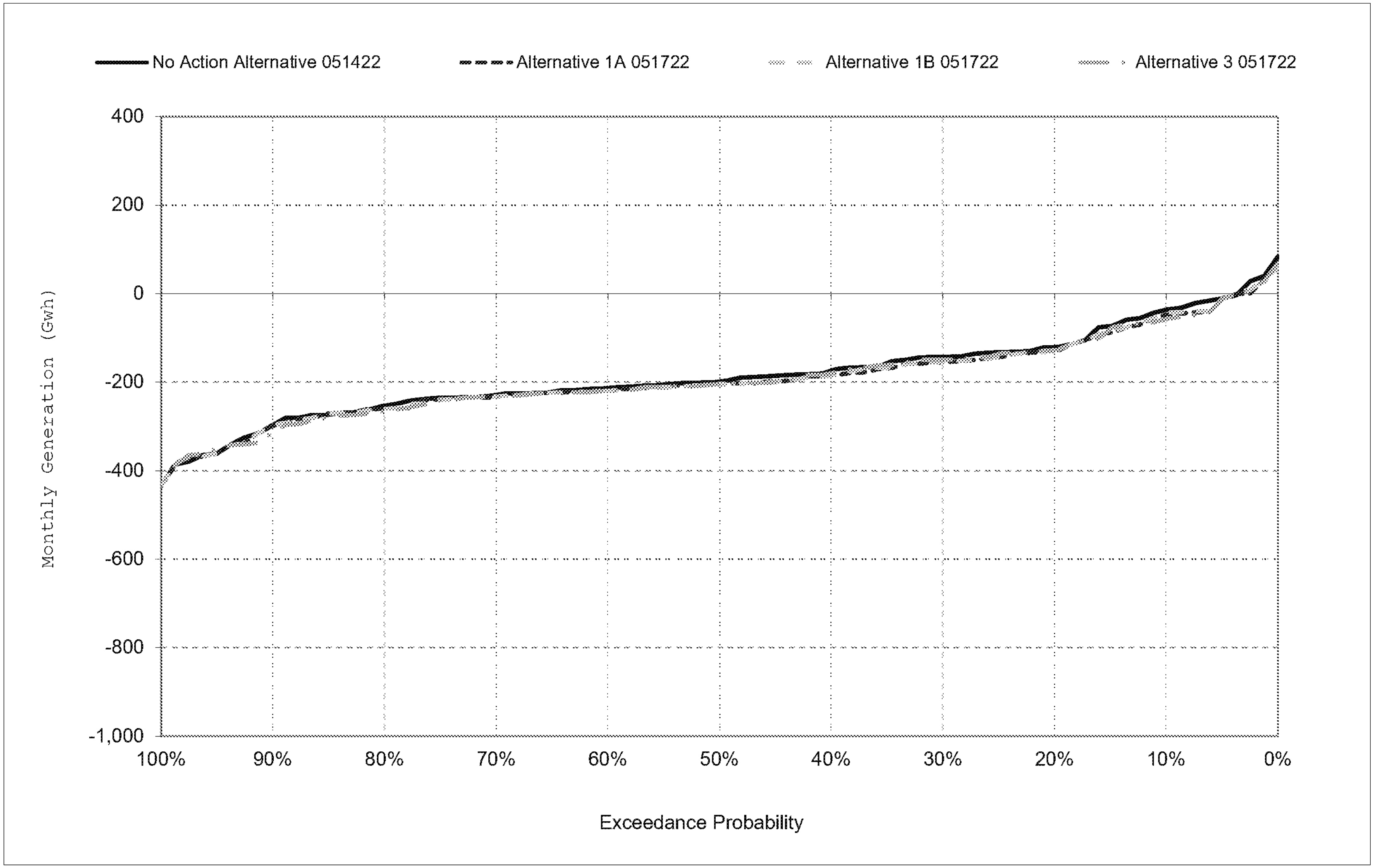
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-14. SWP Facilities Net Generation, May



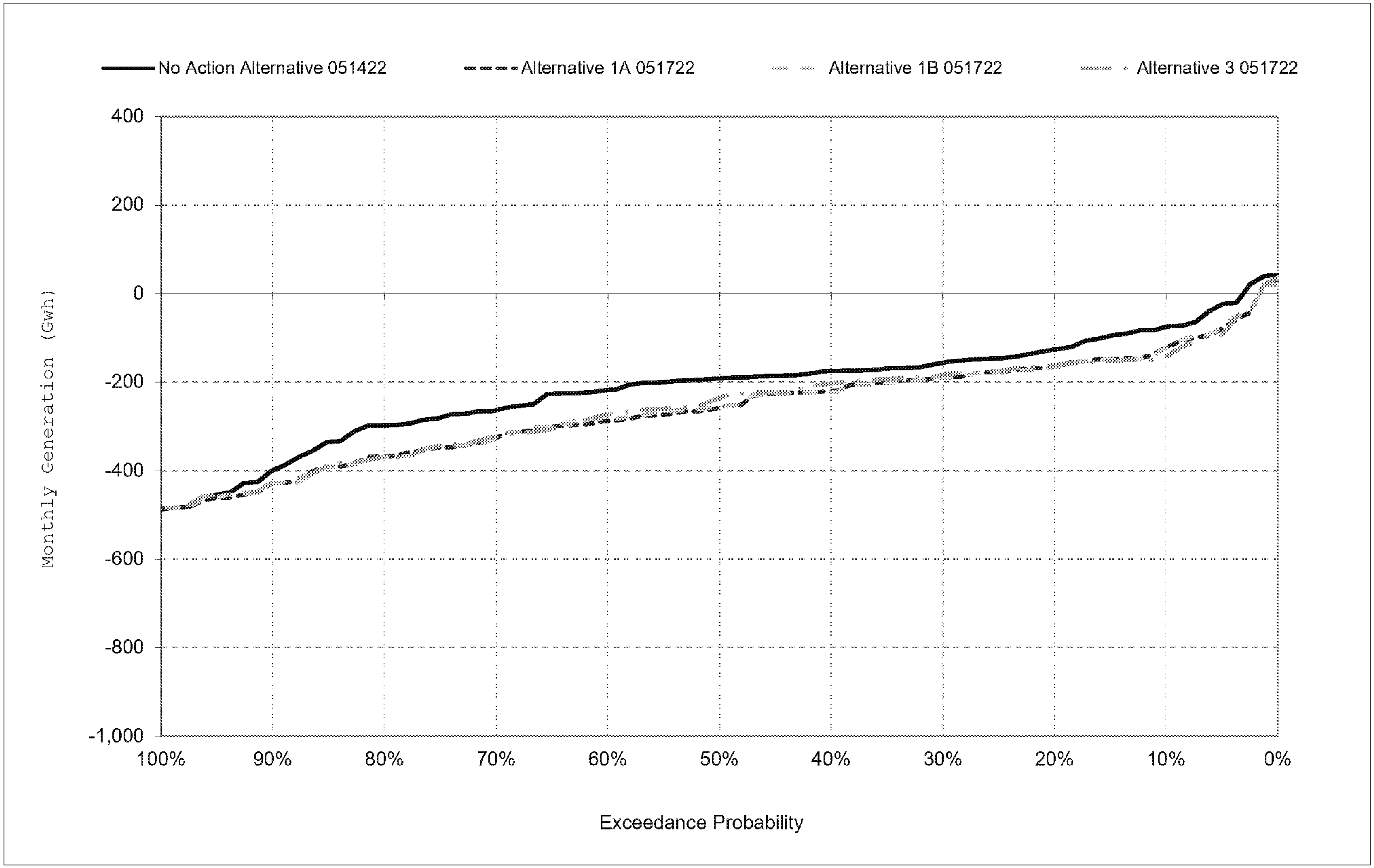
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-15. SWP Facilities Net Generation, June



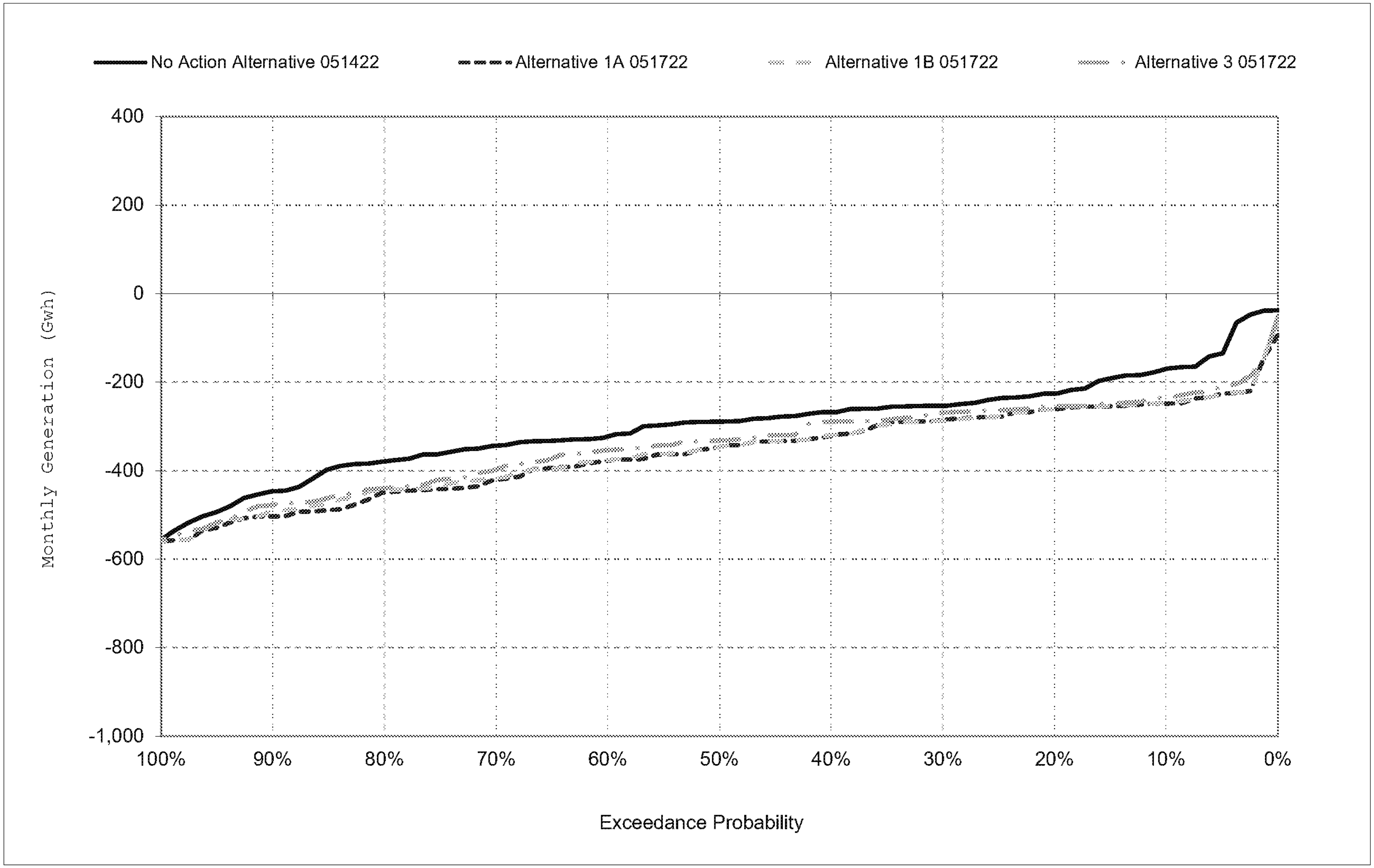
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-16. SWP Facilities Net Generation, July



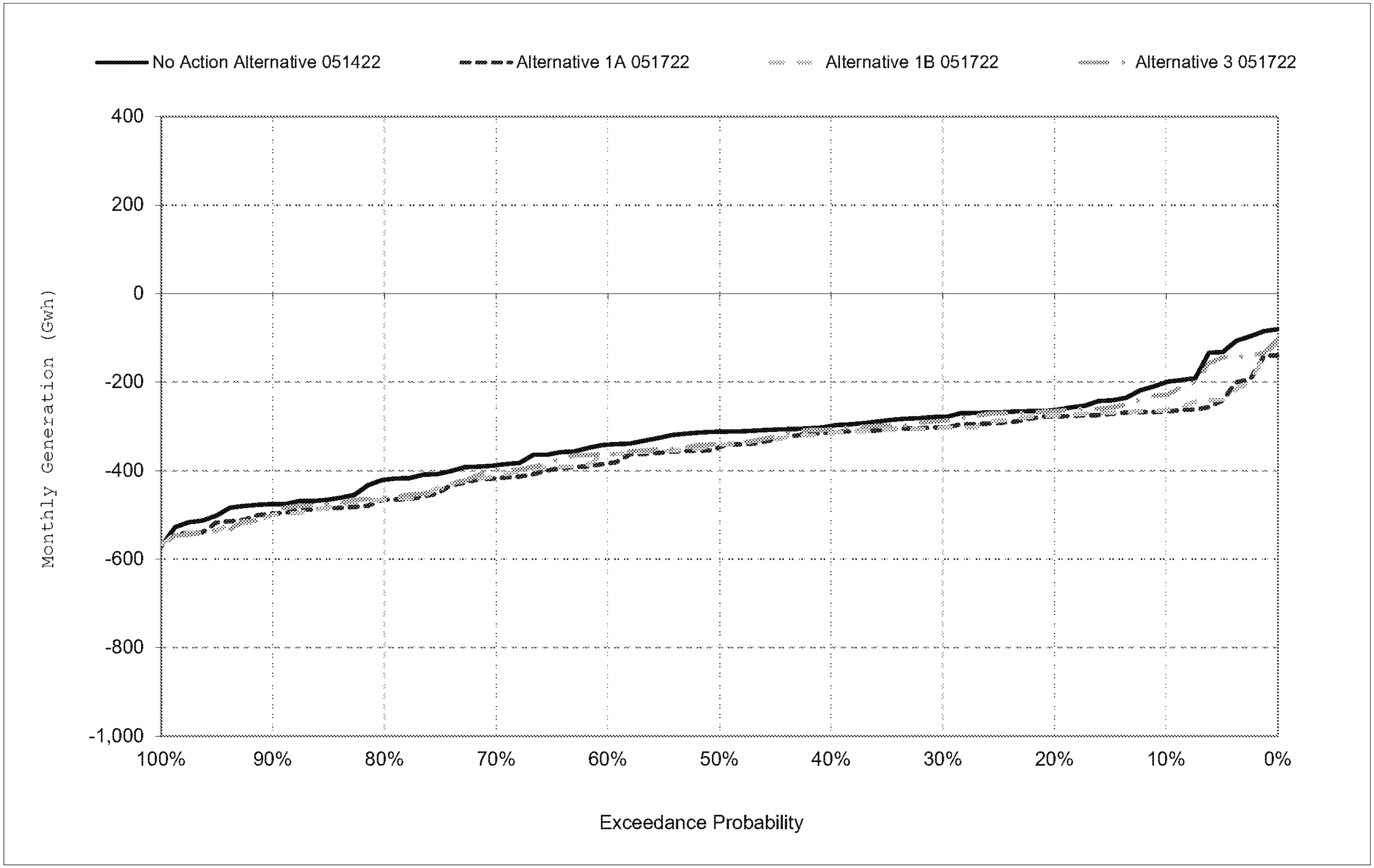
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-17. SWP Facilities Net Generation, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 9-18. SWP Facilities Net Generation, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 10-1a. SWP Facilities Net Revenue, No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-9,308	-8,353	-6,121	-3,283	-3,207	-1,645	-3,233	-1,018	-2,243	-4,212	-9,982	-10,937
20%	-11,878	-11,600	-8,893	-4,520	-4,713	-5,190	-6,313	-3,410	-6,534	-7,114	-12,755	-13,905
30%	-15,507	-13,830	-12,010	-5,847	-6,619	-6,744	-7,306	-6,672	-7,638	-8,733	-14,454	-14,847
40%	-17,148	-17,535	-13,339	-7,560	-8,318	-8,762	-8,395	-8,251	-9,168	-9,844	-15,330	-16,202
50%	-18,472	-18,986	-15,256	-10,887	-10,092	-9,802	-9,919	-9,595	-10,443	-10,789	-16,638	-16,938
60%	-19,352	-20,543	-18,111	-13,118	-12,128	-11,220	-11,308	-11,484	-11,180	-12,240	-18,770	-18,333
70%	-21,962	-21,740	-20,799	-15,628	-14,115	-13,035	-12,466	-12,086	-11,991	-14,808	-19,815	-21,046
80%	-23,813	-22,455	-22,078	-18,143	-18,936	-15,400	-14,423	-12,775	-13,168	-16,606	-22,253	-23,388
90%	-25,028	-25,185	-25,795	-30,672	-24,427	-21,885	-18,253	-14,641	-15,273	-22,368	-26,390	-26,385
Long Term												
Full Simulation Period[d]	-17,728	-17,745	-15,689	-12,493	-11,583	-10,428	-10,493	-8,939	-9,707	-11,959	-17,337	-17,909
Water Year Types[b,c]												
Wet (32%)	-18,927	-19,611	-13,913	-14,565	-12,709	-9,326	-10,728	-8,145	-10,958	-16,506	-21,023	-17,631
Above Normal (15%)	-20,306	-22,403	-19,877	-16,909	-15,255	-12,255	-12,130	-10,603	-12,448	-11,949	-16,951	-16,554
Below Normal (17%)	-24,060	-21,777	-20,128	-15,674	-15,615	-15,642	-13,519	-13,100	-13,214	-13,008	-19,604	-24,865
Dry (22%)	-15,100	-14,828	-14,272	-8,396	-7,990	-9,238	-10,230	-8,396	-6,858	-8,719	-14,750	-18,053
Critical (15%)	-9,104	-8,716	-12,293	-6,026	-6,155	-6,690	-5,210	-4,958	-4,439	-5,752	-10,971	-11,532

Table 10-1b. SWP Facilities Net Revenue, Alternative 1A 051722, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-10,773	-9,002	-6,779	-3,300	-3,394	-1,762	-3,320	-1,150	-2,844	-6,858	-14,339	-13,928
20%	-14,879	-14,507	-9,037	-4,596	-5,042	-5,185	-6,255	-3,437	-6,925	-9,255	-14,963	-15,175
30%	-16,499	-17,544	-12,321	-5,829	-6,852	-6,723	-7,195	-6,567	-8,198	-10,678	-16,593	-16,160
40%	-18,117	-18,777	-13,562	-7,730	-8,861	-8,825	-8,784	-8,252	-9,798	-12,365	-18,660	-17,407
50%	-19,191	-19,847	-15,175	-10,543	-10,197	-9,978	-9,919	-9,604	-10,701	-14,499	-20,088	-18,673
60%	-21,529	-21,455	-17,927	-13,168	-12,014	-11,760	-11,367	-11,435	-11,412	-16,184	-22,450	-20,950
70%	-24,038	-22,291	-20,085	-16,422	-14,000	-13,282	-12,979	-12,057	-12,106	-18,328	-24,901	-22,928
80%	-26,646	-23,525	-22,215	-19,107	-19,264	-15,438	-14,578	-12,795	-13,470	-20,656	-26,651	-25,984
90%	-29,312	-26,572	-25,974	-29,370	-24,162	-22,303	-19,001	-14,705	-15,404	-24,178	-29,899	-27,645
Long Term												
Full Simulation Period[d]	-19,937	-19,111	-15,690	-12,582	-11,640	-10,581	-10,717	-8,748	-10,056	-14,639	-20,993	-19,819
Water Year Types[b,c]												
Wet (32%)	-18,962	-19,599	-14,009	-14,649	-12,904	-9,604	-10,840	-8,134	-10,927	-16,506	-21,002	-17,547
Above Normal (15%)	-20,443	-22,425	-19,872	-17,197	-15,393	-12,674	-13,173	-9,191	-12,438	-11,978	-16,982	-16,563
Below Normal (17%)	-25,923	-24,297	-20,079	-15,711	-15,315	-15,566	-13,666	-13,076	-13,409	-13,620	-20,043	-24,941
Dry (22%)	-21,992	-18,632	-13,975	-8,477	-8,127	-9,246	-10,280	-8,473	-7,977	-15,887	-24,629	-23,109
Critical (15%)	-11,477	-9,408	-12,602	-5,993	-6,130	-6,793	-5,209	-5,002	-4,994	-12,574	-20,635	-17,087

Table 10-1c. SWP Facilities Net Revenue, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1,465	-649	-658	-18	-187	-117	-87	-132	-601	-2,646	-4,357	-2,991
20%	-3,001	-2,906	-144	-75	-329	5	58	-27	-391	-2,141	-2,208	-1,269
30%	-993	-3,714	-311	18	-234	21	110	105	-560	-1,945	-2,139	-1,313
40%	-969	-1,242	-223	-170	-543	-63	-389	-1	-630	-2,521	-3,330	-1,205
50%	-719	-861	81	344	-105	-176	0	-9	-258	-3,710	-3,450	-1,735
60%	-2,178	-912	183	-49	114	-541	-59	50	-232	-3,944	-3,680	-2,617
70%	-2,076	-551	714	-794	114	-247	-513	29	-114	-3,519	-5,085	-1,883
80%	-2,833	-1,070	-137	-965	-328	-39	-156	-20	-302	-4,050	-4,398	-2,597
90%	-4,284	-1,386	-179	1,301	266	-418	-748	-64	-131	-1,810	-3,509	-1,260
Long Term												
Full Simulation Period[d]	-2,209	-1,366	-1	-88	-57	-153	-224	191	-349	-2,680	-3,656	-1,910
Water Year Types[b,c]												
Wet (32%)	-35	12	-96	-85	-195	-278	-112	11	30	1	21	84
Above Normal (15%)	-137	-21	6	-288	-137	-419	-1,043	1,412	11	-29	-31	-9
Below Normal (17%)	-1,863	-2,520	49	-38	300	76	-147	24	-195	-611	-440	-76
Dry (22%)	-6,892	-3,803	297	-81	-137	-8	-50	-77	-1,118	-7,168	-9,879	-5,056
Critical (15%)	-2,373	-691	-308	33	24	-102	1	-44	-556	-6,822	-9,664	-5,554

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 10-2a. SWP Facilities Net Revenue, No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-9,308	-8,353	-6,121	-3,283	-3,207	-1,645	-3,233	-1,018	-2,243	-4,212	-9,982	-10,937
20%	-11,878	-11,600	-8,893	-4,520	-4,713	-5,190	-6,313	-3,410	-6,534	-7,114	-12,755	-13,905
30%	-15,507	-13,830	-12,010	-5,847	-6,619	-6,744	-7,306	-6,672	-7,638	-8,733	-14,454	-14,847
40%	-17,148	-17,535	-13,339	-7,560	-8,318	-8,762	-8,395	-8,251	-9,168	-9,844	-15,330	-16,202
50%	-18,472	-18,986	-15,256	-10,887	-10,092	-9,802	-9,919	-9,595	-10,443	-10,789	-16,638	-16,938
60%	-19,352	-20,543	-18,111	-13,118	-12,128	-11,220	-11,308	-11,484	-11,180	-12,240	-18,770	-18,333
70%	-21,962	-21,740	-20,799	-15,628	-14,115	-13,035	-12,466	-12,086	-11,991	-14,808	-19,815	-21,046
80%	-23,813	-22,455	-22,078	-18,143	-18,936	-15,400	-14,423	-12,775	-13,168	-16,606	-22,253	-23,388
90%	-25,028	-25,185	-25,795	-30,672	-24,427	-21,885	-18,253	-14,641	-15,273	-22,368	-26,390	-26,385
Long Term												
Full Simulation Period[a]	-17,728	-17,745	-15,689	-12,493	-11,583	-10,428	-10,493	-8,939	-9,707	-11,959	-17,337	-17,909
Water Year Types[b,c]												
Wet (32%)	-18,927	-19,611	-13,913	-14,565	-12,709	-9,326	-10,728	-8,145	-10,958	-16,506	-21,023	-17,631
Above Normal (15%)	-20,306	-22,403	-19,877	-16,909	-15,255	-12,255	-12,130	-10,603	-12,448	-11,949	-16,951	-16,554
Below Normal (17%)	-24,060	-21,777	-20,128	-15,674	-15,615	-15,642	-13,519	-13,100	-13,214	-13,008	-19,604	-24,865
Dry (22%)	-15,100	-14,828	-14,272	-8,396	-7,990	-9,238	-10,230	-8,396	-6,858	-8,719	-14,750	-18,053
Critical (15%)	-9,104	-8,716	-12,293	-6,026	-6,155	-6,690	-5,210	-4,958	-4,439	-5,752	-10,971	-11,532

Table 10-2b. SWP Facilities Net Revenue, Alternative 1B 051722, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-11,277	-8,531	-6,406	-2,852	-3,423	-1,772	-3,288	-818	-2,627	-6,859	-14,338	-13,716
20%	-14,099	-13,817	-8,625	-4,584	-4,968	-5,103	-6,320	-3,683	-6,922	-9,264	-14,893	-14,890
30%	-16,601	-17,371	-11,644	-5,595	-6,332	-6,739	-7,195	-6,600	-8,126	-10,660	-16,616	-16,156
40%	-18,319	-18,798	-13,370	-7,549	-8,544	-8,595	-8,414	-8,232	-9,788	-12,472	-18,617	-17,249
50%	-19,363	-19,991	-15,089	-9,826	-10,123	-9,616	-9,915	-9,733	-10,771	-14,365	-20,108	-18,170
60%	-21,344	-21,625	-18,091	-13,451	-12,064	-11,071	-11,385	-11,441	-11,473	-15,978	-22,323	-20,122
70%	-23,973	-22,450	-19,982	-16,433	-14,196	-13,156	-12,978	-12,120	-12,088	-18,336	-24,617	-22,415
80%	-26,550	-23,588	-22,069	-19,102	-19,519	-15,892	-14,567	-12,834	-13,471	-20,823	-26,314	-25,919
90%	-29,327	-26,257	-26,036	-29,337	-24,261	-22,273	-18,972	-14,722	-15,235	-24,227	-29,069	-27,655
Long Term												
Full Simulation Period[a]	-19,950	-19,000	-15,501	-12,353	-11,646	-10,491	-10,709	-8,768	-10,047	-14,597	-20,785	-19,672
Water Year Types[b,c]												
Wet (32%)	-19,010	-19,617	-14,109	-13,821	-12,795	-9,331	-10,834	-8,147	-10,936	-16,512	-20,940	-17,405
Above Normal (15%)	-20,567	-22,498	-19,935	-17,190	-15,379	-12,528	-13,161	-9,107	-12,511	-12,005	-17,016	-16,505
Below Normal (17%)	-25,741	-24,535	-19,888	-16,061	-15,736	-15,766	-13,466	-13,038	-13,336	-13,499	-19,922	-24,719
Dry (22%)	-22,227	-17,770	-13,075	-8,348	-7,986	-9,255	-10,417	-8,625	-7,957	-15,699	-23,990	-23,075
Critical (15%)	-11,198	-9,553	-12,606	-6,013	-6,140	-6,666	-5,204	-5,007	-4,955	-12,669	-20,418	-16,762

Table 10-2c. SWP Facilities Net Revenue, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1,969	-177	-285	431	-216	-127	-55	200	-384	-2,648	-4,357	-2,778
20%	-2,221	-2,217	267	-64	-255	87	-7	-273	-388	-2,150	-2,138	-985
30%	-1,094	-3,541	366	251	286	6	111	72	-488	-1,927	-2,162	-1,309
40%	-1,170	-1,263	-30	12	-226	167	-19	18	-621	-2,628	-3,287	-1,047
50%	-891	-1,005	167	1,061	-31	186	4	-138	-328	-3,575	-3,469	-1,233
60%	-1,992	-1,082	20	-333	65	149	-77	44	-293	-3,739	-3,553	-1,789
70%	-2,011	-710	817	-804	-81	-120	-512	-34	-96	-3,527	-4,802	-1,369
80%	-2,738	-1,133	9	-959	-583	-492	-144	-59	-303	-4,217	-4,061	-2,531
90%	-4,299	-1,071	-241	1,335	166	-388	-719	-81	38	-1,859	-2,679	-1,270
Long Term												
Full Simulation Period[a]	-2,222	-1,255	187	141	-63	-63	-216	171	-340	-2,638	-3,448	-1,764
Water Year Types[b,c]												
Wet (32%)	-82	-6	-196	743	-86	-5	-107	-3	22	-5	83	226
Above Normal (15%)	-261	-94	-58	-282	-123	-273	-1,031	1,495	-63	-55	-66	49
Below Normal (17%)	-1,680	-2,758	241	-387	-121	-124	53	63	-122	-491	-319	147
Dry (22%)	-7,127	-2,941	1,197	48	3	-16	-187	-229	-1,099	-6,980	-9,239	-5,022
Critical (15%)	-2,095	-837	-313	13	15	24	6	-49	-516	-6,917	-9,447	-5,229

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 10-3a. SWP Facilities Net Revenue, No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-9,308	-8,353	-6,121	-3,283	-3,207	-1,645	-3,233	-1,018	-2,243	-4,212	-9,982	-10,937
20%	-11,878	-11,600	-8,893	-4,520	-4,713	-5,190	-6,313	-3,410	-6,534	-7,114	-12,755	-13,905
30%	-15,507	-13,830	-12,010	-5,847	-6,619	-6,744	-7,306	-6,672	-7,638	-8,733	-14,454	-14,847
40%	-17,148	-17,535	-13,339	-7,560	-8,318	-8,762	-8,395	-8,251	-9,168	-9,844	-15,330	-16,202
50%	-18,472	-18,986	-15,256	-10,887	-10,092	-9,802	-9,919	-9,595	-10,443	-10,789	-16,638	-16,938
60%	-19,352	-20,543	-18,111	-13,118	-12,128	-11,220	-11,308	-11,484	-11,180	-12,240	-18,770	-18,333
70%	-21,962	-21,740	-20,799	-15,628	-14,115	-13,035	-12,466	-12,086	-11,991	-14,808	-19,815	-21,046
80%	-23,813	-22,455	-22,078	-18,143	-18,936	-15,400	-14,423	-12,775	-13,168	-16,606	-22,253	-23,388
90%	-25,028	-25,185	-25,795	-30,672	-24,427	-21,885	-18,253	-14,641	-15,273	-22,368	-26,390	-26,385
Long Term												
Full Simulation Period[d]	-17,728	-17,745	-15,689	-12,493	-11,583	-10,428	-10,493	-8,939	-9,707	-11,959	-17,337	-17,909
Water Year Types[b,c]												
Wet (32%)	-18,927	-19,611	-13,913	-14,565	-12,709	-9,326	-10,728	-8,145	-10,958	-16,506	-21,023	-17,631
Above Normal (15%)	-20,306	-22,403	-19,877	-16,909	-15,255	-12,255	-12,130	-10,603	-12,448	-11,949	-16,951	-16,554
Below Normal (17%)	-24,060	-21,777	-20,128	-15,674	-15,615	-15,642	-13,519	-13,100	-13,214	-13,008	-19,604	-24,865
Dry (22%)	-15,100	-14,828	-14,272	-8,396	-7,990	-9,238	-10,230	-8,396	-6,858	-8,719	-14,750	-18,053
Critical (15%)	-9,104	-8,716	-12,293	-6,026	-6,155	-6,690	-5,210	-4,958	-4,439	-5,752	-10,971	-11,532

Table 10-3b. SWP Facilities Net Revenue, Alternative 3 051722, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-11,220	-8,375	-5,888	-2,811	-3,327	-1,710	-3,609	-1,214	-2,964	-7,986	-13,484	-12,286
20%	-13,914	-12,545	-8,659	-4,598	-4,976	-5,402	-6,325	-3,662	-6,741	-9,077	-14,609	-13,953
30%	-16,491	-17,392	-11,967	-5,980	-6,753	-7,197	-7,131	-6,407	-7,839	-10,313	-15,717	-15,126
40%	-18,063	-18,724	-13,425	-6,834	-8,569	-8,490	-8,303	-8,236	-9,471	-11,421	-16,651	-16,569
50%	-19,060	-19,987	-15,233	-9,608	-10,212	-9,419	-10,041	-9,893	-10,729	-13,232	-19,211	-18,159
60%	-21,062	-21,093	-17,978	-12,980	-11,514	-10,691	-11,282	-11,448	-11,464	-15,397	-20,550	-19,866
70%	-22,837	-22,154	-20,097	-15,897	-13,077	-13,392	-12,845	-12,127	-12,030	-18,181	-23,590	-21,633
80%	-25,928	-23,393	-22,311	-19,084	-18,792	-16,528	-14,209	-12,963	-13,804	-20,877	-25,962	-25,451
90%	-28,074	-25,688	-25,366	-30,538	-23,517	-22,781	-18,193	-15,278	-16,133	-23,857	-28,094	-27,769
Long Term												
Full Simulation Period[d]	-19,431	-18,705	-15,606	-12,170	-11,456	-10,665	-10,473	-9,032	-10,069	-14,431	-19,951	-18,955
Water Year Types[b,c]												
Wet (32%)	-19,083	-19,652	-14,142	-13,468	-12,296	-9,503	-10,800	-8,166	-10,968	-16,567	-20,979	-17,487
Above Normal (15%)	-20,768	-22,706	-19,929	-16,947	-15,133	-12,555	-11,554	-10,505	-12,633	-12,182	-16,925	-16,489
Below Normal (17%)	-25,284	-24,149	-20,121	-16,013	-15,304	-15,923	-13,428	-13,077	-13,361	-12,954	-19,492	-23,965
Dry (22%)	-20,013	-16,721	-13,428	-8,328	-7,983	-9,200	-10,400	-8,813	-7,926	-15,203	-22,017	-22,444
Critical (15%)	-11,144	-9,278	-12,457	-5,859	-6,676	-7,357	-5,345	-5,045	-4,929	-12,620	-18,185	-13,526

Table 10-3c. SWP Facilities Net Revenue, Alternative 3 051722 minus No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1,912	-22	233	472	-120	-66	-376	-196	-721	-3,774	-3,502	-1,349
20%	-2,036	-945	234	-78	-263	-212	-12	-252	-207	-1,963	-1,855	-48
30%	-984	-3,562	43	-134	-134	-453	175	265	-200	-1,579	-1,264	-279
40%	-914	-1,188	-86	726	-250	273	92	15	-304	-1,576	-1,321	-367
50%	-588	-1,001	23	1,280	-120	384	-122	-298	-286	-2,443	-2,572	-1,221
60%	-1,711	-549	132	138	615	529	25	36	-284	-3,157	-1,781	-1,533
70%	-875	-414	702	-268	1,038	-356	-379	-41	-38	-3,373	-3,775	-587
80%	-2,115	-938	-233	-941	143	-1,128	213	-188	-636	-4,271	-3,709	-2,064
90%	-3,046	-503	429	134	911	-896	60	-637	-860	-1,489	-1,704	-1,384
Long Term												
Full Simulation Period[d]	-1,703	-960	82	324	127	-237	20	-93	-362	-2,472	-2,614	-1,047
Water Year Types[b,c]												
Wet (32%)	-156	-42	-230	1,096	413	-177	-73	-22	-11	-60	43	144
Above Normal (15%)	-462	-303	-51	-38	122	-299	575	98	-185	-232	26	65
Below Normal (17%)	-1,224	-2,372	7	-339	311	-281	91	23	-147	55	112	900
Dry (22%)	-4,913	-1,892	844	68	7	39	-170	-417	-1,067	-6,484	-7,266	-4,391
Critical (15%)	-2,040	-562	-163	167	-522	-666	-135	-86	-490	-6,868	-7,213	-1,994

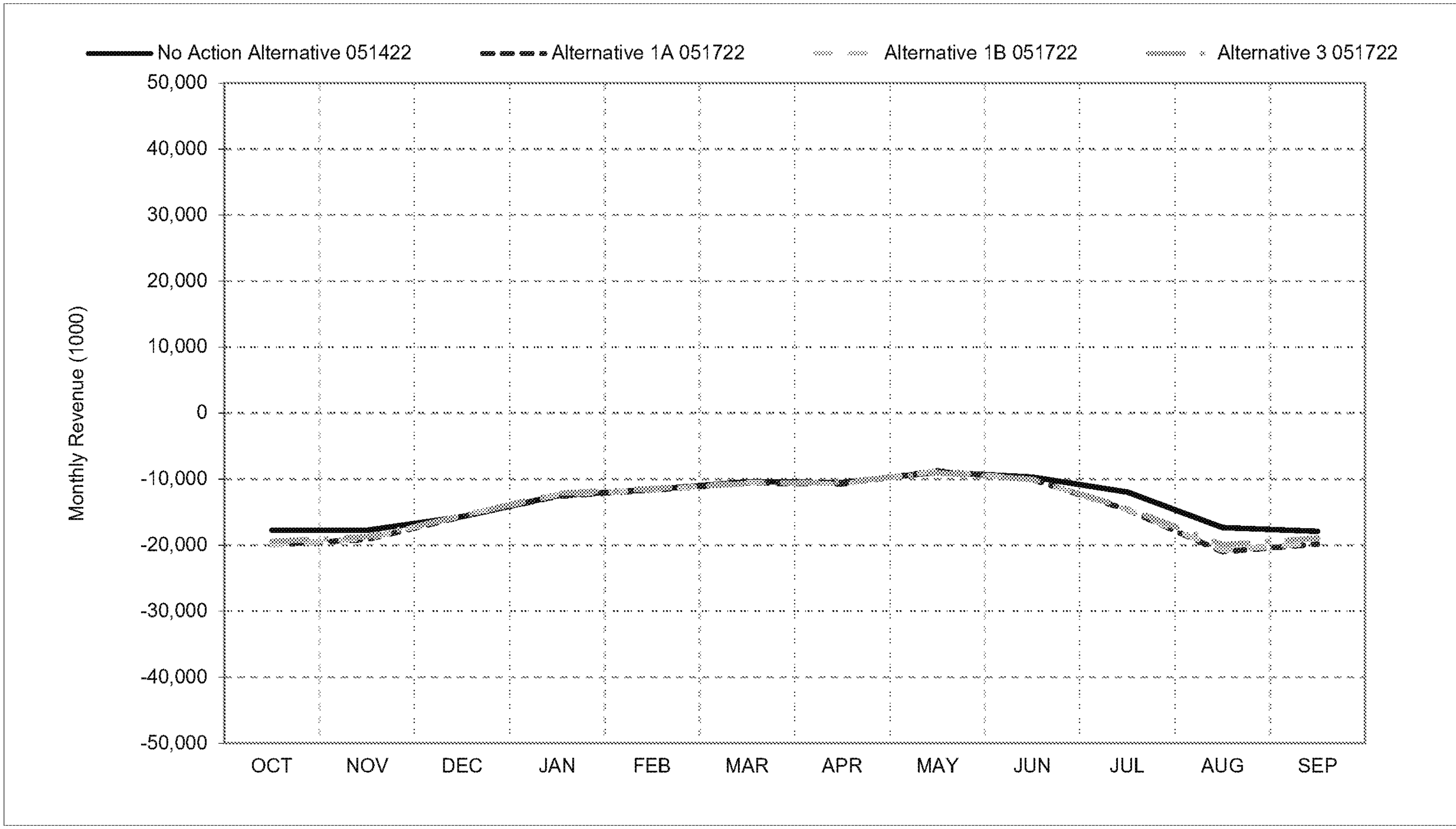
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

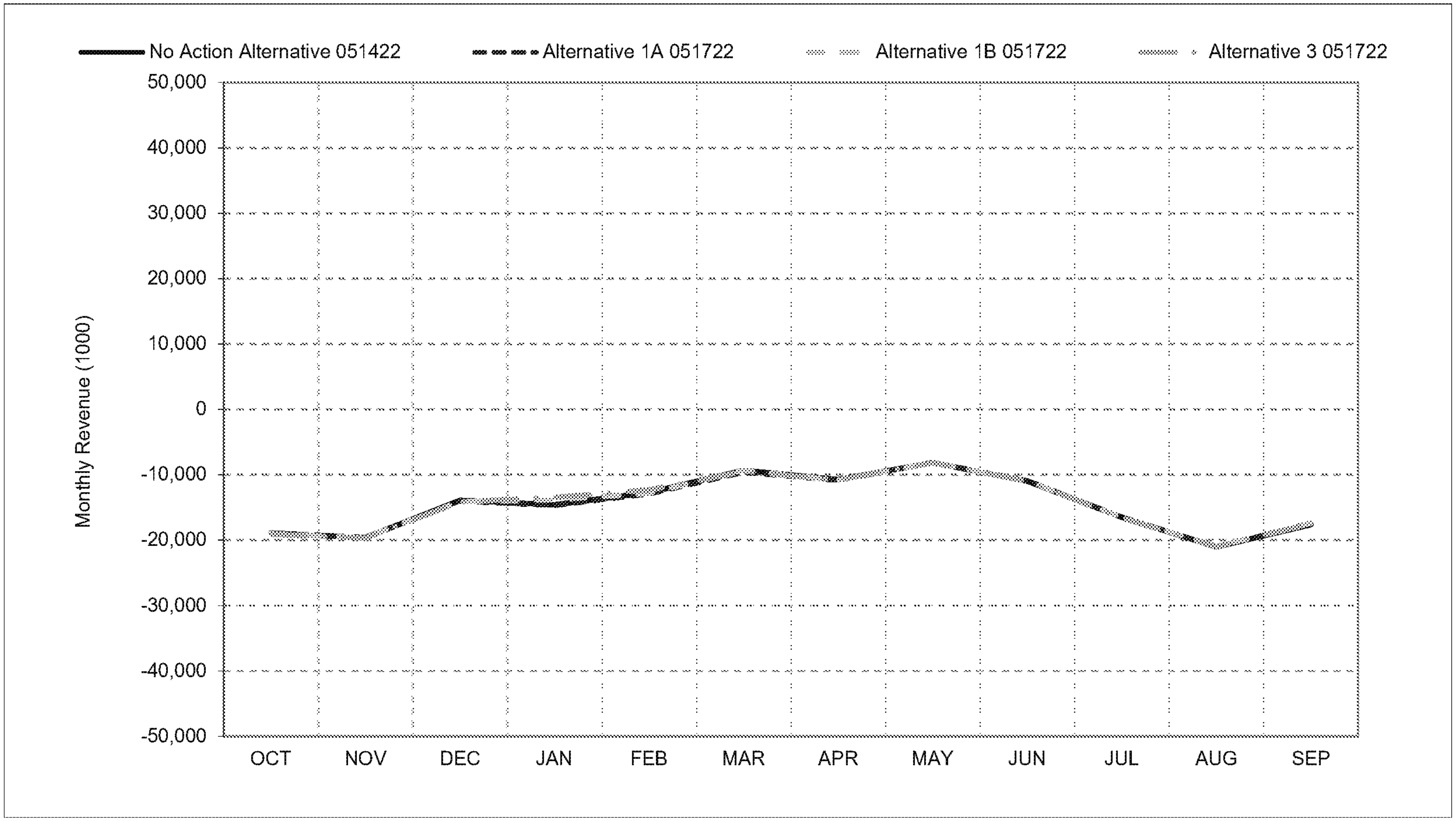
d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-1. SWP Facilities Net Revenue, Long-Term Average Revenue



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-2. SWP Facilities Net Revenue, Wet Year Average Revenue

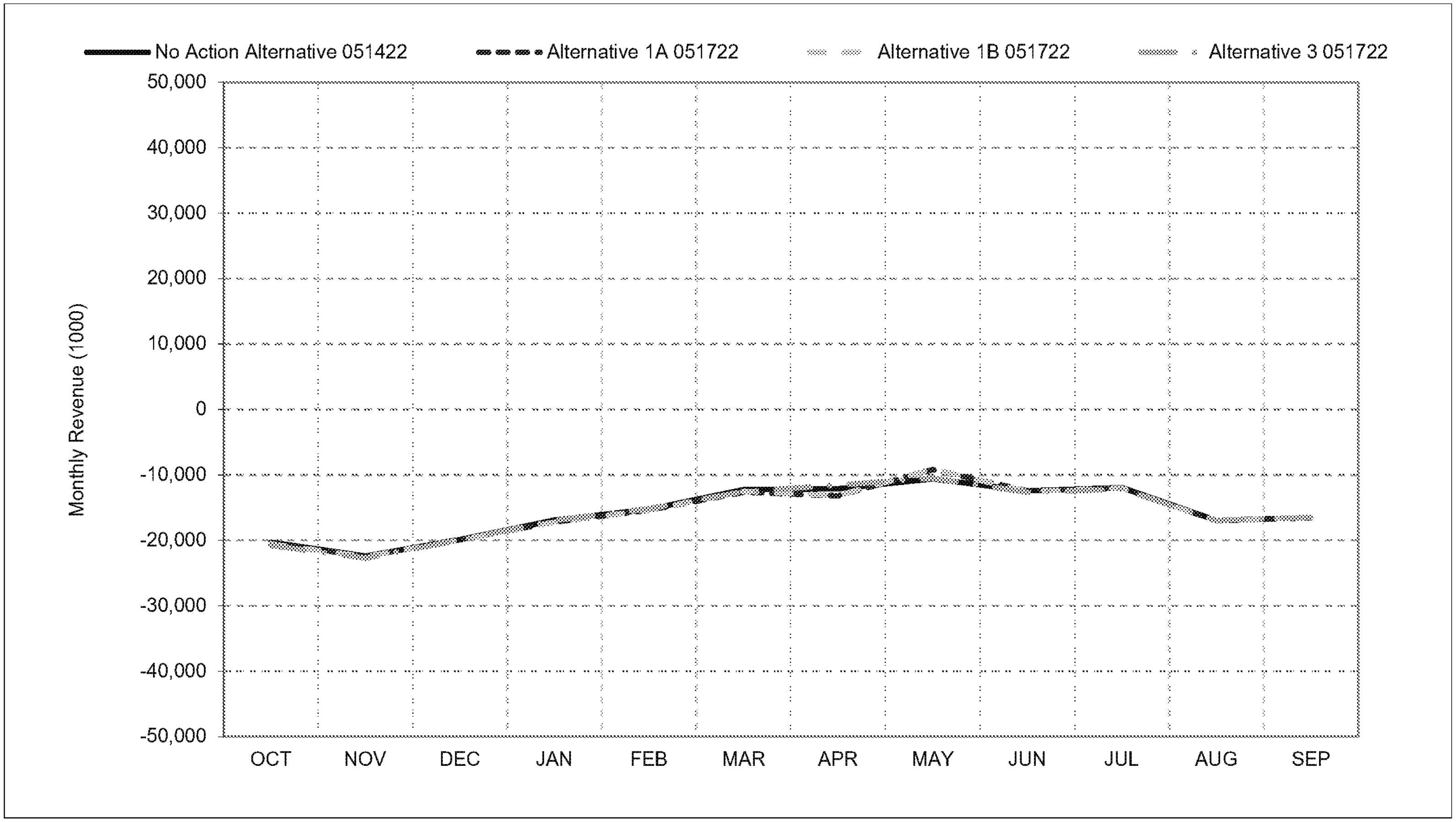


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

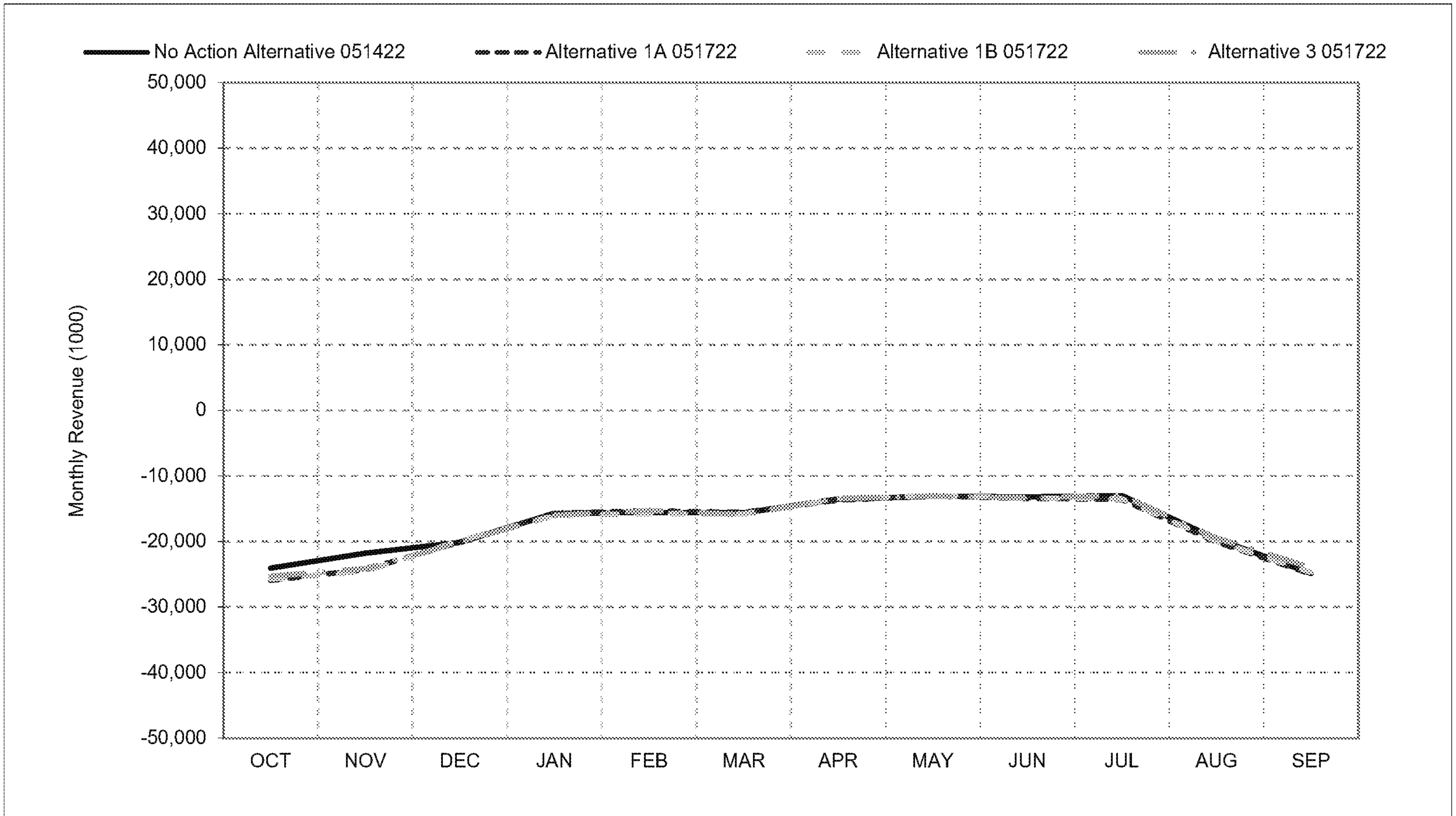
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-3. SWP Facilities Net Revenue, Above Normal Year Average Revenue



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-4. SWP Facilities Net Revenue, Below Normal Year Average Revenue

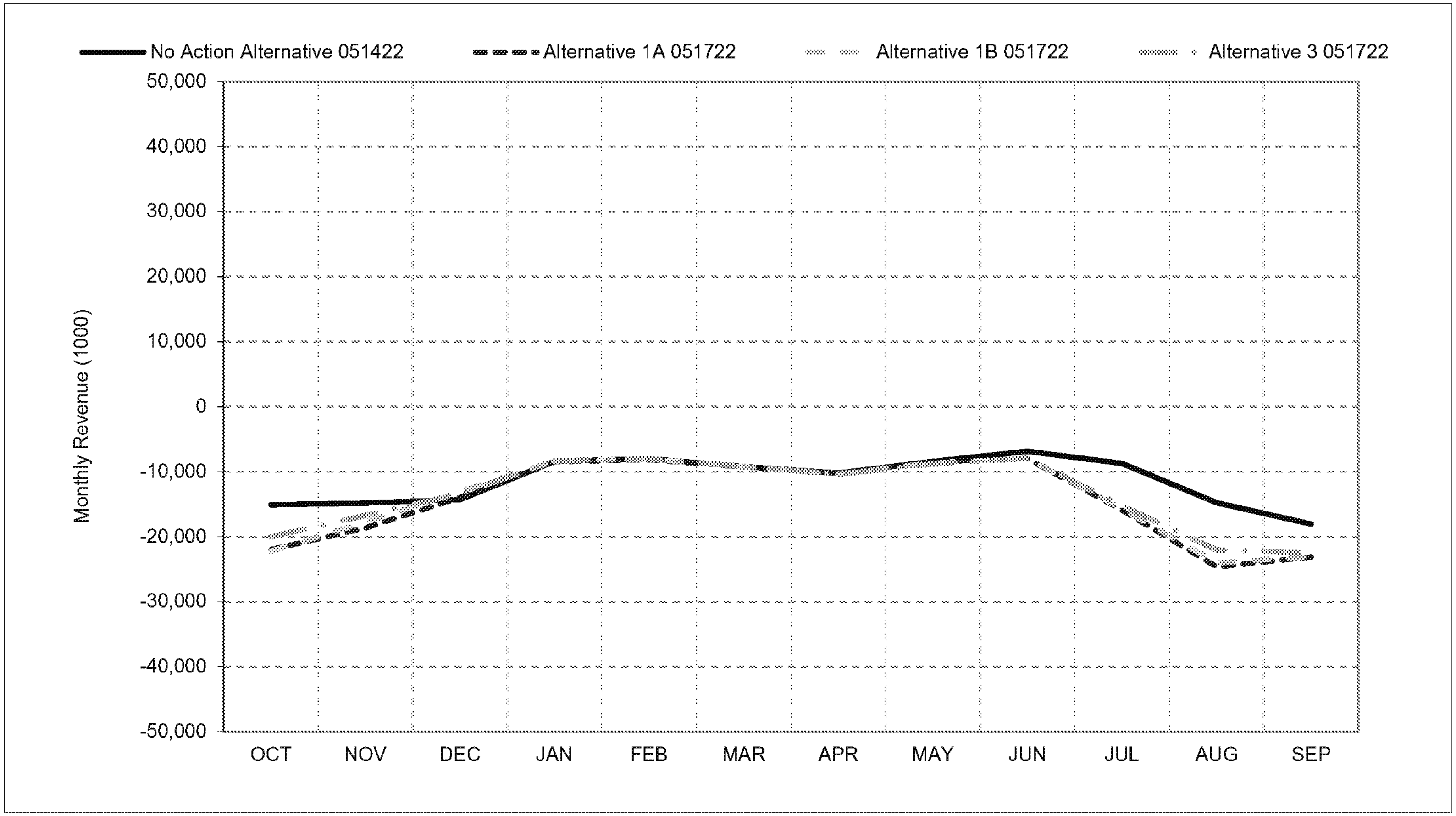


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

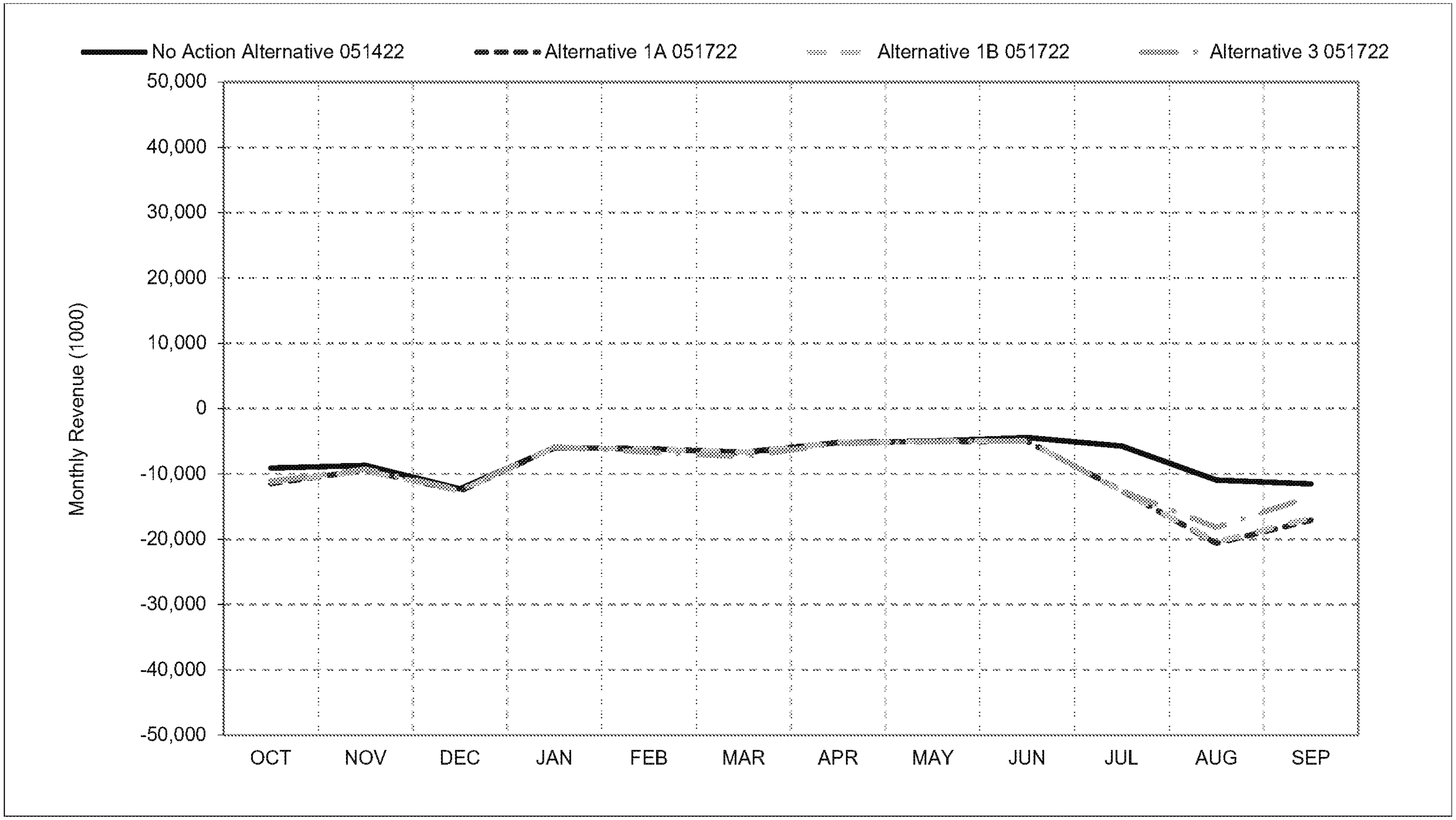
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-5. SWP Facilities Net Revenue, Dry Year Average Revenue



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-6. SWP Facilities Net Revenue, Critical Year Average Revenue

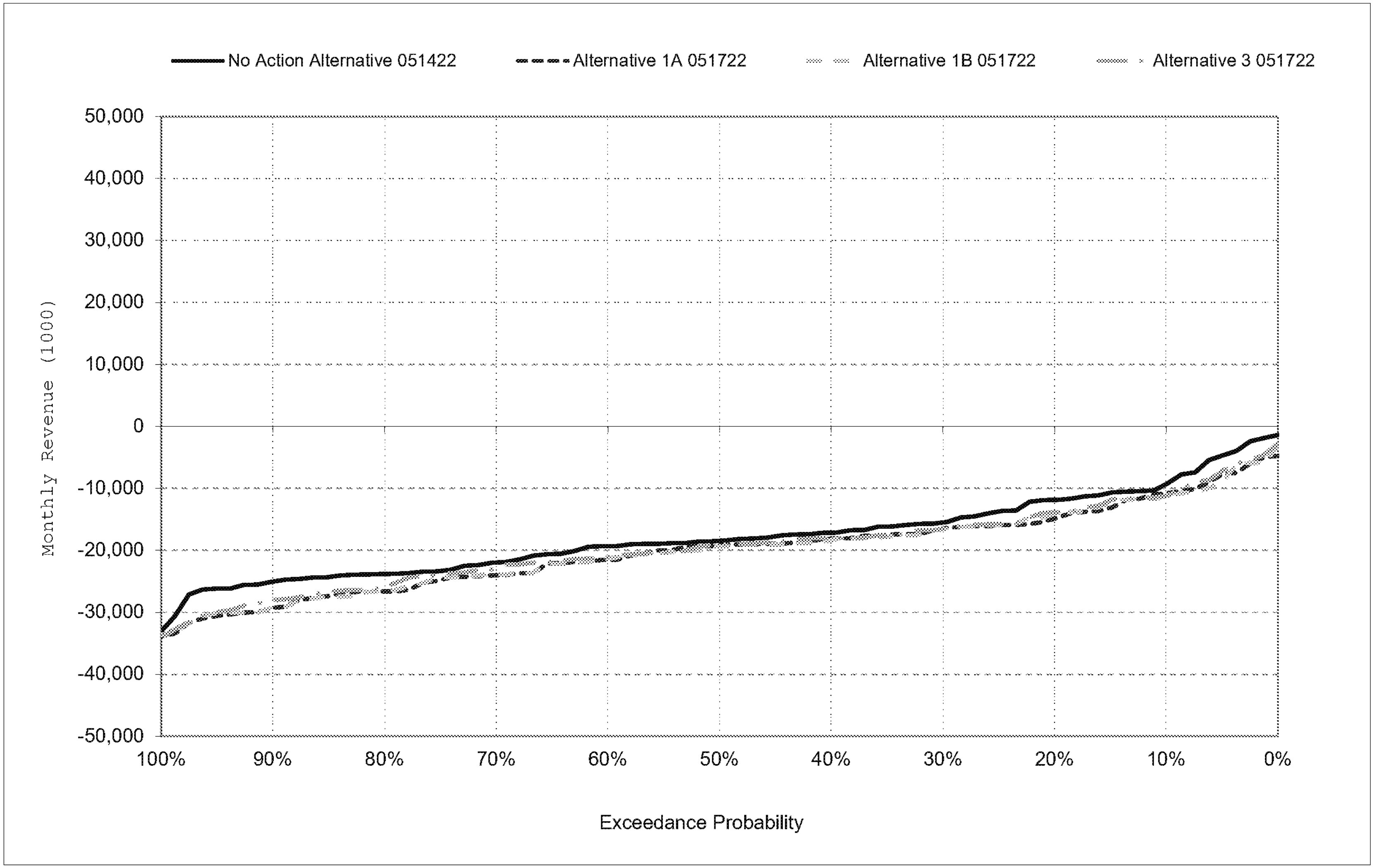


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

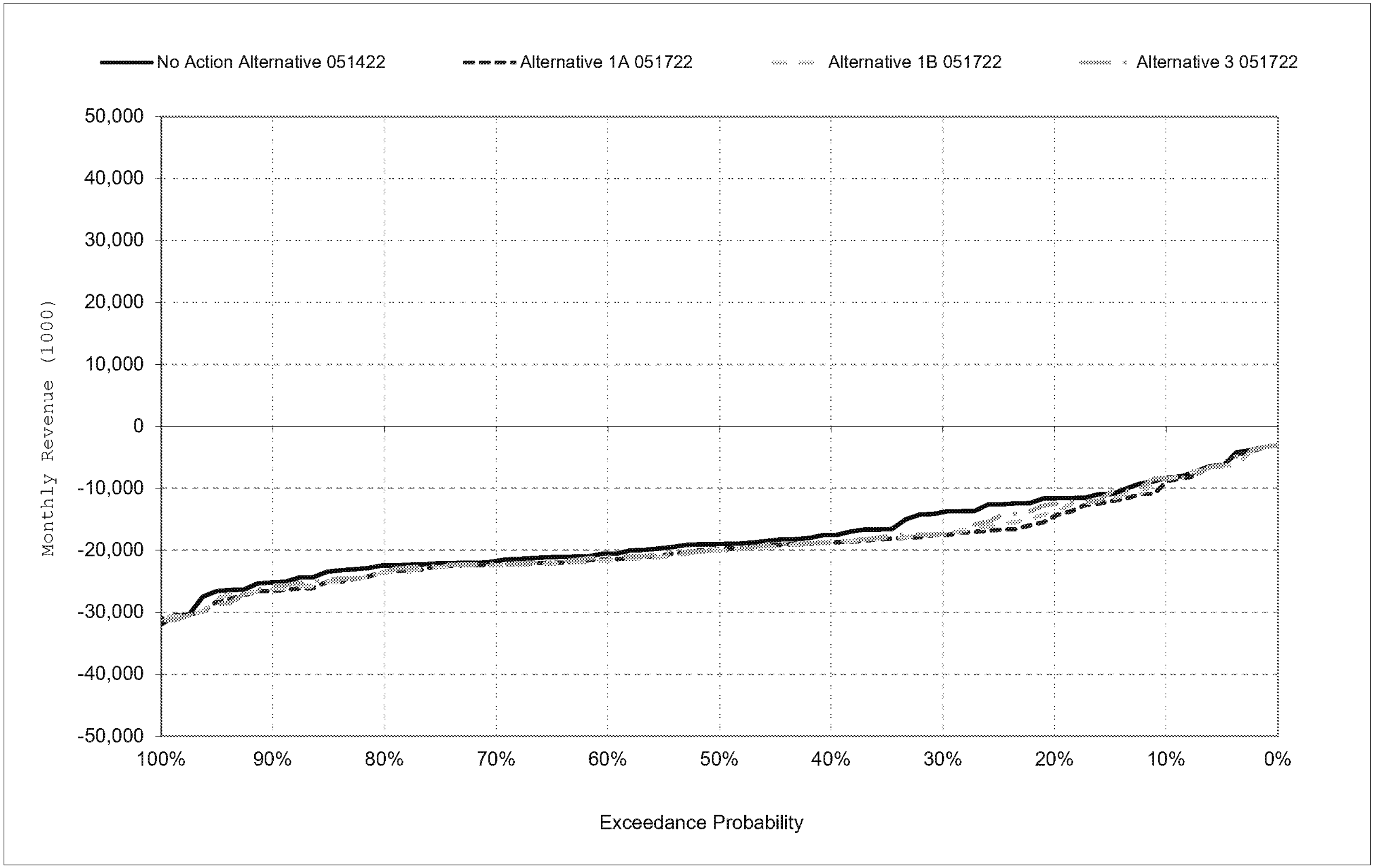
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-7. SWP Facilities Net Revenue, October



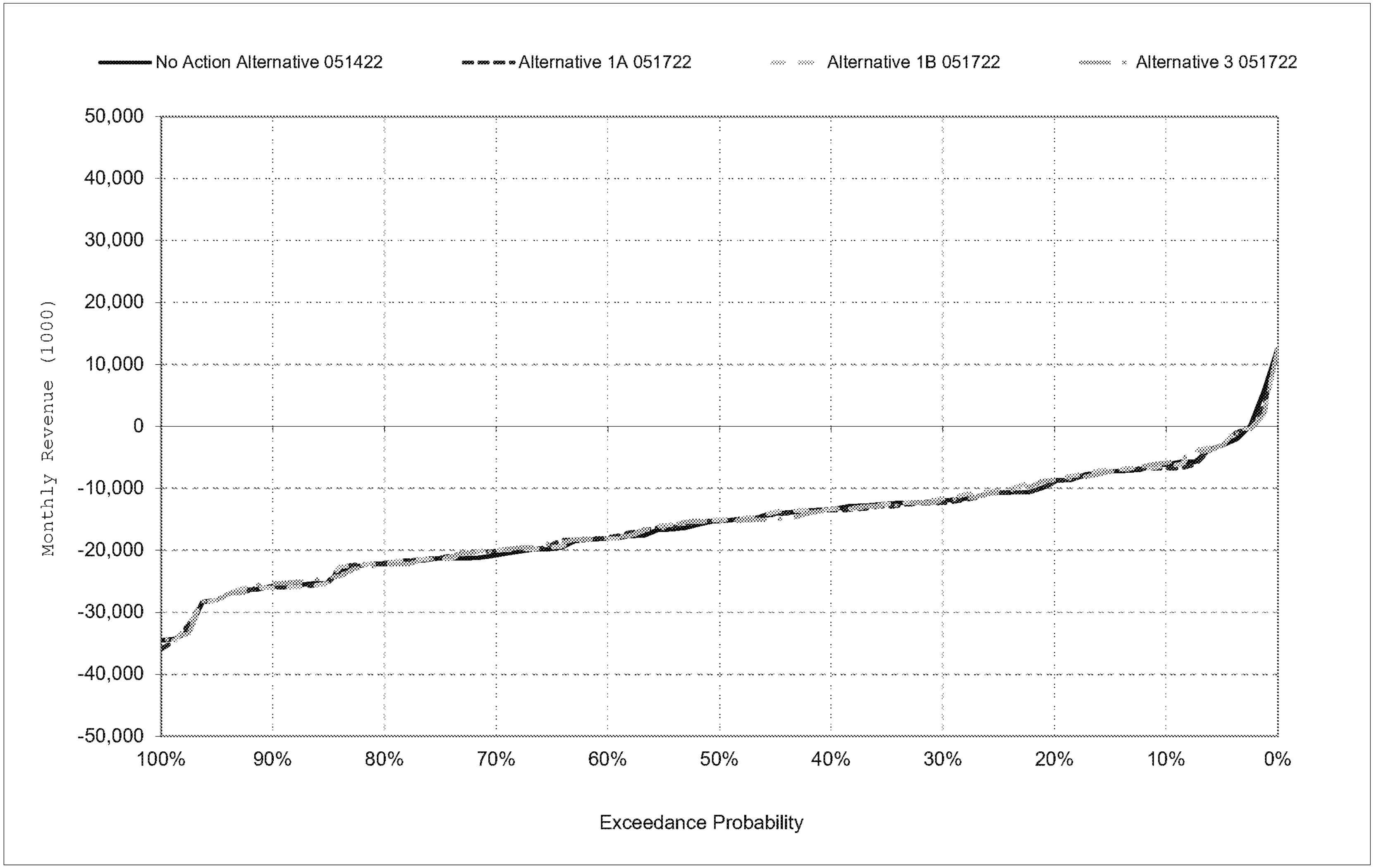
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-8. SWP Facilities Net Revenue, November



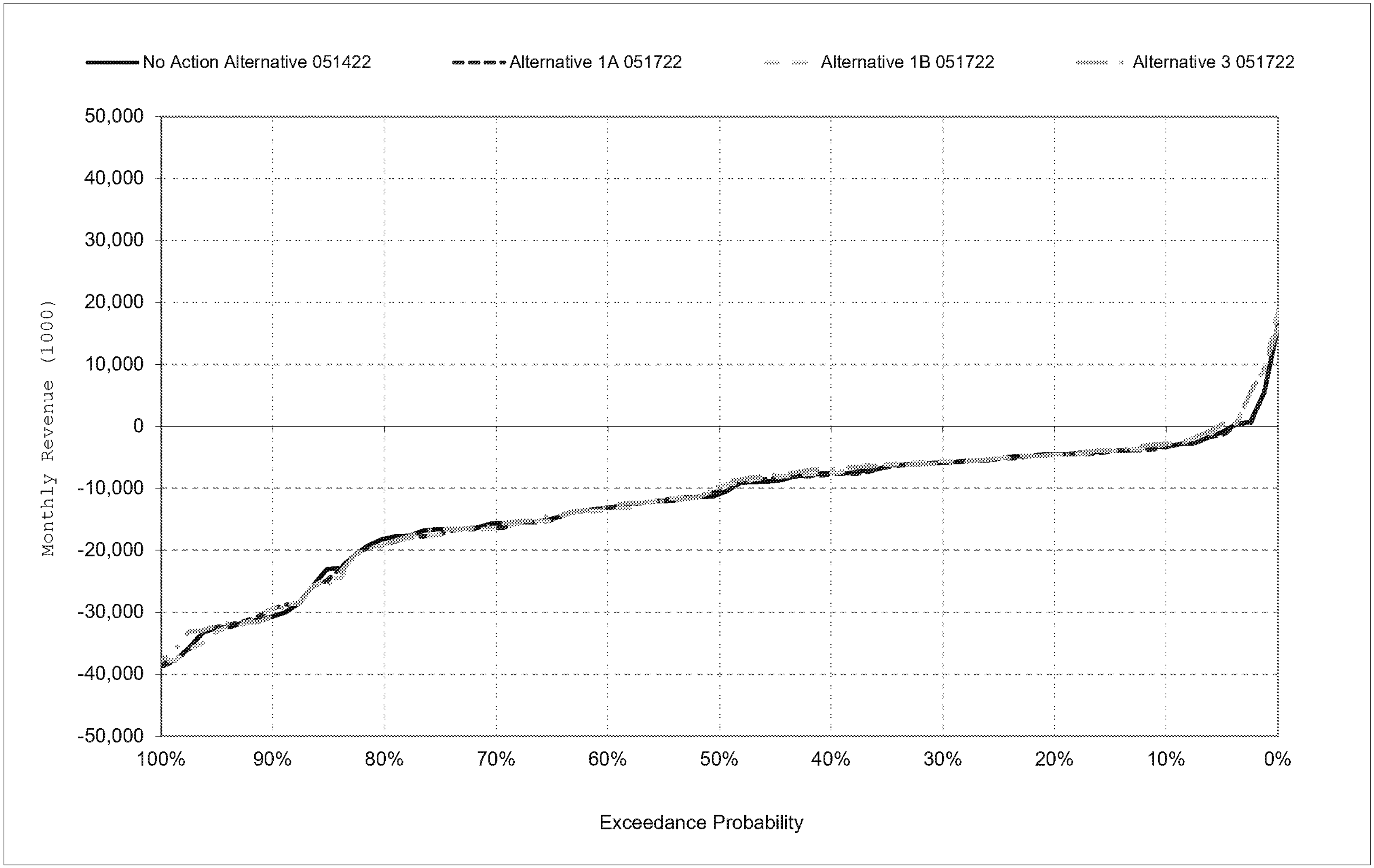
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-9. SWP Facilities Net Revenue, December



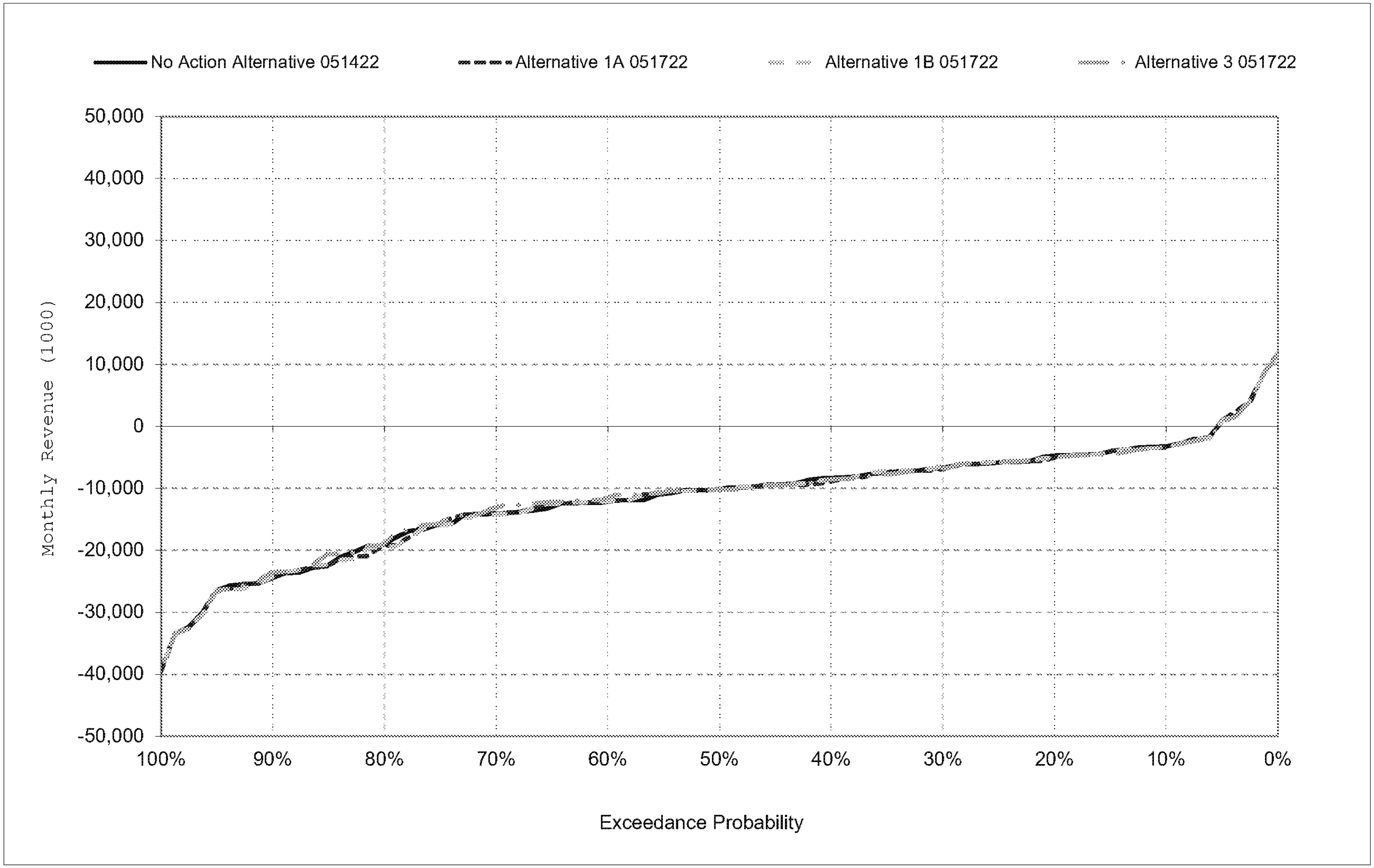
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-10. SWP Facilities Net Revenue, January



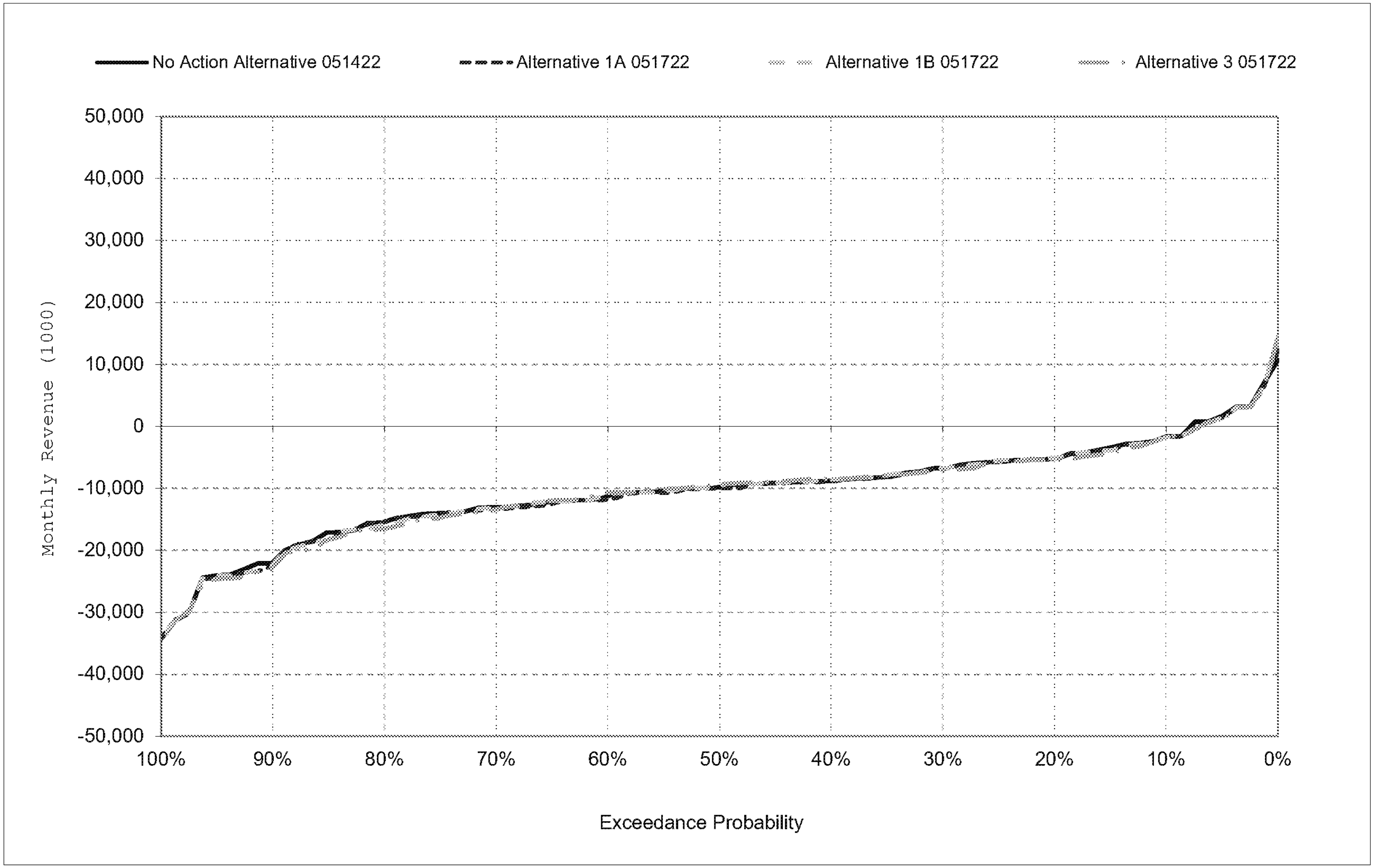
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-11. SWP Facilities Net Revenue, February



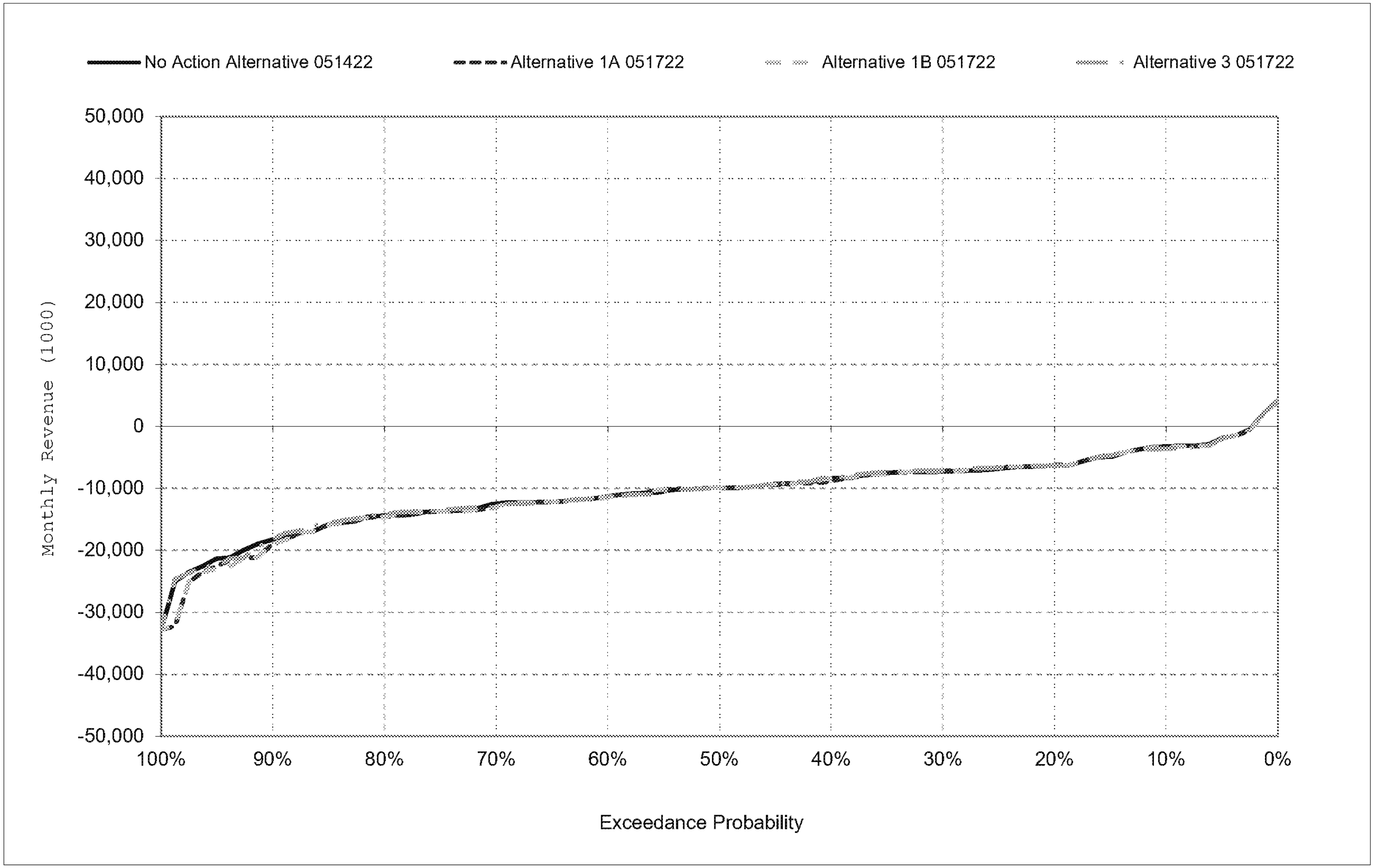
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-12. SWP Facilities Net Revenue, March



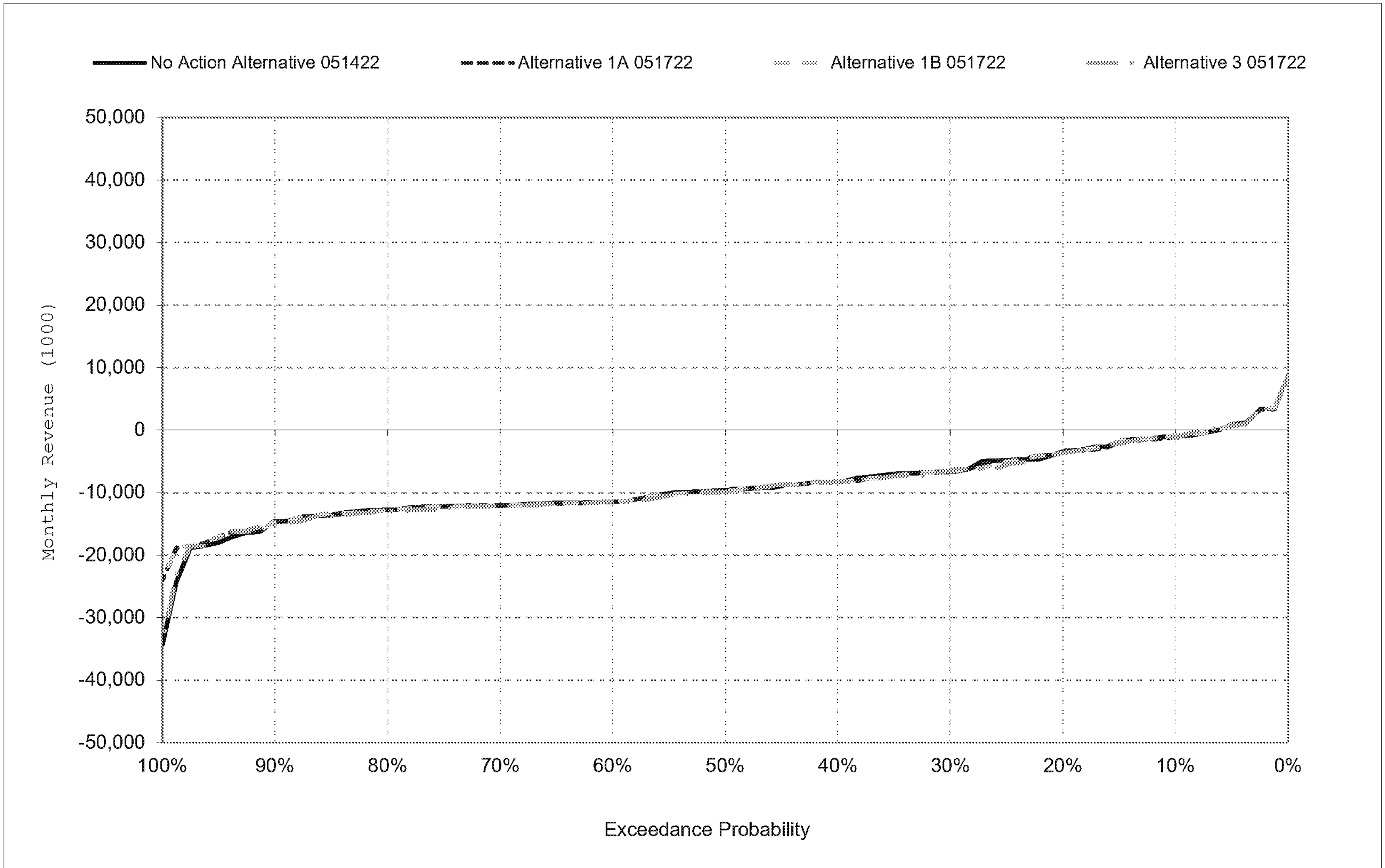
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-13. SWP Facilities Net Revenue, April



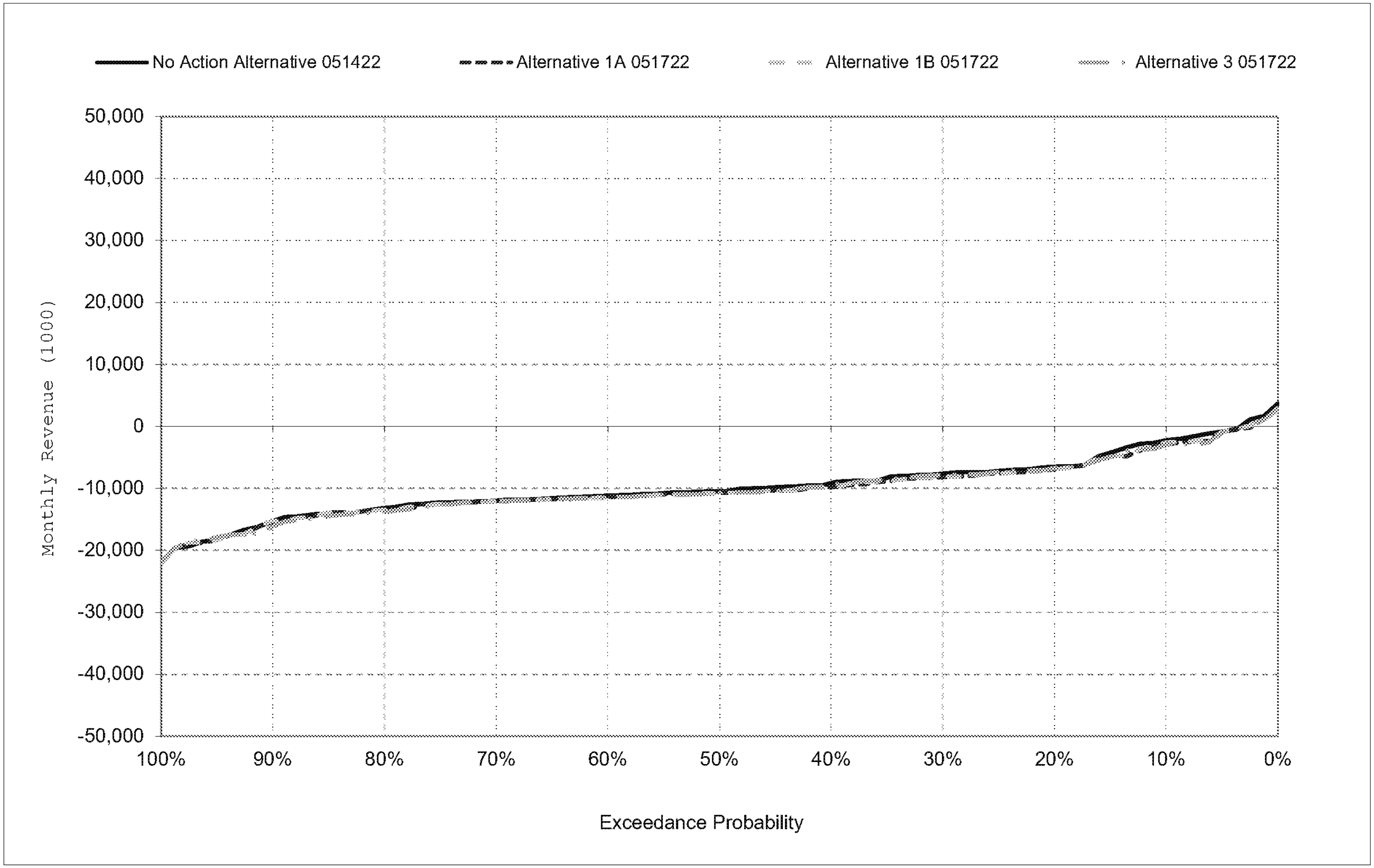
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-14. SWP Facilities Net Revenue, May



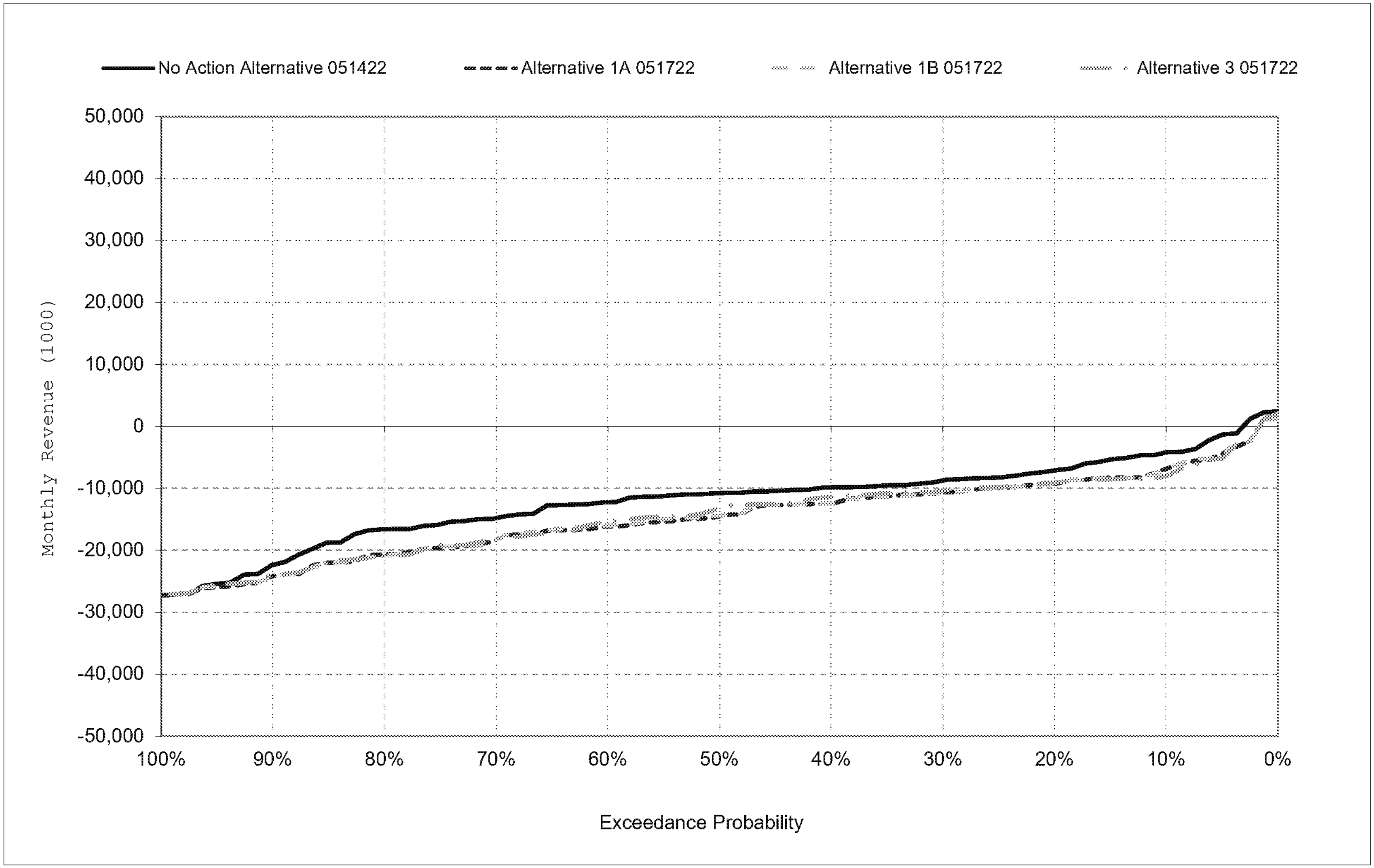
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-15. SWP Facilities Net Revenue, June



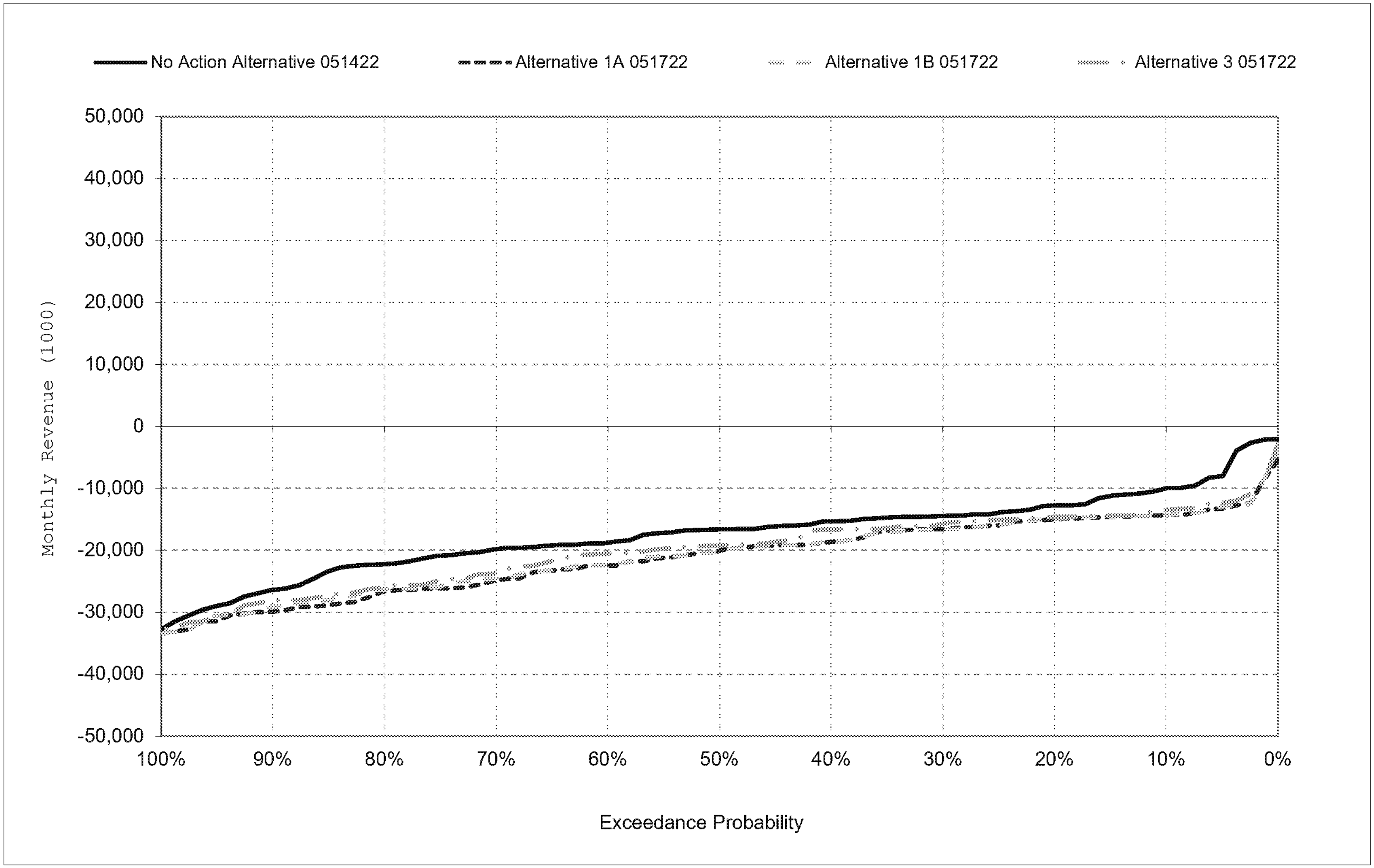
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-16. SWP Facilities Net Revenue, July



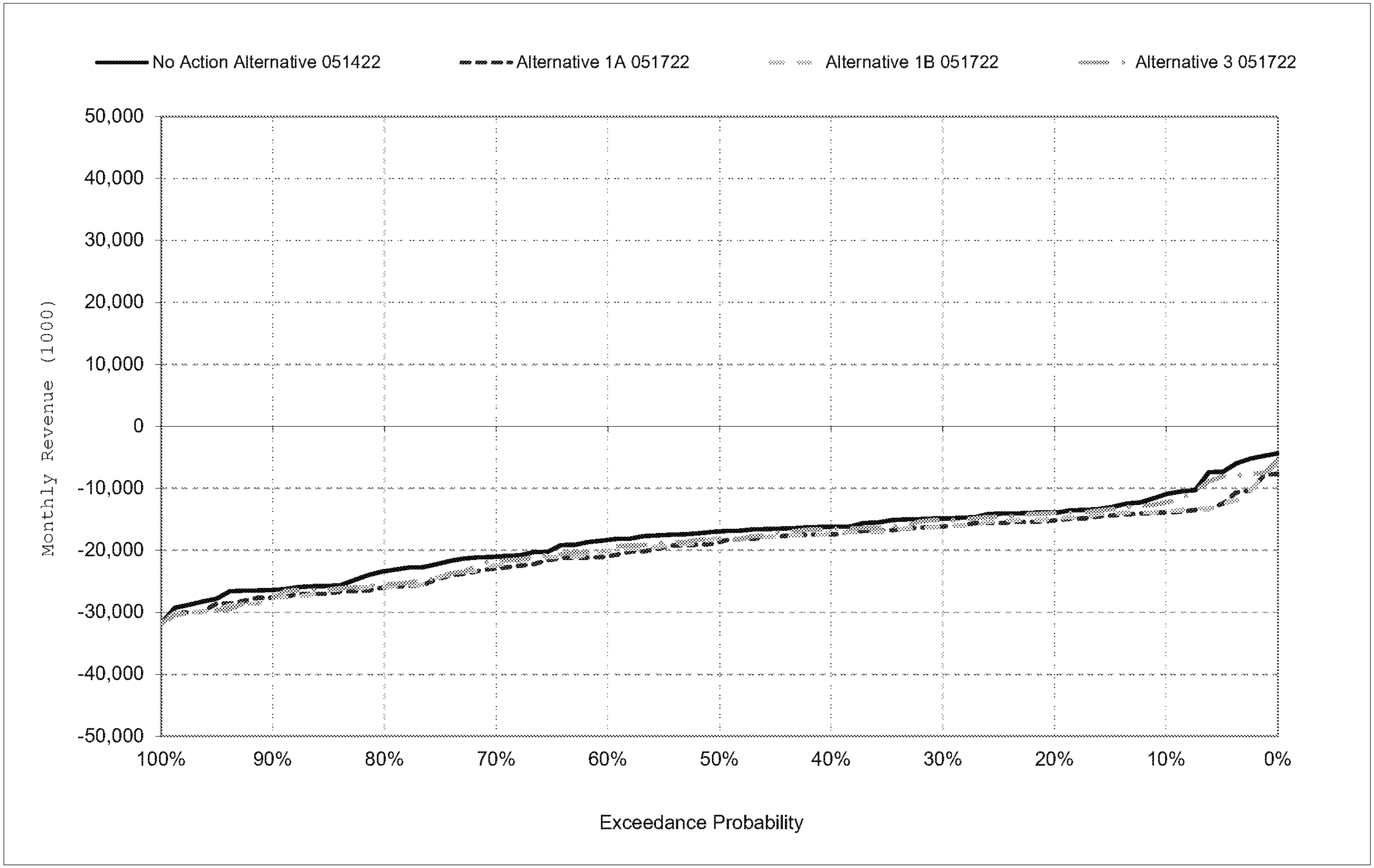
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-17. SWP Facilities Net Revenue, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 10-18. SWP Facilities Net Revenue, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 11-1a. Sites Project Facilities Total Capacity, No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (15%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (17%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (22%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	0	0	0	0	0	0	0	0	0	0	0	0

Table 11-1b. Sites Project Facilities Total Capacity, Alternative 1A 051722, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	22	8	1	0	0	0	3	4	23	33	35	25
20%	18	6	0	0	0	0	1	2	14	25	25	23
30%	10	1	0	0	0	0	1	0	4	11	14	13
40%	9	1	0	0	0	0	1	0	1	5	11	11
50%	9	0	0	0	0	0	0	0	1	2	10	10
60%	6	0	0	0	0	0	0	0	1	1	10	10
70%	1	0	0	0	0	0	0	0	0	1	9	8
80%	1	0	0	0	0	0	0	0	0	1	1	1
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	9	3	0	0	0	0	2	2	6	10	14	11
Water Year Types[b,c]												
Wet (32%)	8	0	0	0	0	0	0	0	1	1	9	10
Above Normal (15%)	6	2	1	0	0	0	0	0	0	4	14	15
Below Normal (17%)	10	4	1	0	0	0	1	0	2	8	10	7
Dry (22%)	16	9	1	0	0	0	2	2	16	25	25	18
Critical (15%)	3	2	0	0	0	1	7	7	16	17	13	6

Table 11-1c. Sites Project Facilities Total Capacity, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	22	8	1	0	0	0	3	4	23	33	35	25
20%	18	6	0	0	0	0	1	2	14	25	25	23
30%	10	1	0	0	0	0	1	0	4	11	14	13
40%	9	1	0	0	0	0	1	0	1	5	11	11
50%	9	0	0	0	0	0	0	0	1	2	10	10
60%	6	0	0	0	0	0	0	0	1	1	10	10
70%	1	0	0	0	0	0	0	0	0	1	9	8
80%	1	0	0	0	0	0	0	0	0	1	1	1
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	9	3	0	0	0	0	2	2	6	10	14	11
Water Year Types[b,c]												
Wet (32%)	8	0	0	0	0	0	0	0	1	1	9	10
Above Normal (15%)	6	2	1	0	0	0	0	0	0	4	14	15
Below Normal (17%)	10	4	1	0	0	0	1	0	2	8	10	7
Dry (22%)	16	9	1	0	0	0	2	2	16	25	25	18
Critical (15%)	3	2	0	0	0	1	7	7	16	17	13	6

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 11-2a. Sites Project Facilities Total Capacity, No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (15%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (17%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (22%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	0	0	0	0	0	0	0	0	0	0	0	0

Table 11-2b. Sites Project Facilities Total Capacity, Alternative 1B 051722, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	21	11	1	0	0	0	7	19	31	31	29	23
20%	18	6	0	0	0	0	2	6	24	22	17	17
30%	10	1	0	0	0	0	1	2	16	12	13	12
40%	9	1	0	0	0	0	1	0	5	8	10	10
50%	8	0	0	0	0	0	0	0	1	3	10	9
60%	5	0	0	0	0	0	0	0	1	1	9	8
70%	1	0	0	0	0	0	0	0	0	1	8	3
80%	1	0	0	0	0	0	0	0	0	1	1	1
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	8	3	0	0	0	0	2	5	10	10	12	10
Water Year Types[b,c]												
Wet (32%)	7	0	0	0	0	0	0	0	1	2	9	10
Above Normal (15%)	6	2	1	0	0	0	0	0	17	8	11	12
Below Normal (17%)	9	5	1	0	0	0	1	8	7	6	7	5
Dry (22%)	14	7	1	0	0	0	5	10	17	23	22	16
Critical (15%)	3	2	0	0	0	1	7	8	17	16	10	4

Table 11-2c. Sites Project Facilities Total Capacity, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	21	11	1	0	0	0	7	19	31	31	29	23
20%	18	6	0	0	0	0	2	6	24	22	17	17
30%	10	1	0	0	0	0	1	2	16	12	13	12
40%	9	1	0	0	0	0	1	0	5	8	10	10
50%	8	0	0	0	0	0	0	0	1	3	10	9
60%	5	0	0	0	0	0	0	0	1	1	9	8
70%	1	0	0	0	0	0	0	0	0	1	8	3
80%	1	0	0	0	0	0	0	0	0	1	1	1
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	8	3	0	0	0	0	2	5	10	10	12	10
Water Year Types[b,c]												
Wet (32%)	7	0	0	0	0	0	0	0	1	2	9	10
Above Normal (15%)	6	2	1	0	0	0	0	0	17	8	11	12
Below Normal (17%)	9	5	1	0	0	0	1	8	7	6	7	5
Dry (22%)	14	7	1	0	0	0	5	10	17	23	22	16
Critical (15%)	3	2	0	0	0	1	7	8	17	16	10	4

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 11-3a. Sites Project Facilities Total Capacity, No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (15%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (17%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (22%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	0	0	0	0	0	0	0	0	0	0	0	0

Table 11-3b. Sites Project Facilities Total Capacity, Alternative 3 051722, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	18	5	1	0	0	0	9	27	40	45	40	21
20%	10	1	0	0	0	0	2	11	33	35	31	19
30%	9	1	0	0	0	0	1	2	30	25	13	11
40%	9	0	0	0	0	0	1	0	9	15	10	10
50%	4	0	0	0	0	0	0	0	1	5	10	9
60%	1	0	0	0	0	0	0	0	1	1	9	7
70%	1	0	0	0	0	0	0	0	0	1	3	1
80%	0	0	0	0	0	0	0	0	0	1	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	6	2	0	0	0	0	2	6	14	16	14	9
Water Year Types[b,c]												
Wet (32%)	6	0	0	0	0	0	0	0	1	2	9	10
Above Normal (15%)	4	1	1	0	0	0	0	0	21	36	27	12
Below Normal (17%)	8	4	1	0	0	0	2	9	20	17	13	6
Dry (22%)	10	3	0	0	0	0	4	14	25	24	19	14
Critical (15%)	2	1	0	0	0	0	6	10	13	11	5	2

Table 11-3c. Sites Project Facilities Total Capacity, Alternative 3 051722 minus No Action Alternative 051422, Monthly Capacity (MW)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	18	5	1	0	0	0	9	27	40	45	40	21
20%	10	1	0	0	0	0	2	11	33	35	31	19
30%	9	1	0	0	0	0	1	2	30	25	13	11
40%	9	0	0	0	0	0	1	0	9	15	10	10
50%	4	0	0	0	0	0	0	0	1	5	10	9
60%	1	0	0	0	0	0	0	0	1	1	9	7
70%	1	0	0	0	0	0	0	0	0	1	3	1
80%	0	0	0	0	0	0	0	0	0	1	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	6	2	0	0	0	0	2	6	14	16	14	9
Water Year Types[b,c]												
Wet (32%)	6	0	0	0	0	0	0	0	1	2	9	10
Above Normal (15%)	4	1	1	0	0	0	0	0	21	36	27	12
Below Normal (17%)	8	4	1	0	0	0	2	9	20	17	13	6
Dry (22%)	10	3	0	0	0	0	4	14	25	24	19	14
Critical (15%)	2	1	0	0	0	0	6	10	13	11	5	2

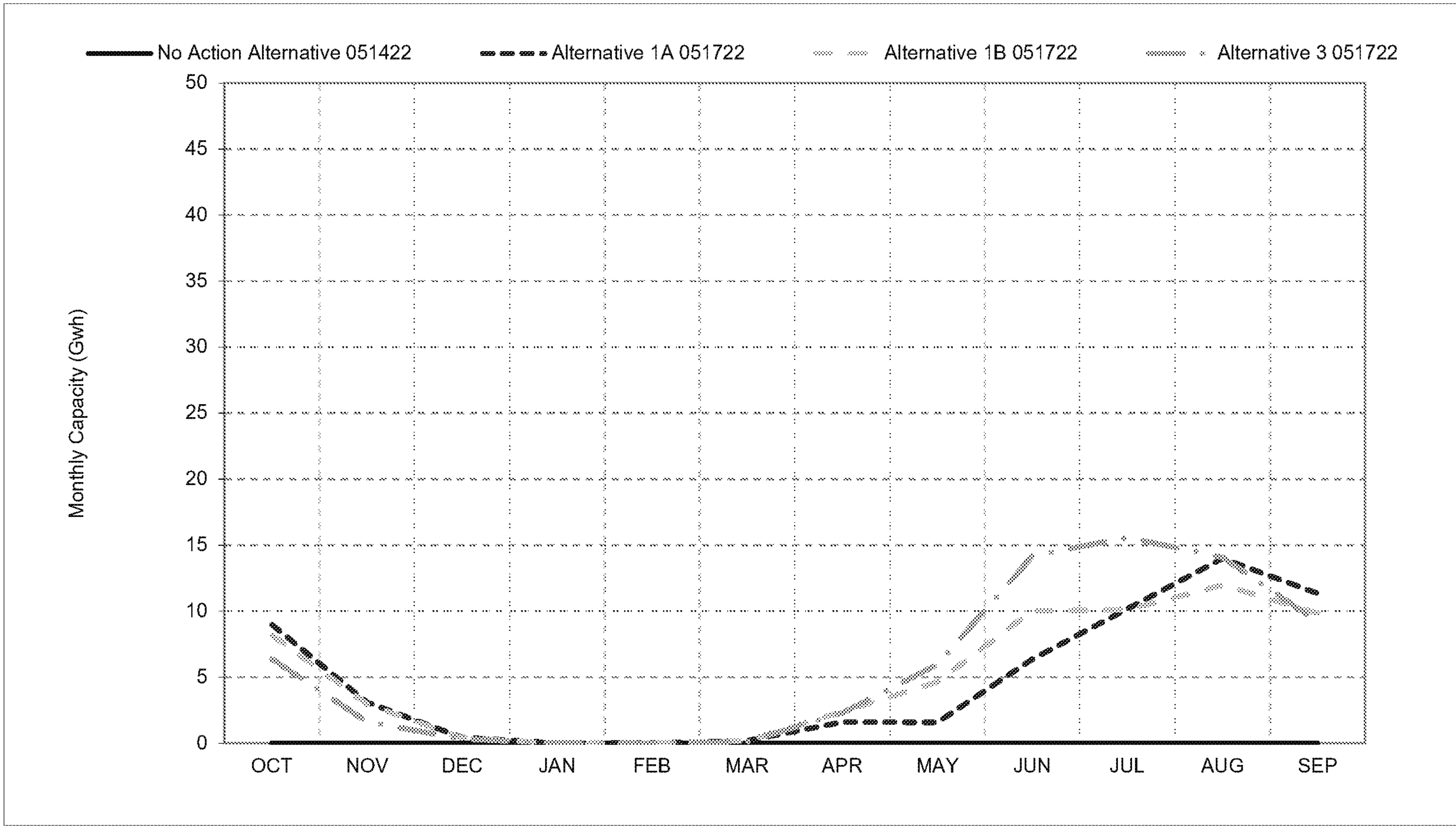
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-1. Sites Project Facilities Total Capacity, Long-Term Average Capacity

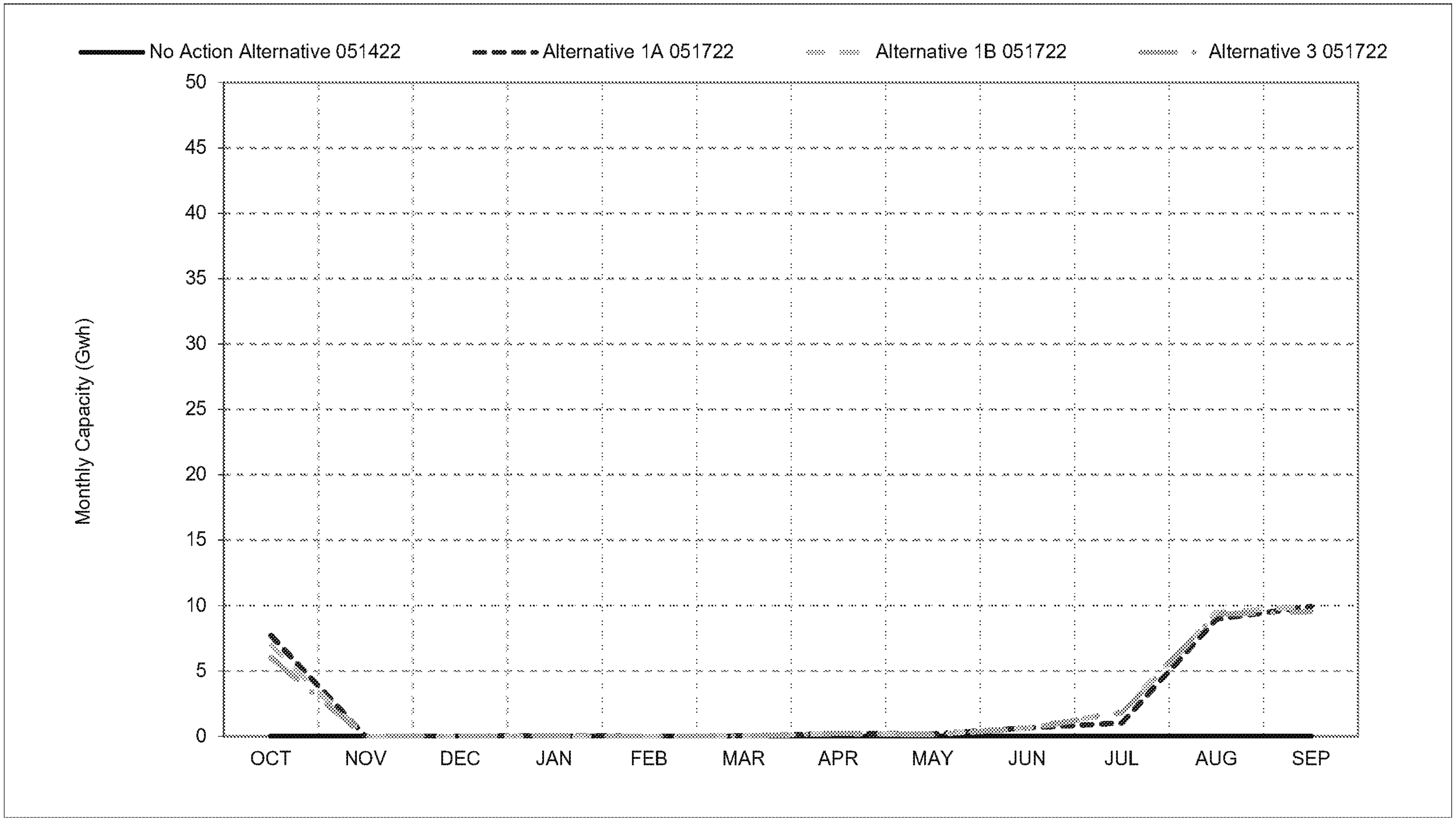


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-2. Sites Project Facilities Total Capacity, Wet Year Average Capacity

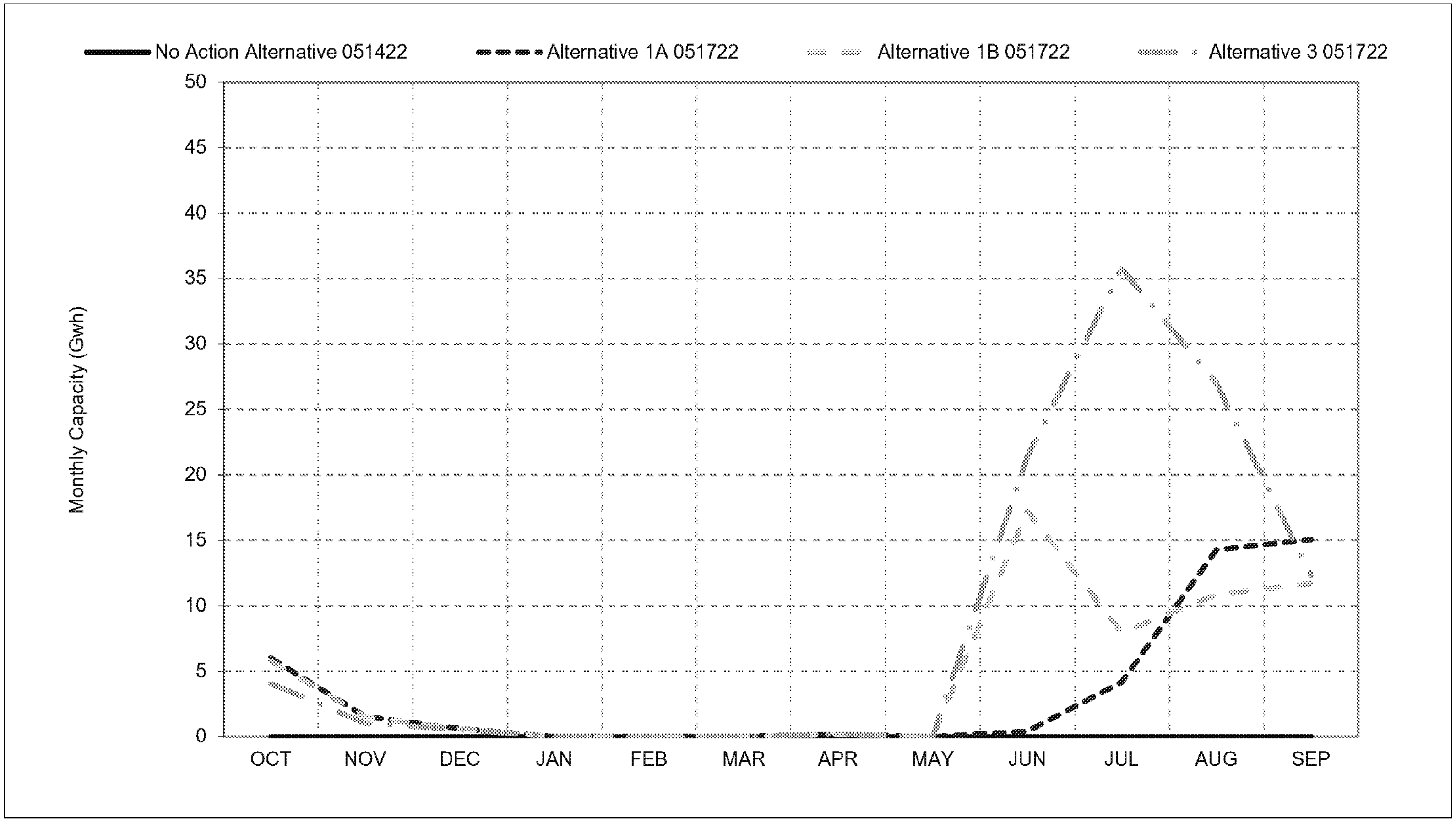


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

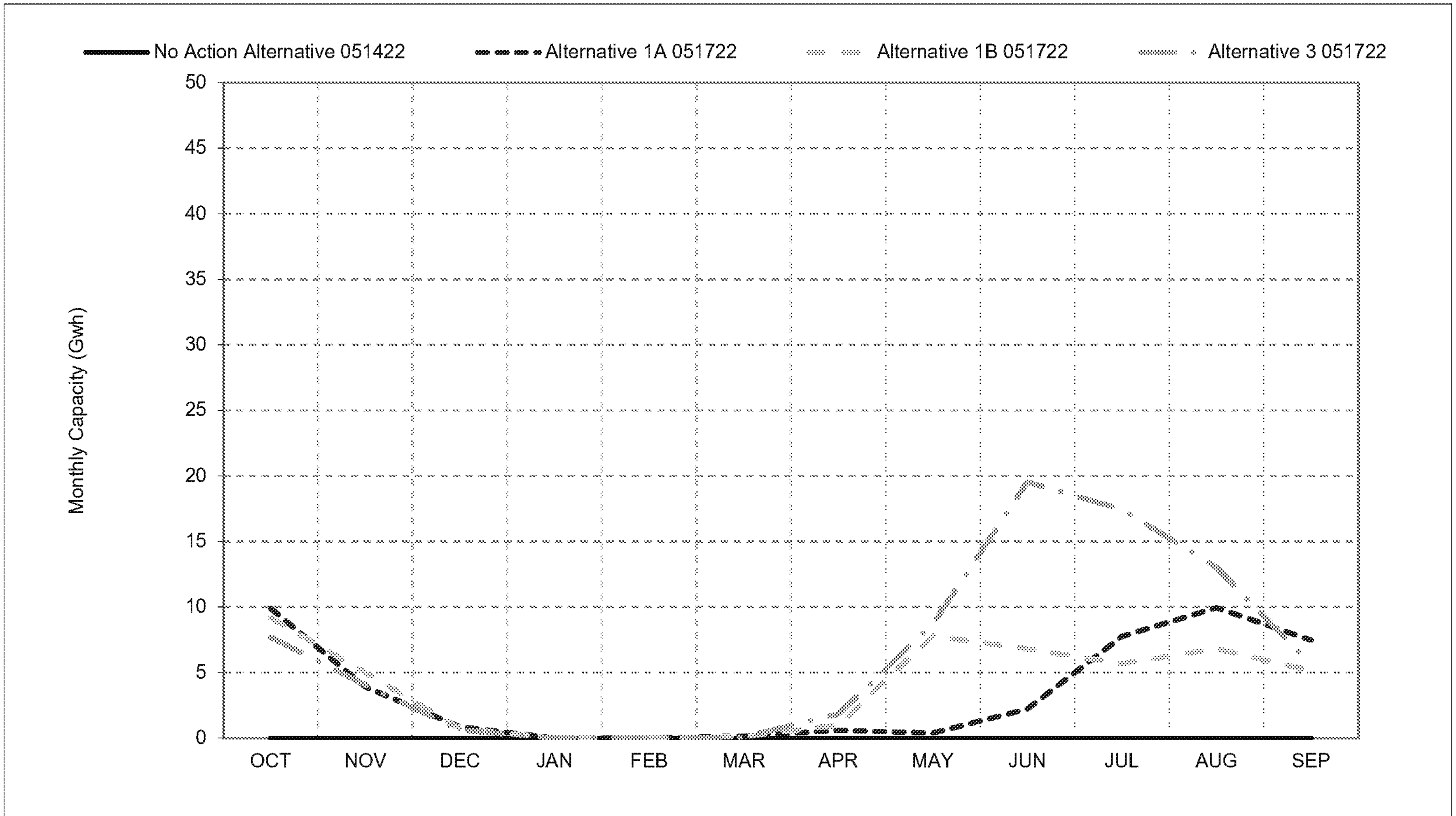
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-3. Sites Project Facilities Total Capacity, Above Normal Year Average Capacity



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-4. Sites Project Facilities Total Capacity, Below Normal Year Average Capacity

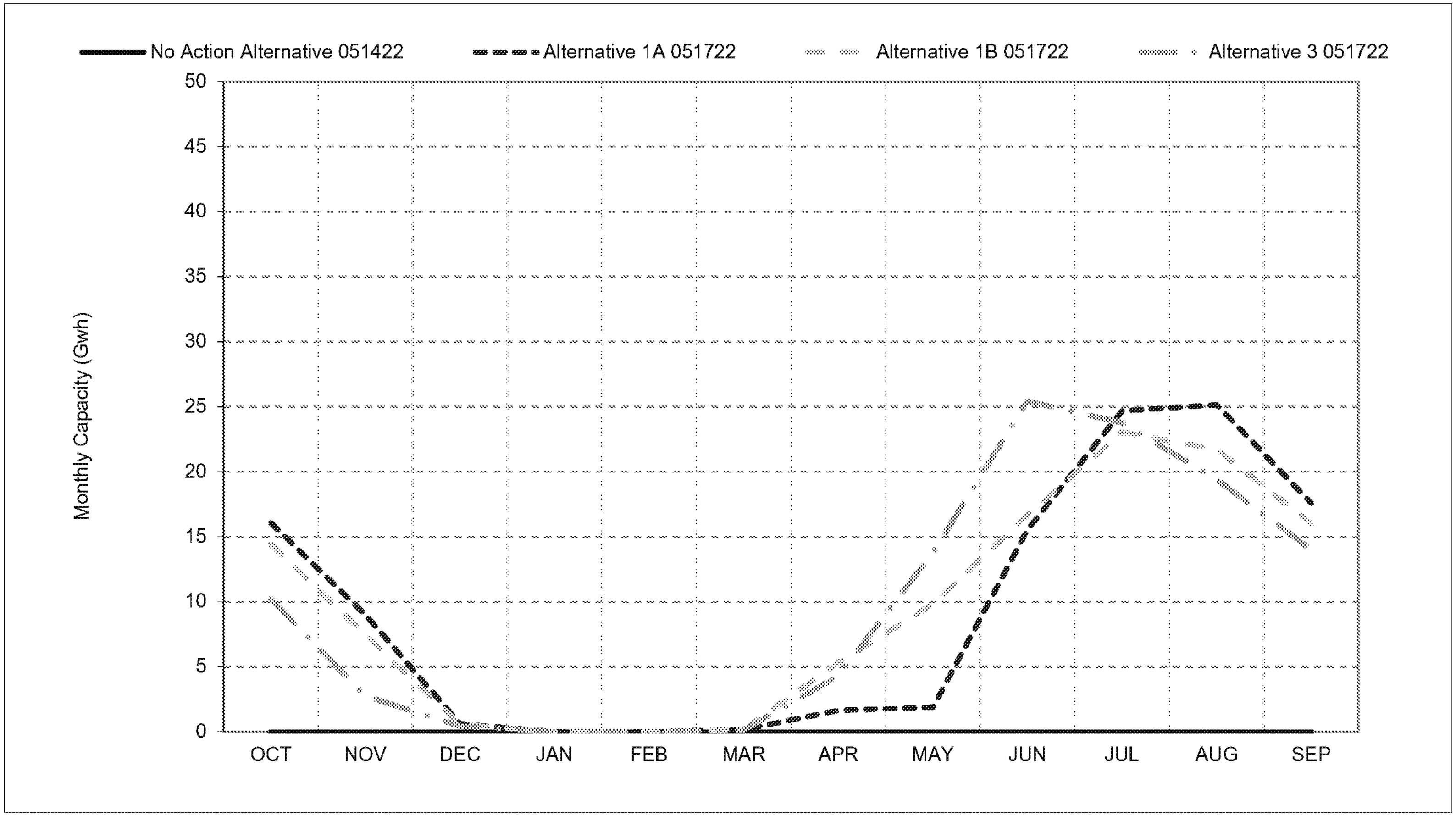


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

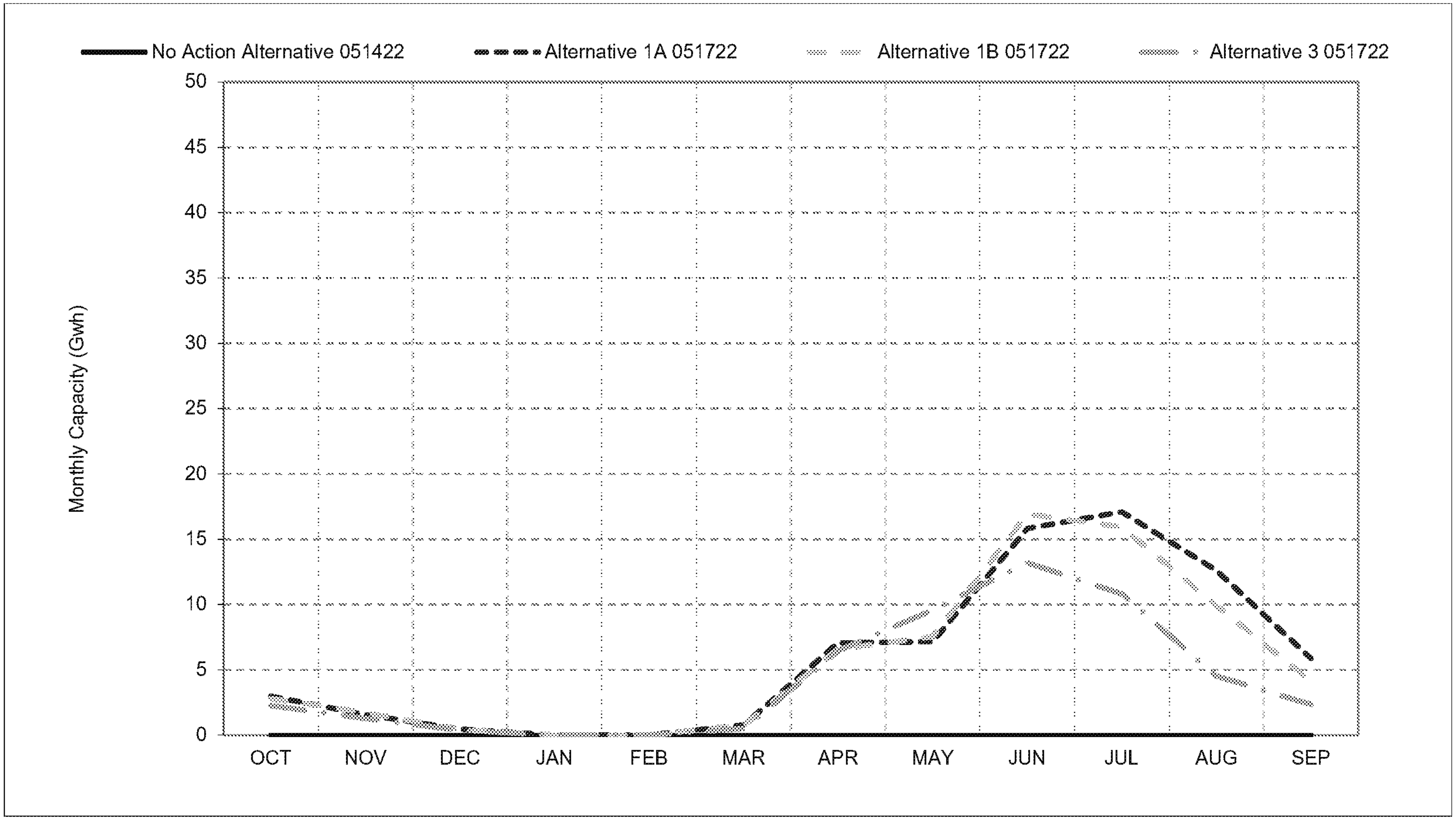
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-5. Sites Project Facilities Total Capacity, Dry Year Average Capacity



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-6. Sites Project Facilities Total Capacity, Critical Year Average Capacity

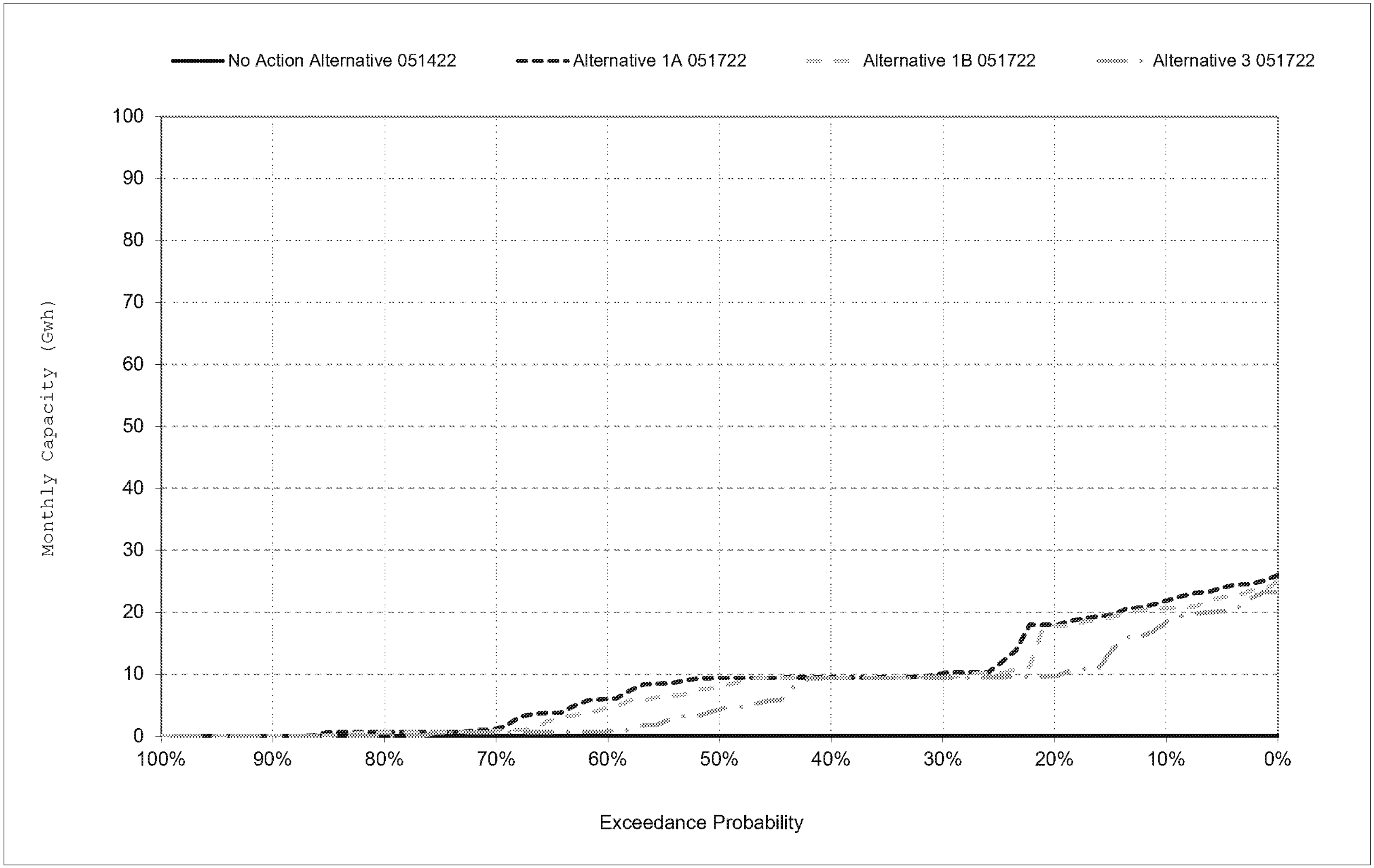


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

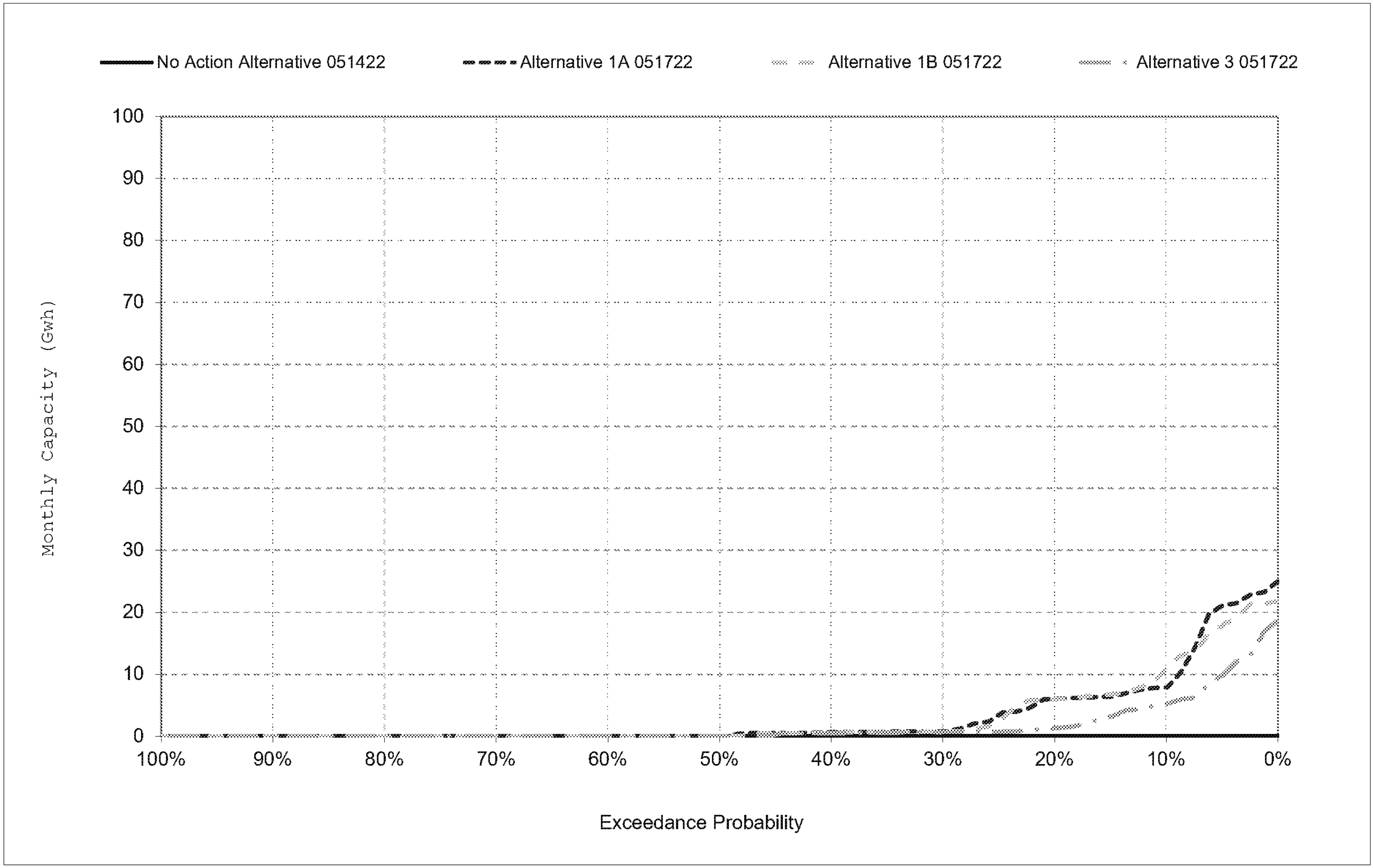
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-7. Sites Project Facilities Total Capacity, October



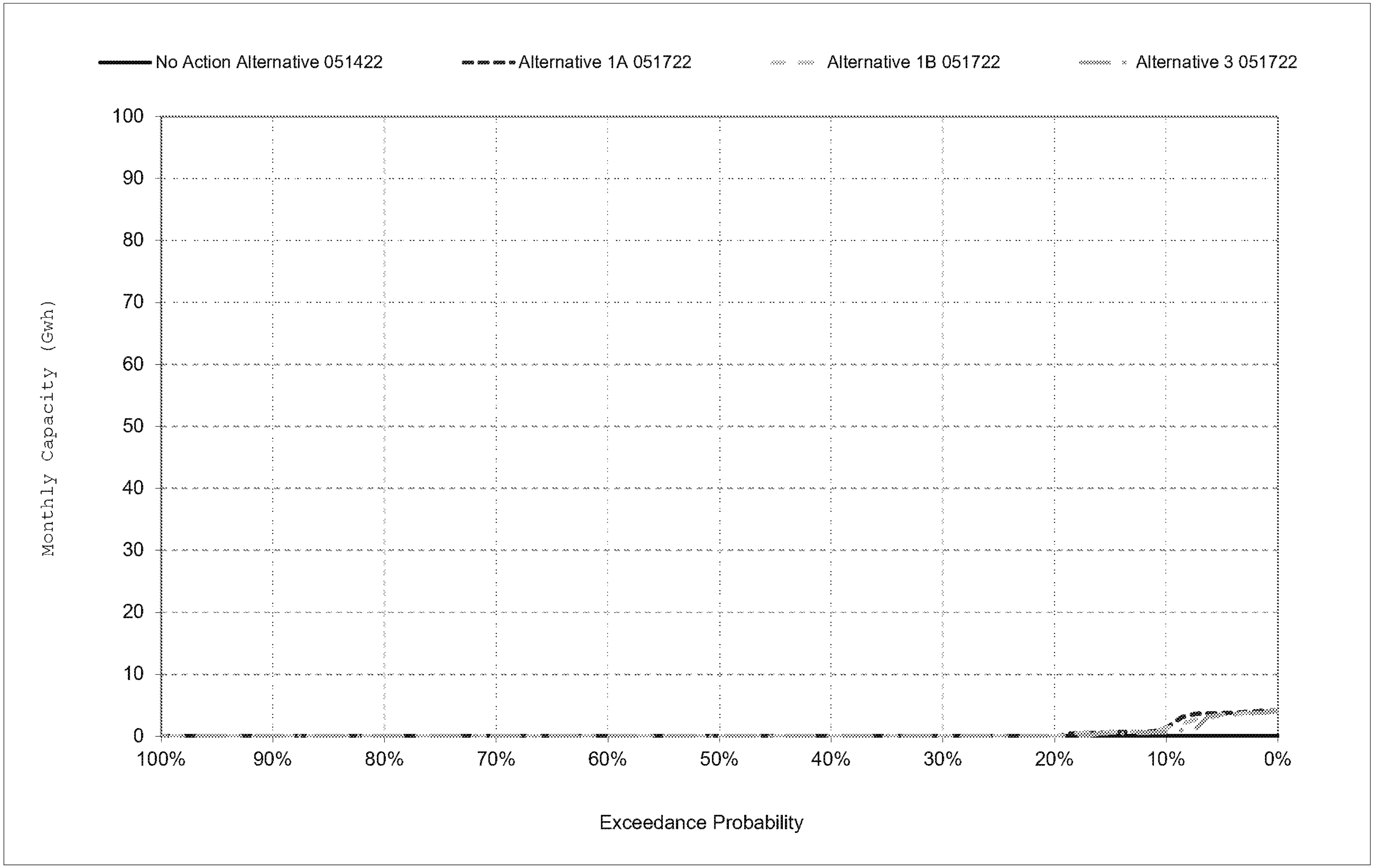
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-8. Sites Project Facilities Total Capacity, November



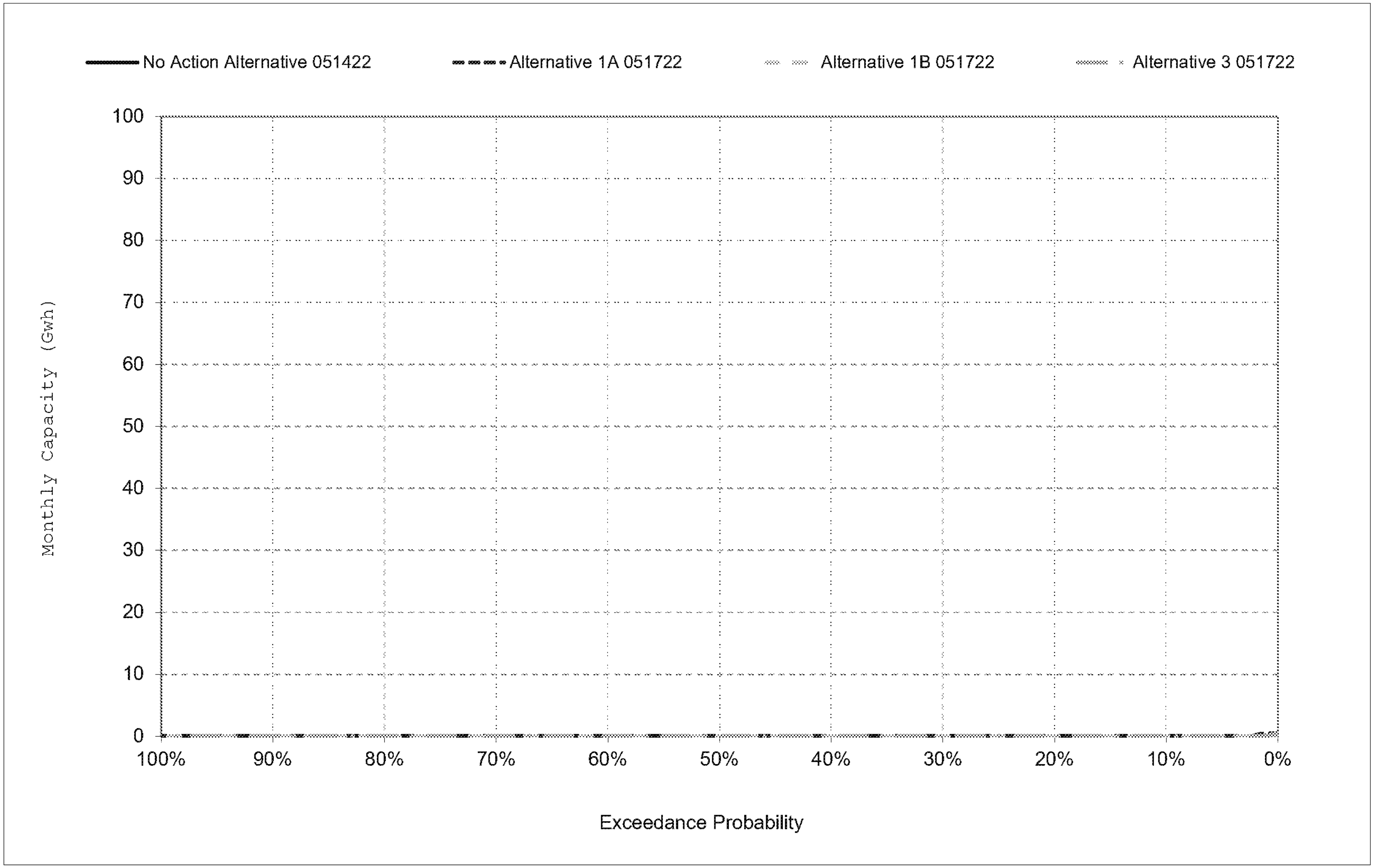
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-9. Sites Project Facilities Total Capacity, December



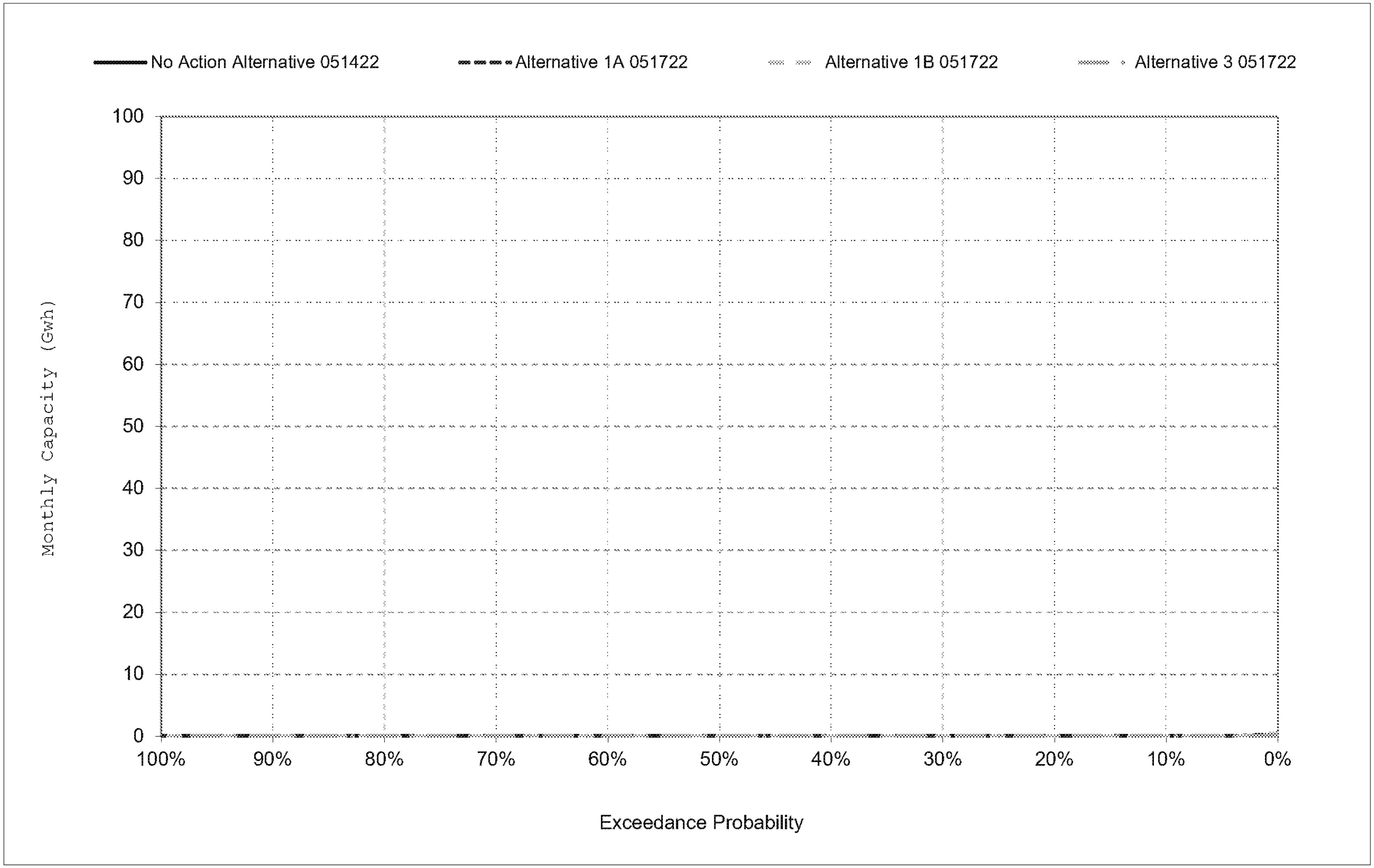
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-10. Sites Project Facilities Total Capacity, January



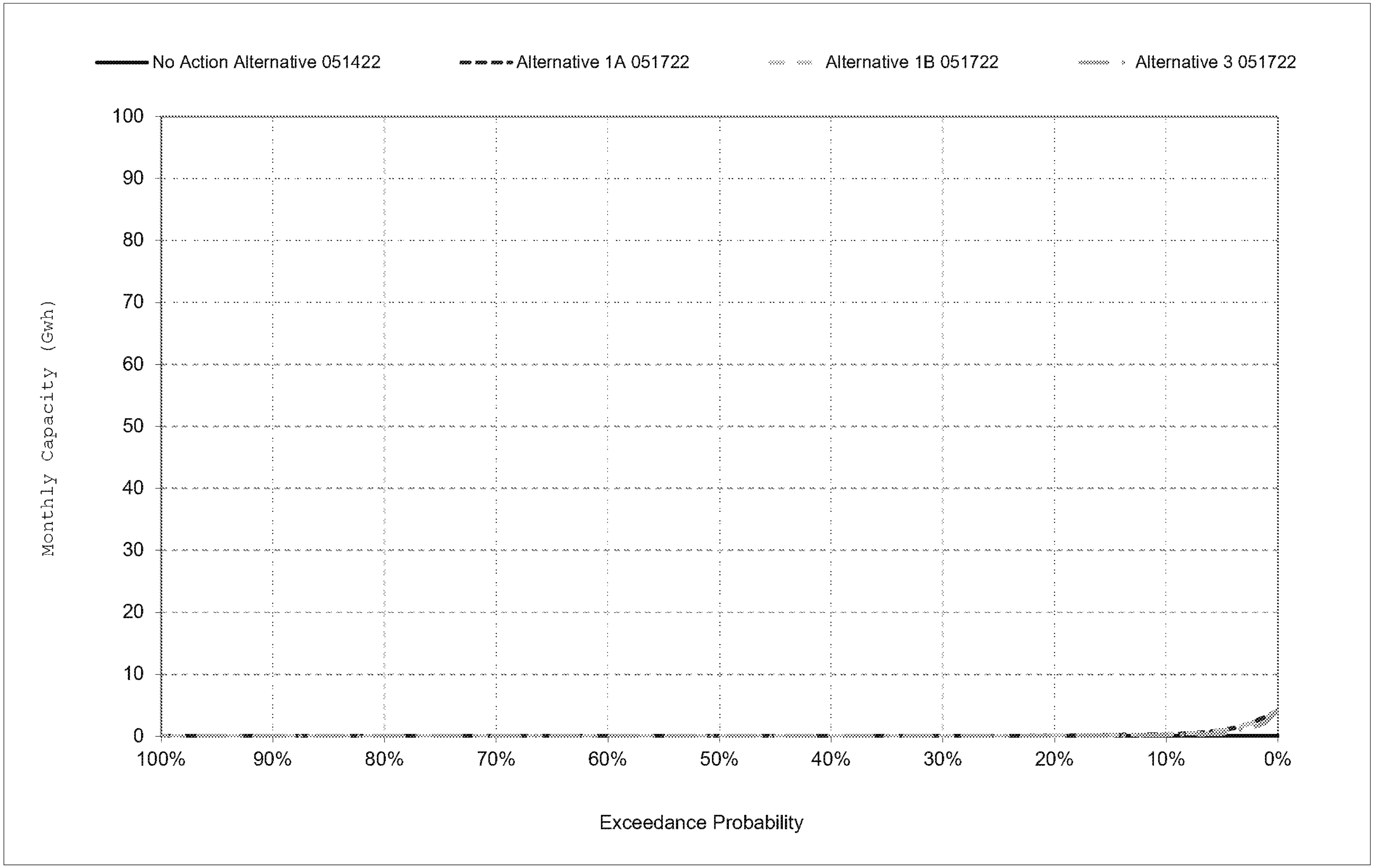
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-11. Sites Project Facilities Total Capacity, February



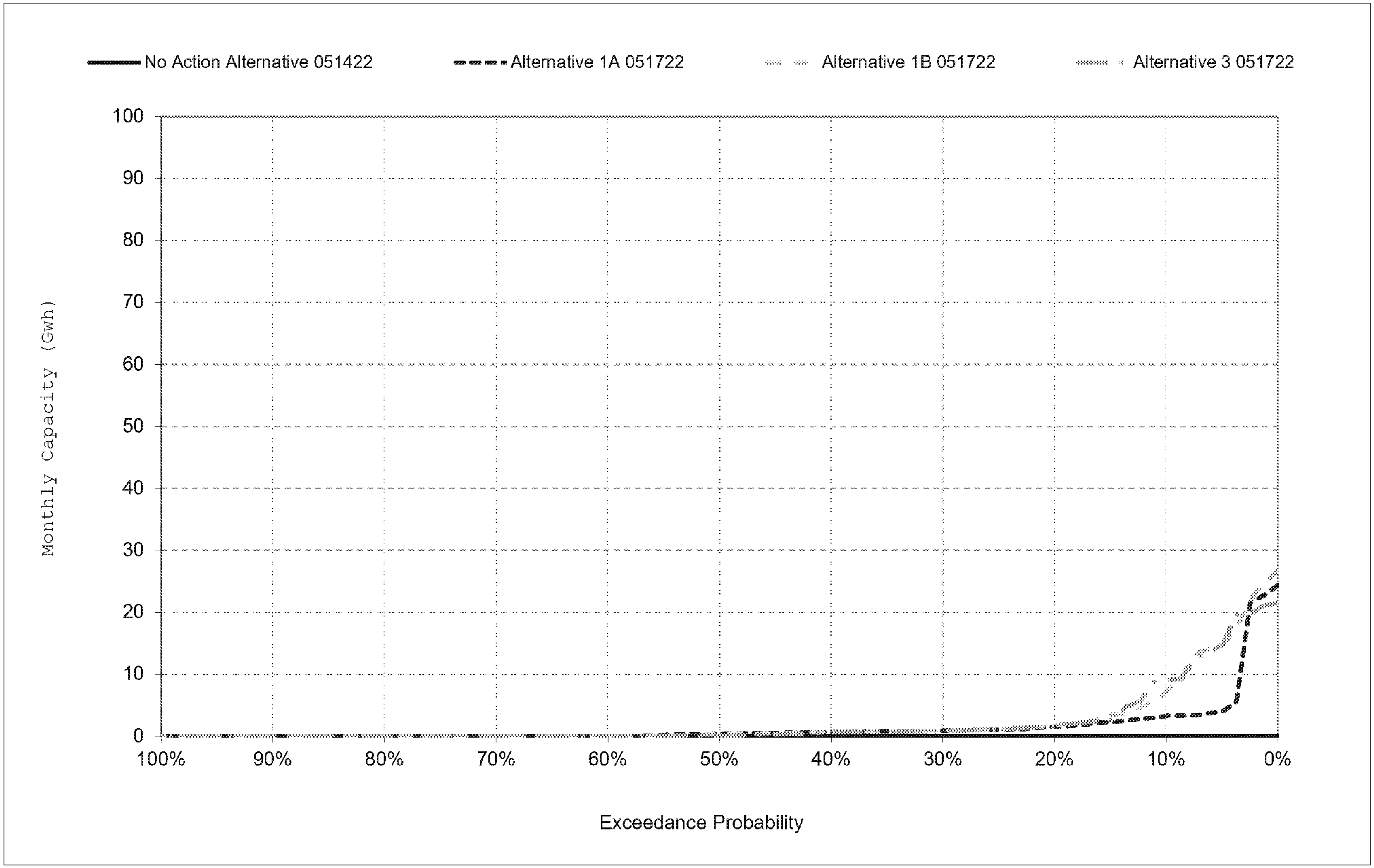
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-12. Sites Project Facilities Total Capacity, March



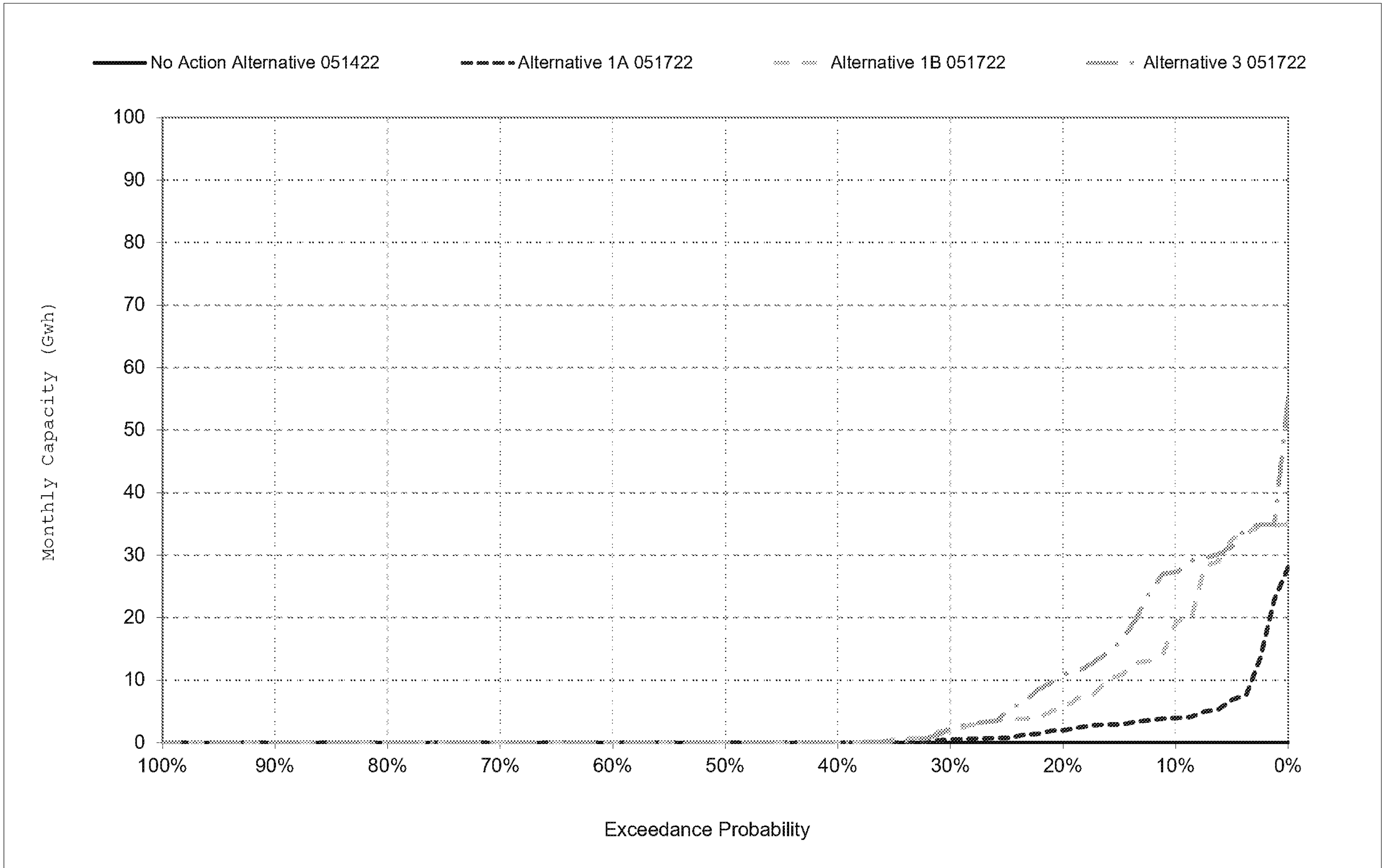
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-13. Sites Project Facilities Total Capacity, April



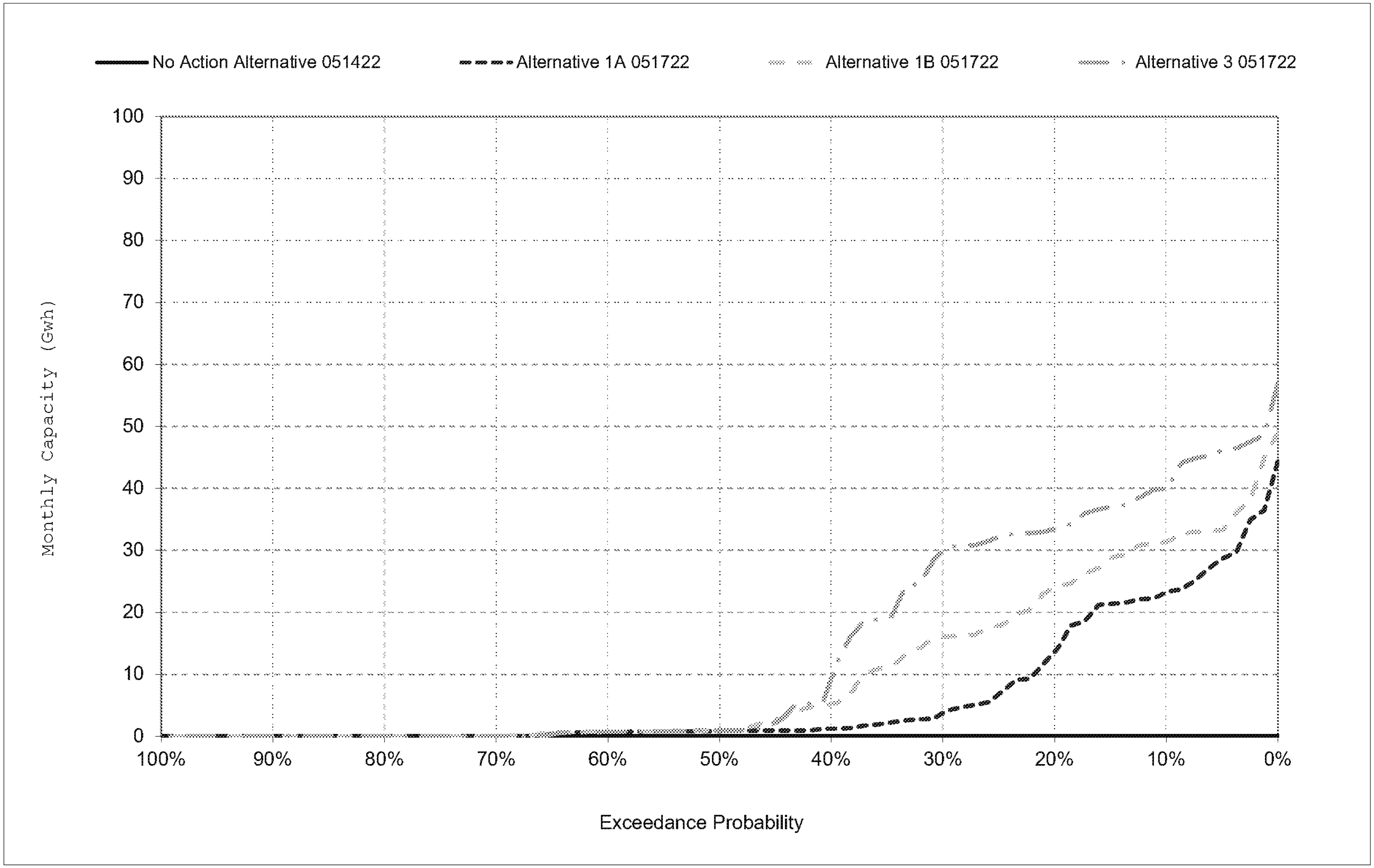
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-14. Sites Project Facilities Total Capacity, May



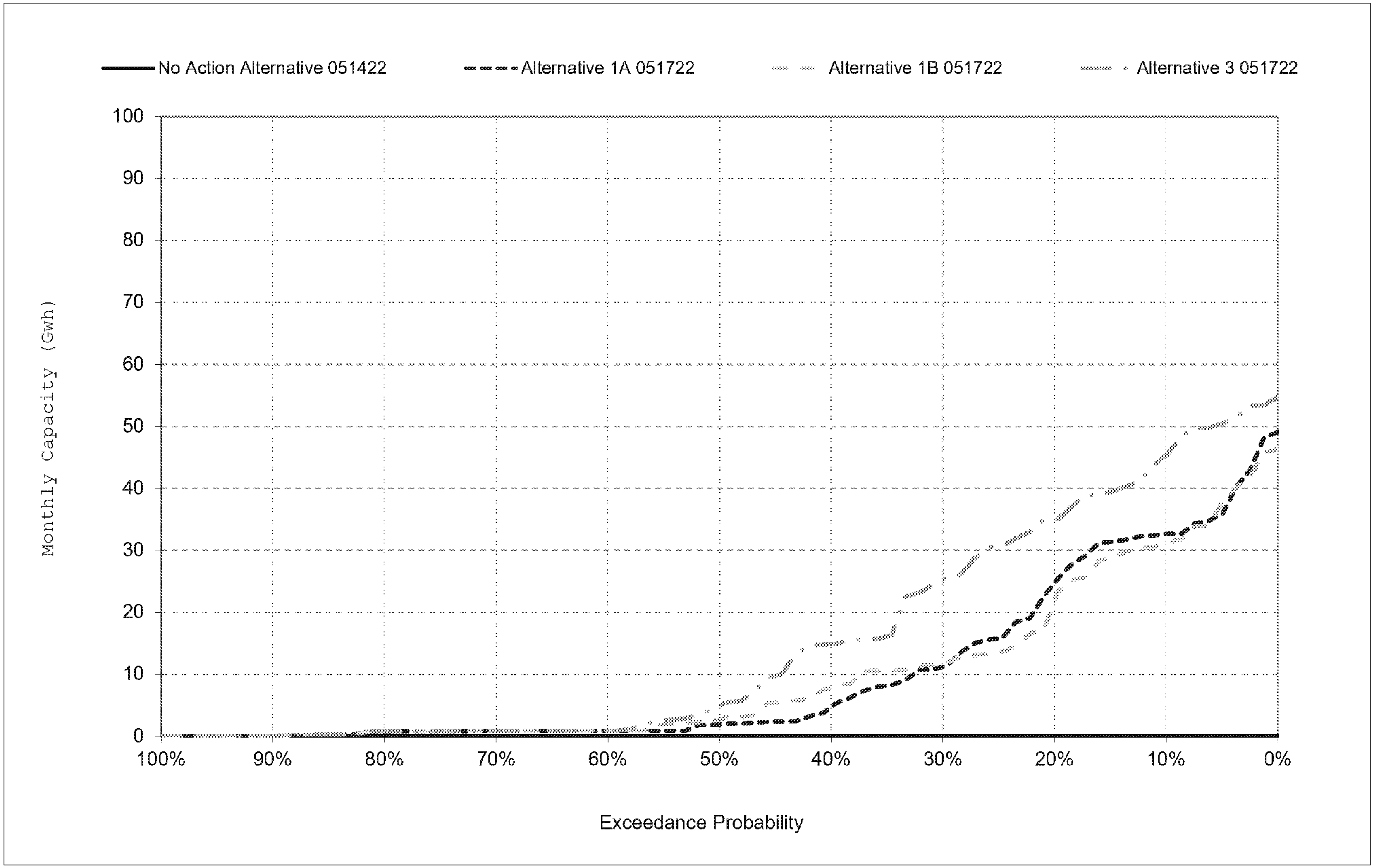
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-15. Sites Project Facilities Total Capacity, June



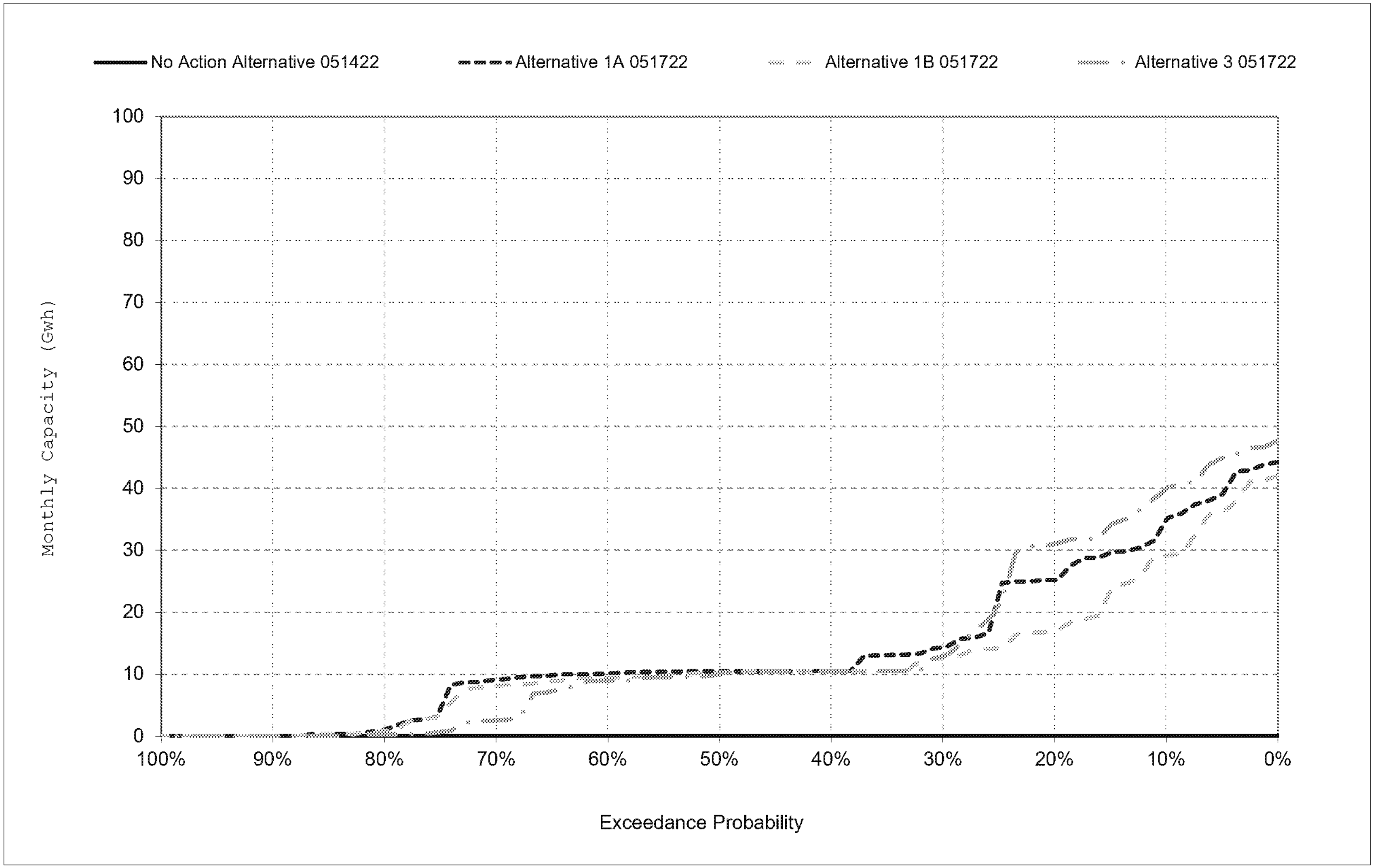
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-16. Sites Project Facilities Total Capacity, July



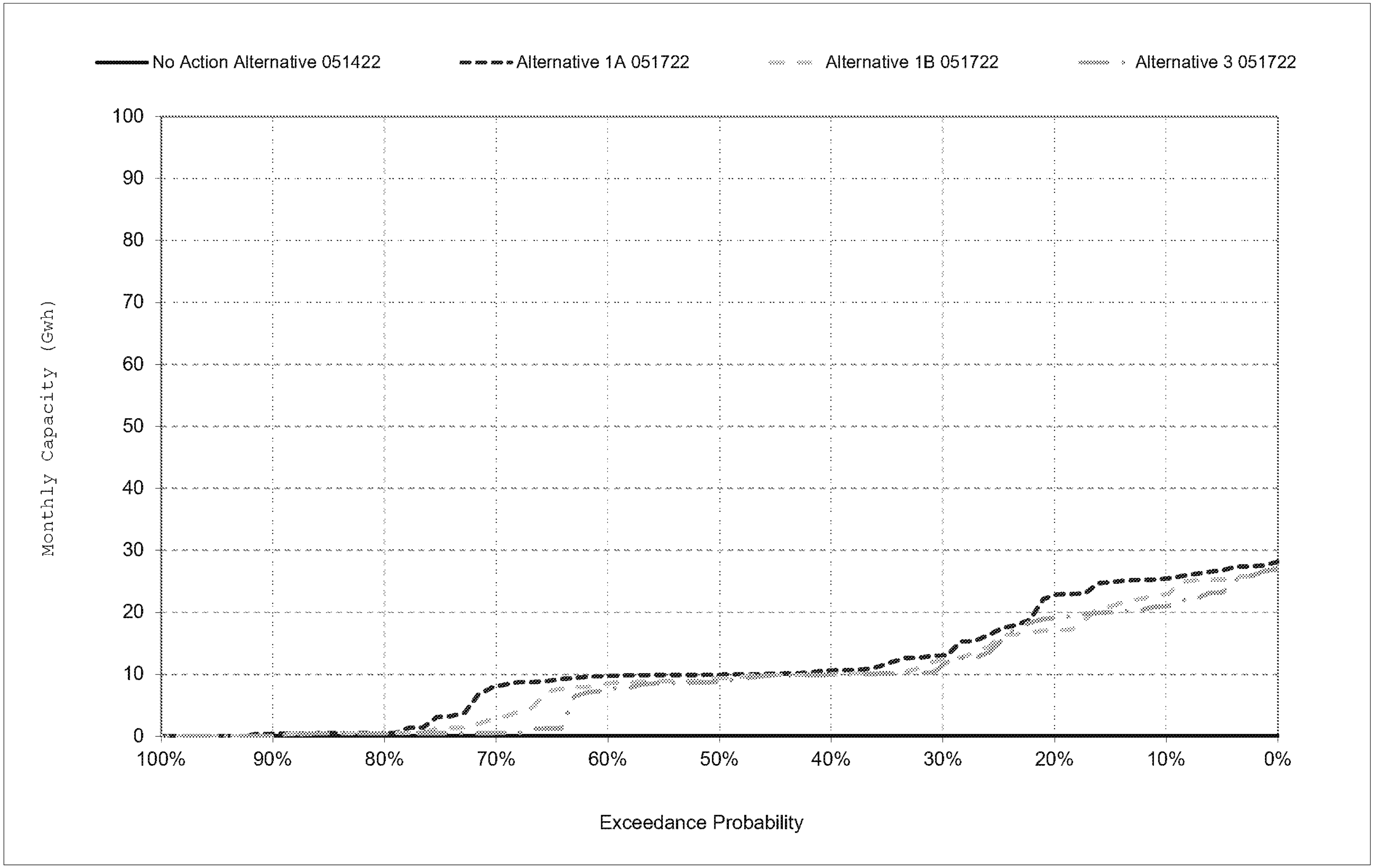
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-17. Sites Project Facilities Total Capacity, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 11-18. Sites Project Facilities Total Capacity, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 12-1a. Sites Project Facilities Total Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (15%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (17%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (22%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	0	0	0	0	0	0	0	0	0	0	0	0

Table 12-1b. Sites Project Facilities Total Generation, Alternative 1A 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	16	6	1	0	0	0	2	3	17	24	26	18
20%	13	4	0	0	0	0	1	1	10	18	19	16
30%	8	1	0	0	0	0	1	0	3	8	11	9
40%	7	0	0	0	0	0	0	0	1	4	8	8
50%	7	0	0	0	0	0	0	0	1	1	8	7
60%	4	0	0	0	0	0	0	0	1	1	8	7
70%	1	0	0	0	0	0	0	0	0	1	7	6
80%	0	0	0	0	0	0	0	0	0	1	1	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	7	2	0	0	0	0	1	1	5	8	10	8
Water Year Types[b,c]												
Wet (32%)	6	0	0	0	0	0	0	0	0	1	7	7
Above Normal (15%)	4	1	0	0	0	0	0	0	0	3	11	11
Below Normal (17%)	7	3	1	0	0	0	0	0	2	6	7	5
Dry (22%)	12	6	0	0	0	0	1	1	11	18	19	13
Critical (15%)	2	1	0	0	0	1	5	5	11	13	9	4

Table 12-1c. Sites Project Facilities Total Generation, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	16	6	1	0	0	0	2	3	17	24	26	18
20%	13	4	0	0	0	0	1	1	10	18	19	16
30%	8	1	0	0	0	0	1	0	3	8	11	9
40%	7	0	0	0	0	0	0	0	1	4	8	8
50%	7	0	0	0	0	0	0	0	1	1	8	7
60%	4	0	0	0	0	0	0	0	1	1	8	7
70%	1	0	0	0	0	0	0	0	0	1	7	6
80%	0	0	0	0	0	0	0	0	0	1	1	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	7	2	0	0	0	0	1	1	5	8	10	8
Water Year Types[b,c]												
Wet (32%)	6	0	0	0	0	0	0	0	0	1	7	7
Above Normal (15%)	4	1	0	0	0	0	0	0	0	3	11	11
Below Normal (17%)	7	3	1	0	0	0	0	0	2	6	7	5
Dry (22%)	12	6	0	0	0	0	1	1	11	18	19	13
Critical (15%)	2	1	0	0	0	1	5	5	11	13	9	4

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 12-2a. Sites Project Facilities Total Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (15%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (17%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (22%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	0	0	0	0	0	0	0	0	0	0	0	0

Table 12-2b. Sites Project Facilities Total Generation, Alternative 1B 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15	8	1	0	0	0	5	14	23	23	22	16
20%	13	4	0	0	0	0	1	4	17	16	13	12
30%	7	1	0	0	0	0	1	1	12	9	9	9
40%	7	0	0	0	0	0	0	0	4	6	8	7
50%	6	0	0	0	0	0	0	0	1	2	8	7
60%	3	0	0	0	0	0	0	0	1	1	7	6
70%	1	0	0	0	0	0	0	0	0	1	6	2
80%	0	0	0	0	0	0	0	0	0	1	1	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	6	2	0	0	0	0	2	3	7	8	9	7
Water Year Types[b,c]												
Wet (32%)	5	0	0	0	0	0	0	0	0	1	7	7
Above Normal (15%)	4	1	0	0	0	0	0	0	12	6	8	8
Below Normal (17%)	7	4	1	0	0	0	1	6	5	4	5	4
Dry (22%)	11	5	0	0	0	0	4	7	12	17	16	12
Critical (15%)	2	1	0	0	0	1	5	6	12	12	7	3

Table 12-2c. Sites Project Facilities Total Generation, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15	8	1	0	0	0	5	14	23	23	22	16
20%	13	4	0	0	0	0	1	4	17	16	13	12
30%	7	1	0	0	0	0	1	1	12	9	9	9
40%	7	0	0	0	0	0	0	0	4	6	8	7
50%	6	0	0	0	0	0	0	0	1	2	8	7
60%	3	0	0	0	0	0	0	0	1	1	7	6
70%	1	0	0	0	0	0	0	0	0	1	6	2
80%	0	0	0	0	0	0	0	0	0	1	1	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	6	2	0	0	0	0	2	3	7	8	9	7
Water Year Types[b,c]												
Wet (32%)	5	0	0	0	0	0	0	0	0	1	7	7
Above Normal (15%)	4	1	0	0	0	0	0	0	12	6	8	8
Below Normal (17%)	7	4	1	0	0	0	1	6	5	4	5	4
Dry (22%)	11	5	0	0	0	0	4	7	12	17	16	12
Critical (15%)	2	1	0	0	0	1	5	6	12	12	7	3

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 12-3a. Sites Project Facilities Total Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	0	0	0	0	0
20%	0	0	0	0	0	0	0	0	0	0	0	0
30%	0	0	0	0	0	0	0	0	0	0	0	0
40%	0	0	0	0	0	0	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	0	0	0	0	0	0	0	0	0	0	0	0
Water Year Types[b,c]												
Wet (32%)	0	0	0	0	0	0	0	0	0	0	0	0
Above Normal (15%)	0	0	0	0	0	0	0	0	0	0	0	0
Below Normal (17%)	0	0	0	0	0	0	0	0	0	0	0	0
Dry (22%)	0	0	0	0	0	0	0	0	0	0	0	0
Critical (15%)	0	0	0	0	0	0	0	0	0	0	0	0

Table 12-3b. Sites Project Facilities Total Generation, Alternative 3 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14	4	0	0	0	0	7	20	29	34	30	15
20%	7	1	0	0	0	0	1	8	24	26	23	14
30%	7	0	0	0	0	0	1	2	22	19	10	8
40%	7	0	0	0	0	0	0	0	7	11	8	7
50%	3	0	0	0	0	0	0	0	1	4	7	6
60%	1	0	0	0	0	0	0	0	0	1	7	5
70%	0	0	0	0	0	0	0	0	0	1	2	0
80%	0	0	0	0	0	0	0	0	0	1	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	5	1	0	0	0	0	2	4	10	12	10	7
Water Year Types[b,c]												
Wet (32%)	4	0	0	0	0	0	0	0	0	1	7	7
Above Normal (15%)	3	1	0	0	0	0	0	0	15	27	20	9
Below Normal (17%)	6	3	0	0	0	0	1	6	14	13	10	4
Dry (22%)	8	2	0	0	0	0	3	10	18	18	14	10
Critical (15%)	2	1	0	0	0	0	5	7	9	8	3	2

Table 12-3c. Sites Project Facilities Total Generation, Alternative 3 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14	4	0	0	0	0	7	20	29	34	30	15
20%	7	1	0	0	0	0	1	8	24	26	23	14
30%	7	0	0	0	0	0	1	2	22	19	10	8
40%	7	0	0	0	0	0	0	0	7	11	8	7
50%	3	0	0	0	0	0	0	0	1	4	7	6
60%	1	0	0	0	0	0	0	0	0	1	7	5
70%	0	0	0	0	0	0	0	0	0	1	2	0
80%	0	0	0	0	0	0	0	0	0	1	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	5	1	0	0	0	0	2	4	10	12	10	7
Water Year Types[b,c]												
Wet (32%)	4	0	0	0	0	0	0	0	0	1	7	7
Above Normal (15%)	3	1	0	0	0	0	0	0	15	27	20	9
Below Normal (17%)	6	3	0	0	0	0	1	6	14	13	10	4
Dry (22%)	8	2	0	0	0	0	3	10	18	18	14	10
Critical (15%)	2	1	0	0	0	0	5	7	9	8	3	2

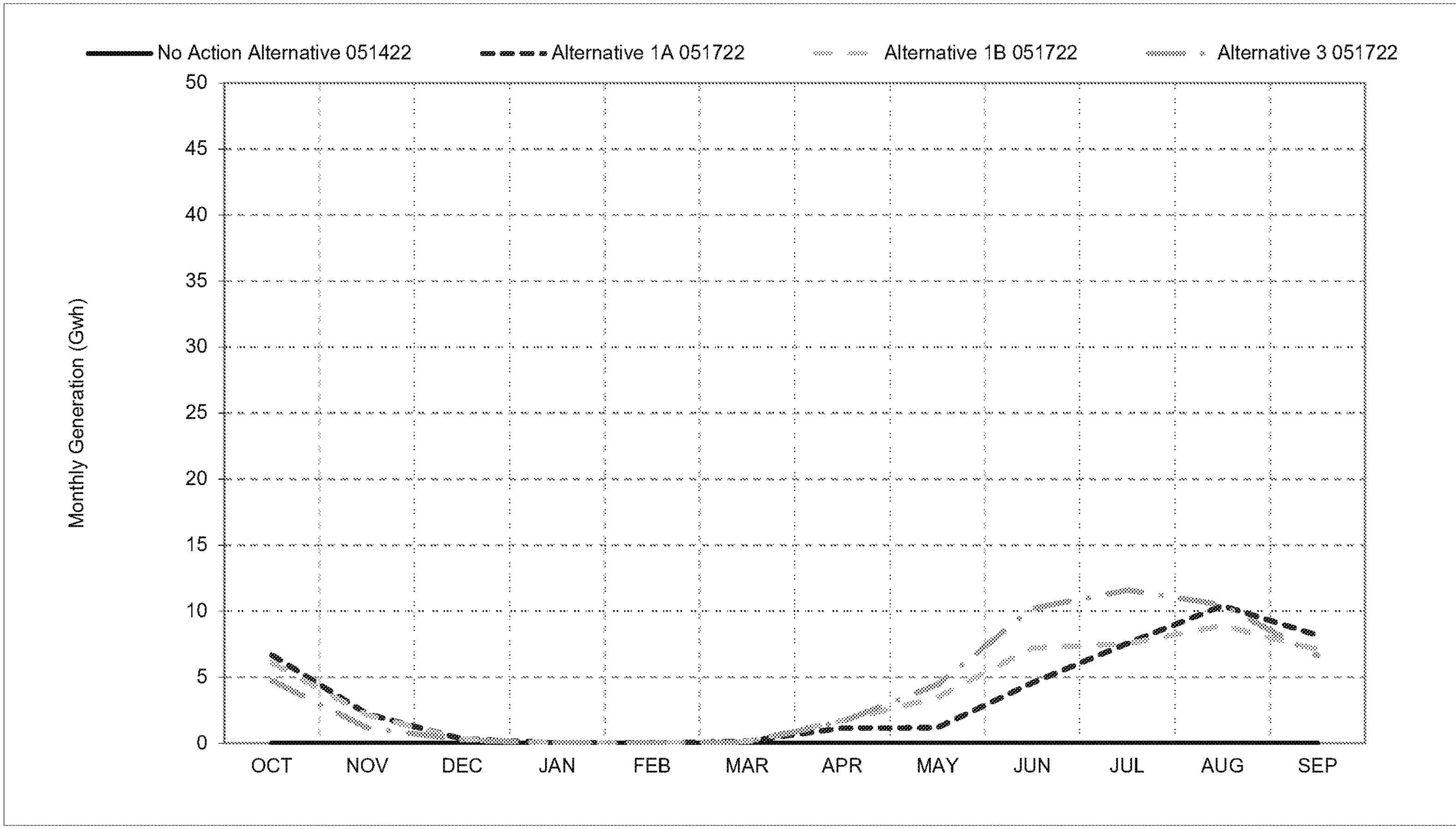
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-1. Sites Project Facilities Total Generation, Long-Term Average Generation

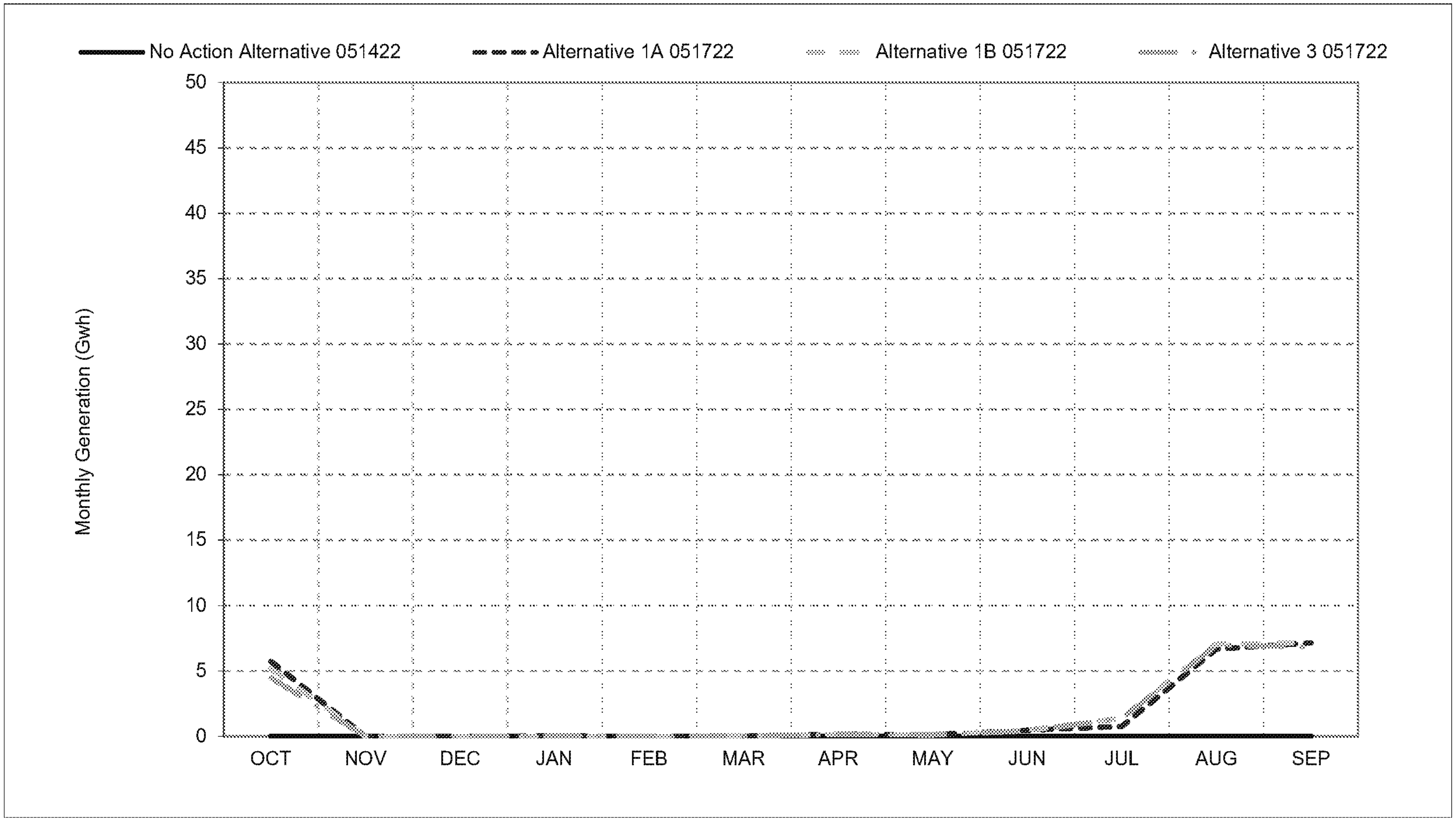


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-2. Sites Project Facilities Total Generation, Wet Year Average Generation

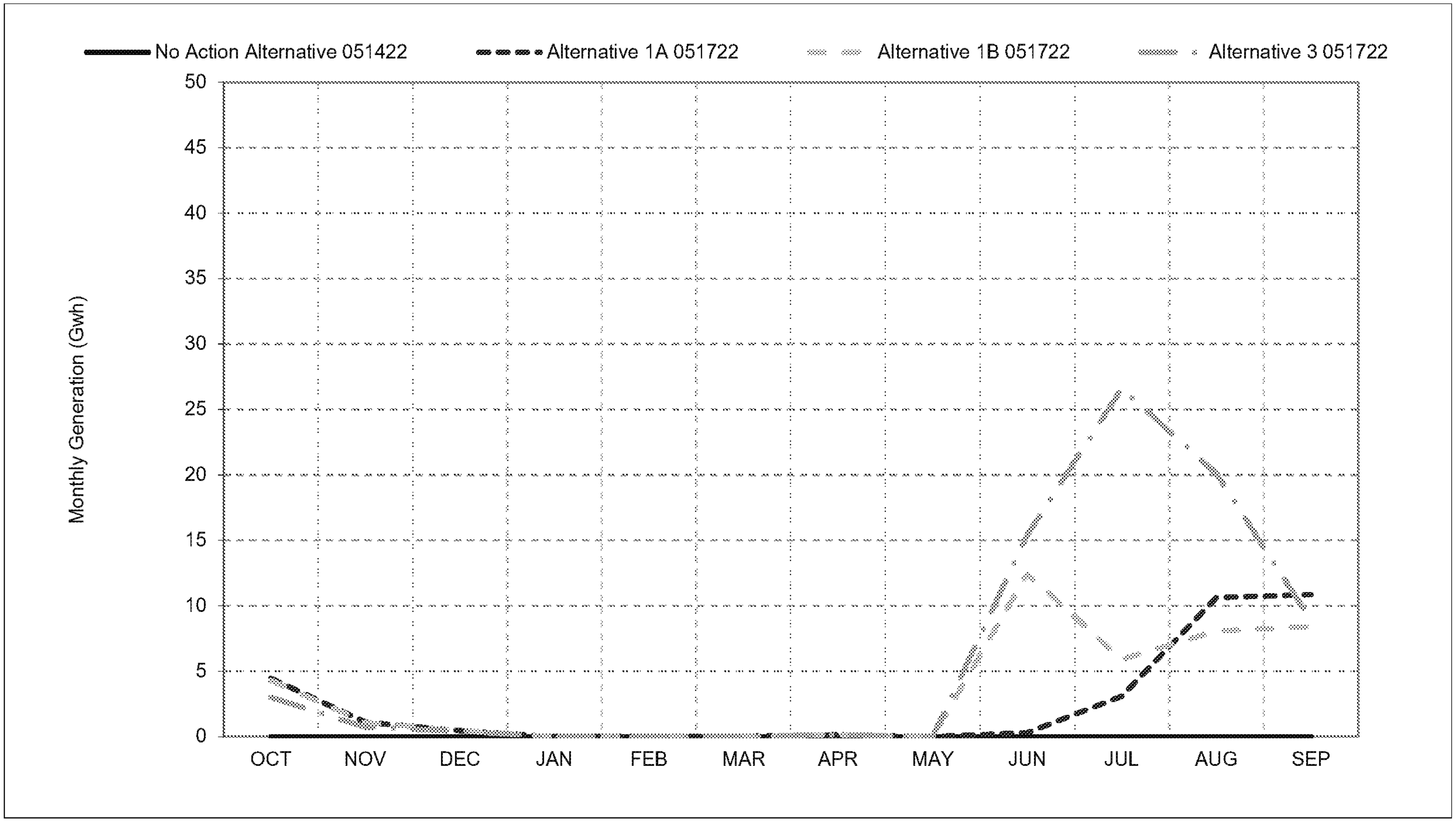


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

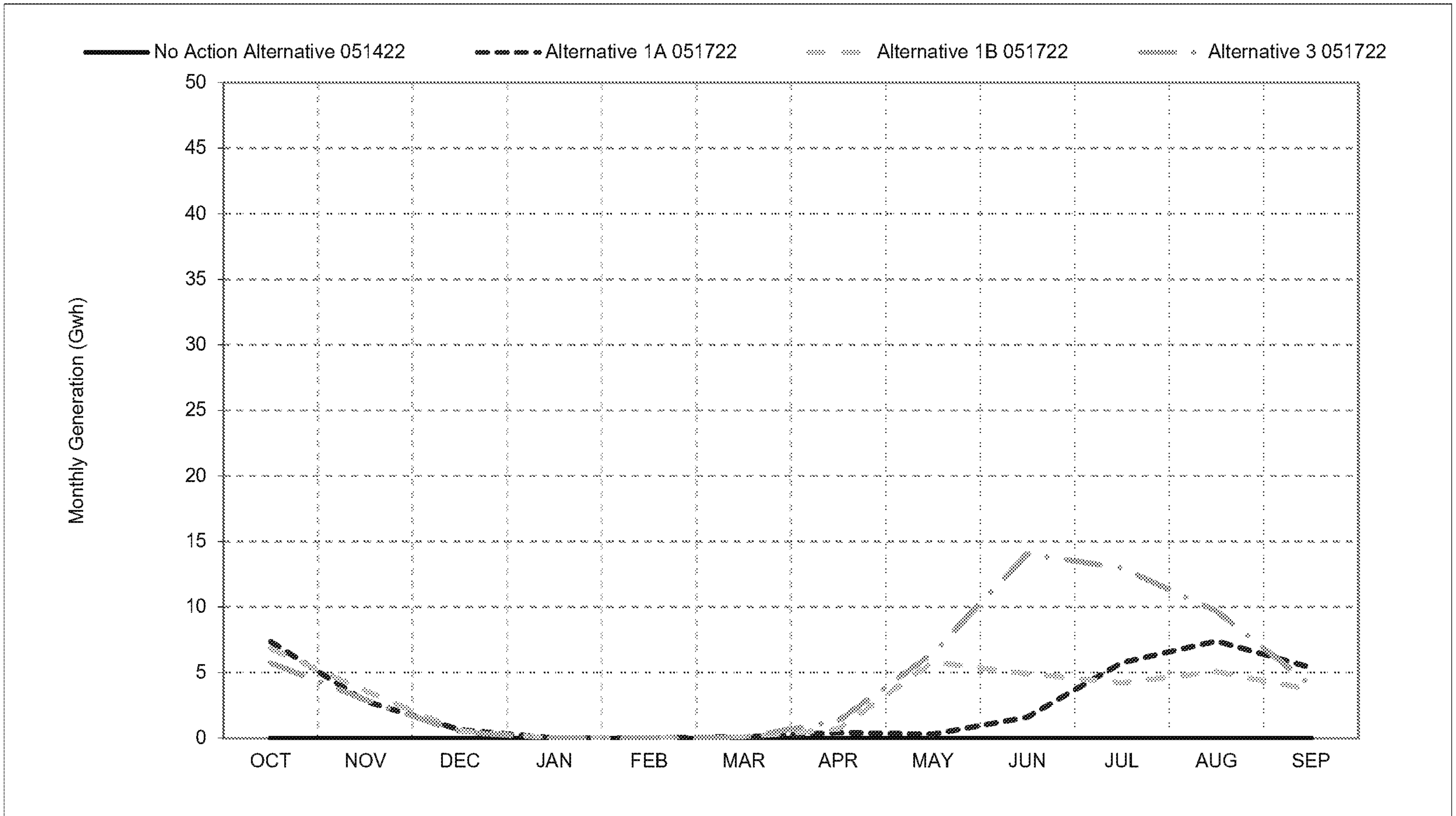
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-3. Sites Project Facilities Total Generation, Above Normal Year Average Generation



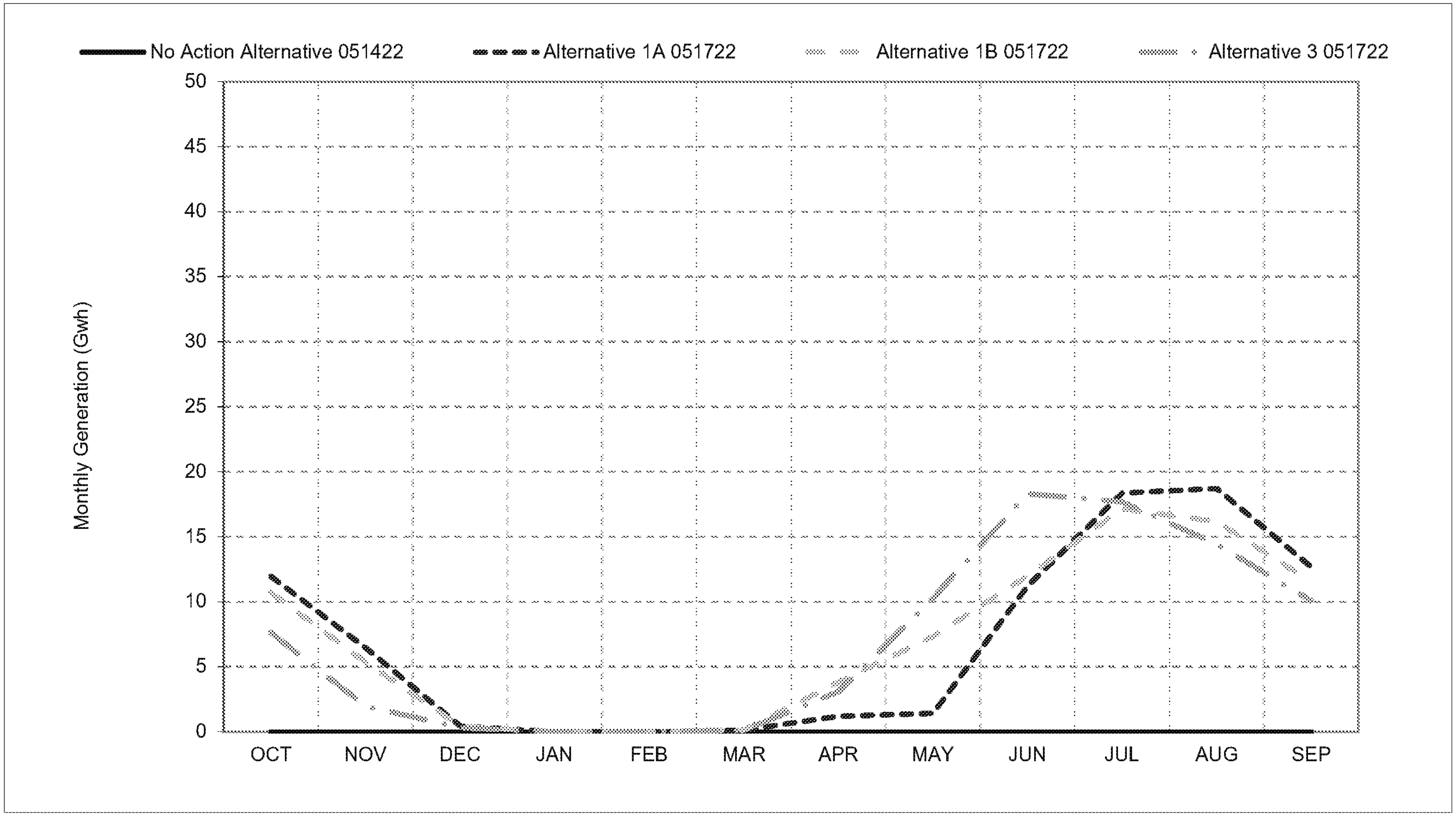
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-4. Sites Project Facilities Total Generation, Below Normal Year Average Generation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-5. Sites Project Facilities Total Generation, Dry Year Average Generation

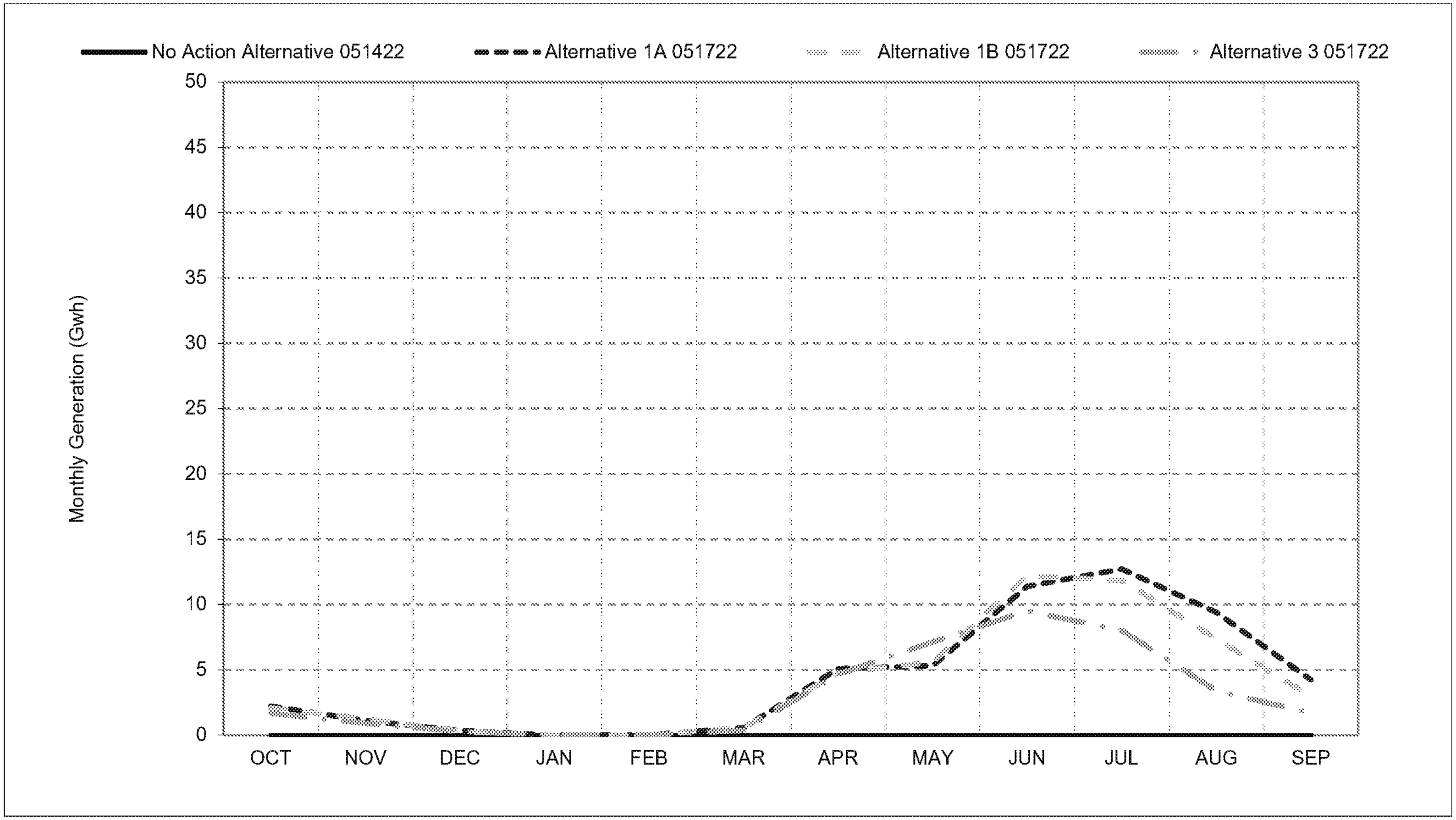


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-6. Sites Project Facilities Total Generation, Critical Year Average Generation

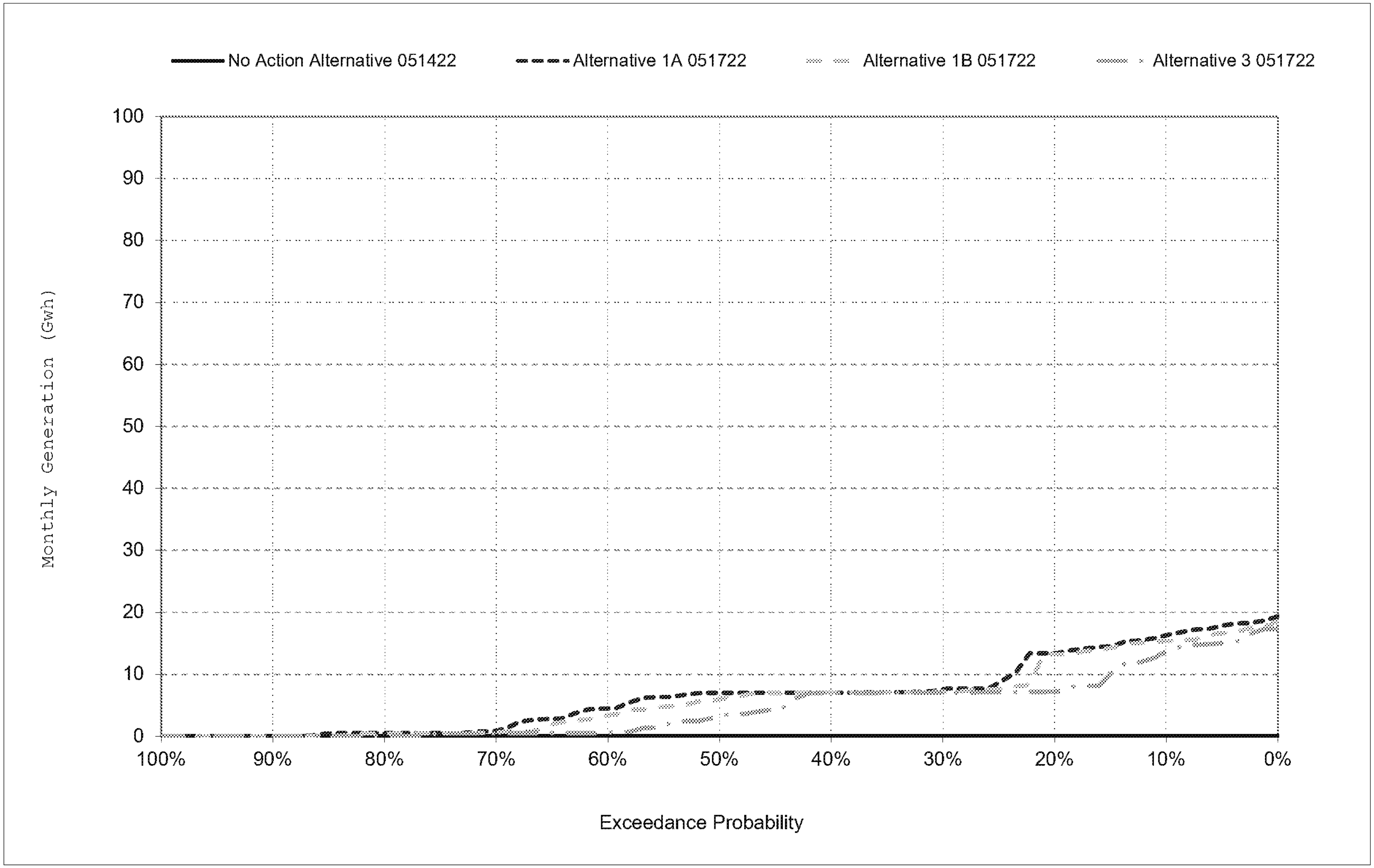


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

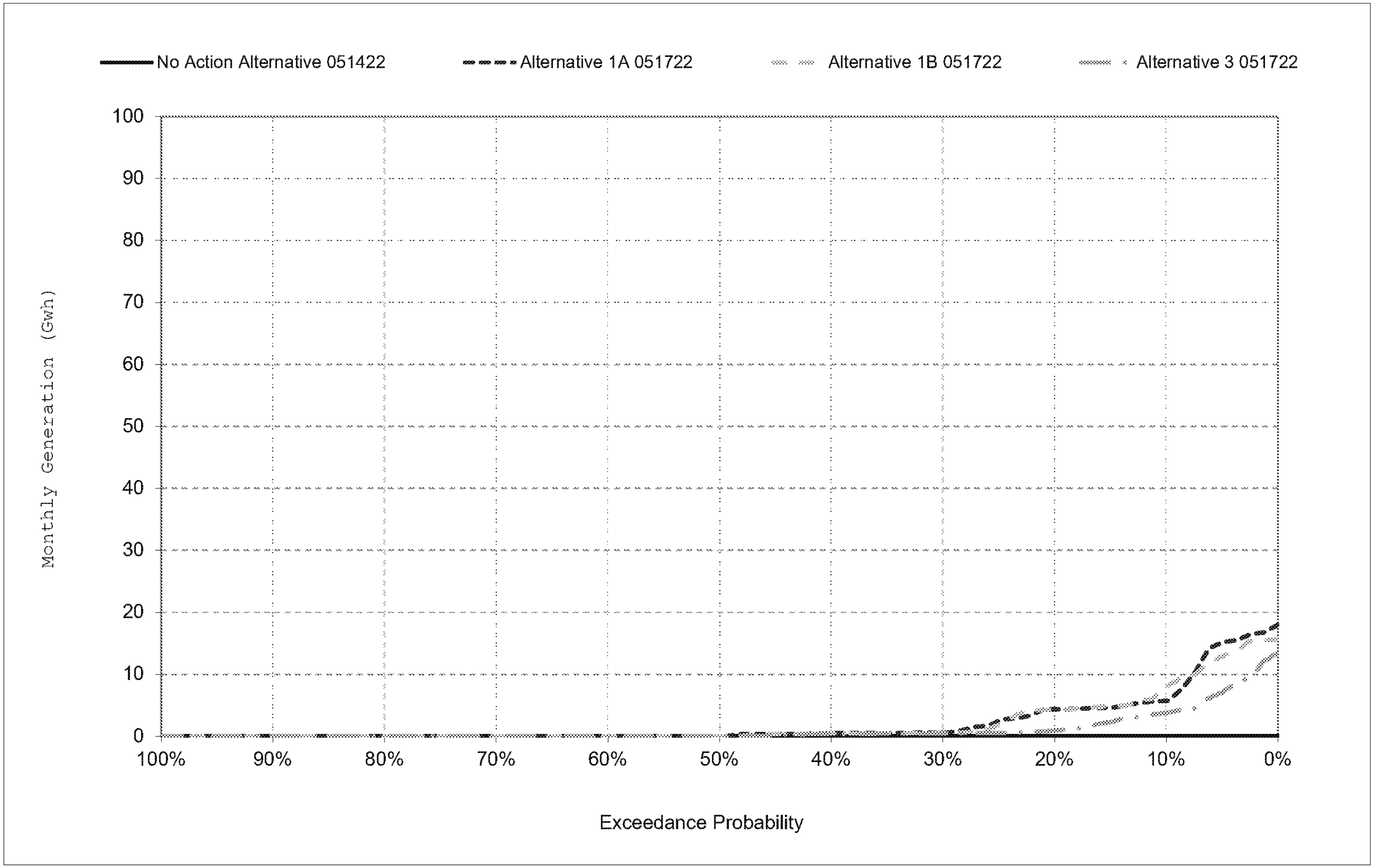
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-7. Sites Project Facilities Total Generation, October



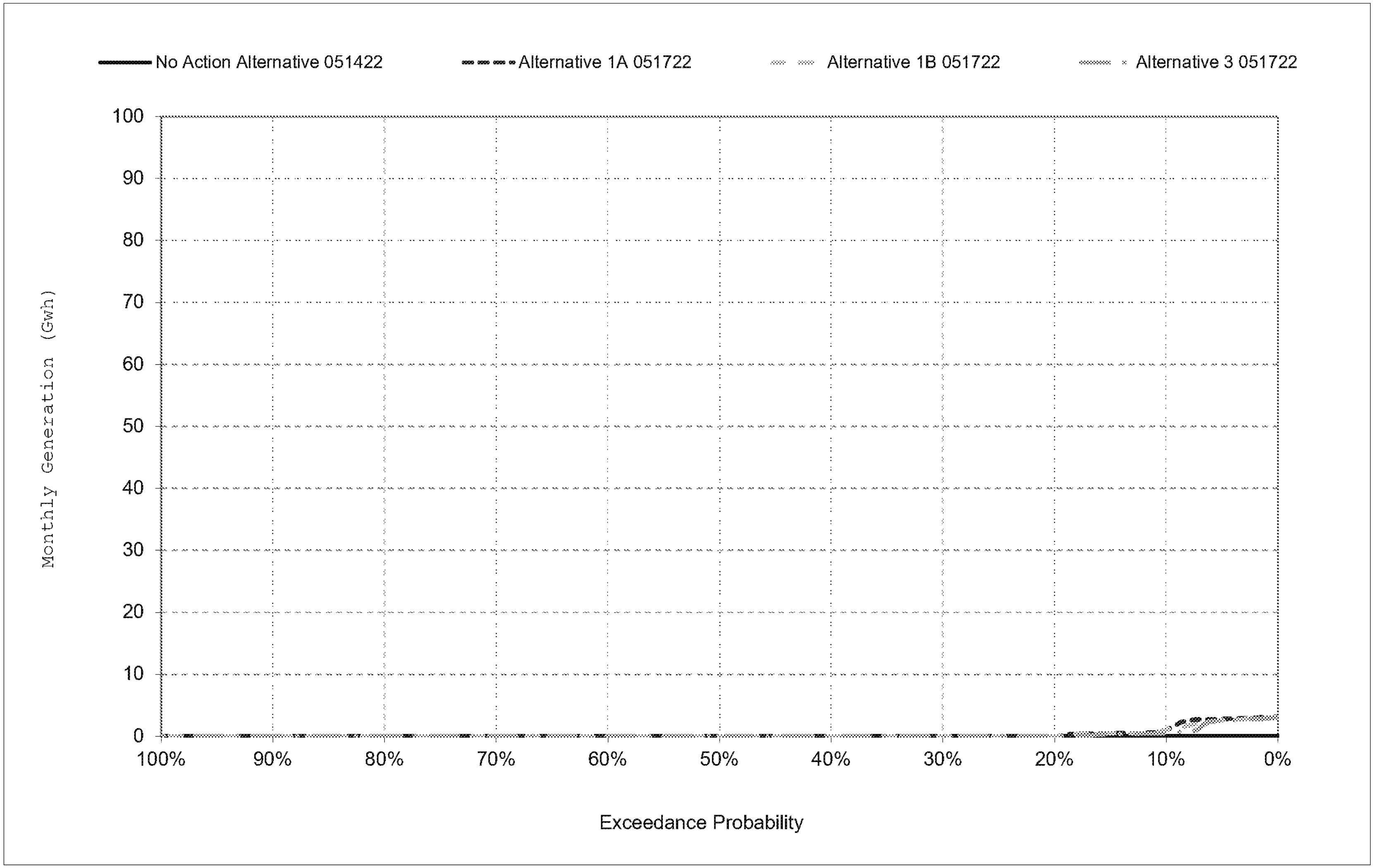
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-8. Sites Project Facilities Total Generation, November



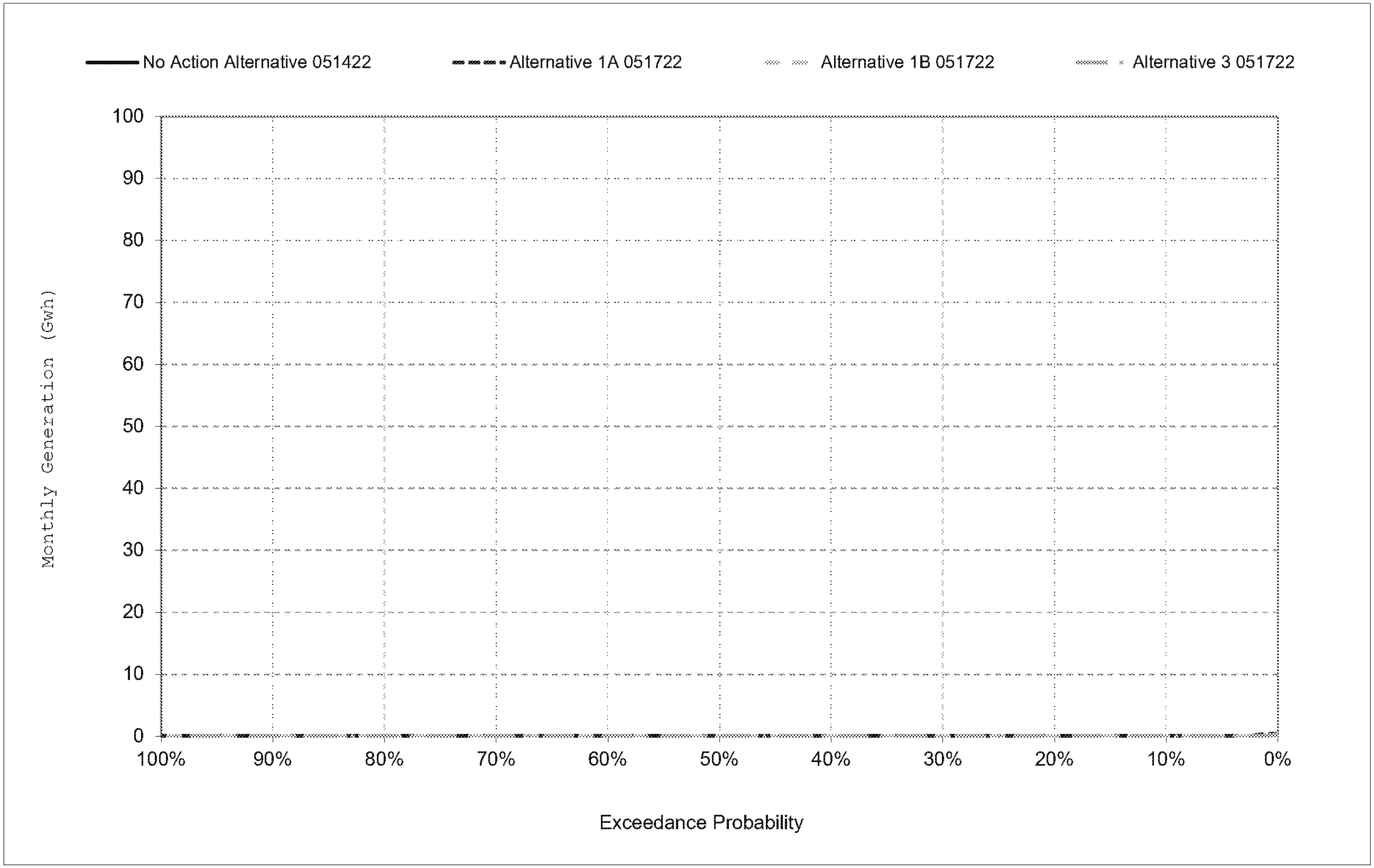
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-9. Sites Project Facilities Total Generation, December



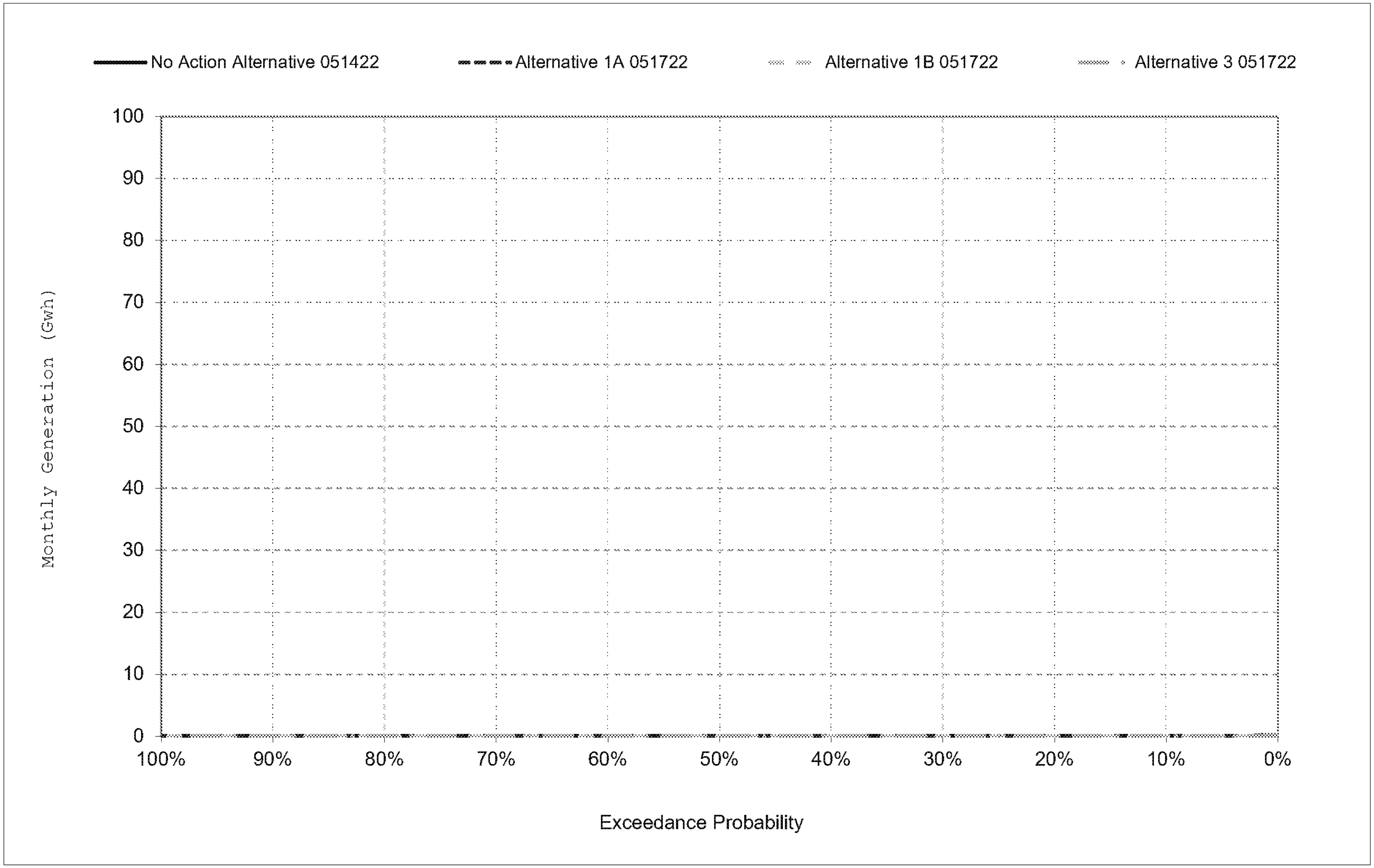
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-10. Sites Project Facilities Total Generation, January



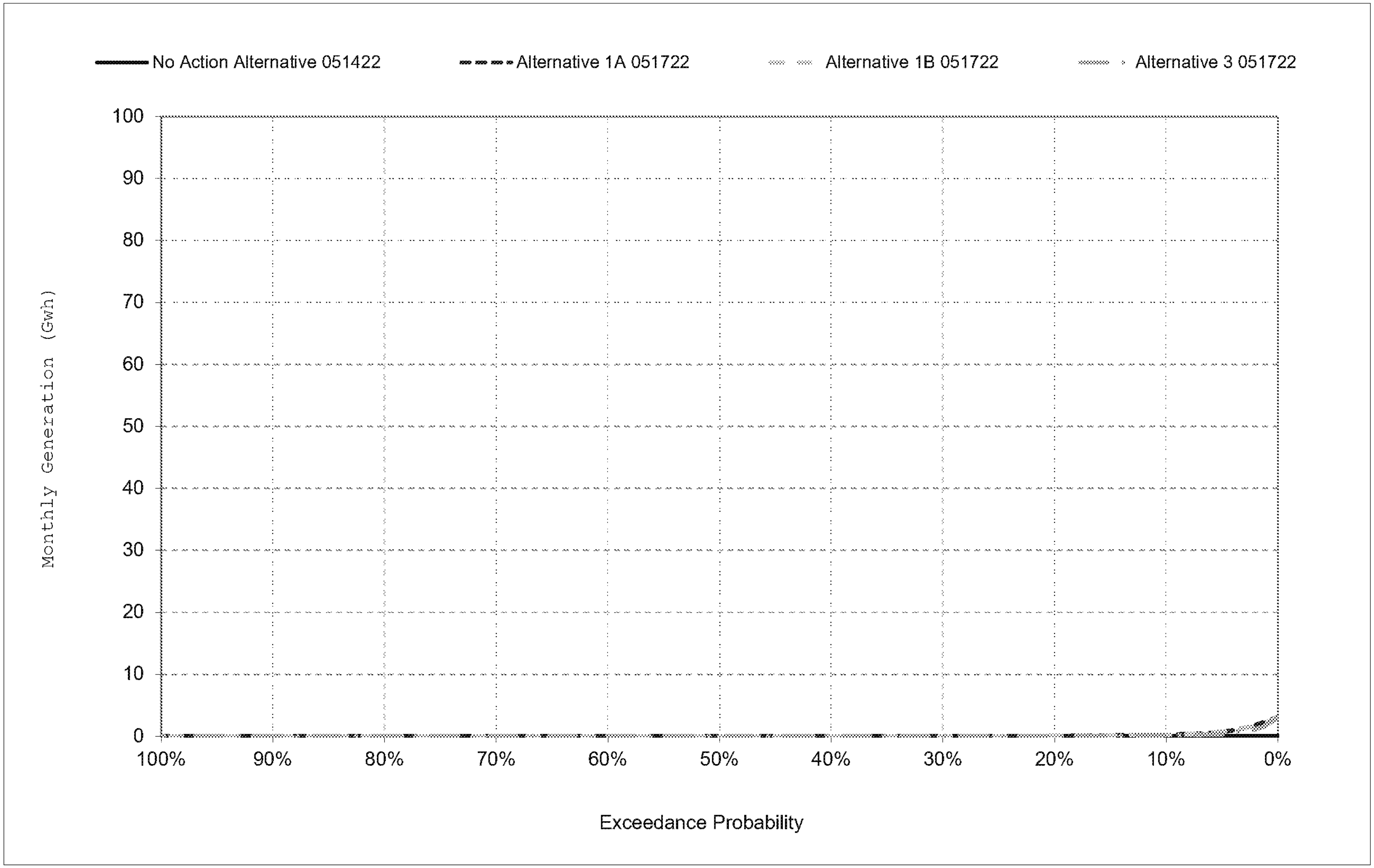
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-11. Sites Project Facilities Total Generation, February



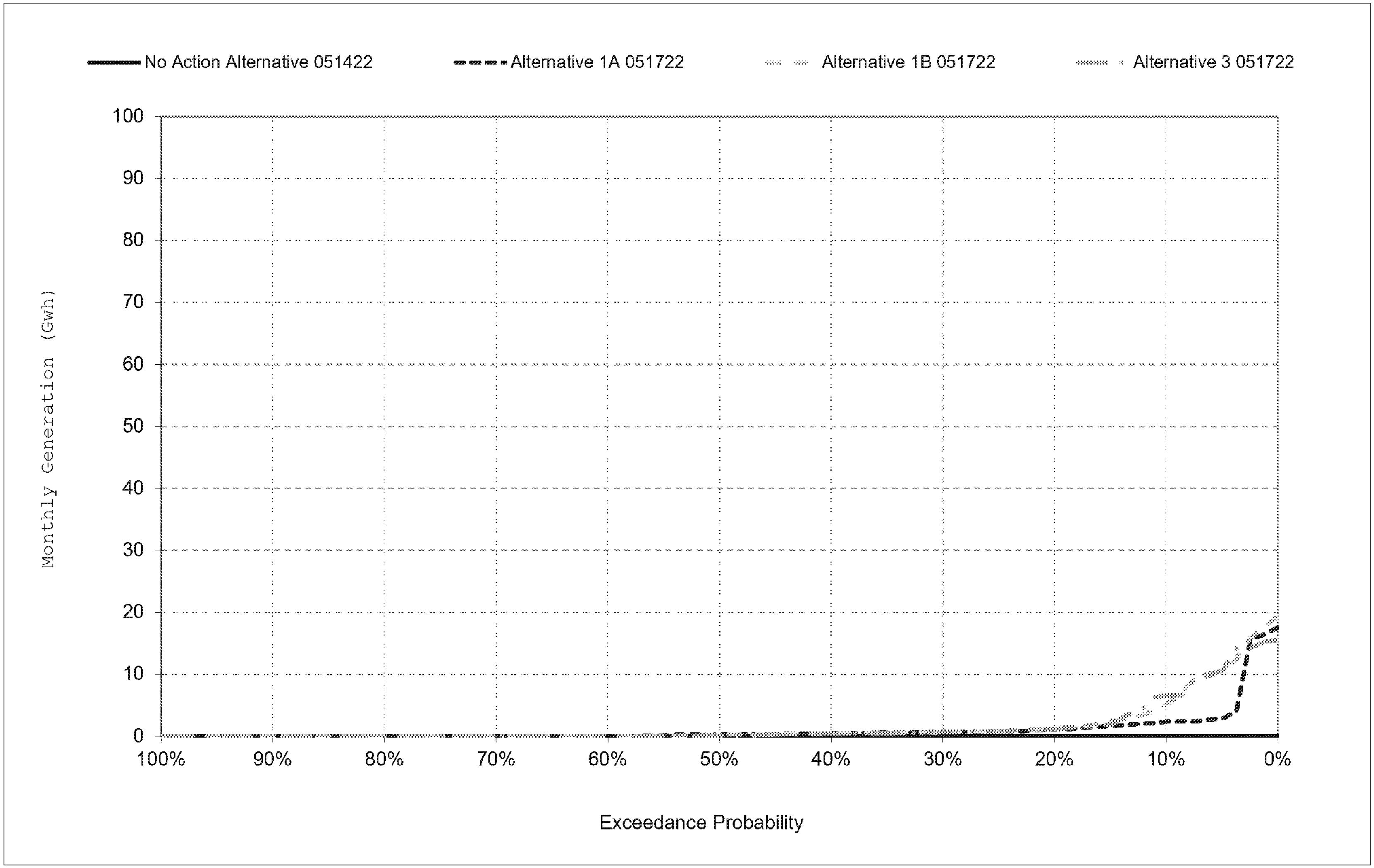
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-12. Sites Project Facilities Total Generation, March



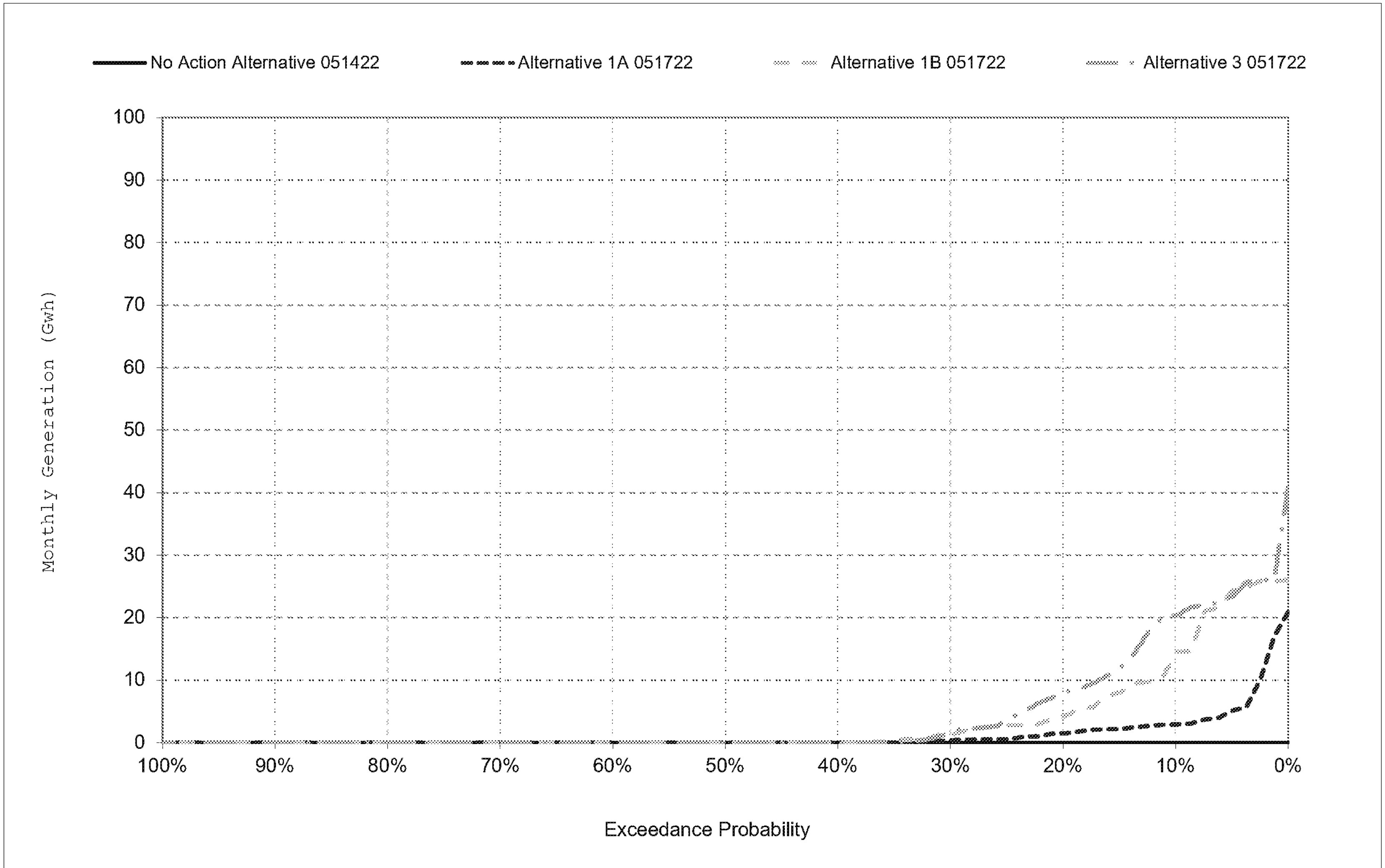
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-13. Sites Project Facilities Total Generation, April



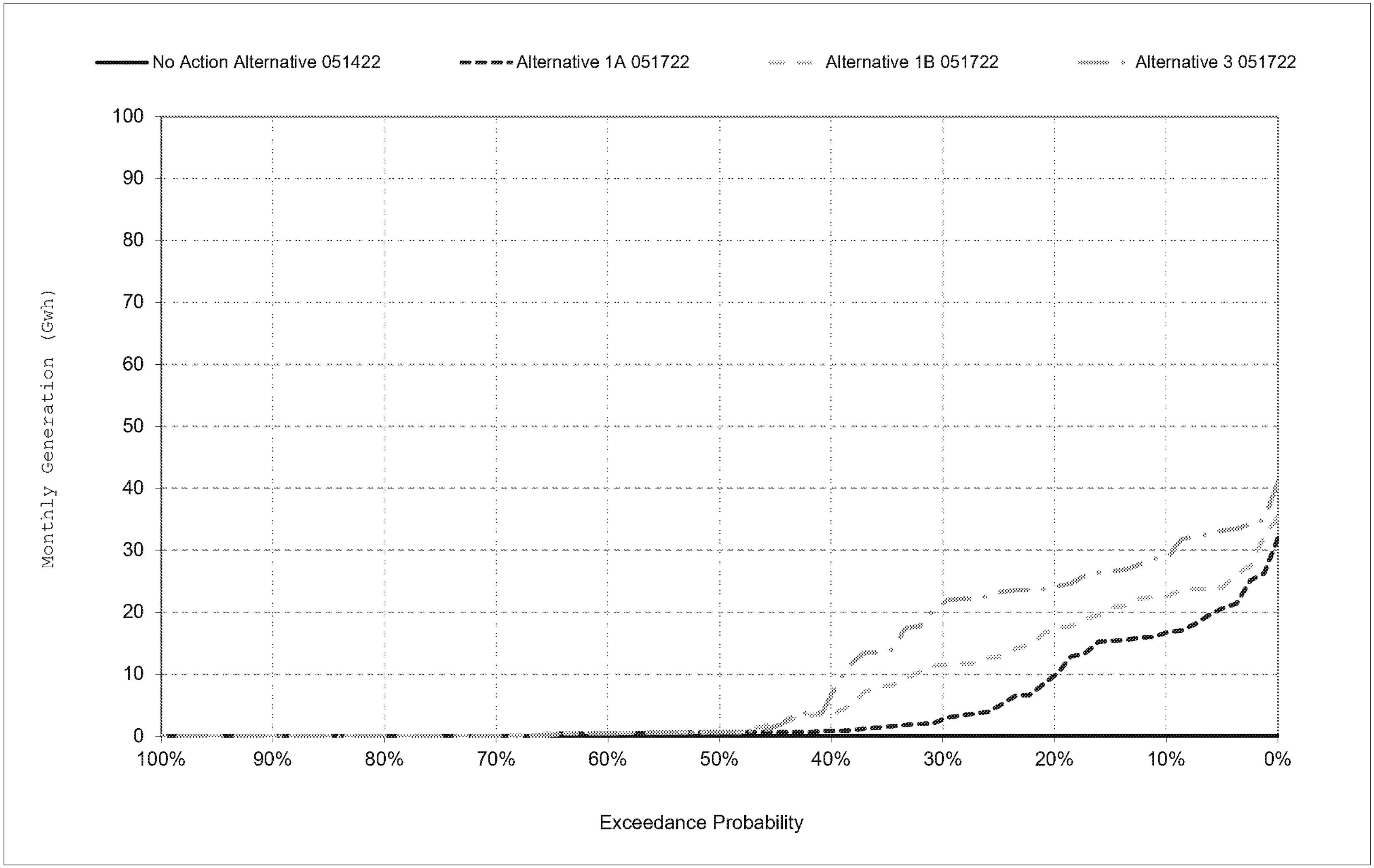
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-14. Sites Project Facilities Total Generation, May



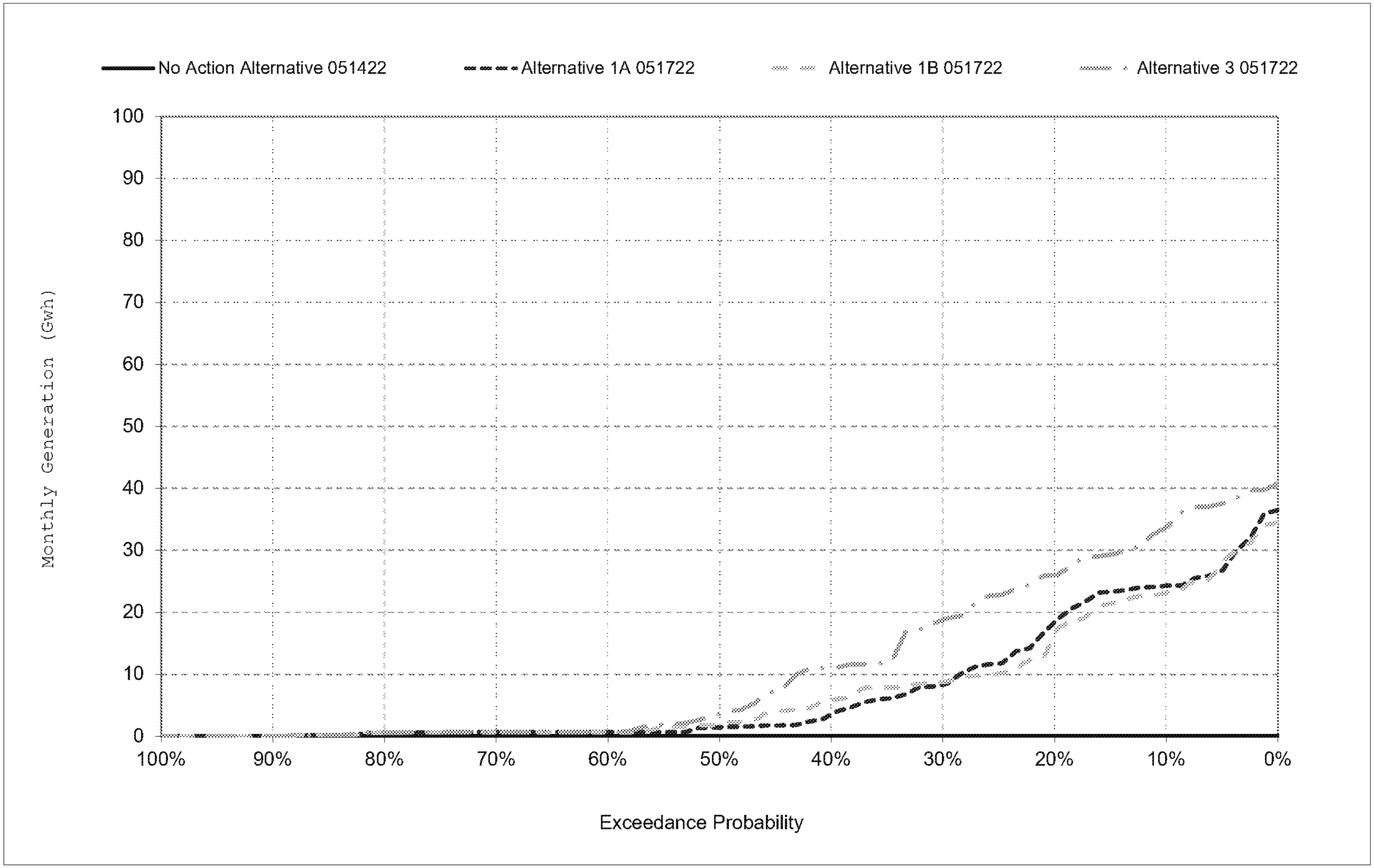
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-15. Sites Project Facilities Total Generation, June



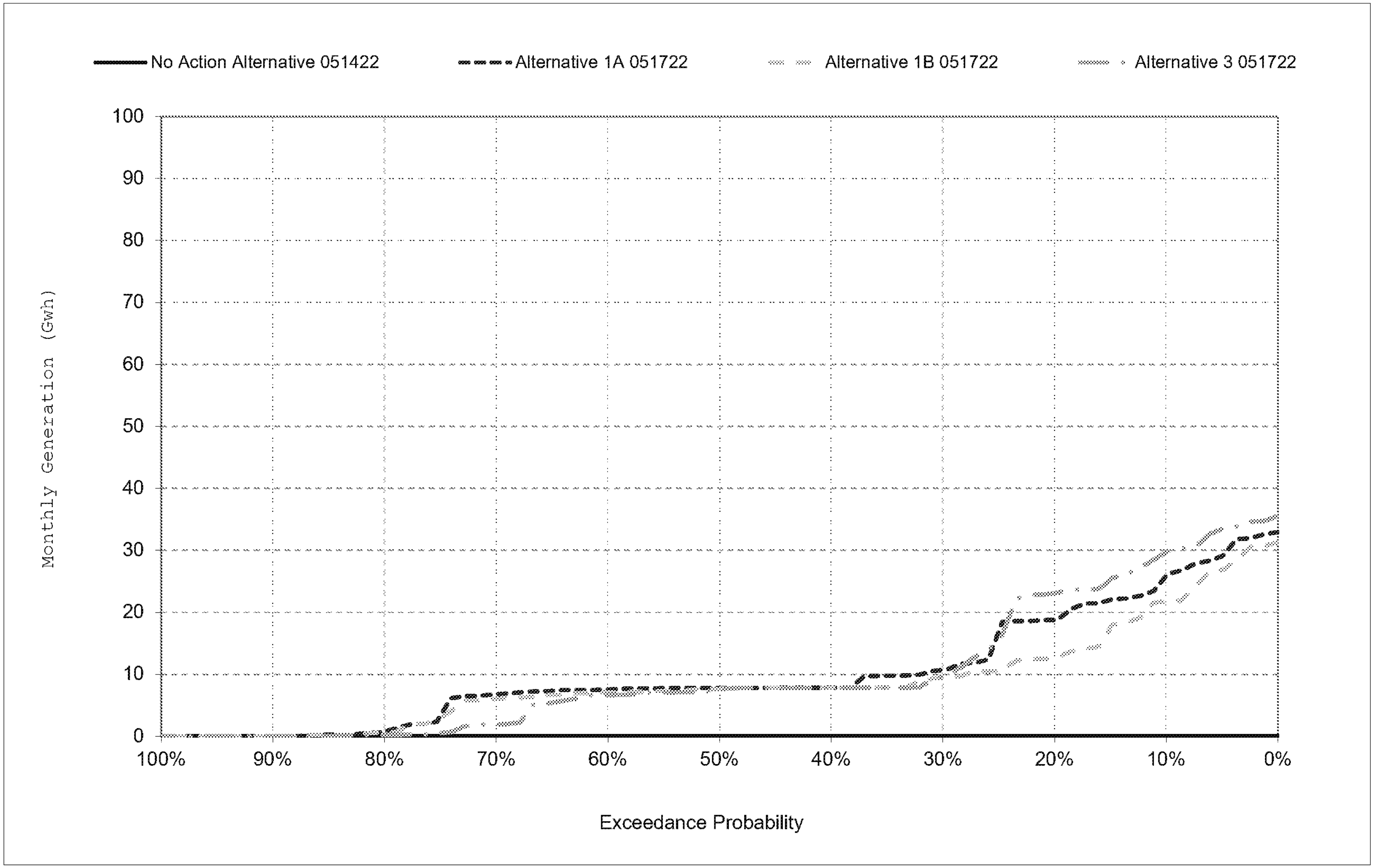
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-16. Sites Project Facilities Total Generation, July



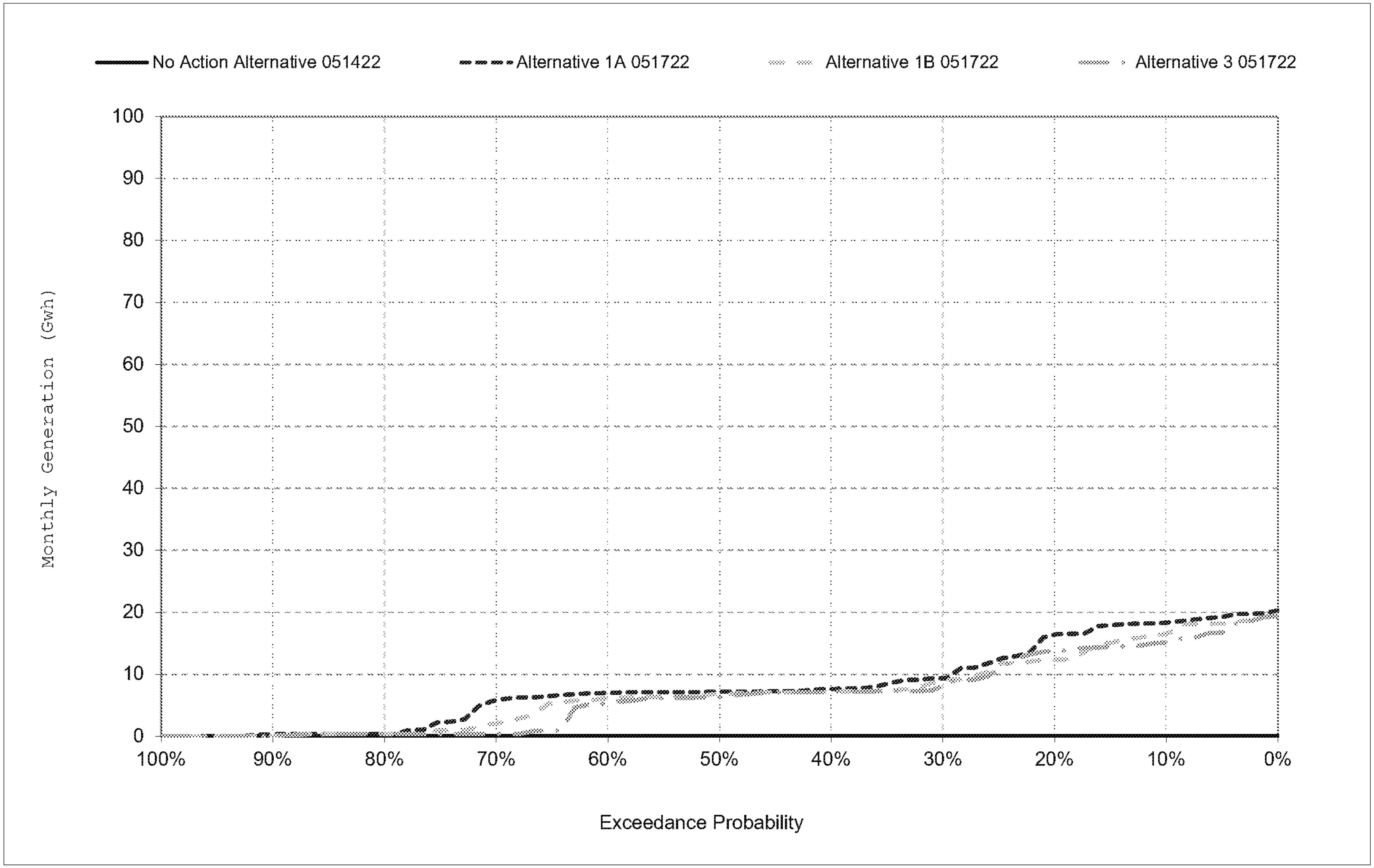
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-17. Sites Project Facilities Total Generation, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 12-18. Sites Project Facilities Total Generation, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 13-1a. Sites Project Facilities Total Energy Use, No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	1	0	0	0	0	1	3	3	3	3	1
20%	1	1	0	0	0	0	1	2	3	3	3	1
30%	1	1	0	0	0	0	1	2	3	3	3	1
40%	1	1	0	0	0	0	1	2	3	3	2	1
50%	1	1	0	0	0	0	0	2	3	3	2	1
60%	1	0	0	0	0	0	0	2	3	3	2	1
70%	0	0	0	0	0	0	0	2	3	3	2	1
80%	0	0	0	0	0	0	0	2	2	3	2	0
90%	0	0	0	0	0	0	0	2	2	2	1	0
Long Term												
Full Simulation Period[a]	1	1	0	0	0	0	1	2	3	3	2	1
Water Year Types[b,c]												
Wet (32%)	1	1	0	0	0	0	0	2	3	3	3	1
Above Normal (15%)	1	1	0	0	0	0	1	2	3	3	2	1
Below Normal (17%)	1	1	0	0	0	0	1	2	3	3	2	1
Dry (22%)	1	0	0	0	0	0	1	2	3	3	2	1
Critical (15%)	0	0	0	0	0	0	0	2	2	2	1	0

Table 13-1b. Sites Project Facilities Total Energy Use, Alternative 1A 051722, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	11	51	70	64	63	2	4	3	3	3	1
20%	1	1	35	46	47	41	1	3	3	3	3	1
30%	1	1	16	21	30	14	1	2	3	3	3	1
40%	1	1	0	0	11	1	1	2	3	3	2	1
50%	1	1	0	0	0	0	1	2	3	3	2	1
60%	0	0	0	0	0	0	1	2	3	3	2	1
70%	0	0	0	0	0	0	0	2	3	3	2	0
80%	0	0	0	0	0	0	0	2	2	2	1	0
90%	0	0	0	0	0	0	0	2	2	2	1	0
Long Term												
Full Simulation Period[a]	1	5	15	18	19	17	7	4	3	3	2	1
Water Year Types[b,c]												
Wet (32%)	1	6	10	26	26	17	16	7	3	3	3	2
Above Normal (15%)	1	6	18	40	34	37	7	2	4	3	2	1
Below Normal (17%)	4	5	26	12	16	10	5	2	3	3	2	3
Dry (22%)	0	4	21	4	12	17	1	2	3	2	2	0
Critical (15%)	0	0	0	5	3	3	0	2	2	2	1	0

Table 13-1c. Sites Project Facilities Total Energy Use, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	10	51	70	64	63	1	2	0	0	0	0
20%	0	0	34	46	47	41	0	0	0	0	0	0
30%	0	0	16	21	30	14	0	0	0	0	0	0
40%	0	0	0	0	11	1	0	0	0	0	0	0
50%	0	0	0	0	0	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	1	4	15	18	19	17	7	2	0	0	0	1
Water Year Types[b,c]												
Wet (32%)	1	5	10	26	26	17	15	5	0	0	0	1
Above Normal (15%)	0	5	18	39	34	37	7	0	1	0	0	0
Below Normal (17%)	3	5	26	12	16	10	4	0	0	0	0	3
Dry (22%)	0	4	21	4	12	17	0	0	0	0	0	0
Critical (15%)	0	0	0	5	3	3	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 13-2a. Sites Project Facilities Total Energy Use, No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	1	0	0	0	0	1	3	3	3	3	1
20%	1	1	0	0	0	0	1	2	3	3	3	1
30%	1	1	0	0	0	0	1	2	3	3	3	1
40%	1	1	0	0	0	0	1	2	3	3	2	1
50%	1	1	0	0	0	0	0	2	3	3	2	1
60%	1	0	0	0	0	0	0	2	3	3	2	1
70%	0	0	0	0	0	0	0	2	3	3	2	1
80%	0	0	0	0	0	0	0	2	2	3	2	0
90%	0	0	0	0	0	0	0	2	2	2	1	0
Long Term												
Full Simulation Period[a]	1	1	0	0	0	0	1	2	3	3	2	1
Water Year Types[b,c]												
Wet (32%)	1	1	0	0	0	0	0	2	3	3	3	1
Above Normal (15%)	1	1	0	0	0	0	1	2	3	3	2	1
Below Normal (17%)	1	1	0	0	0	0	1	2	3	3	2	1
Dry (22%)	1	0	0	0	0	0	1	2	3	3	2	1
Critical (15%)	0	0	0	0	0	0	0	2	2	2	1	0

Table 13-2b. Sites Project Facilities Total Energy Use, Alternative 1B 051722, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	11	63	72	64	69	2	3	3	3	3	1
20%	1	1	37	54	45	45	1	3	3	3	3	1
30%	1	1	15	29	35	12	1	2	3	3	3	1
40%	1	1	0	0	10	1	1	2	3	3	2	1
50%	1	1	0	0	1	0	1	2	3	3	2	1
60%	0	0	0	0	0	0	0	2	2	3	2	1
70%	0	0	0	0	0	0	0	2	2	3	2	0
80%	0	0	0	0	0	0	0	2	2	2	2	0
90%	0	0	0	0	0	0	0	1	2	2	1	0
Long Term												
Full Simulation Period[a]	1	5	15	19	19	17	7	4	3	3	2	2
Water Year Types[b,c]												
Wet (32%)	1	7	11	31	26	18	15	7	3	3	3	3
Above Normal (15%)	1	6	20	40	34	38	7	2	3	3	2	1
Below Normal (17%)	4	5	26	13	18	10	5	2	3	3	2	3
Dry (22%)	0	4	20	4	12	16	0	2	3	2	2	0
Critical (15%)	0	0	0	4	3	3	0	2	2	2	1	0

Table 13-2c. Sites Project Facilities Total Energy Use, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	10	63	71	64	68	1	0	0	0	0	0
20%	0	0	37	54	45	45	0	0	0	0	0	0
30%	0	0	15	29	35	12	0	0	0	0	0	0
40%	0	0	0	0	10	1	0	0	0	0	0	0
50%	0	0	0	0	1	0	0	0	0	0	0	0
60%	0	0	0	0	0	0	0	0	0	0	0	0
70%	0	0	0	0	0	0	0	0	0	0	0	0
80%	0	0	0	0	0	0	0	0	0	0	0	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	1	4	15	19	19	17	6	1	0	0	0	1
Water Year Types[b,c]												
Wet (32%)	1	6	11	31	26	18	15	5	0	0	0	3
Above Normal (15%)	0	5	20	40	34	38	7	0	0	0	0	0
Below Normal (17%)	3	5	26	13	18	10	4	0	0	0	0	2
Dry (22%)	0	4	20	4	12	16	0	0	0	0	0	0
Critical (15%)	0	0	0	4	3	3	0	0	0	0	0	0

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 13-3a. Sites Project Facilities Total Energy Use, No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	1	0	0	0	0	1	3	3	3	3	1
20%	1	1	0	0	0	0	1	2	3	3	3	1
30%	1	1	0	0	0	0	1	2	3	3	3	1
40%	1	1	0	0	0	0	1	2	3	3	2	1
50%	1	1	0	0	0	0	0	2	3	3	2	1
60%	1	0	0	0	0	0	0	2	3	3	2	1
70%	0	0	0	0	0	0	0	2	3	3	2	1
80%	0	0	0	0	0	0	0	2	2	3	2	0
90%	0	0	0	0	0	0	0	2	2	2	1	0
Long Term												
Full Simulation Period[a]	1	1	0	0	0	0	1	2	3	3	2	1
Water Year Types[b,c]												
Wet (32%)	1	1	0	0	0	0	0	2	3	3	3	1
Above Normal (15%)	1	1	0	0	0	0	1	2	3	3	2	1
Below Normal (17%)	1	1	0	0	0	0	1	2	3	3	2	1
Dry (22%)	1	0	0	0	0	0	1	2	3	3	2	1
Critical (15%)	0	0	0	0	0	0	0	2	2	2	1	0

Table 13-3b. Sites Project Facilities Total Energy Use, Alternative 3 051722, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1	12	62	69	66	70	2	3	3	3	3	1
20%	1	1	34	55	57	51	1	3	3	3	3	1
30%	1	1	16	33	39	28	1	2	3	3	3	1
40%	1	1	0	0	21	6	1	2	3	3	2	1
50%	1	1	0	0	6	0	1	2	2	2	2	1
60%	0	1	0	0	0	0	0	2	2	2	2	1
70%	0	0	0	0	0	0	0	2	2	2	2	0
80%	0	0	0	0	0	0	0	2	2	2	1	0
90%	0	0	0	0	0	0	0	1	1	2	1	0
Long Term												
Full Simulation Period[a]	2	5	15	20	23	20	8	4	2	2	2	2
Water Year Types[b,c]												
Wet (32%)	1	7	10	32	36	23	18	7	3	3	3	3
Above Normal (15%)	3	6	27	39	40	38	7	2	3	2	2	1
Below Normal (17%)	4	6	26	14	17	16	5	2	2	3	2	3
Dry (22%)	0	4	18	4	11	17	1	2	2	2	2	0
Critical (15%)	0	0	0	4	3	3	0	2	2	1	1	0

Table 13-3c. Sites Project Facilities Total Energy Use, Alternative 3 051722 minus No Action Alternative 051422, Monthly Energy Use (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	11	62	69	66	70	1	1	0	0	0	0
20%	0	0	34	54	57	51	0	0	0	0	0	0
30%	0	0	16	33	39	28	0	0	0	0	0	0
40%	0	0	0	0	21	6	0	0	0	0	0	0
50%	0	0	0	0	6	0	0	0	0	-1	0	0
60%	0	0	0	0	0	0	0	0	-1	-1	0	0
70%	0	0	0	0	0	0	0	0	-1	-1	-1	0
80%	0	0	0	0	0	0	0	0	-1	-1	-1	0
90%	0	0	0	0	0	0	0	0	0	0	0	0
Long Term												
Full Simulation Period[a]	1	4	15	20	23	20	7	1	0	0	0	1
Water Year Types[b,c]												
Wet (32%)	1	6	10	32	36	23	17	5	0	0	0	3
Above Normal (15%)	2	5	27	39	40	38	7	0	0	-1	-1	0
Below Normal (17%)	3	5	25	14	17	16	4	0	-1	-1	0	2
Dry (22%)	0	4	18	4	11	17	0	0	-1	0	0	0
Critical (15%)	0	0	0	4	3	3	0	0	0	0	0	0

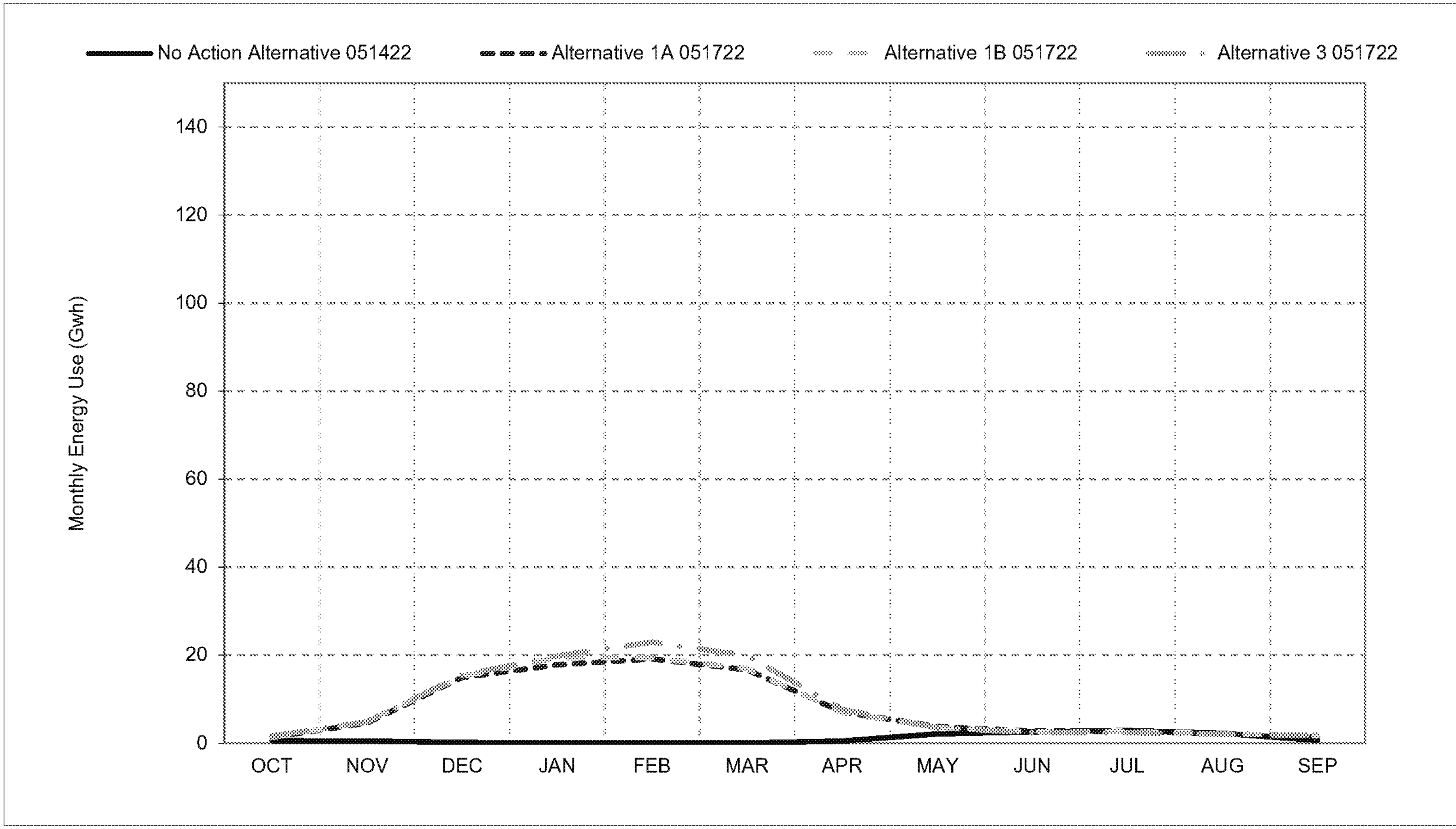
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-1. Sites Project Facilities Total Energy Use, Long-Term Average Energy Use

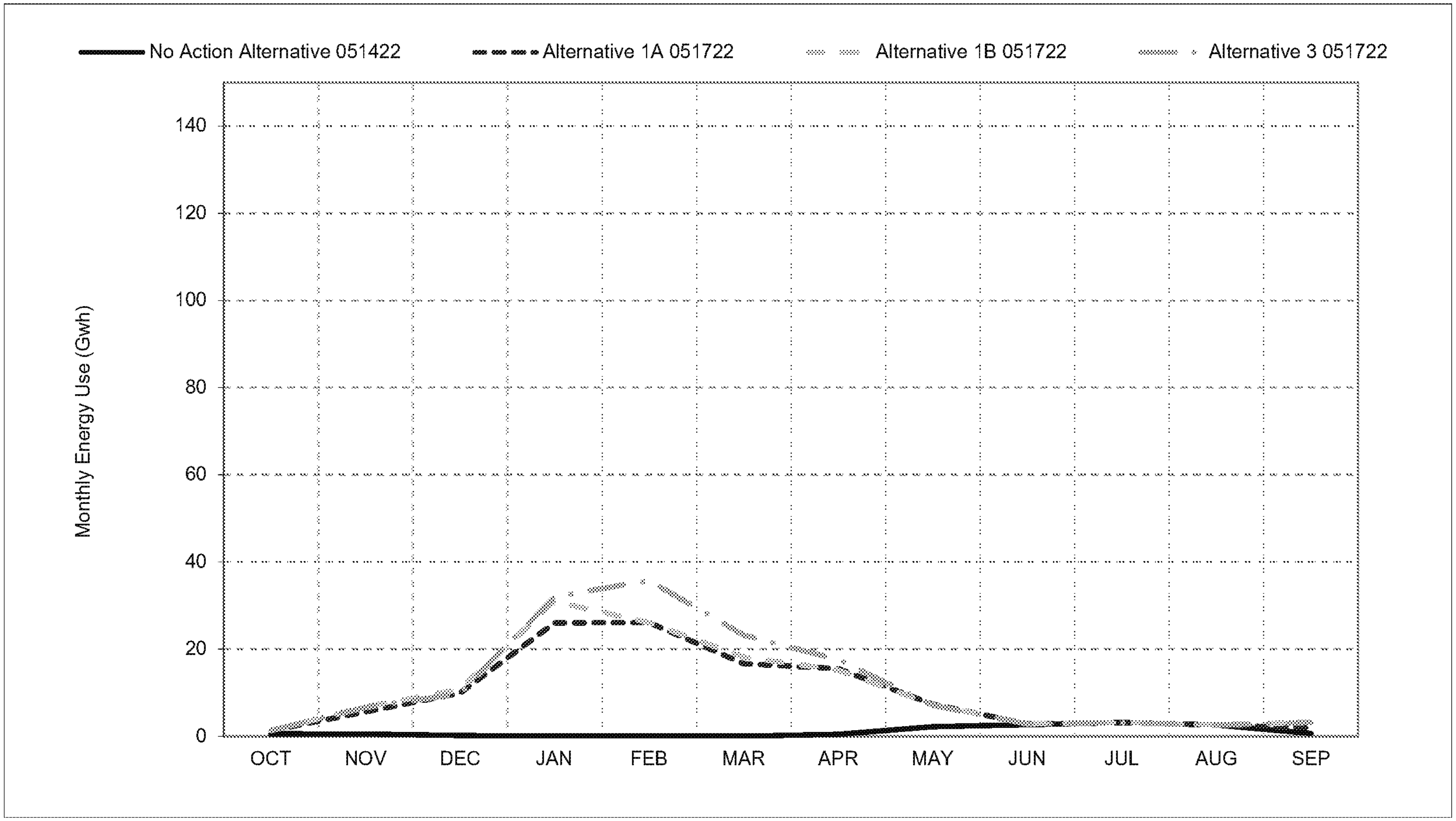


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-2. Sites Project Facilities Total Energy Use, Wet Year Average Energy Use

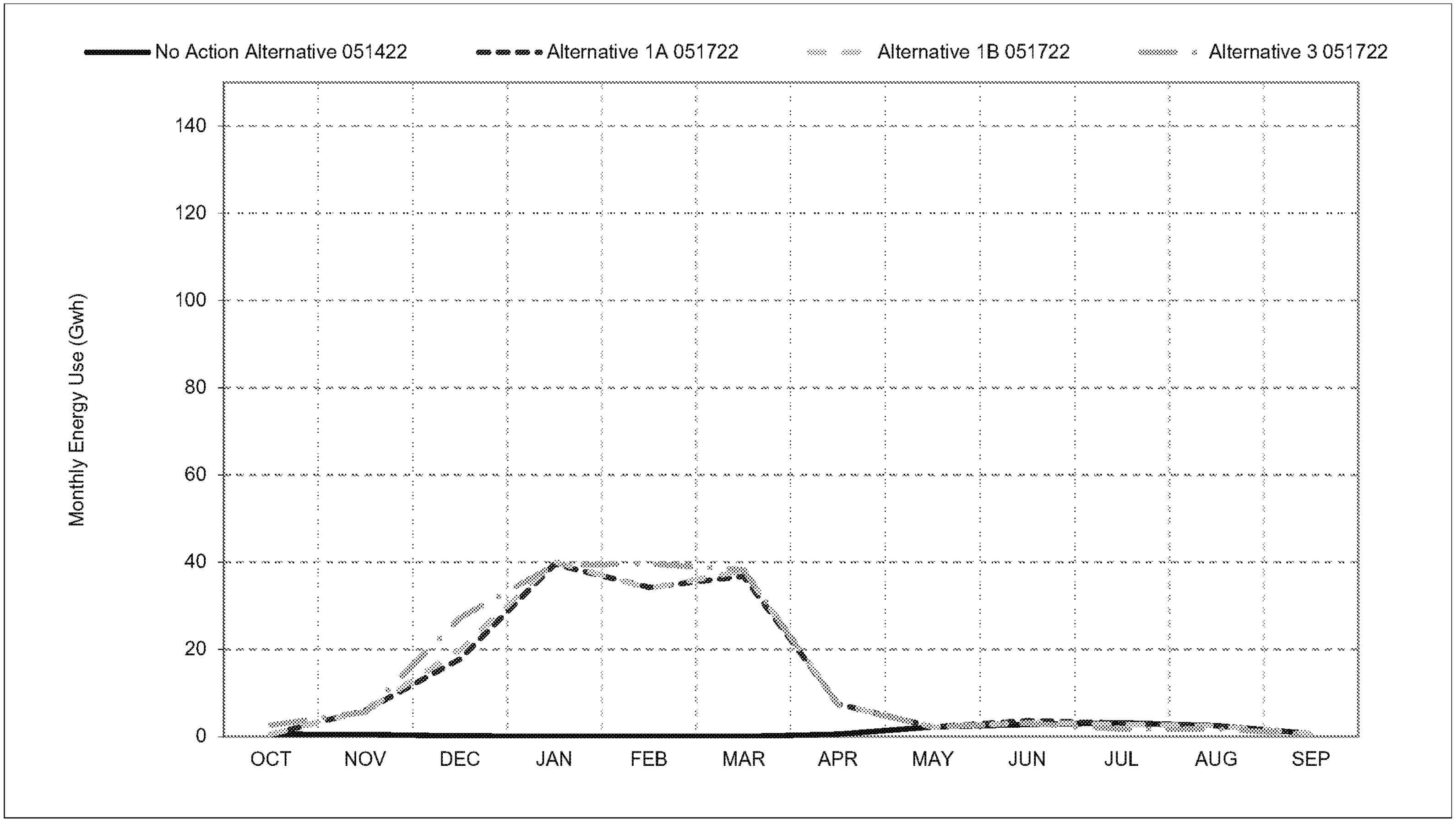


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-3. Sites Project Facilities Total Energy Use, Above Normal Year Average Energy Use

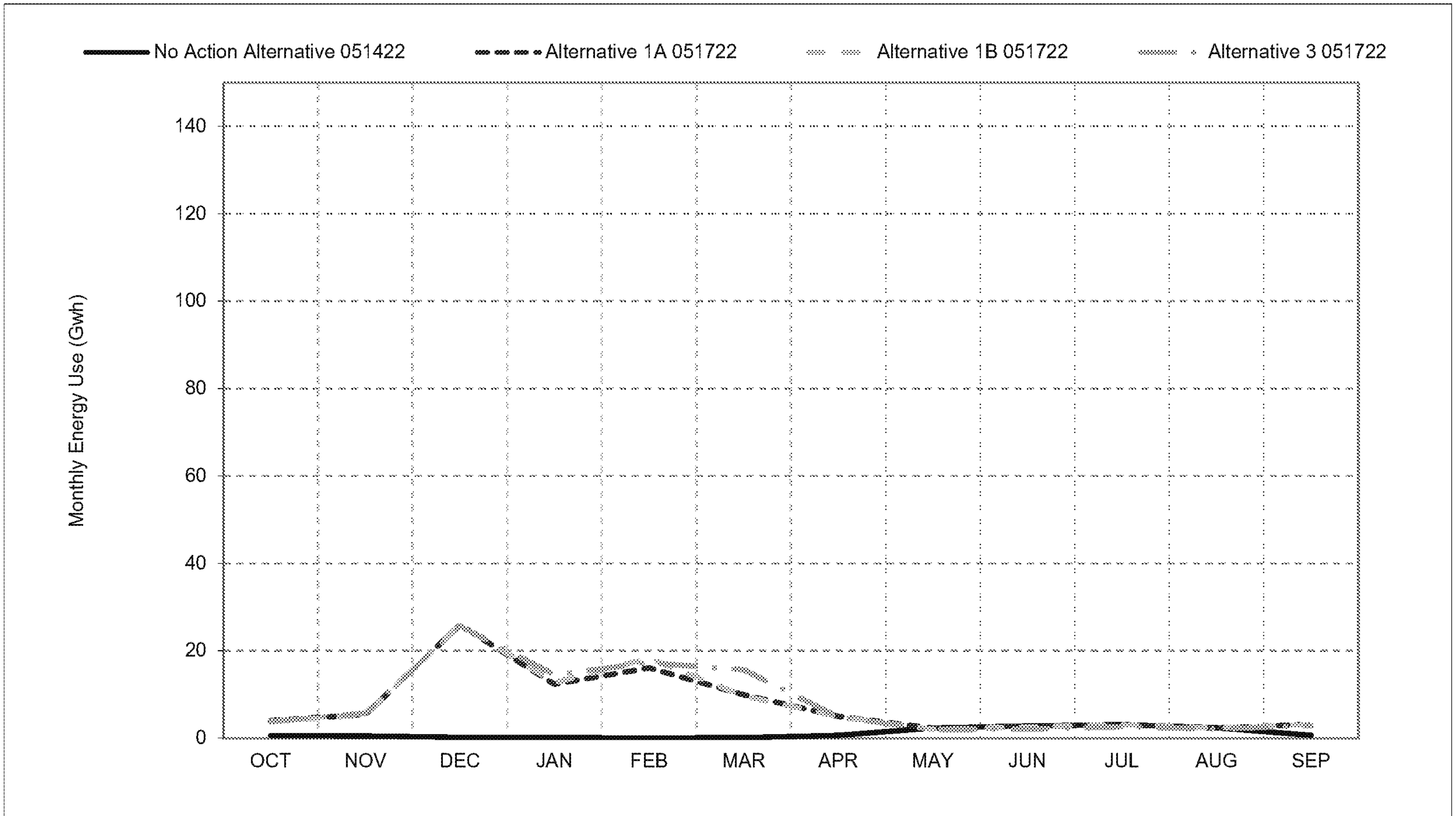


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-4. Sites Project Facilities Total Energy Use, Below Normal Year Average Energy Use

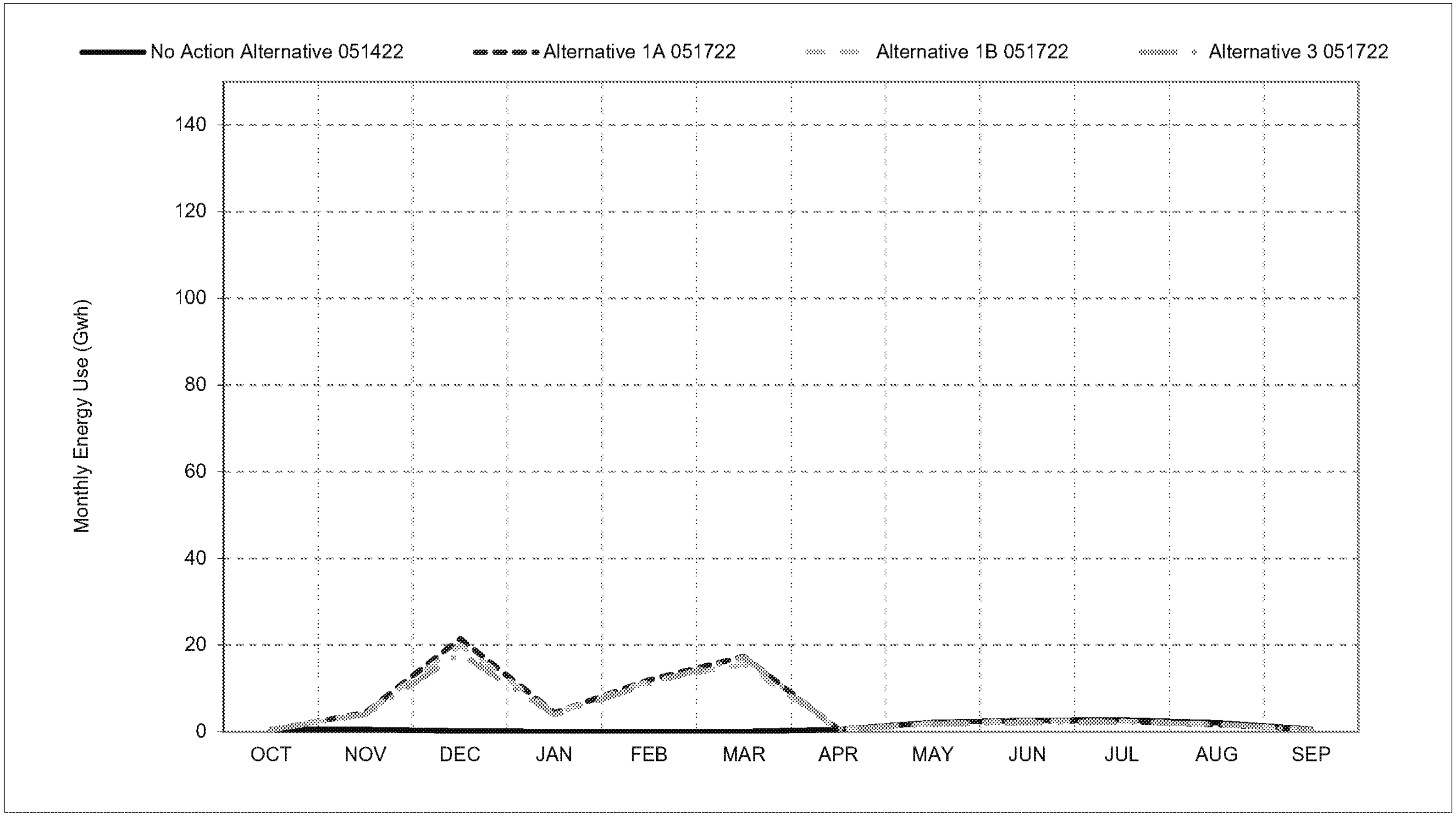


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-5. Sites Project Facilities Total Energy Use, Dry Year Average Energy Use

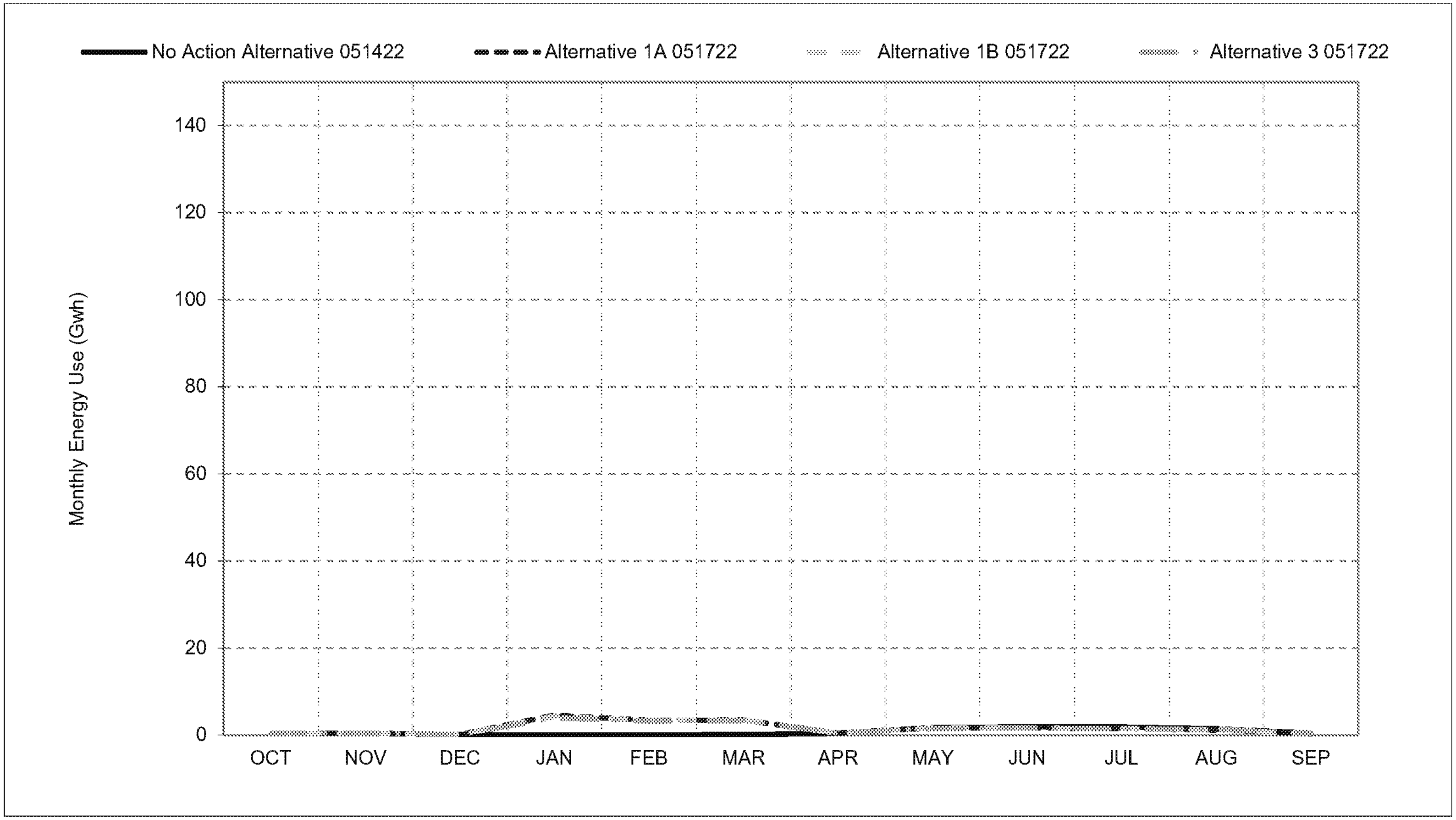


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

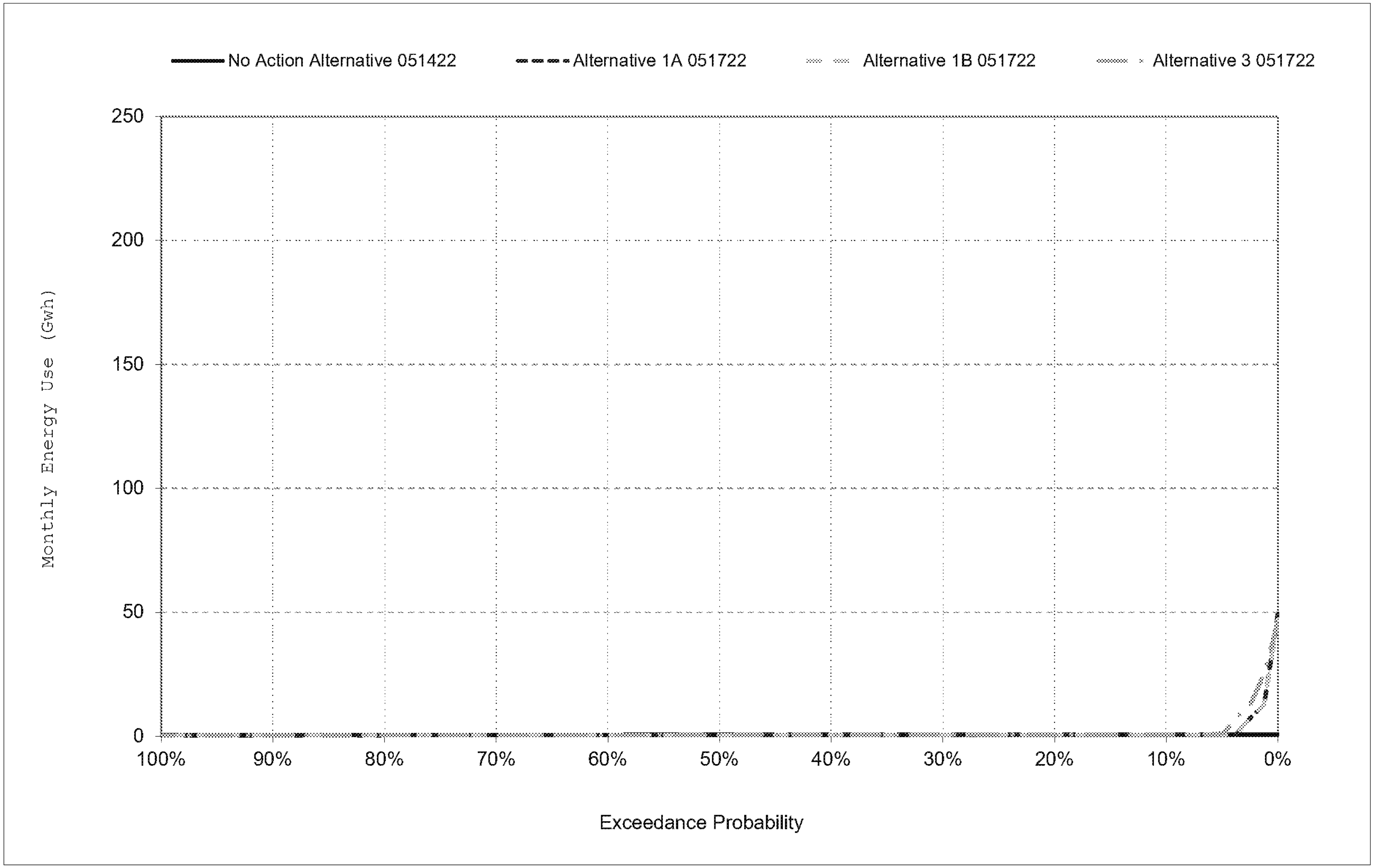
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-6. Sites Project Facilities Total Energy Use, Critical Year Average Energy Use



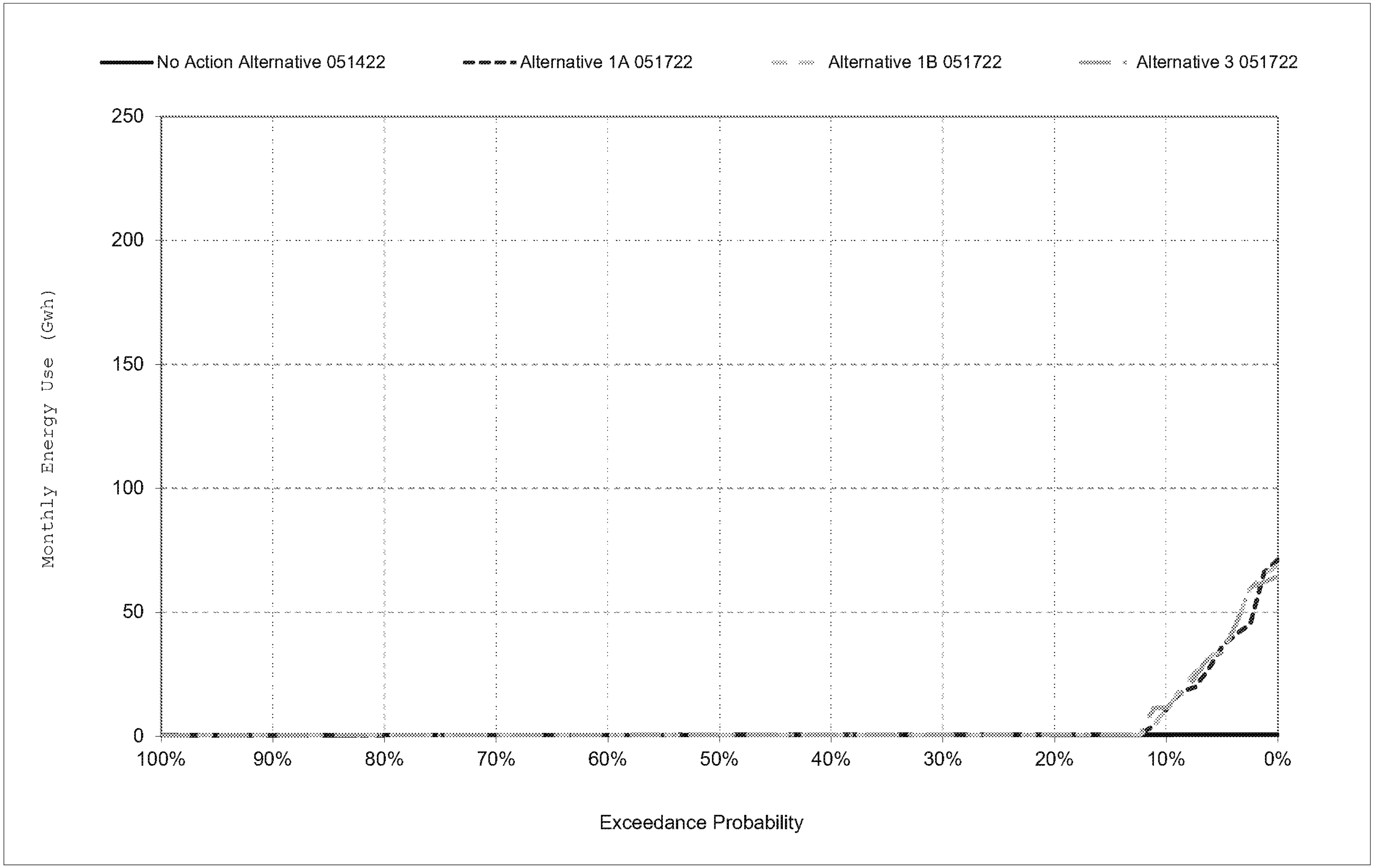
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-7. Sites Project Facilities Total Energy Use, October



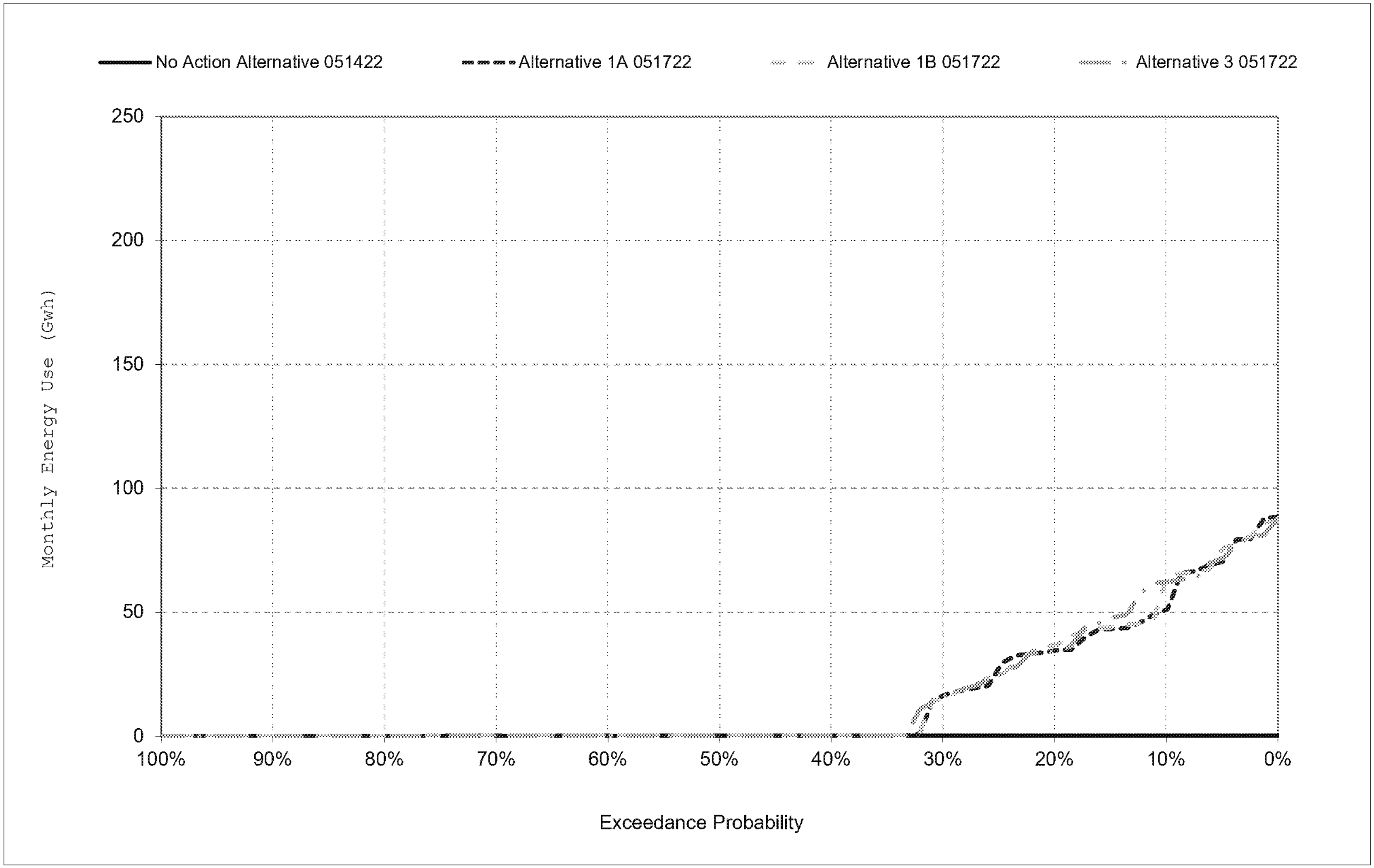
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-8. Sites Project Facilities Total Energy Use, November



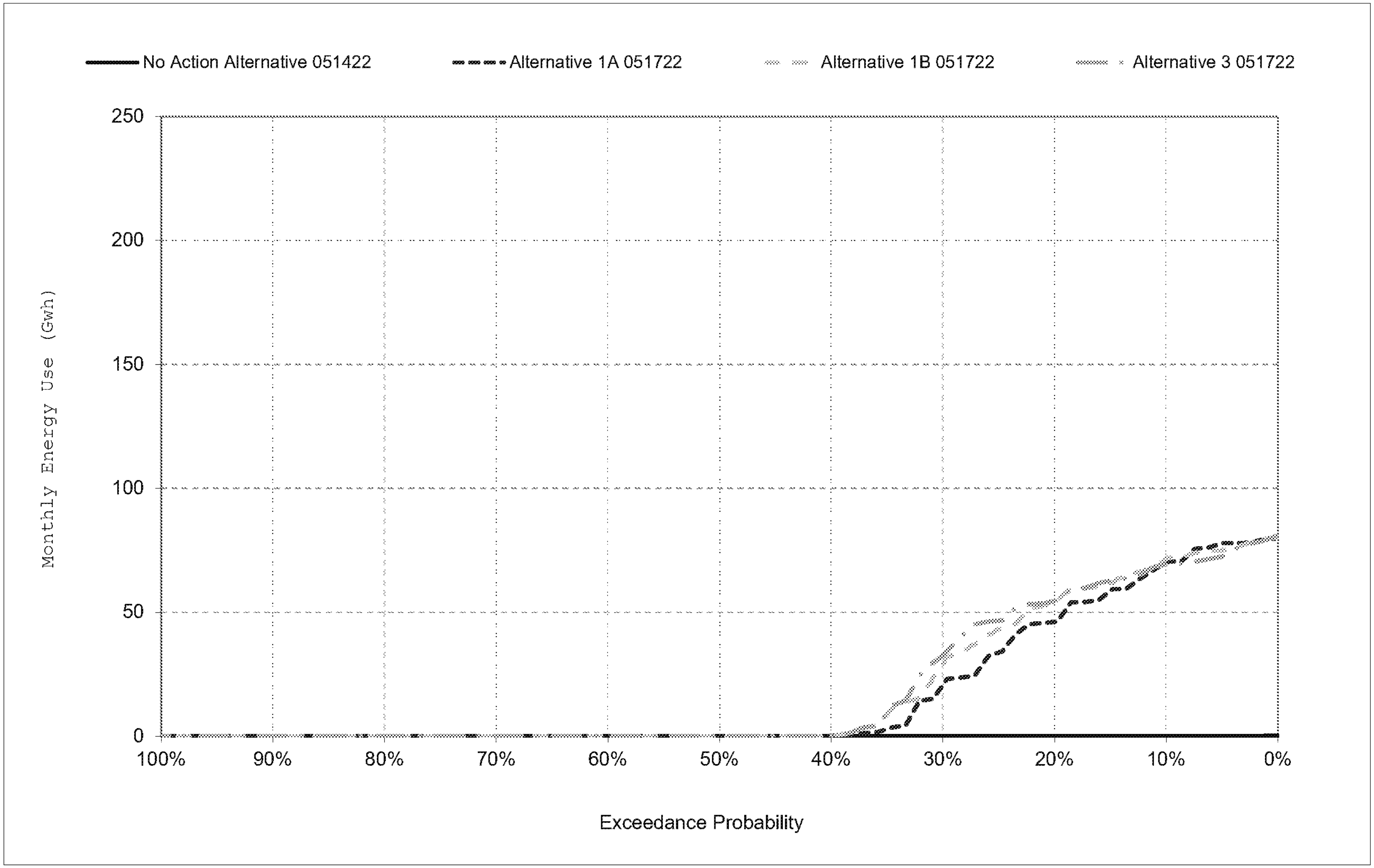
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-9. Sites Project Facilities Total Energy Use, December



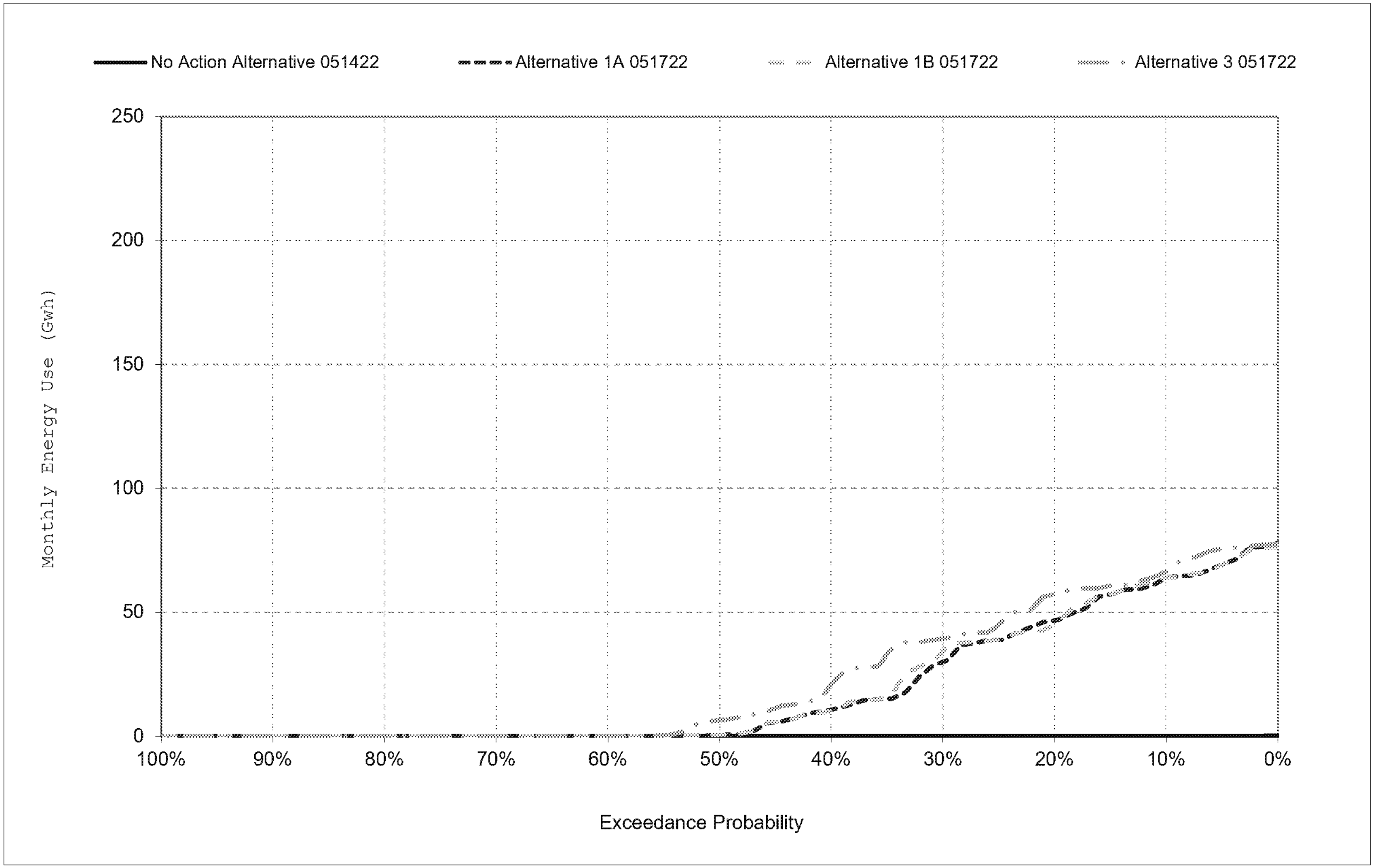
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-10. Sites Project Facilities Total Energy Use, January



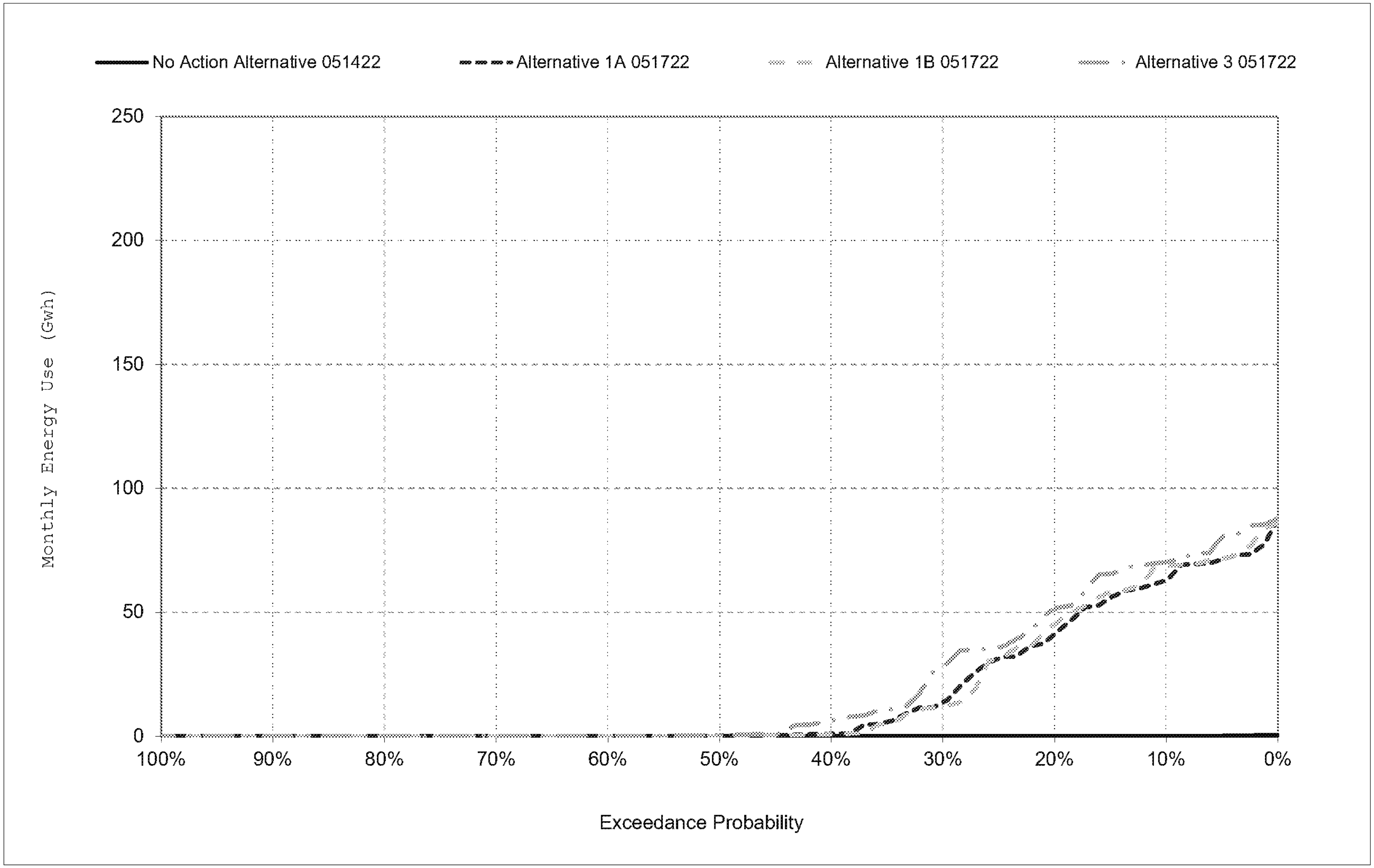
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-11. Sites Project Facilities Total Energy Use, February



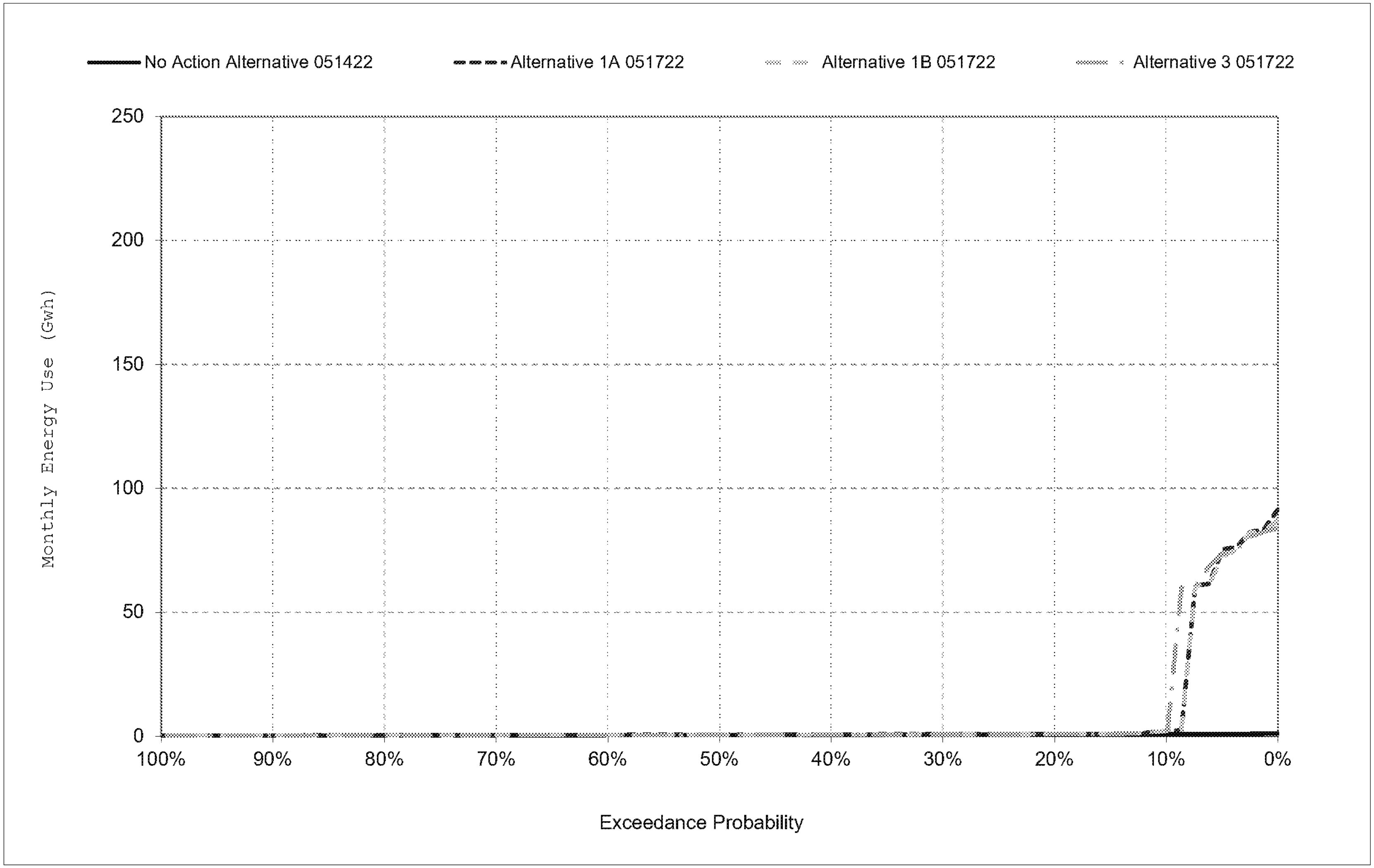
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-12. Sites Project Facilities Total Energy Use, March



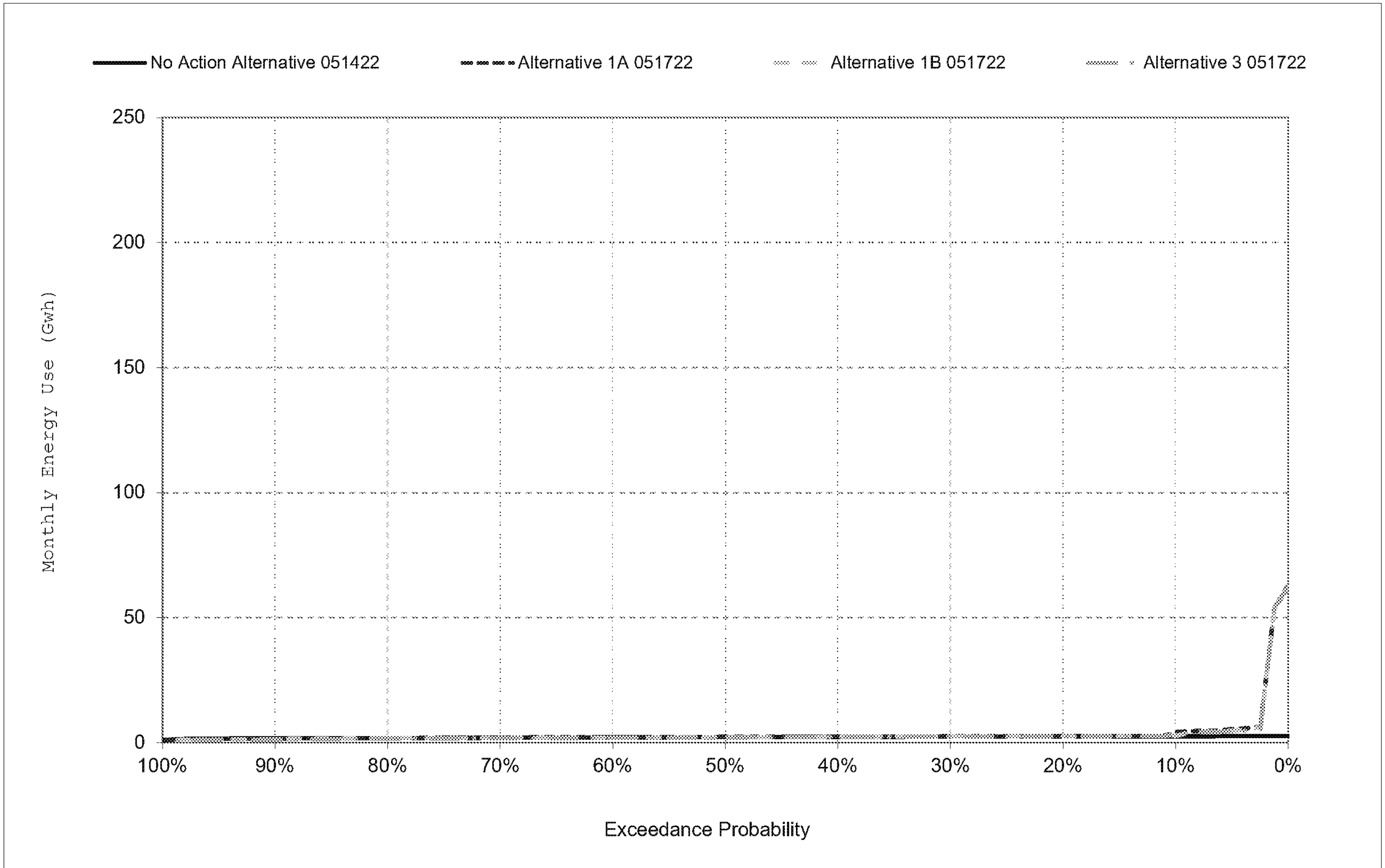
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-13. Sites Project Facilities Total Energy Use, April



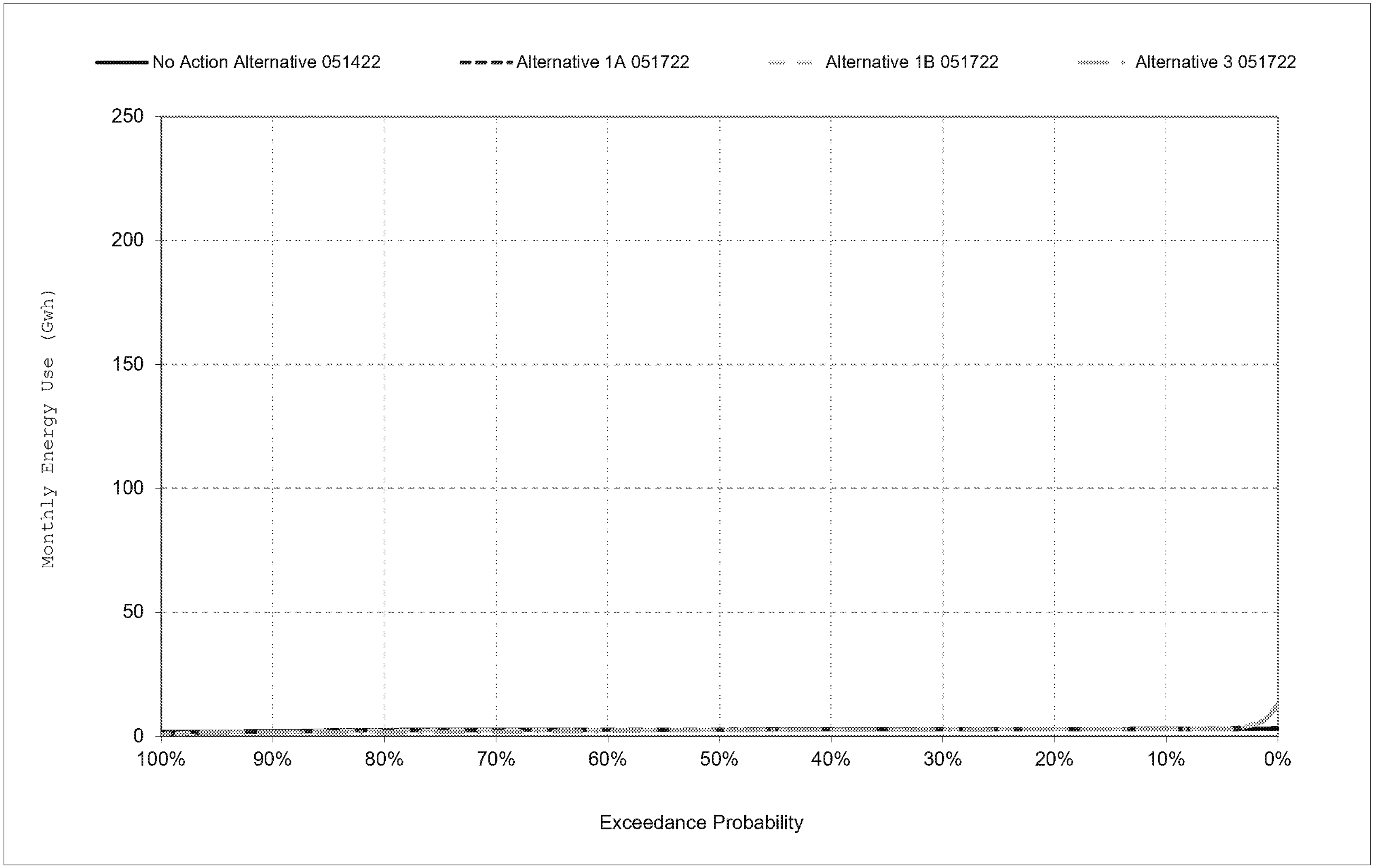
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-14. Sites Project Facilities Total Energy Use, May



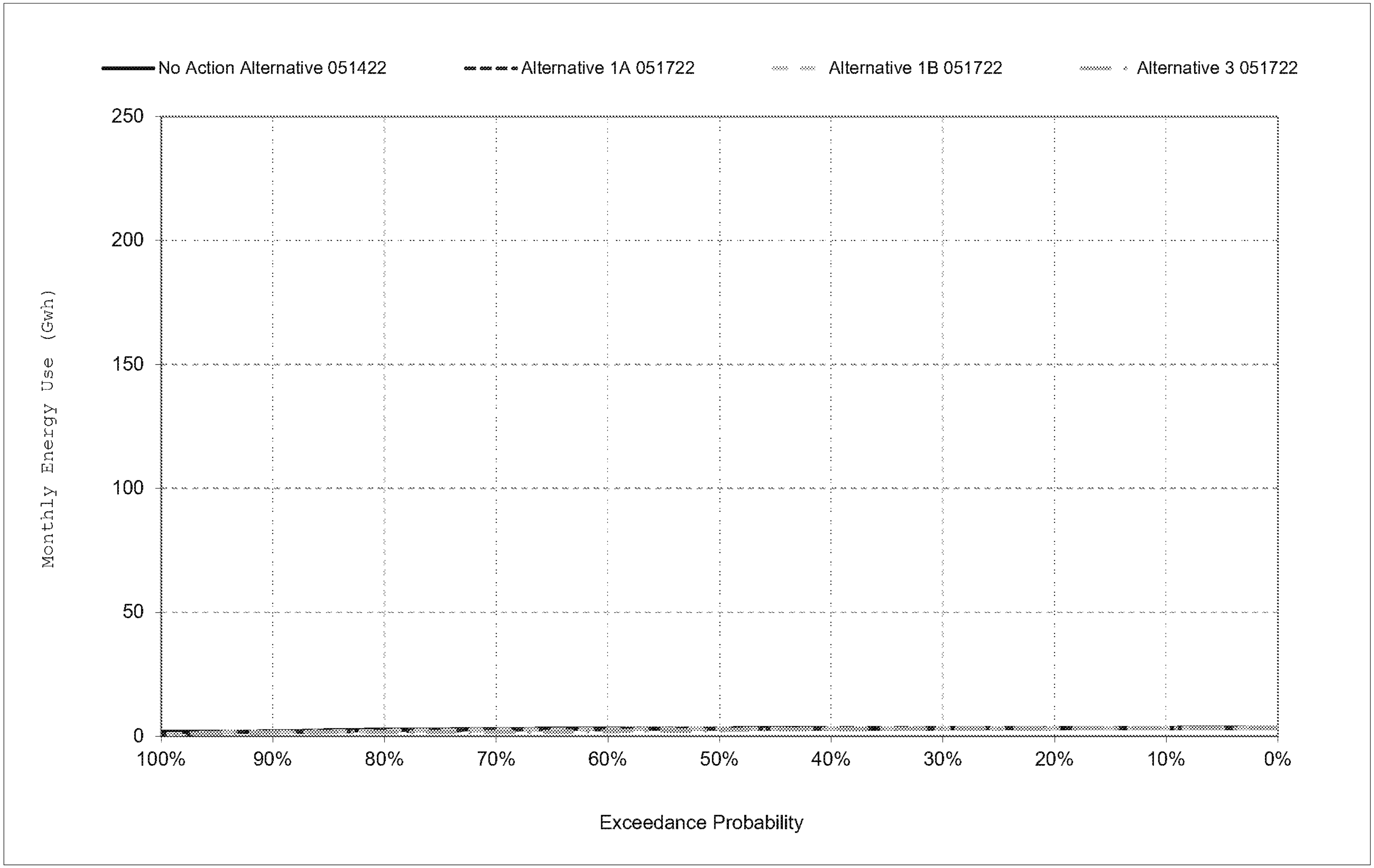
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-15. Sites Project Facilities Total Energy Use, June



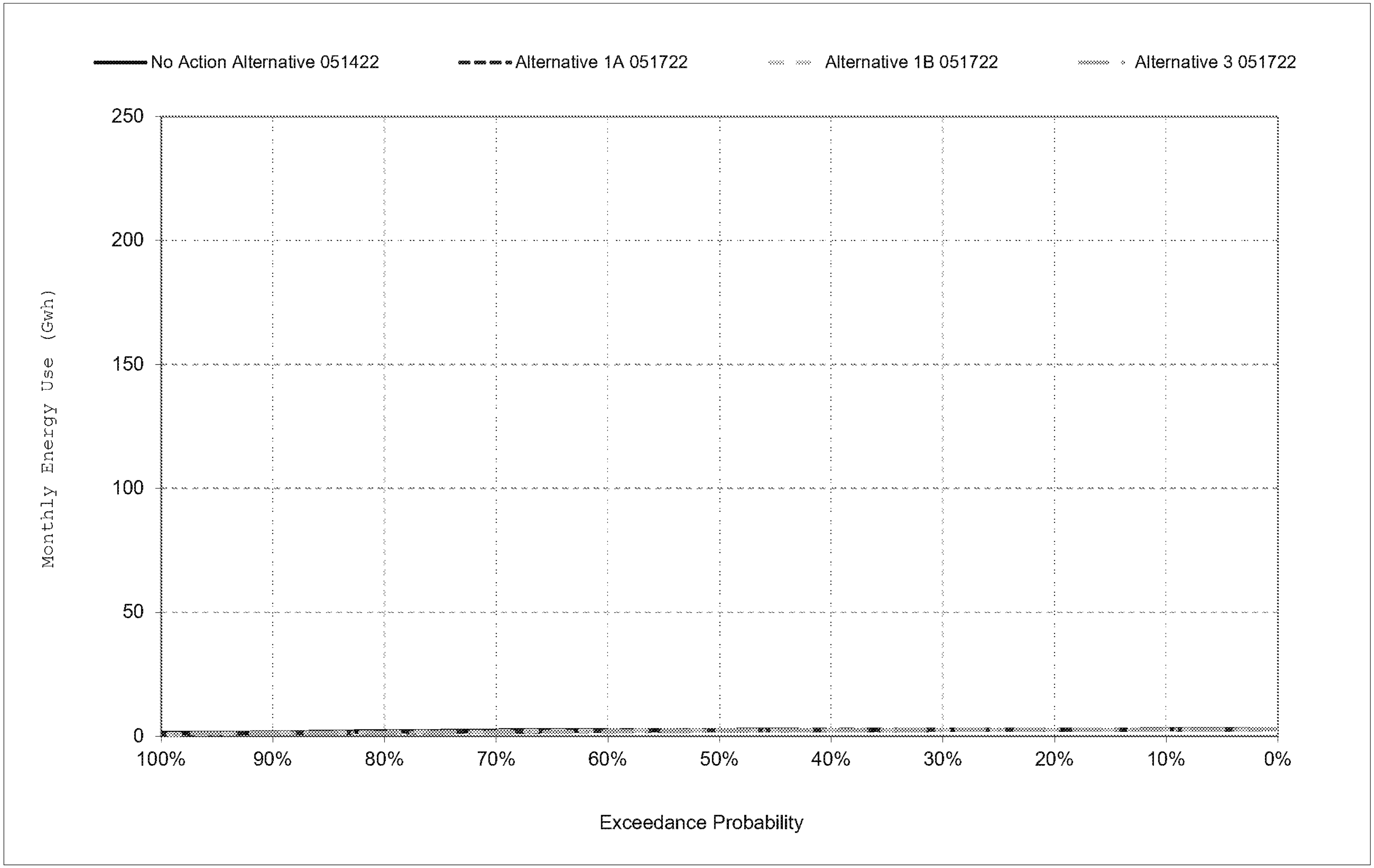
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-16. Sites Project Facilities Total Energy Use, July



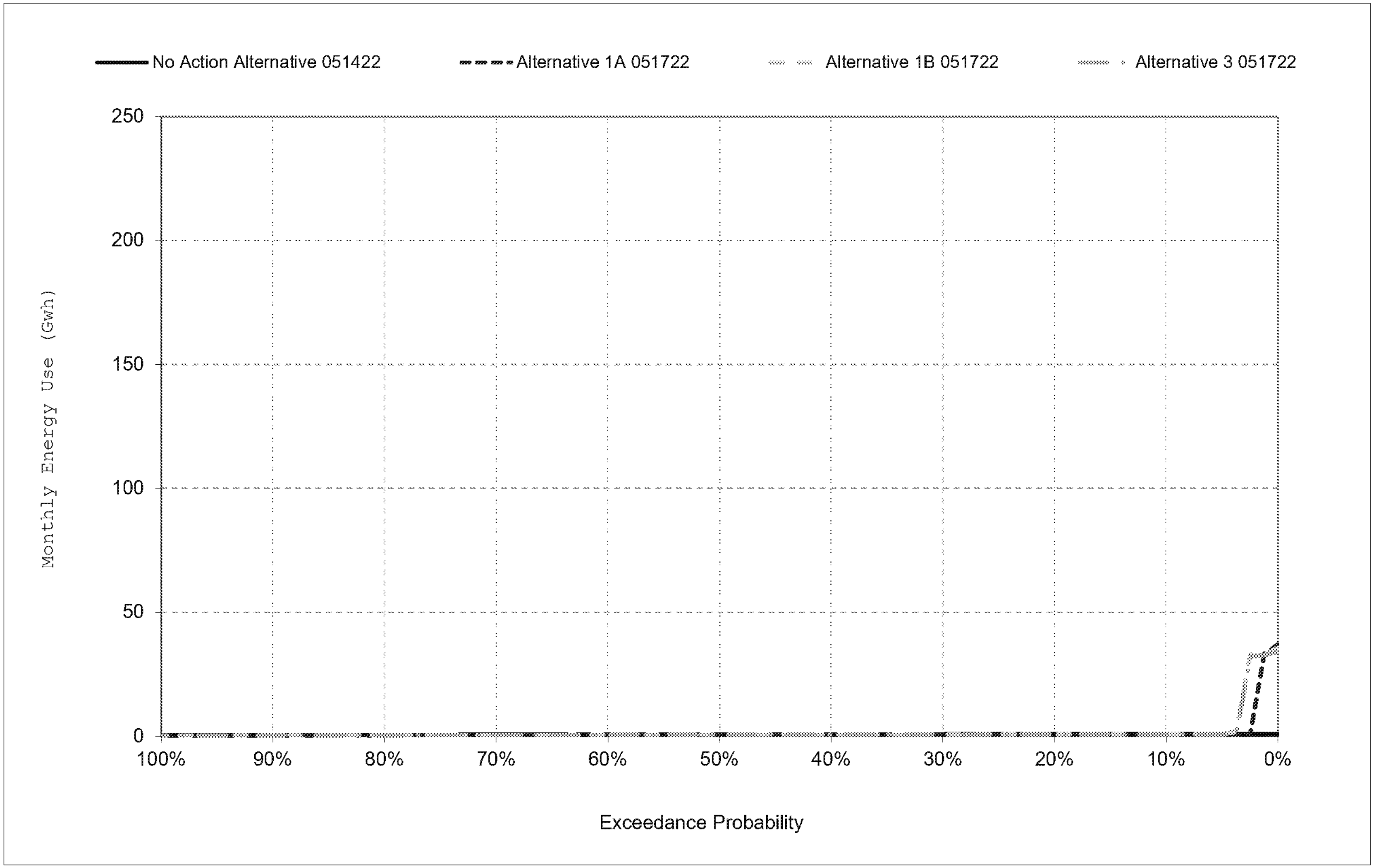
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-17. Sites Project Facilities Total Energy Use, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 13-18. Sites Project Facilities Total Energy Use, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 14-1a. Sites Project Facilities Net Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	-2	-2	-2	-1	0
20%	0	0	0	0	0	0	0	-2	-2	-3	-2	0
30%	0	0	0	0	0	0	0	-2	-3	-3	-2	-1
40%	-1	0	0	0	0	0	0	-2	-3	-3	-2	-1
50%	-1	-1	0	0	0	0	0	-2	-3	-3	-2	-1
60%	-1	-1	0	0	0	0	-1	-2	-3	-3	-2	-1
70%	-1	-1	0	0	0	0	-1	-2	-3	-3	-3	-1
80%	-1	-1	0	0	0	0	-1	-2	-3	-3	-3	-1
90%	-1	-1	0	0	0	0	-1	-3	-3	-3	-3	-1
Long Term												
Full Simulation Period[a]	-1	-1	0	0	0	0	-1	-2	-3	-3	-2	-1
Water Year Types[b,c]												
Wet (32%)	-1	-1	0	0	0	0	0	-2	-3	-3	-3	-1
Above Normal (15%)	-1	-1	0	0	0	0	-1	-2	-3	-3	-2	-1
Below Normal (17%)	-1	-1	0	0	0	0	-1	-2	-3	-3	-2	-1
Dry (22%)	-1	0	0	0	0	0	-1	-2	-3	-3	-2	-1
Critical (15%)	0	0	0	0	0	0	0	-2	-2	-2	-1	0

Table 14-1b. Sites Project Facilities Net Generation, Alternative 1A 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	16	5	1	0	0	0	2	1	14	22	25	18
20%	13	4	0	0	0	0	1	-1	7	16	17	16
30%	7	0	0	0	0	0	0	-2	0	6	9	9
40%	6	0	0	0	0	0	0	-2	-2	1	5	7
50%	6	0	0	0	0	0	0	-2	-2	-2	5	6
60%	4	0	0	0	-11	-1	0	-2	-2	-2	5	6
70%	0	-1	-16	-21	-30	-14	-1	-2	-2	-2	4	5
80%	0	-1	-35	-46	-47	-41	-1	-3	-3	-3	-1	0
90%	0	-11	-51	-70	-64	-63	-2	-4	-3	-3	-2	0
Long Term												
Full Simulation Period[a]	5	-2	-15	-18	-19	-17	-6	-3	2	5	8	7
Water Year Types[b,c]												
Wet (32%)	4	-6	-10	-26	-26	-17	-15	-7	-2	-2	4	5
Above Normal (15%)	4	-5	-17	-40	-34	-37	-7	-2	-3	0	8	10
Below Normal (17%)	3	-3	-25	-12	-16	-10	-5	-2	-1	3	5	2
Dry (22%)	12	2	-21	-4	-12	-17	1	-1	9	16	17	12
Critical (15%)	2	1	0	-5	-3	-3	5	4	10	11	8	4

Table 14-1c. Sites Project Facilities Net Generation, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	16	6	1	0	0	0	2	3	16	24	26	18
20%	13	4	0	0	0	0	1	1	10	18	19	16
30%	7	1	0	0	0	0	1	0	3	9	11	9
40%	7	0	0	0	0	0	0	0	1	4	8	8
50%	7	0	0	0	0	0	0	0	1	1	8	7
60%	4	0	0	0	-11	-1	0	0	1	1	8	7
70%	1	0	-16	-21	-30	-14	0	0	1	1	7	6
80%	1	0	-34	-46	-47	-41	0	0	0	1	1	1
90%	0	-10	-51	-70	-64	-63	-1	-2	0	1	1	0
Long Term												
Full Simulation Period[a]	6	-2	-14	-18	-19	-16	-5	0	4	8	11	7
Water Year Types[b,c]												
Wet (32%)	5	-5	-10	-26	-26	-17	-15	-5	0	1	7	6
Above Normal (15%)	4	-4	-17	-39	-34	-37	-7	0	-1	3	11	11
Below Normal (17%)	4	-2	-25	-12	-16	-10	-4	0	2	6	8	3
Dry (22%)	12	3	-21	-4	-12	-17	1	1	11	19	19	13
Critical (15%)	2	1	0	-5	-3	-3	5	5	12	13	10	4

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 14-2a. Sites Project Facilities Net Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	-2	-2	-2	-1	0
20%	0	0	0	0	0	0	0	-2	-2	-3	-2	0
30%	0	0	0	0	0	0	0	-2	-3	-3	-2	-1
40%	-1	0	0	0	0	0	0	-2	-3	-3	-2	-1
50%	-1	-1	0	0	0	0	0	-2	-3	-3	-2	-1
60%	-1	-1	0	0	0	0	-1	-2	-3	-3	-2	-1
70%	-1	-1	0	0	0	0	-1	-2	-3	-3	-3	-1
80%	-1	-1	0	0	0	0	-1	-2	-3	-3	-3	-1
90%	-1	-1	0	0	0	0	-1	-3	-3	-3	-3	-1
Long Term												
Full Simulation Period[a]	-1	-1	0	0	0	0	-1	-2	-3	-3	-2	-1
Water Year Types[b,c]												
Wet (32%)	-1	-1	0	0	0	0	0	-2	-3	-3	-3	-1
Above Normal (15%)	-1	-1	0	0	0	0	-1	-2	-3	-3	-2	-1
Below Normal (17%)	-1	-1	0	0	0	0	-1	-2	-3	-3	-2	-1
Dry (22%)	-1	0	0	0	0	0	-1	-2	-3	-3	-2	-1
Critical (15%)	0	0	0	0	0	0	0	-2	-2	-2	-1	0

Table 14-2b. Sites Project Facilities Net Generation, Alternative 1B 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15	7	1	0	0	0	5	12	21	22	20	16
20%	13	4	0	0	0	0	1	2	14	14	10	12
30%	7	0	0	0	0	0	0	-1	9	6	8	8
40%	6	0	0	0	0	0	0	-2	1	3	5	6
50%	5	0	0	0	-1	0	0	-2	-2	-1	5	6
60%	3	0	0	0	-10	-1	0	-2	-2	-2	5	5
70%	0	-1	-15	-29	-35	-12	-1	-2	-2	-2	4	2
80%	0	-1	-37	-54	-45	-45	-1	-3	-3	-3	-1	0
90%	0	-11	-63	-72	-64	-69	-2	-3	-3	-3	-2	0
Long Term												
Full Simulation Period[a]	5	-3	-15	-19	-19	-17	-5	0	5	5	7	5
Water Year Types[b,c]												
Wet (32%)	4	-7	-11	-31	-26	-18	-15	-7	-2	-2	4	4
Above Normal (15%)	4	-5	-19	-40	-34	-38	-7	-2	9	3	6	8
Below Normal (17%)	3	-2	-25	-13	-18	-10	-4	4	2	1	3	1
Dry (22%)	10	1	-20	-4	-12	-16	3	5	9	15	14	11
Critical (15%)	2	1	0	-4	-3	-3	4	4	11	10	6	3

Table 14-2c. Sites Project Facilities Net Generation, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	15	8	1	0	0	0	5	14	23	24	22	16
20%	13	4	0	0	0	0	1	4	17	17	12	12
30%	7	1	0	0	0	0	1	1	12	9	10	9
40%	7	0	0	0	0	0	0	0	4	6	7	7
50%	6	0	0	0	-1	0	0	0	1	2	7	7
60%	3	0	0	0	-10	-1	0	0	1	1	7	6
70%	1	0	-15	-29	-35	-12	0	0	1	1	6	2
80%	1	0	-37	-54	-45	-45	0	0	0	1	1	1
90%	0	-10	-63	-71	-64	-68	-1	0	0	1	1	0
Long Term												
Full Simulation Period[a]	5	-2	-15	-19	-19	-17	-5	2	7	8	9	6
Water Year Types[b,c]												
Wet (32%)	4	-6	-11	-31	-26	-18	-15	-5	0	1	7	5
Above Normal (15%)	4	-4	-19	-40	-34	-38	-7	0	12	6	8	8
Below Normal (17%)	4	-1	-25	-13	-18	-10	-4	6	5	4	5	1
Dry (22%)	11	2	-19	-4	-12	-15	4	8	12	17	16	12
Critical (15%)	2	1	0	-4	-3	-3	5	6	12	12	8	3

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 14-3a. Sites Project Facilities Net Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	0	0	0	0	0	0	0	-2	-2	-2	-1	0
20%	0	0	0	0	0	0	0	-2	-2	-3	-2	0
30%	0	0	0	0	0	0	0	-2	-3	-3	-2	-1
40%	-1	0	0	0	0	0	0	-2	-3	-3	-2	-1
50%	-1	-1	0	0	0	0	0	-2	-3	-3	-2	-1
60%	-1	-1	0	0	0	0	-1	-2	-3	-3	-2	-1
70%	-1	-1	0	0	0	0	-1	-2	-3	-3	-3	-1
80%	-1	-1	0	0	0	0	-1	-2	-3	-3	-3	-1
90%	-1	-1	0	0	0	0	-1	-3	-3	-3	-3	-1
Long Term												
Full Simulation Period[d]	-1	-1	0	0	0	0	-1	-2	-3	-3	-2	-1
Water Year Types[b,c]												
Wet (32%)	-1	-1	0	0	0	0	0	-2	-3	-3	-3	-1
Above Normal (15%)	-1	-1	0	0	0	0	-1	-2	-3	-3	-2	-1
Below Normal (17%)	-1	-1	0	0	0	0	-1	-2	-3	-3	-2	-1
Dry (22%)	-1	0	0	0	0	0	-1	-2	-3	-3	-2	-1
Critical (15%)	0	0	0	0	0	0	0	-2	-2	-2	-1	0

Table 14-3b. Sites Project Facilities Net Generation, Alternative 3 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	13	3	0	0	0	0	6	19	27	32	29	15
20%	7	0	0	0	0	0	0	6	23	24	21	13
30%	6	0	0	0	0	0	0	0	19	16	8	8
40%	6	0	0	0	0	0	0	-2	5	9	5	6
50%	3	0	0	0	-6	0	0	-2	-2	1	5	6
60%	0	-1	0	0	-21	-6	0	-2	-2	-2	4	5
70%	0	-1	-16	-33	-39	-28	-1	-2	-2	-2	0	0
80%	0	-1	-34	-55	-57	-51	-1	-3	-3	-3	-1	0
90%	-1	-12	-62	-69	-66	-70	-2	-3	-3	-3	-2	0
Long Term												
Full Simulation Period[d]	3	-4	-15	-20	-23	-20	-6	1	8	9	8	5
Water Year Types[b,c]												
Wet (32%)	3	-7	-10	-32	-36	-23	-17	-7	-2	-2	4	4
Above Normal (15%)	0	-5	-27	-39	-40	-38	-7	-2	12	25	18	8
Below Normal (17%)	2	-3	-25	-14	-17	-16	-4	5	12	10	8	1
Dry (22%)	7	-2	-18	-4	-11	-17	3	9	16	15	13	10
Critical (15%)	1	0	0	-4	-3	-3	4	6	8	7	2	1

Table 14-3c. Sites Project Facilities Net Generation, Alternative 3 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	14	4	0	0	0	0	6	20	29	34	30	15
20%	7	1	0	0	0	0	1	8	25	27	23	14
30%	7	0	0	0	0	0	0	2	22	19	10	8
40%	7	0	0	0	0	0	0	0	7	13	7	7
50%	3	0	0	0	-6	0	0	0	1	4	7	6
60%	1	0	0	0	-21	-6	0	0	1	1	7	5
70%	1	0	-16	-33	-39	-28	0	0	1	1	2	1
80%	0	0	-34	-54	-57	-51	0	0	0	1	1	0
90%	0	-11	-62	-69	-66	-70	-1	-1	0	1	1	0
Long Term												
Full Simulation Period[d]	4	-3	-15	-20	-23	-20	-5	3	10	12	11	5
Water Year Types[b,c]												
Wet (32%)	4	-6	-10	-32	-36	-23	-17	-5	0	1	7	4
Above Normal (15%)	1	-4	-27	-39	-40	-38	-7	0	15	28	21	9
Below Normal (17%)	3	-2	-25	-14	-17	-16	-3	7	15	13	10	2
Dry (22%)	8	-2	-18	-4	-11	-17	3	11	19	18	15	10
Critical (15%)	2	1	0	-4	-3	-3	5	7	10	8	3	2

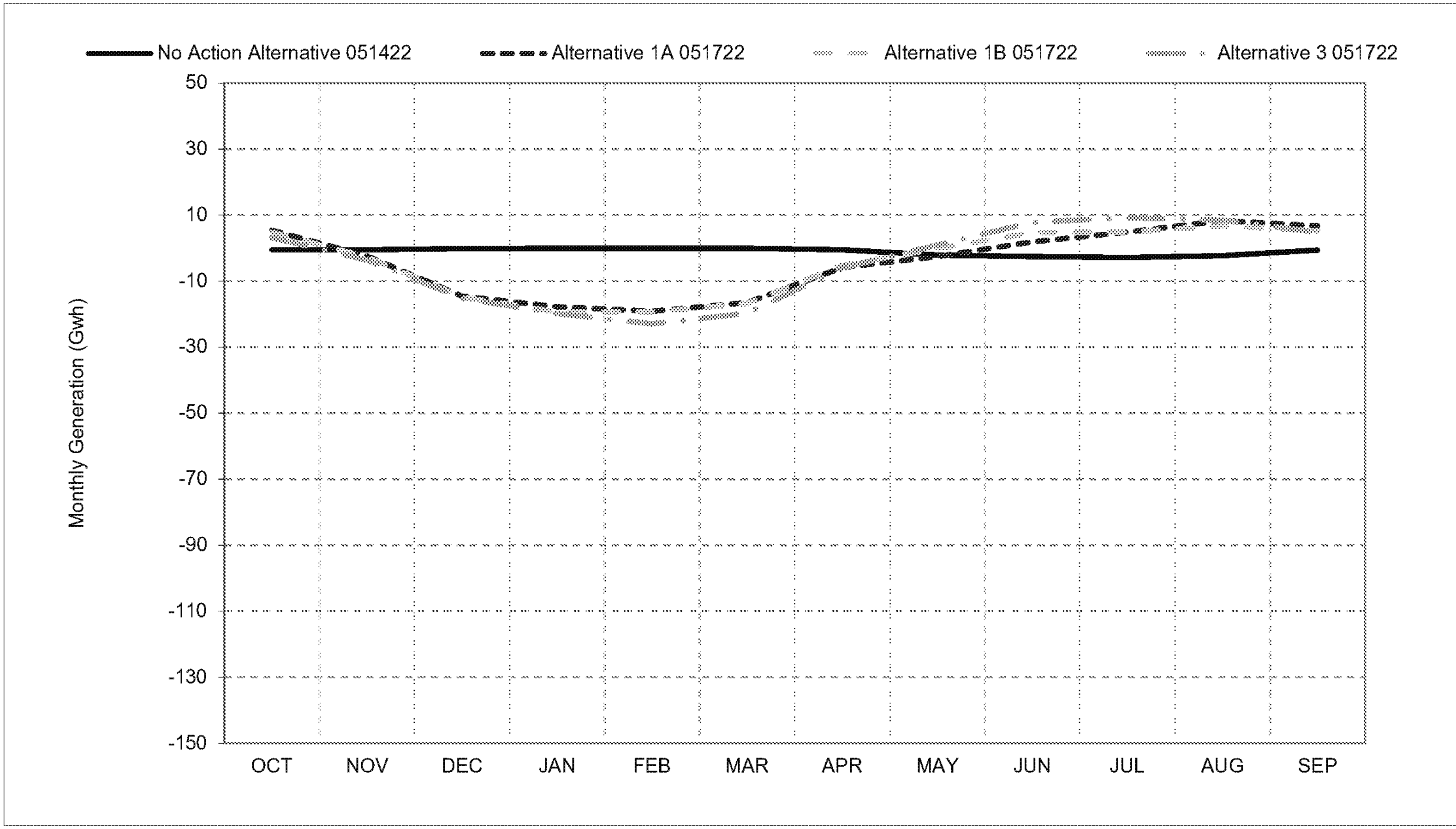
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-1. Sites Project Facilities Net Generation, Long-Term Average Generation

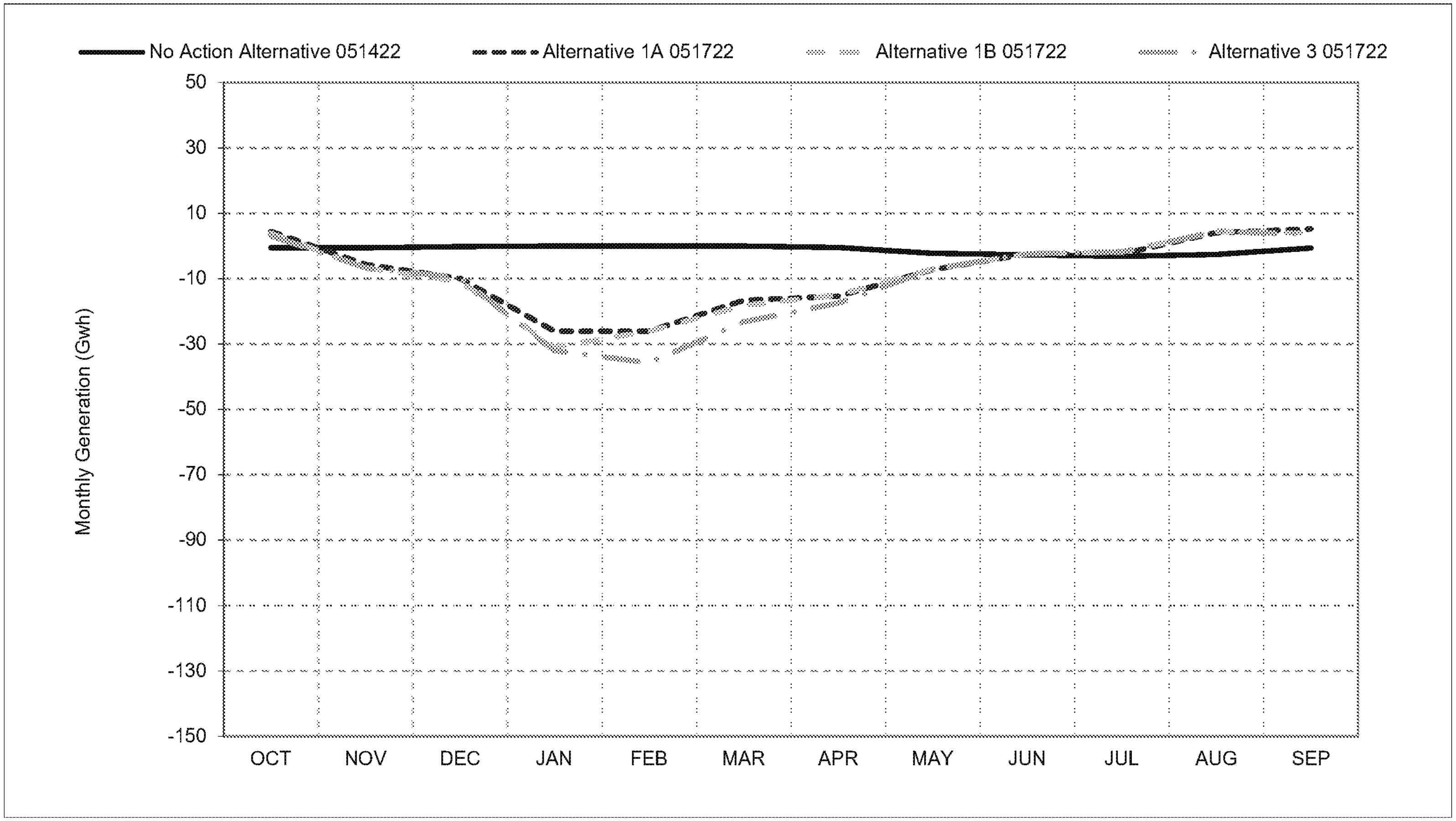


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-2. Sites Project Facilities Net Generation, Wet Year Average Generation

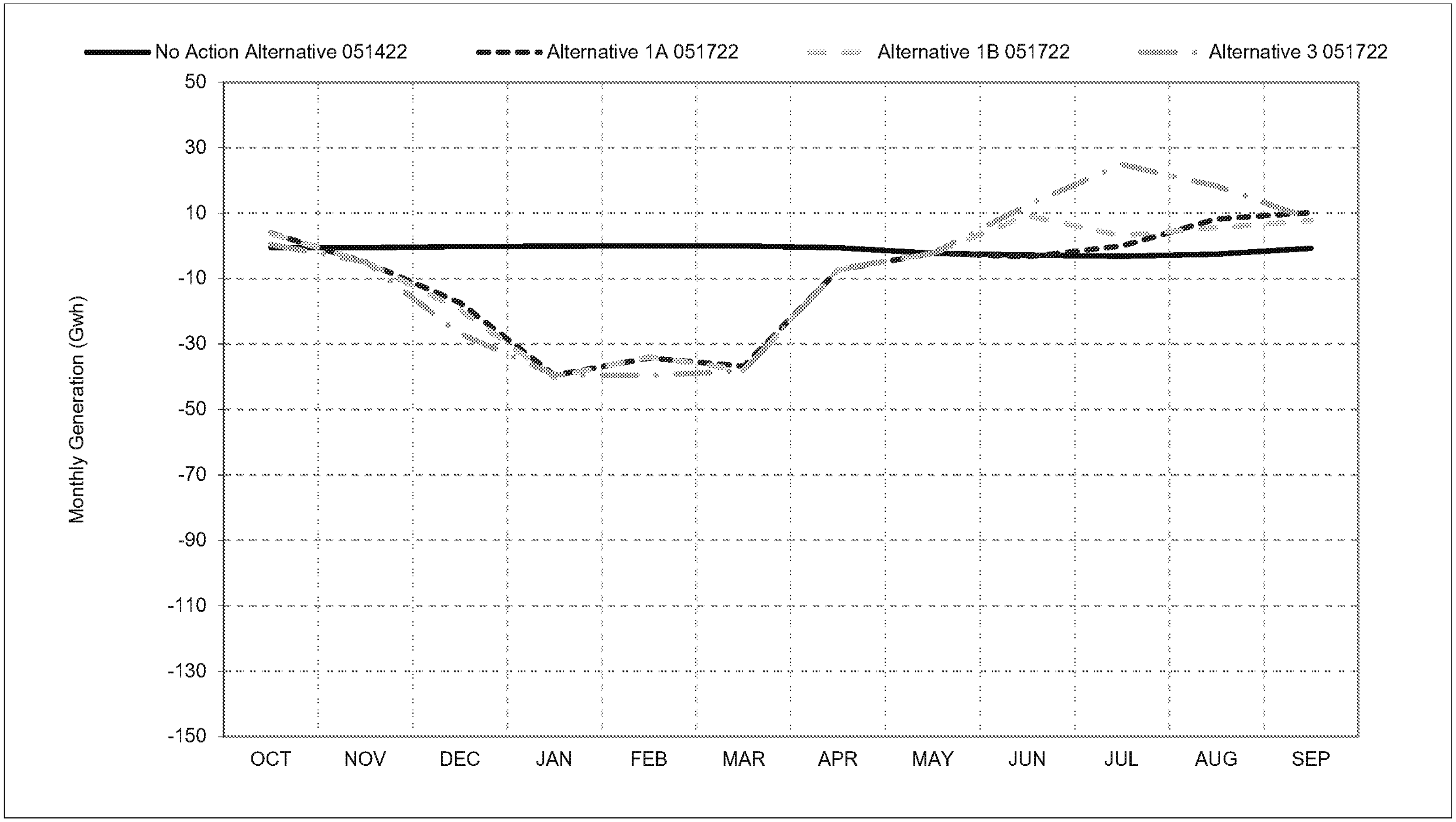


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

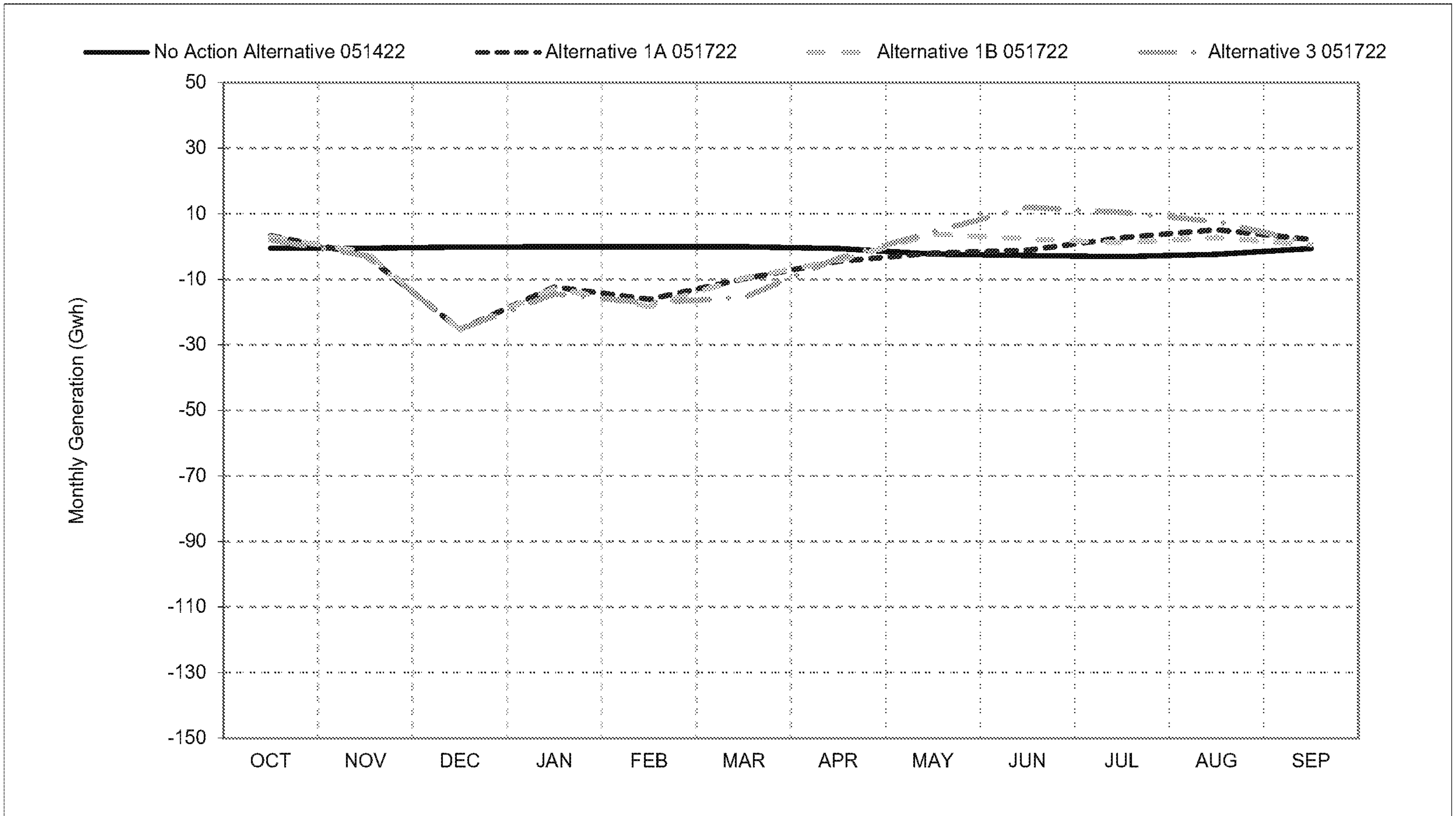
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-3. Sites Project Facilities Net Generation, Above Normal Year Average Generation



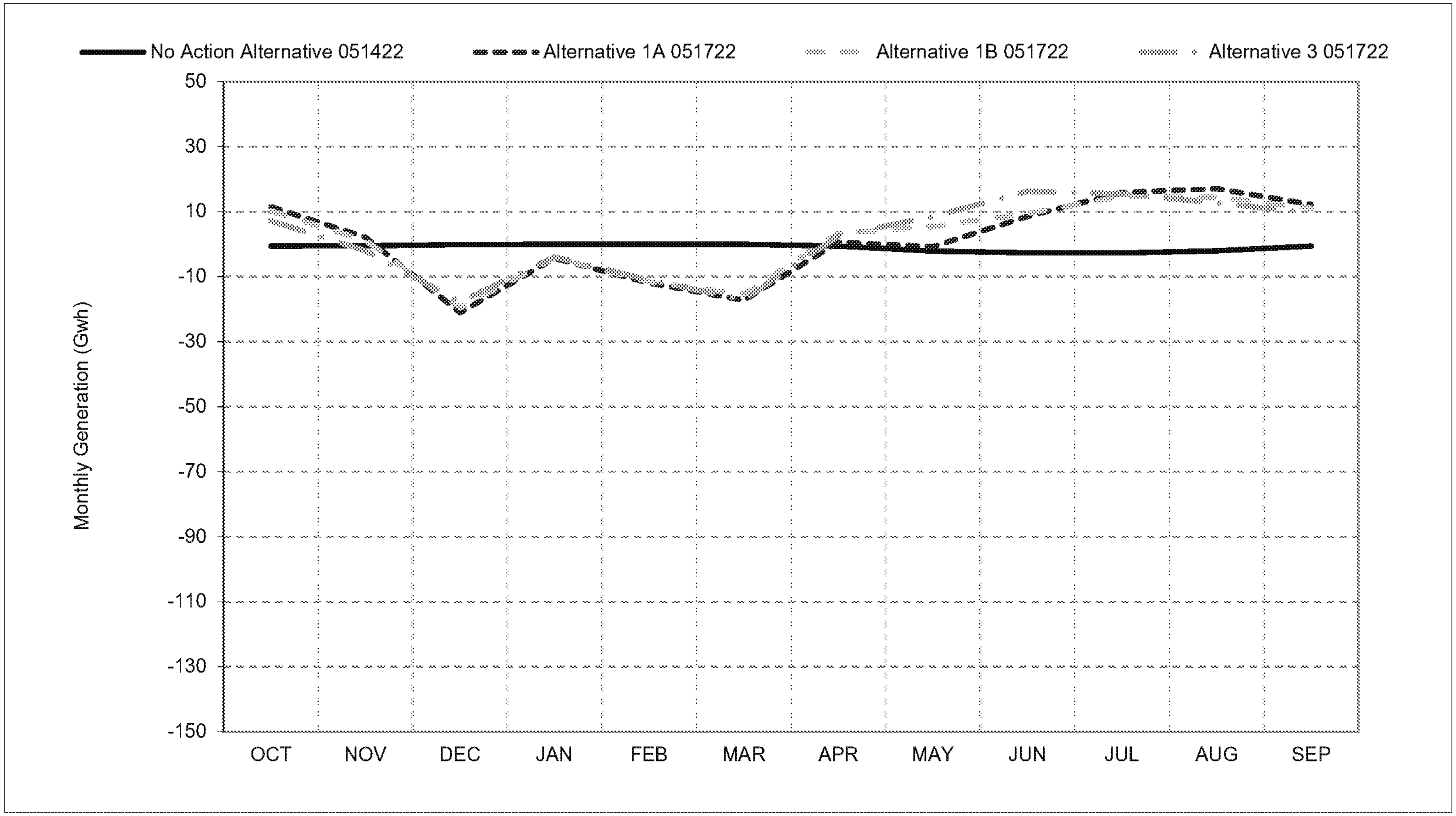
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-4. Sites Project Facilities Net Generation, Below Normal Year Average Generation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-5. Sites Project Facilities Net Generation, Dry Year Average Generation

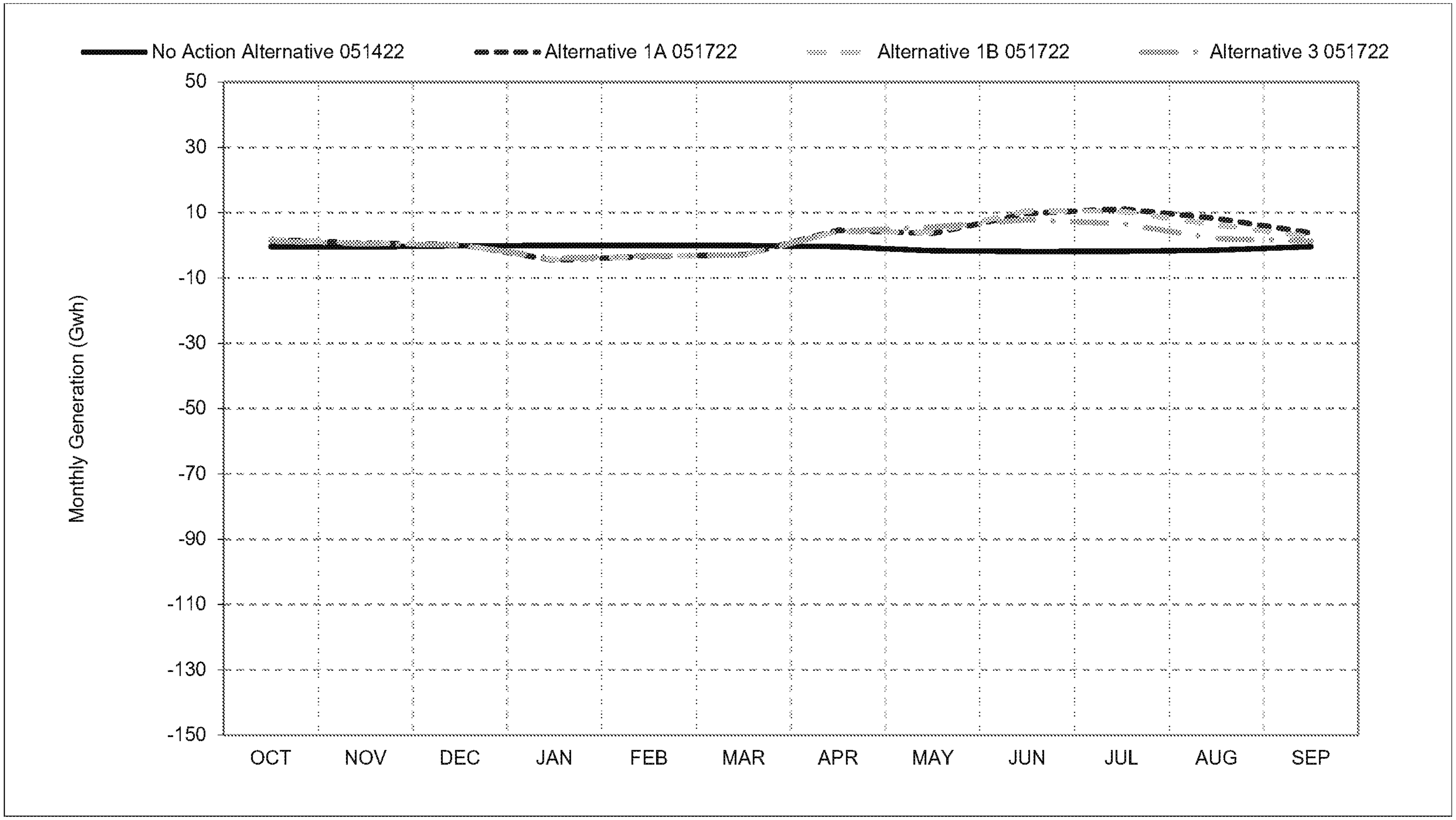


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-6. Sites Project Facilities Net Generation, Critical Year Average Generation

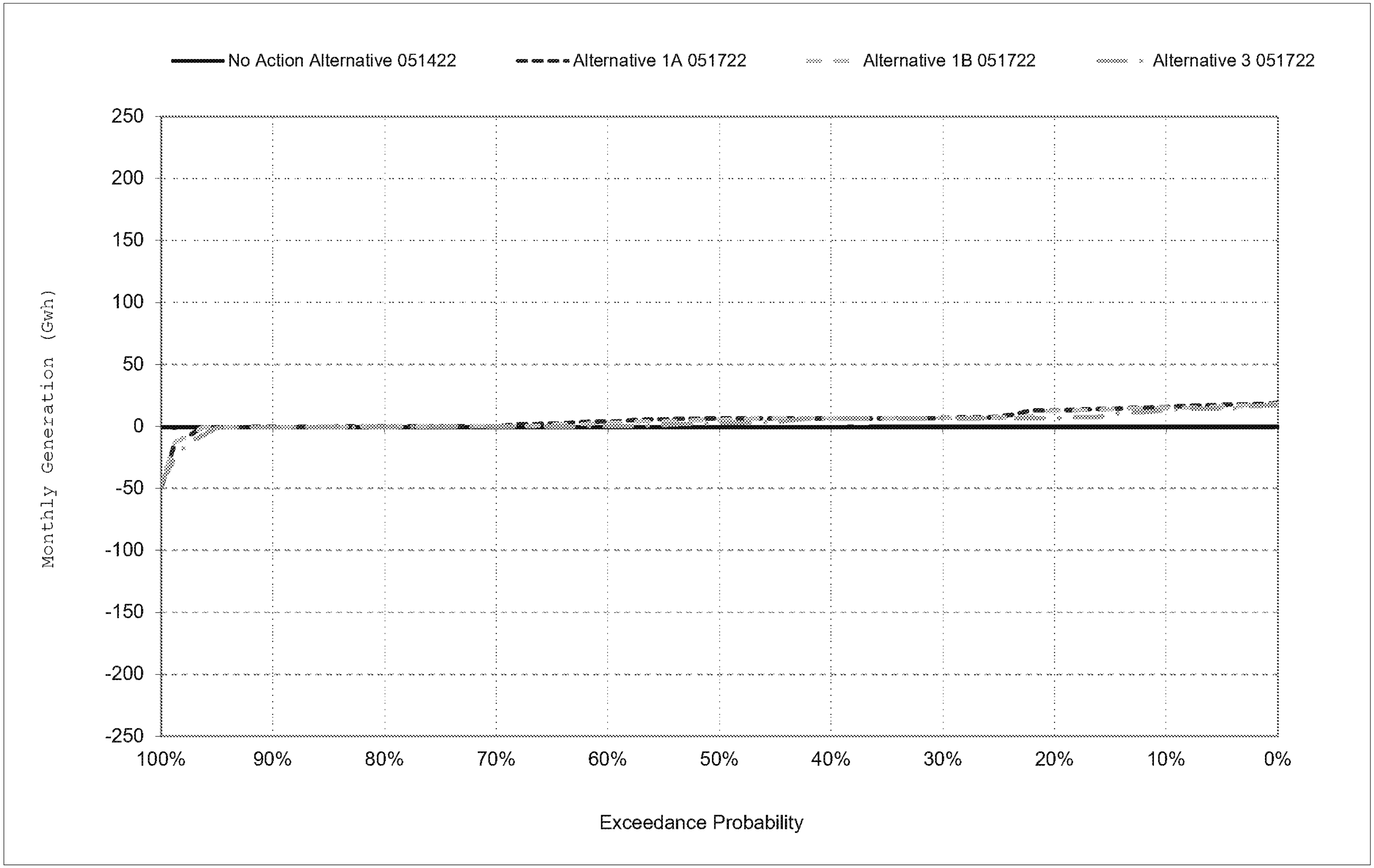


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

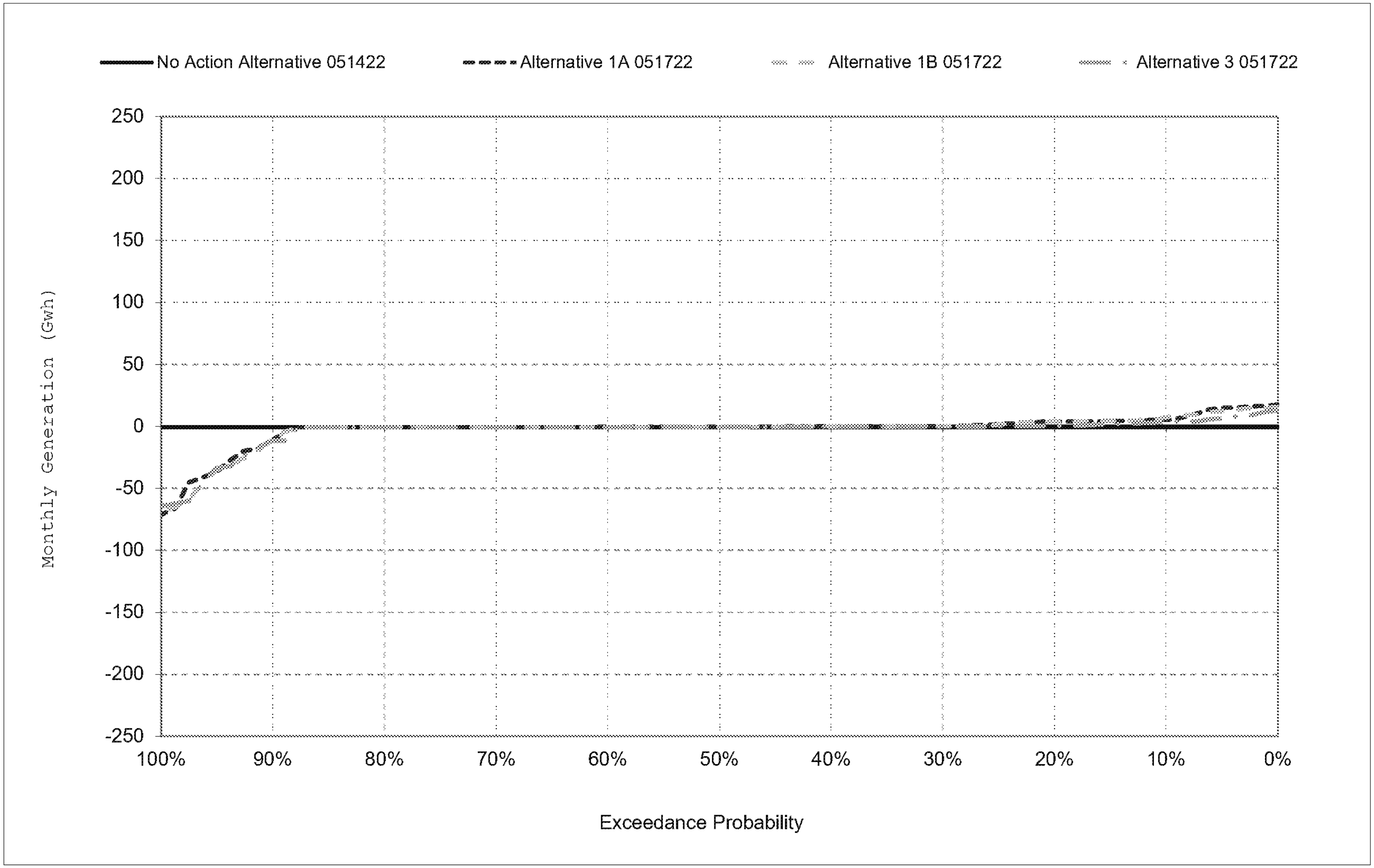
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-7. Sites Project Facilities Net Generation, October



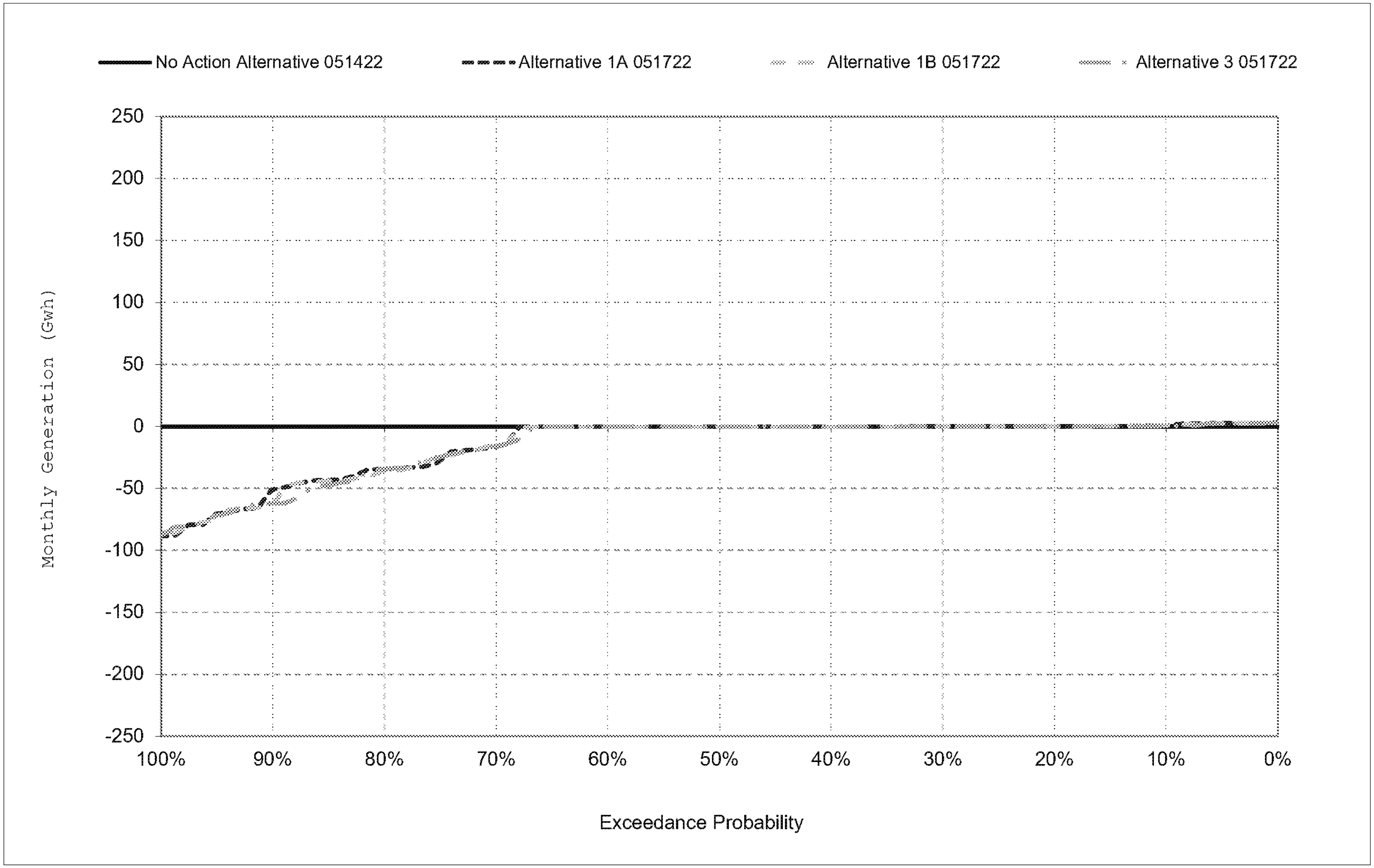
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-8. Sites Project Facilities Net Generation, November



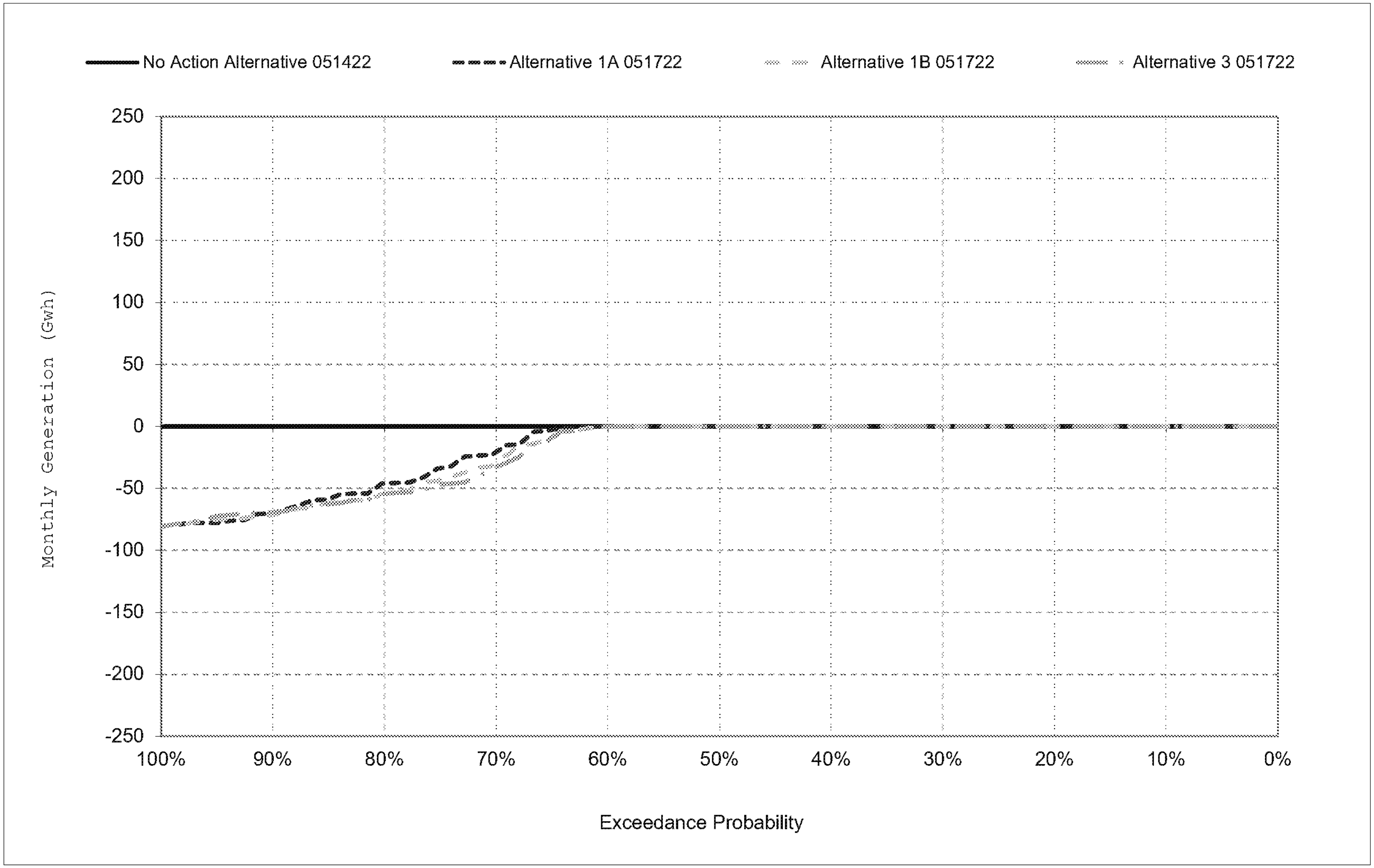
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-9. Sites Project Facilities Net Generation, December



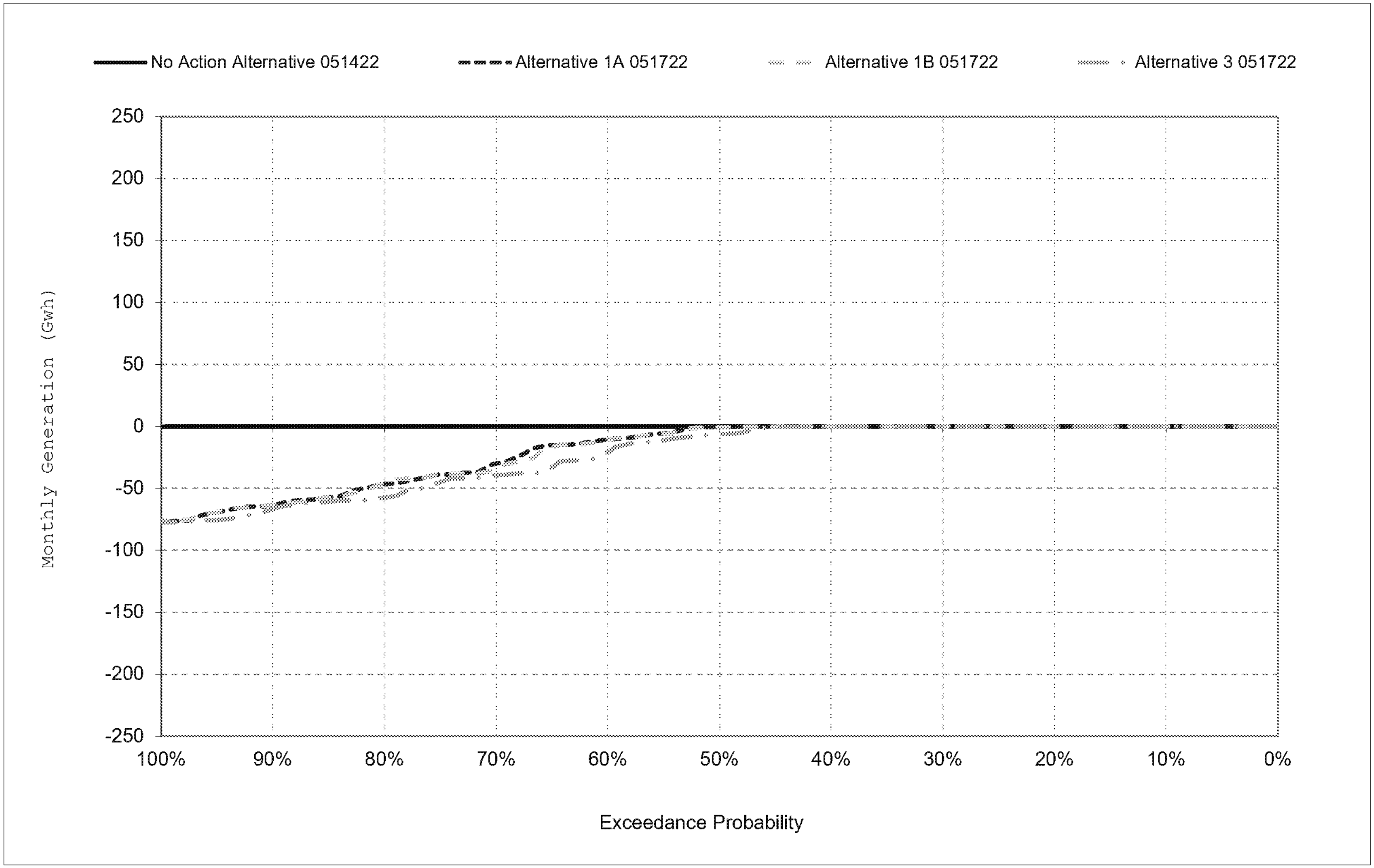
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-10. Sites Project Facilities Net Generation, January



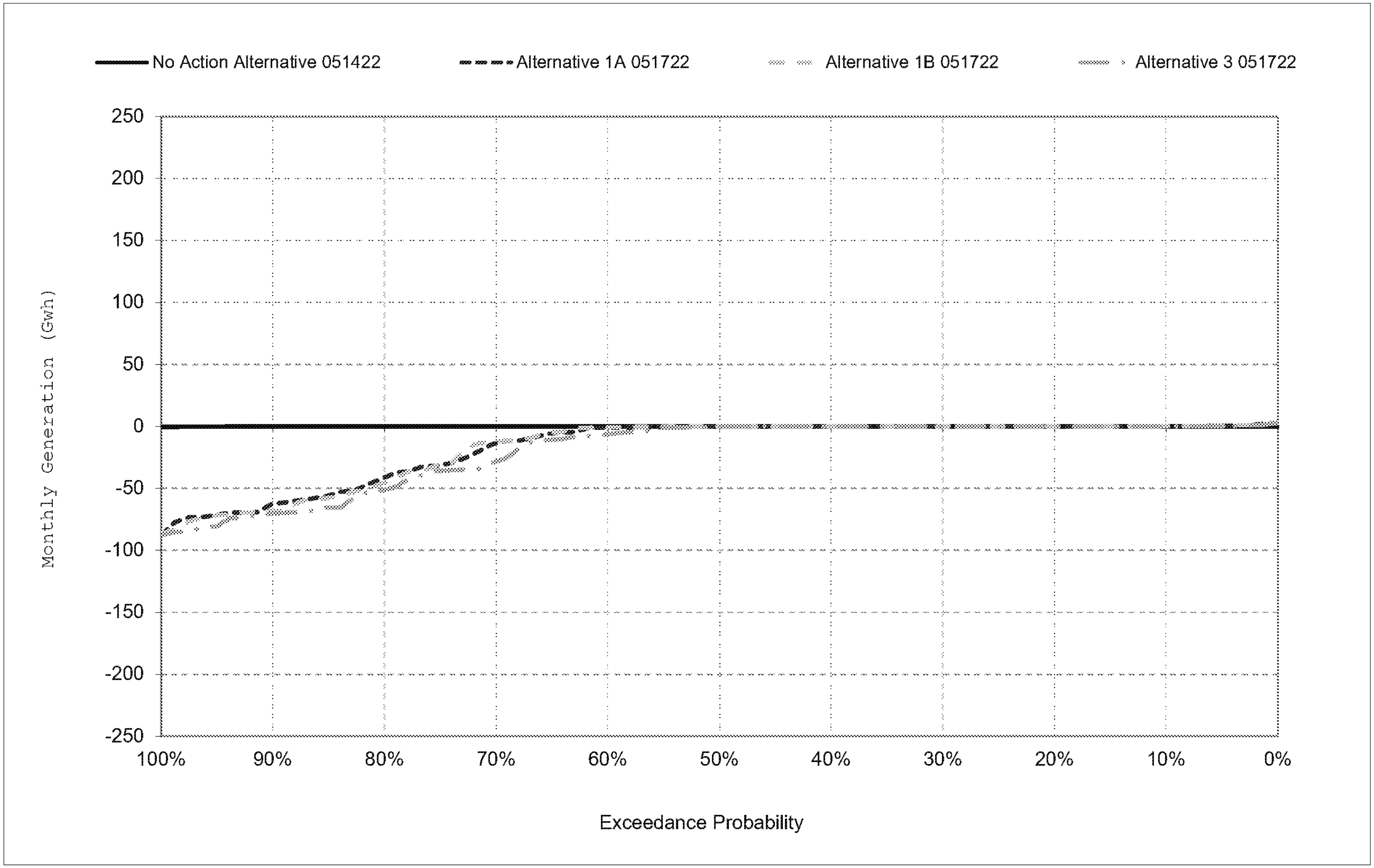
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-11. Sites Project Facilities Net Generation, February



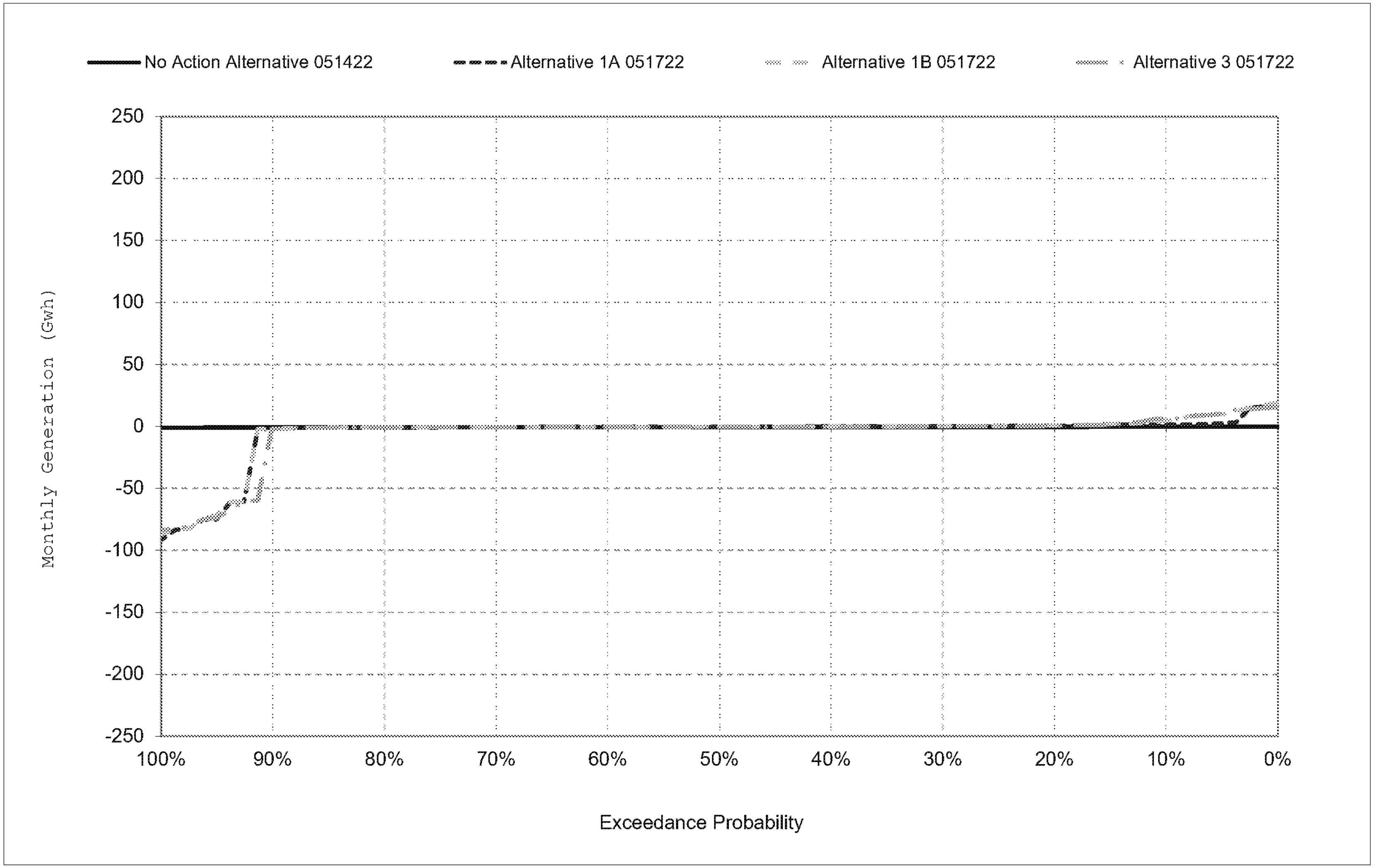
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-12. Sites Project Facilities Net Generation, March



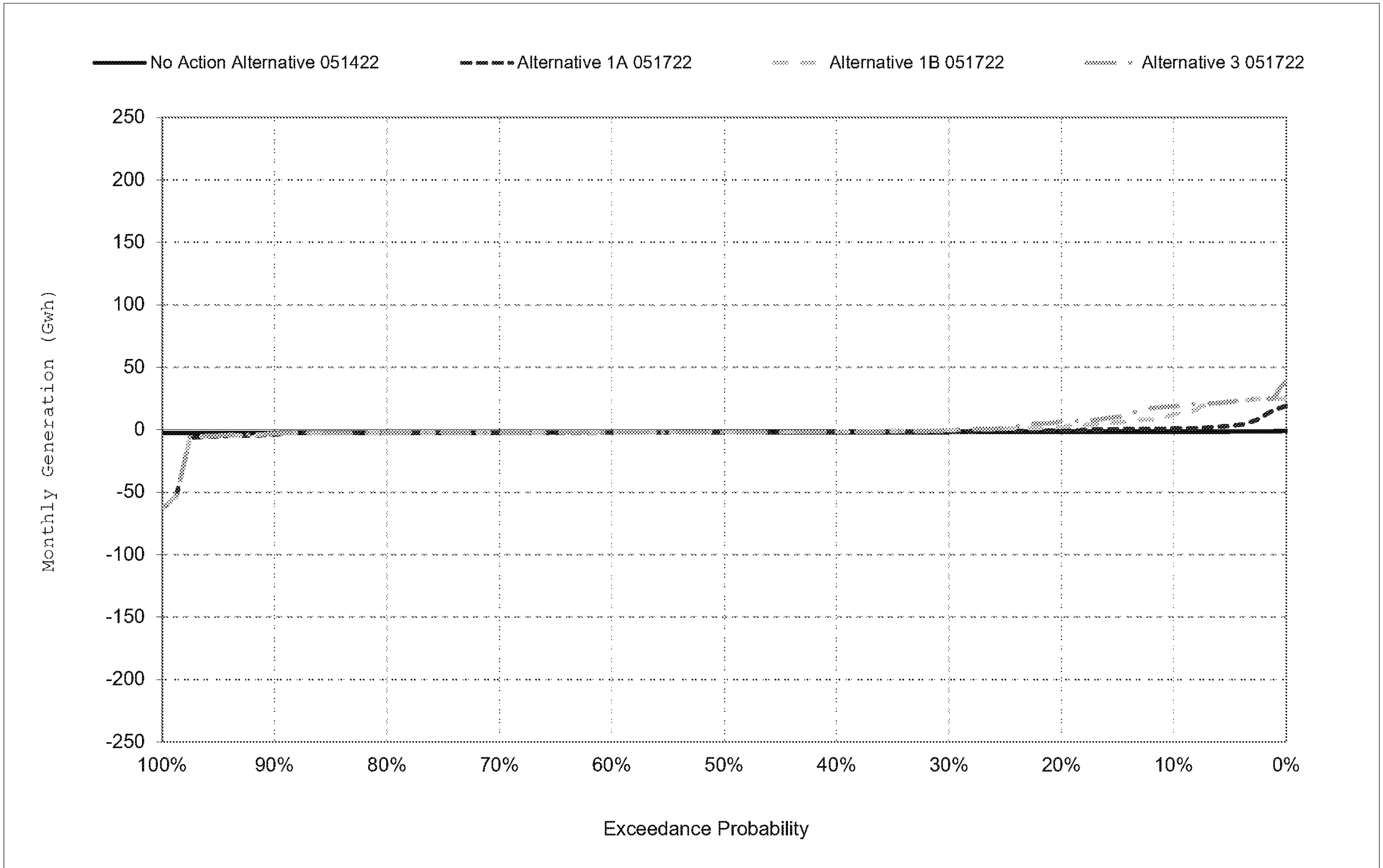
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-13. Sites Project Facilities Net Generation, April



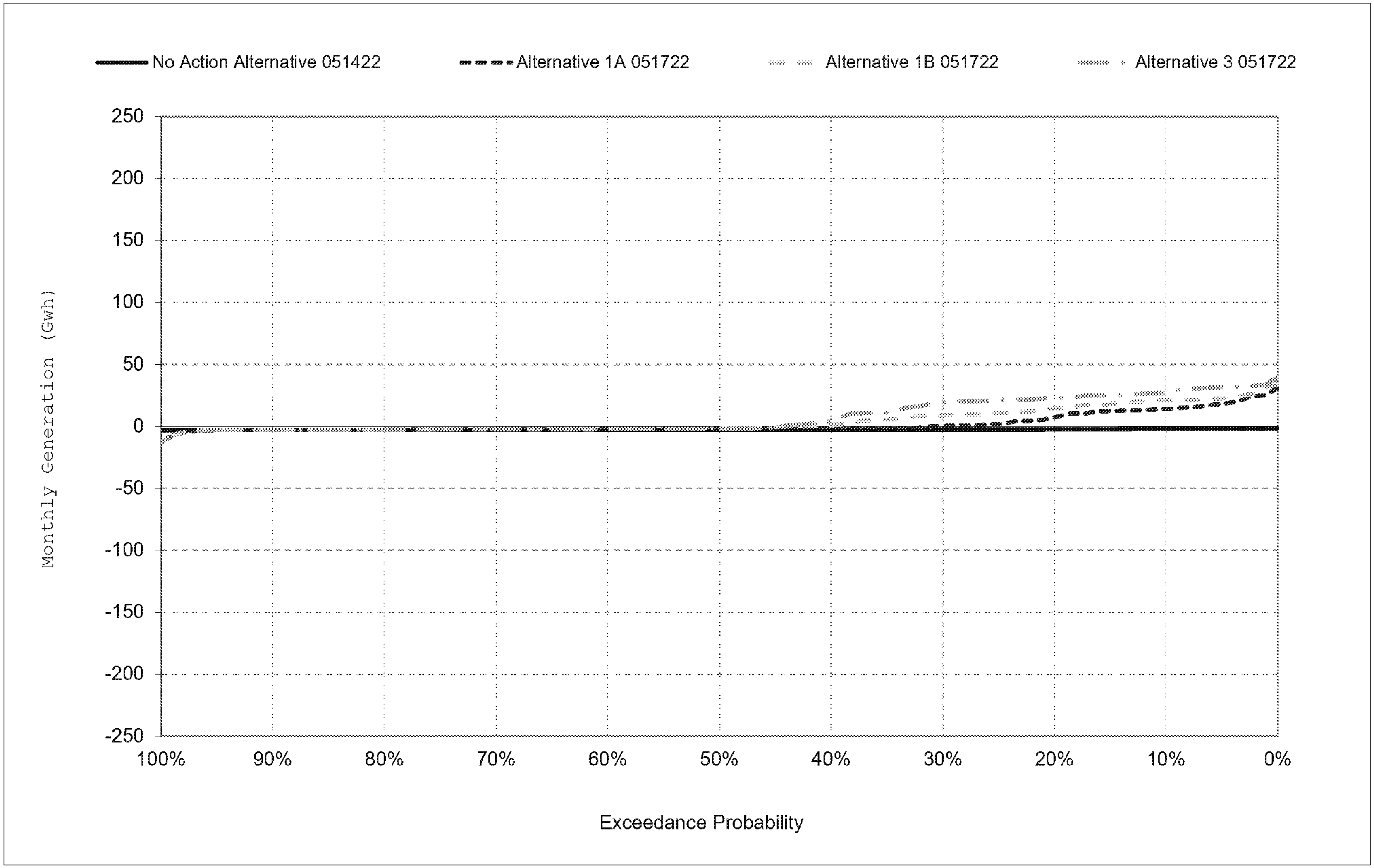
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-14. Sites Project Facilities Net Generation, May



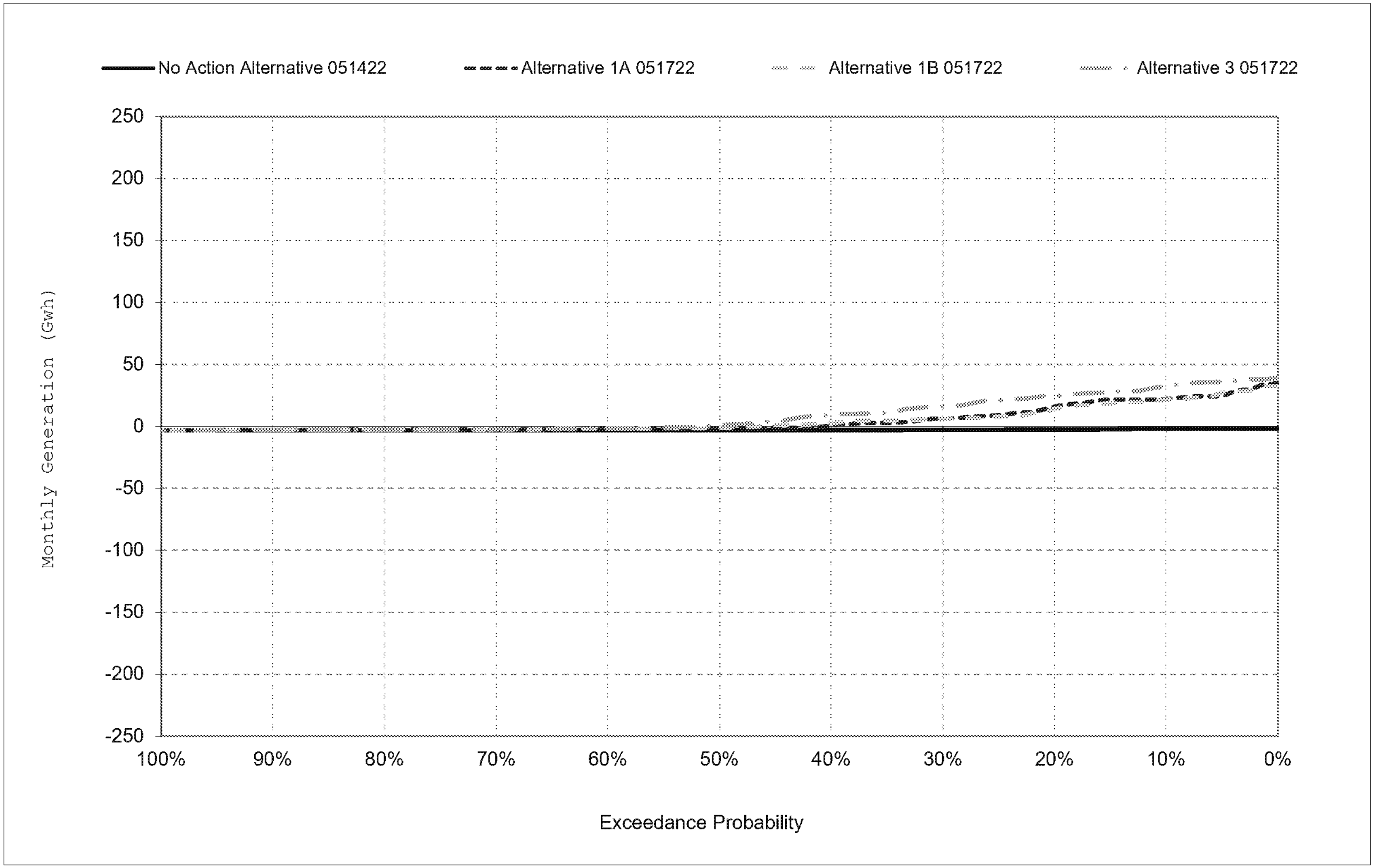
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-15. Sites Project Facilities Net Generation, June



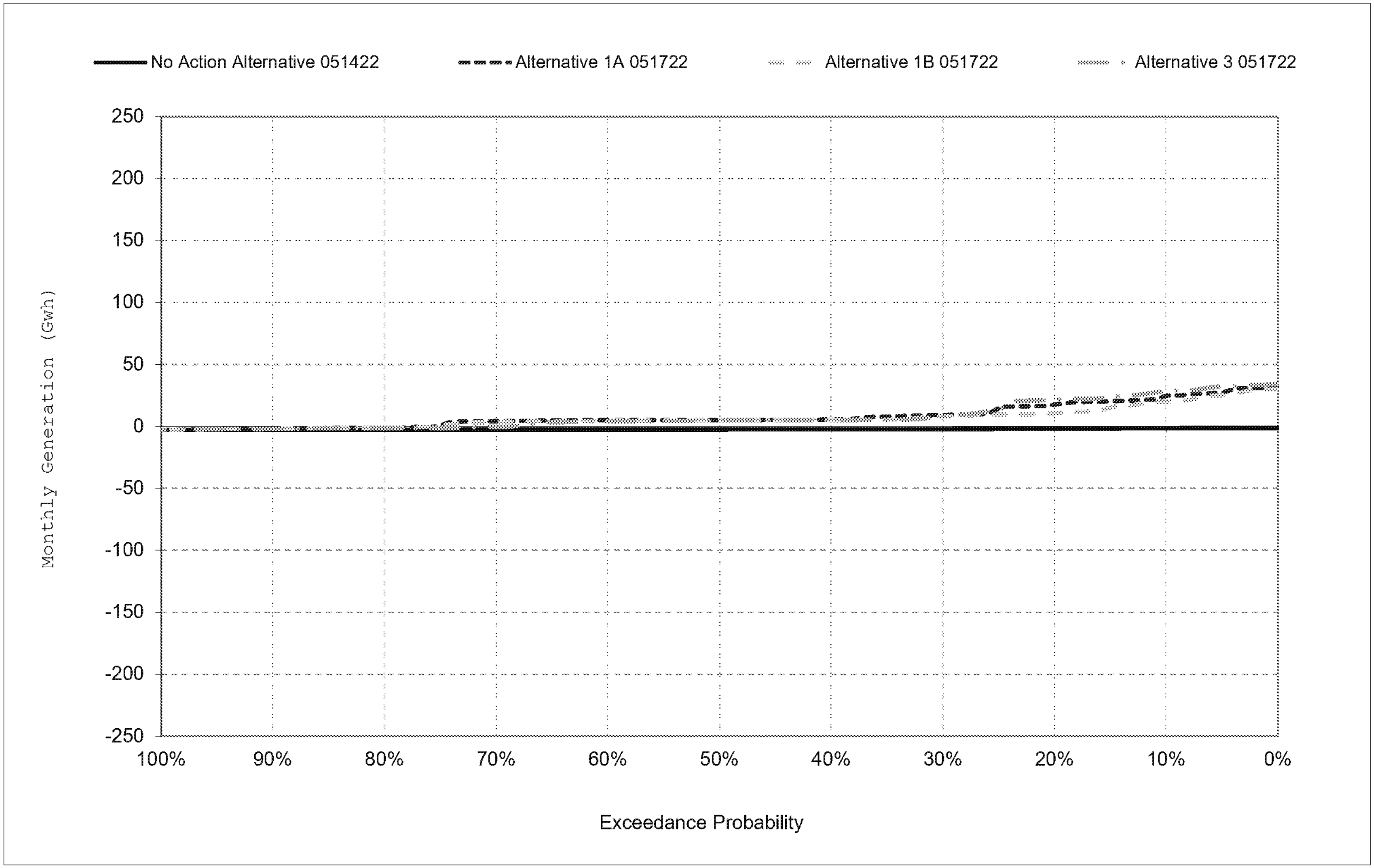
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-16. Sites Project Facilities Net Generation, July



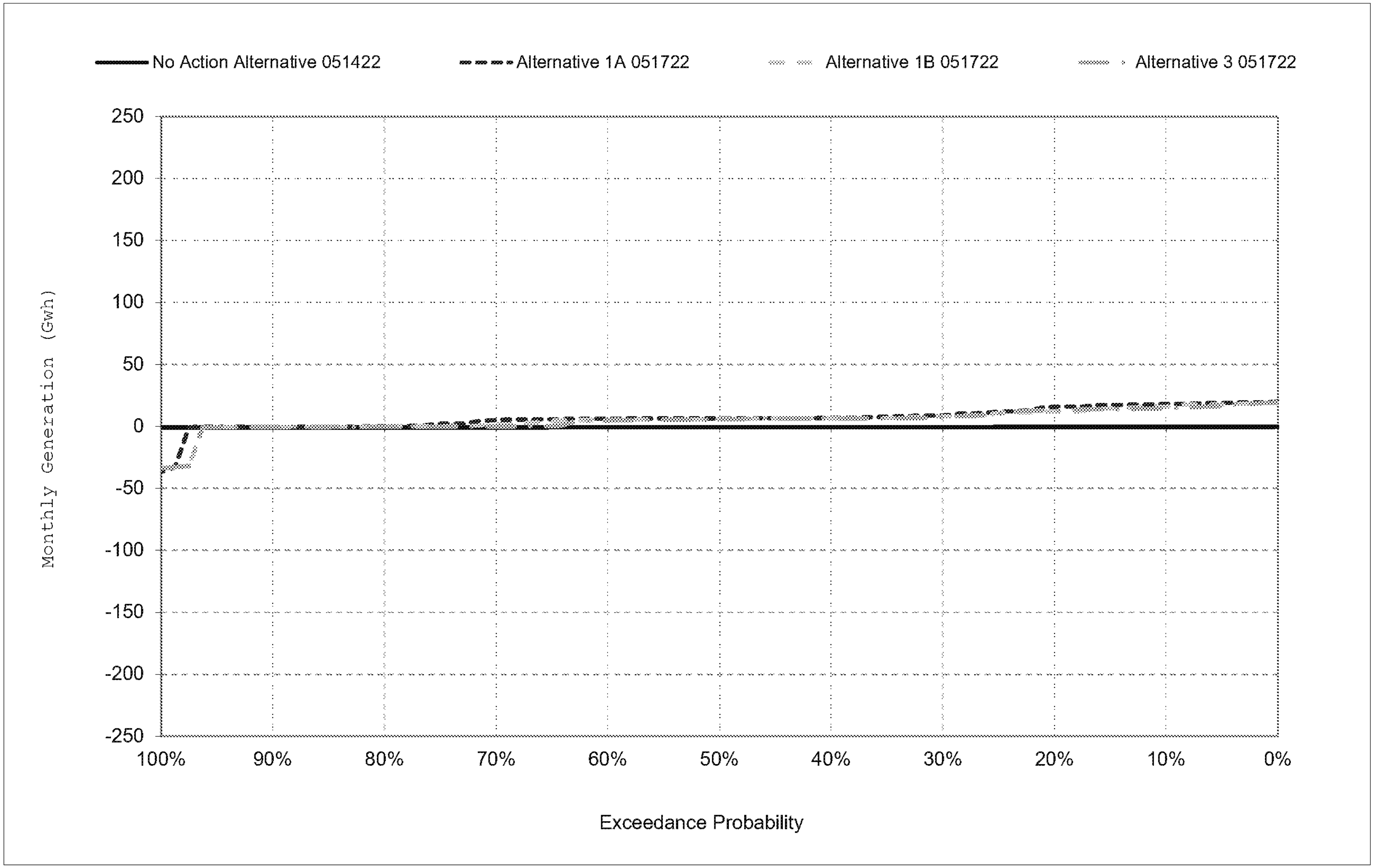
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-17. Sites Project Facilities Net Generation, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 14-18. Sites Project Facilities Net Generation, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 15-1a. Sites Project Facilities Net Revenue, No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-21	-21	-6	-2	-2	-1	-13	-80	-92	-106	-87	-21
20%	-22	-22	-7	-3	-3	-1	-16	-86	-117	-139	-113	-27
30%	-24	-23	-7	-3	-3	-1	-19	-92	-124	-157	-131	-31
40%	-26	-25	-7	-3	-3	-1	-21	-99	-127	-169	-137	-35
50%	-27	-26	-8	-3	-3	-1	-25	-105	-131	-171	-143	-37
60%	-28	-27	-9	-3	-3	-1	-28	-109	-133	-174	-147	-38
70%	-31	-29	-10	-3	-3	-3	-32	-115	-137	-176	-151	-39
80%	-32	-30	-11	-4	-3	-4	-36	-117	-139	-178	-156	-40
90%	-33	-31	-12	-5	-3	-5	-41	-120	-143	-181	-161	-41
Long Term												
Full Simulation Period[d]	-27	-26	-9	-4	-3	-3	-26	-102	-126	-158	-134	-34
Water Year Types[b,c]												
Wet (32%)	-29	-27	-9	-3	-2	-2	-23	-106	-130	-175	-155	-38
Above Normal (15%)	-27	-26	-8	-3	-2	-1	-28	-106	-136	-175	-147	-38
Below Normal (17%)	-27	-27	-8	-4	-3	-3	-31	-108	-135	-170	-142	-34
Dry (22%)	-27	-26	-9	-4	-3	-3	-28	-101	-129	-151	-122	-33
Critical (15%)	-21	-24	-7	-4	-3	-4	-21	-81	-92	-104	-87	-24

Table 15-1b. Sites Project Facilities Net Revenue, Alternative 1A 051722, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	803	279	50	-3	-3	5	77	44	716	1,255	1,480	1,016
20%	658	206	-3	-3	-3	-1	26	-31	366	900	1,055	900
30%	352	6	-6	-3	-3	-1	9	-77	22	351	557	503
40%	326	-2	-8	-4	-3	-1	-4	-91	-87	38	332	392
50%	324	-18	-11	-5	-24	-3	-11	-101	-97	-92	313	367
60%	200	-25	-12	-6	-586	-49	-18	-109	-102	-108	308	356
70%	18	-29	-892	-1,211	-1,643	-698	-29	-117	-111	-136	253	288
80%	0	-31	-1,896	-2,702	-2,554	-2,106	-37	-120	-128	-142	-79	0
90%	-19	-558	-2,807	-4,105	-3,498	-3,199	-104	-193	-137	-147	-106	-19
Long Term												
Full Simulation Period[d]	272	-120	-801	-1,042	-1,048	-845	-291	-122	96	276	503	385
Water Year Types[b,c]												
Wet (32%)	226	-290	-543	-1,525	-1,428	-850	-760	-344	-117	-132	248	297
Above Normal (15%)	199	-251	-954	-2,316	-1,875	-1,878	-364	-106	-162	2	496	579
Below Normal (17%)	174	-128	-1,389	-723	-881	-503	-224	-94	-55	157	311	127
Dry (22%)	585	115	-1,156	-257	-654	-881	32	-33	432	903	1,031	693
Critical (15%)	92	35	13	-268	-184	-148	236	179	490	634	497	219

Table 15-1c. Sites Project Facilities Net Revenue, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	824	300	55	-1	-1	6	90	124	808	1,361	1,567	1,037
20%	680	228	4	0	0	0	42	54	483	1,039	1,169	927
30%	376	29	0	0	0	0	28	15	145	507	688	534
40%	351	23	0	0	0	-1	17	8	40	207	470	427
50%	351	8	-3	-2	-21	-2	14	4	34	78	456	404
60%	228	3	-3	-3	-583	-47	10	0	31	66	456	394
70%	49	0	-882	-1,208	-1,641	-696	3	-2	26	41	404	328
80%	33	0	-1,885	-2,698	-2,552	-2,103	-1	-3	11	36	77	40
90%	14	-526	-2,795	-4,100	-3,496	-3,194	-63	-72	6	34	55	22
Long Term												
Full Simulation Period[d]	299	-94	-792	-1,038	-1,046	-843	-265	-20	222	435	638	419
Water Year Types[b,c]												
Wet (32%)	254	-263	-533	-1,522	-1,426	-848	-737	-238	13	44	402	335
Above Normal (15%)	227	-225	-945	-2,312	-1,873	-1,876	-336	0	-27	178	643	617
Below Normal (17%)	201	-101	-1,381	-720	-878	-499	-194	14	80	327	453	161
Dry (22%)	613	141	-1,147	-253	-651	-878	60	68	561	1,054	1,153	725
Critical (15%)	113	59	19	-264	-181	-144	258	259	582	738	584	243

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 15-2a. Sites Project Facilities Net Revenue, No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-21	-21	-6	-2	-2	-1	-13	-80	-92	-106	-87	-21
20%	-22	-22	-7	-3	-3	-1	-16	-86	-117	-139	-113	-27
30%	-24	-23	-7	-3	-3	-1	-19	-92	-124	-157	-131	-31
40%	-26	-25	-7	-3	-3	-1	-21	-99	-127	-169	-137	-35
50%	-27	-26	-8	-3	-3	-1	-25	-105	-131	-171	-143	-37
60%	-28	-27	-9	-3	-3	-1	-28	-109	-133	-174	-147	-38
70%	-31	-29	-10	-3	-3	-3	-32	-115	-137	-176	-151	-39
80%	-32	-30	-11	-4	-3	-4	-36	-117	-139	-178	-156	-40
90%	-33	-31	-12	-5	-3	-5	-41	-120	-143	-181	-161	-41
Long Term												
Full Simulation Period[d]	-27	-26	-9	-4	-3	-3	-26	-102	-126	-158	-134	-34
Water Year Types[b,c]												
Wet (32%)	-29	-27	-9	-3	-2	-2	-23	-106	-130	-175	-155	-38
Above Normal (15%)	-27	-26	-8	-3	-2	-1	-28	-106	-136	-175	-147	-38
Below Normal (17%)	-27	-27	-8	-4	-3	-3	-31	-108	-135	-170	-142	-34
Dry (22%)	-27	-26	-9	-4	-3	-3	-28	-101	-129	-151	-122	-33
Critical (15%)	-21	-24	-7	-4	-3	-4	-21	-81	-92	-104	-87	-24

Table 15-2b. Sites Project Facilities Net Revenue, Alternative 1B 051722, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	757	390	49	-3	-3	4	235	599	1,053	1,222	1,210	909
20%	646	201	-3	-3	-3	-1	28	115	730	798	627	665
30%	335	3	-7	-3	-3	-1	9	-25	454	348	498	469
40%	325	-4	-8	-4	-3	-1	-5	-80	67	157	314	366
50%	275	-20	-11	-5	-32	-3	-14	-97	-88	-63	308	336
60%	148	-25	-12	-18	-562	-40	-19	-106	-98	-99	276	306
70%	6	-29	-813	-1,720	-1,894	-615	-27	-115	-108	-134	214	94
80%	-2	-31	-2,021	-3,186	-2,484	-2,312	-37	-120	-126	-140	-80	-2
90%	-22	-557	-3,486	-4,192	-3,497	-3,505	-104	-131	-136	-144	-108	-20
Long Term												
Full Simulation Period[d]	244	-141	-818	-1,137	-1,063	-858	-255	-3	235	276	411	302
Water Year Types[b,c]												
Wet (32%)	197	-348	-593	-1,811	-1,429	-930	-744	-337	-116	-96	271	227
Above Normal (15%)	191	-249	-1,070	-2,350	-1,857	-1,941	-362	-106	469	177	341	440
Below Normal (17%)	155	-83	-1,397	-746	-1,002	-490	-208	186	119	71	168	37
Dry (22%)	523	62	-1,076	-247	-637	-793	168	268	478	834	872	629
Critical (15%)	85	41	10	-255	-184	-146	219	195	532	587	376	147

Table 15-2c. Sites Project Facilities Net Revenue, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	778	411	55	-1	-1	5	249	679	1,145	1,328	1,297	931
20%	669	224	4	0	0	0	45	201	847	937	740	692
30%	359	27	0	0	0	0	28	67	578	504	629	500
40%	350	21	-1	0	0	0	16	18	195	325	451	401
50%	302	7	-3	-2	-30	-2	11	8	43	108	451	373
60%	176	3	-3	-15	-560	-39	9	3	36	75	423	345
70%	37	0	-803	-1,716	-1,891	-612	4	0	29	43	365	133
80%	31	0	-2,009	-3,182	-2,482	-2,308	-1	-2	13	38	76	38
90%	11	-526	-3,474	-4,186	-3,495	-3,500	-63	-11	6	37	52	21
Long Term												
Full Simulation Period[d]	271	-115	-809	-1,134	-1,060	-855	-230	98	361	435	545	336
Water Year Types[b,c]												
Wet (32%)	226	-321	-583	-1,808	-1,427	-928	-720	-231	13	79	426	265
Above Normal (15%)	218	-223	-1,062	-2,347	-1,855	-1,939	-334	0	604	353	489	478
Below Normal (17%)	182	-56	-1,389	-743	-1,000	-486	-178	294	254	241	310	70
Dry (22%)	550	88	-1,067	-243	-635	-790	196	369	607	985	994	661
Critical (15%)	106	66	17	-251	-181	-142	240	275	624	690	463	171

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 15-3a. Sites Project Facilities Net Revenue, No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-21	-21	-6	-2	-2	-1	-13	-80	-92	-106	-87	-21
20%	-22	-22	-7	-3	-3	-1	-16	-86	-117	-139	-113	-27
30%	-24	-23	-7	-3	-3	-1	-19	-92	-124	-157	-131	-31
40%	-26	-25	-7	-3	-3	-1	-21	-99	-127	-169	-137	-35
50%	-27	-26	-8	-3	-3	-1	-25	-105	-131	-171	-143	-37
60%	-28	-27	-9	-3	-3	-1	-28	-109	-133	-174	-147	-38
70%	-31	-29	-10	-3	-3	-3	-32	-115	-137	-176	-151	-39
80%	-32	-30	-11	-4	-3	-4	-36	-117	-139	-178	-156	-40
90%	-33	-31	-12	-5	-3	-5	-41	-120	-143	-181	-161	-41
Long Term												
Full Simulation Period[a]	-27	-26	-9	-4	-3	-3	-26	-102	-126	-158	-134	-34
Water Year Types[b,c]												
Wet (32%)	-29	-27	-9	-3	-2	-2	-23	-106	-130	-175	-155	-38
Above Normal (15%)	-27	-26	-8	-3	-2	-1	-28	-106	-136	-175	-147	-38
Below Normal (17%)	-27	-27	-8	-4	-3	-3	-31	-108	-135	-170	-142	-34
Dry (22%)	-27	-26	-9	-4	-3	-3	-28	-101	-129	-151	-122	-33
Critical (15%)	-21	-24	-7	-4	-3	-4	-21	-81	-92	-104	-87	-24

Table 15-3b. Sites Project Facilities Net Revenue, Alternative 3 051722, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	679	177	18	-3	-3	0	311	909	1,350	1,829	1,725	831
20%	340	26	-4	-3	-3	-1	26	317	1,134	1,380	1,295	744
30%	328	-2	-7	-3	-3	-1	3	-8	976	924	499	437
40%	324	-8	-8	-4	-5	-3	-10	-80	229	538	313	367
50%	139	-22	-11	-5	-350	-12	-15	-97	-88	53	295	322
60%	6	-26	-12	-16	-1,136	-321	-19	-106	-98	-95	247	266
70%	-2	-29	-872	-1,917	-2,154	-1,452	-28	-115	-109	-130	-26	-1
80%	-19	-30	-1,889	-3,196	-3,143	-2,618	-37	-119	-126	-139	-80	-14
90%	-27	-595	-3,418	-4,065	-3,640	-3,587	-104	-150	-136	-144	-118	-20
Long Term												
Full Simulation Period[a]	161	-189	-836	-1,162	-1,257	-1,011	-295	48	394	523	511	278
Water Year Types[b,c]												
Wet (32%)	161	-343	-536	-1,878	-1,956	-1,185	-866	-335	-117	-98	265	210
Above Normal (15%)	23	-254	-1,478	-2,304	-2,169	-1,952	-352	-106	625	1,410	1,108	473
Below Normal (17%)	103	-140	-1,385	-849	-940	-797	-174	221	603	592	461	69
Dry (22%)	363	-105	-976	-230	-608	-871	131	417	816	875	768	545
Critical (15%)	65	24	9	-232	-175	-152	215	274	395	373	123	73

Table 15-3c. Sites Project Facilities Net Revenue, Alternative 3 051722 minus No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	700	198	24	-1	-1	1	324	989	1,442	1,935	1,812	852
20%	362	48	3	0	0	0	42	403	1,251	1,518	1,408	770
30%	352	22	0	0	0	0	21	84	1,099	1,081	630	467
40%	350	17	-1	0	-2	-2	10	18	356	707	450	402
50%	166	5	-3	-2	-348	-11	9	8	43	223	437	359
60%	34	1	-3	-13	-1,134	-319	9	3	36	78	394	304
70%	29	0	-862	-1,914	-2,151	-1,450	4	0	28	46	125	38
80%	13	0	-1,878	-3,193	-3,141	-2,614	-1	-2	13	39	76	26
90%	6	-563	-3,406	-4,059	-3,638	-3,582	-63	-30	6	37	43	21
Long Term												
Full Simulation Period[a]	188	-163	-827	-1,158	-1,255	-1,008	-269	149	520	681	646	312
Water Year Types[b,c]												
Wet (32%)	190	-316	-526	-1,874	-1,954	-1,183	-842	-229	13	77	420	249
Above Normal (15%)	50	-228	-1,470	-2,301	-2,167	-1,951	-324	0	760	1,585	1,255	511
Below Normal (17%)	130	-113	-1,377	-846	-938	-794	-144	329	738	762	603	103
Dry (22%)	391	-79	-967	-226	-605	-868	159	518	945	1,026	890	578
Critical (15%)	86	48	16	-228	-172	-149	236	355	487	476	210	97

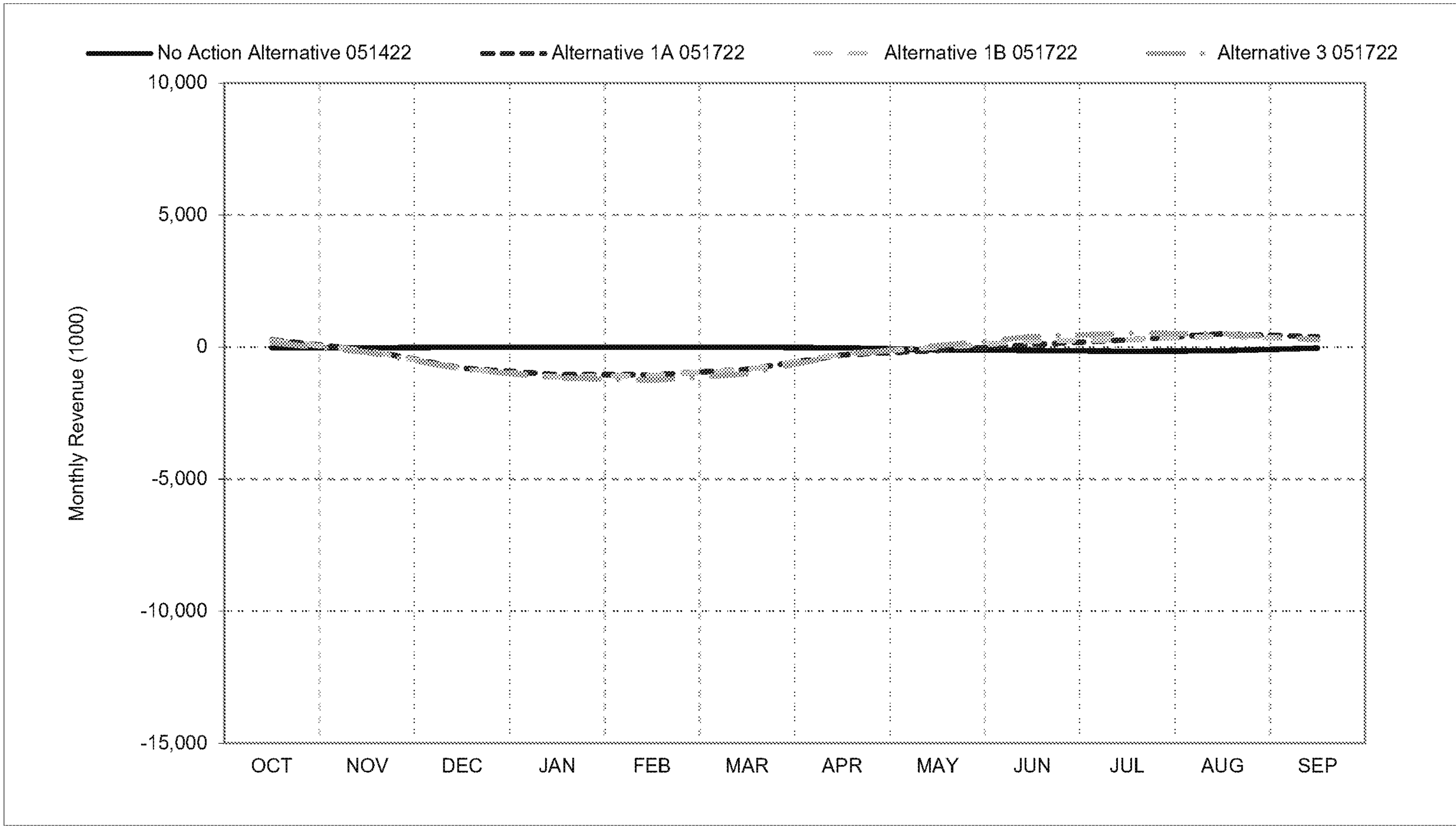
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

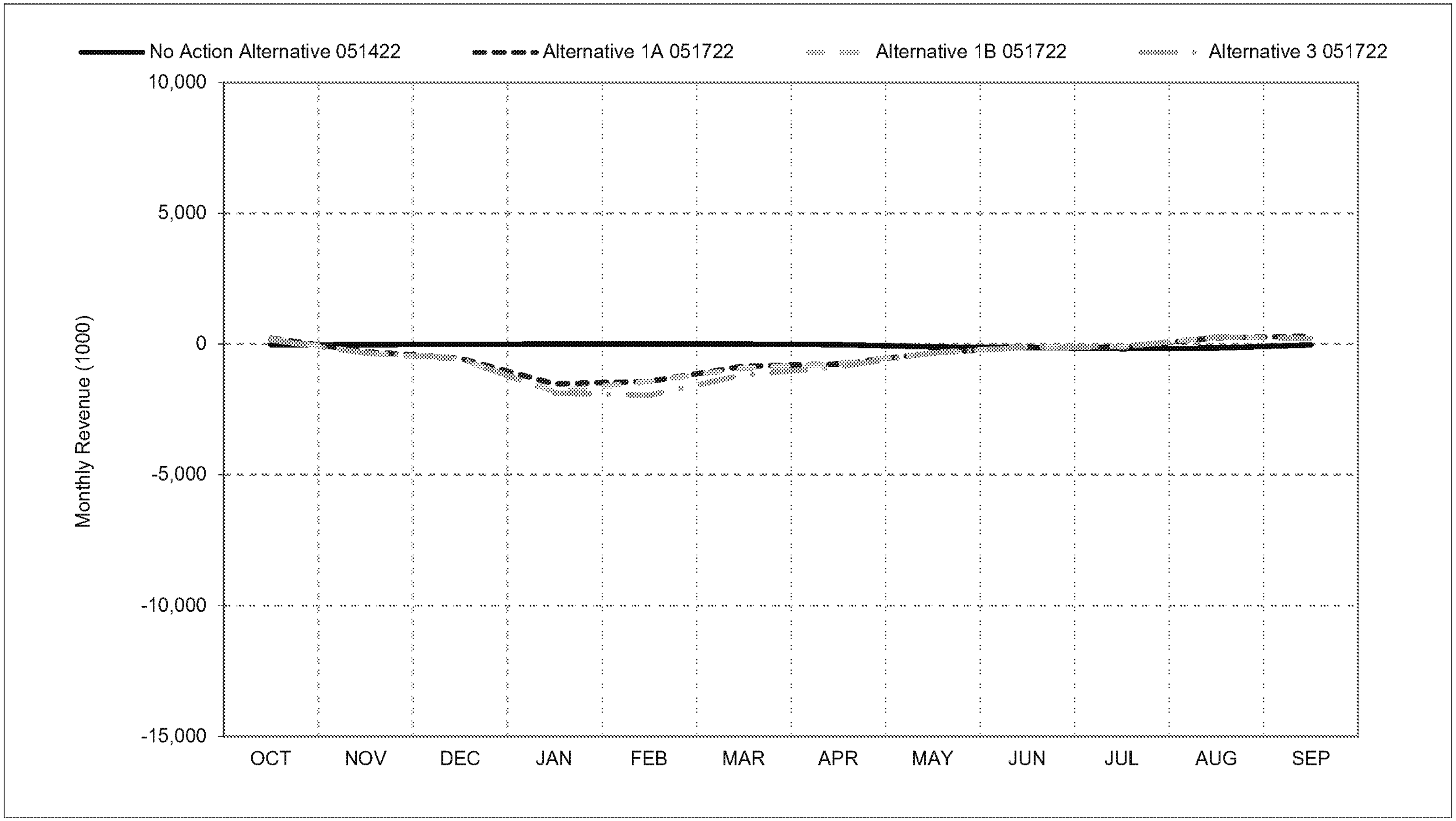
d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-1. Sites Project Facilities Net Revenue, Long-Term Average Revenue



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-2. Sites Project Facilities Net Revenue, Wet Year Average Revenue

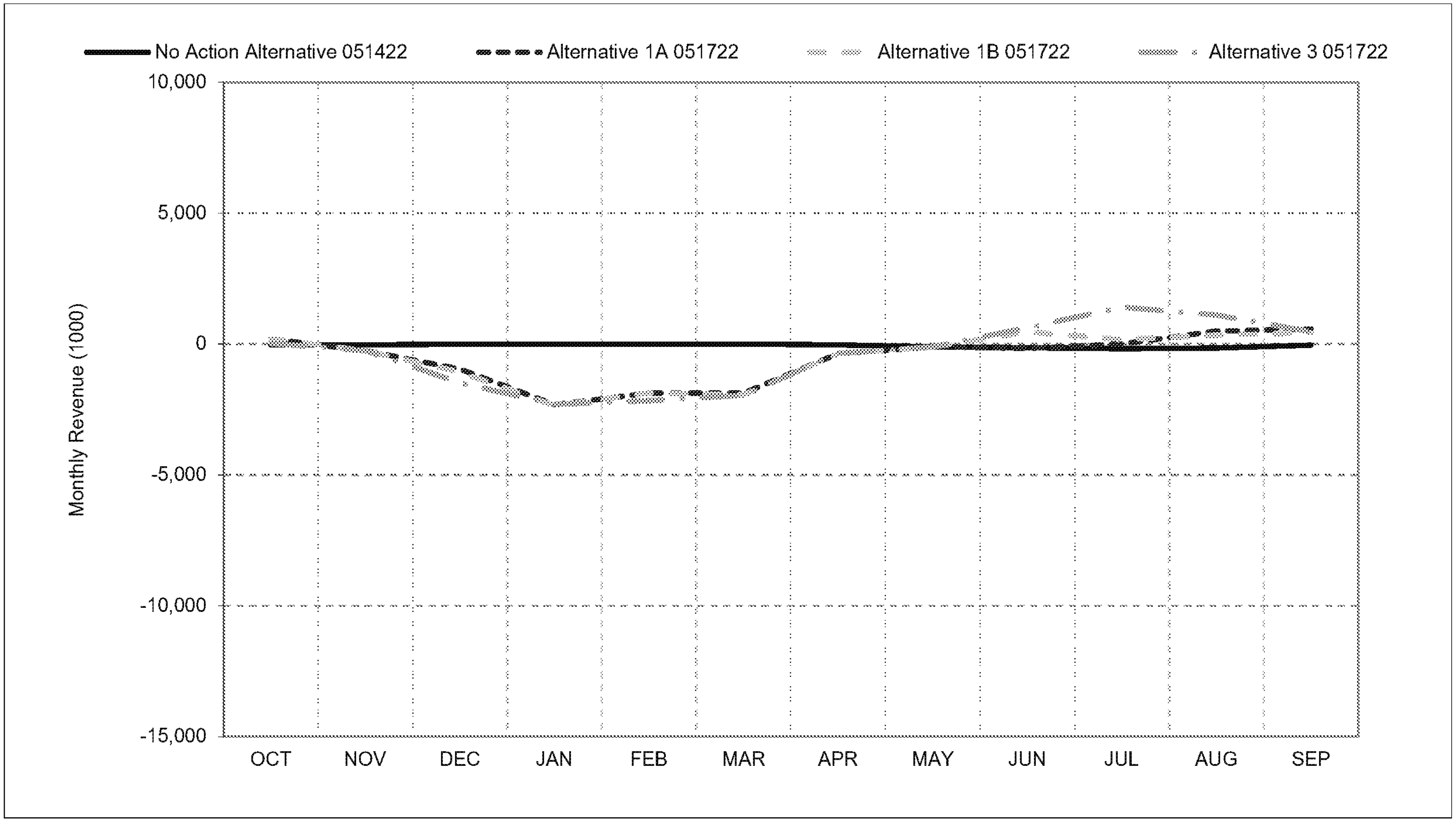


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-3. Sites Project Facilities Net Revenue, Above Normal Year Average Revenue

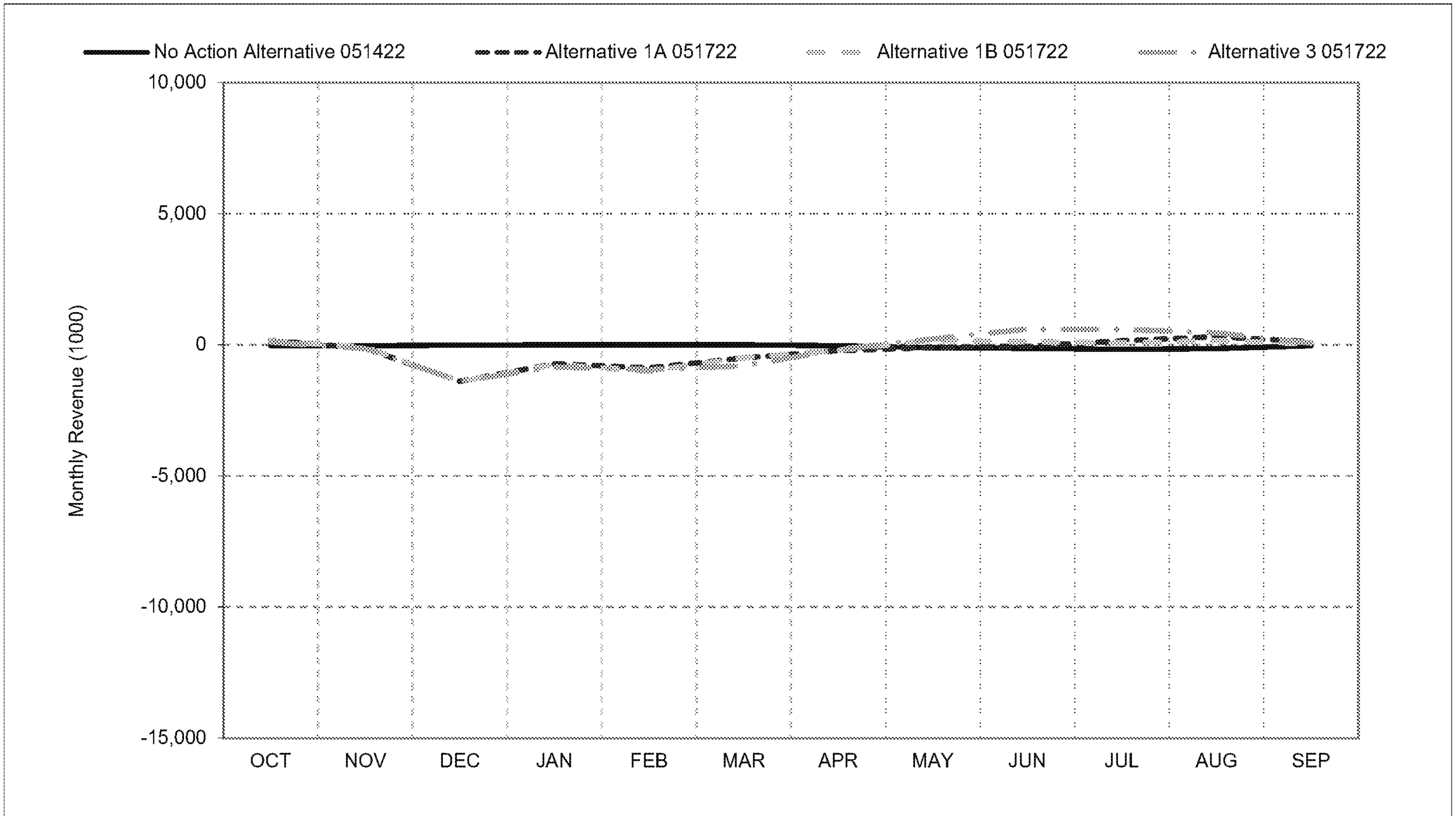


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

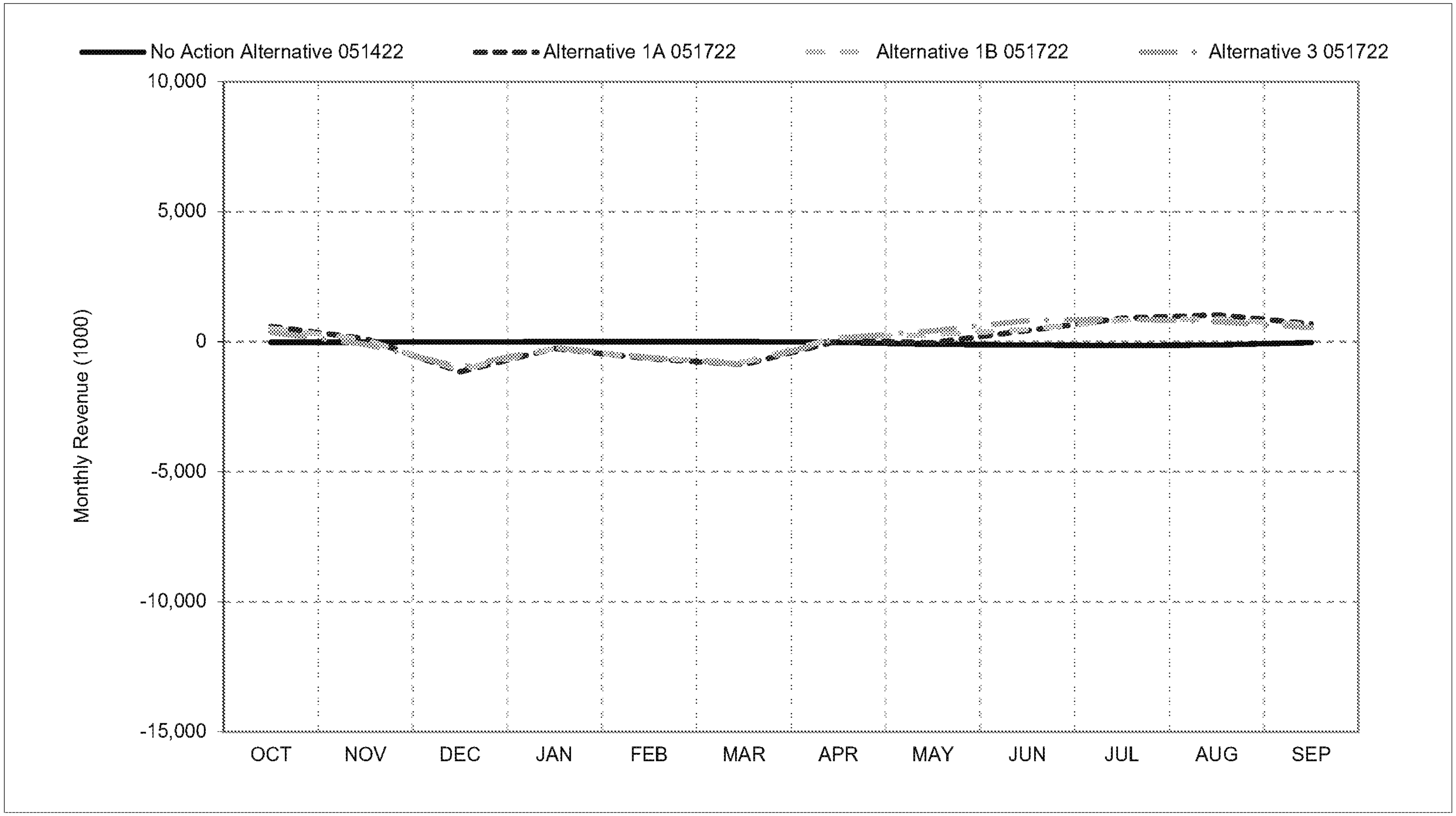
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-4. Sites Project Facilities Net Revenue, Below Normal Year Average Revenue



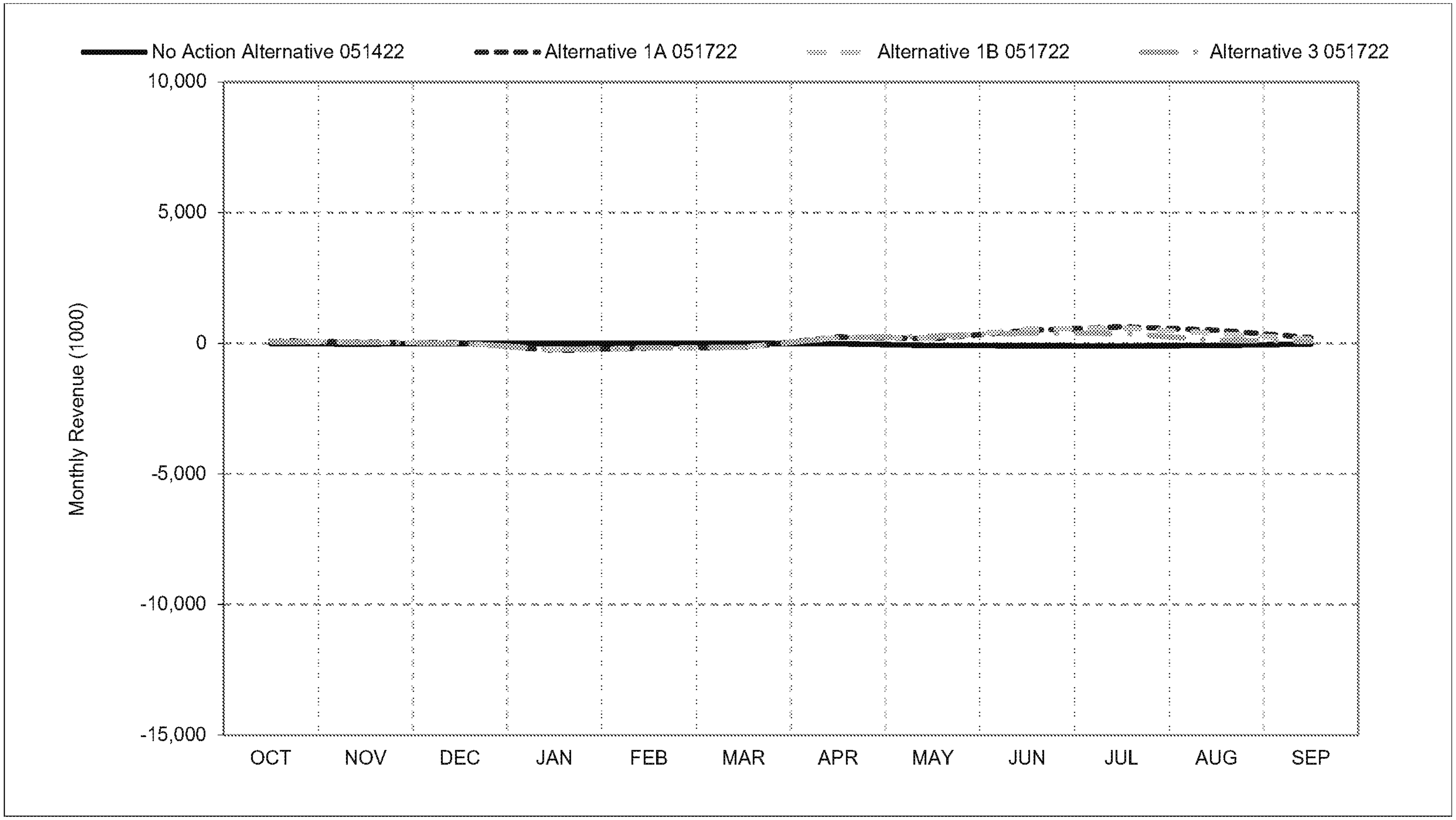
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-5. Sites Project Facilities Net Revenue, Dry Year Average Revenue



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-6. Sites Project Facilities Net Revenue, Critical Year Average Revenue

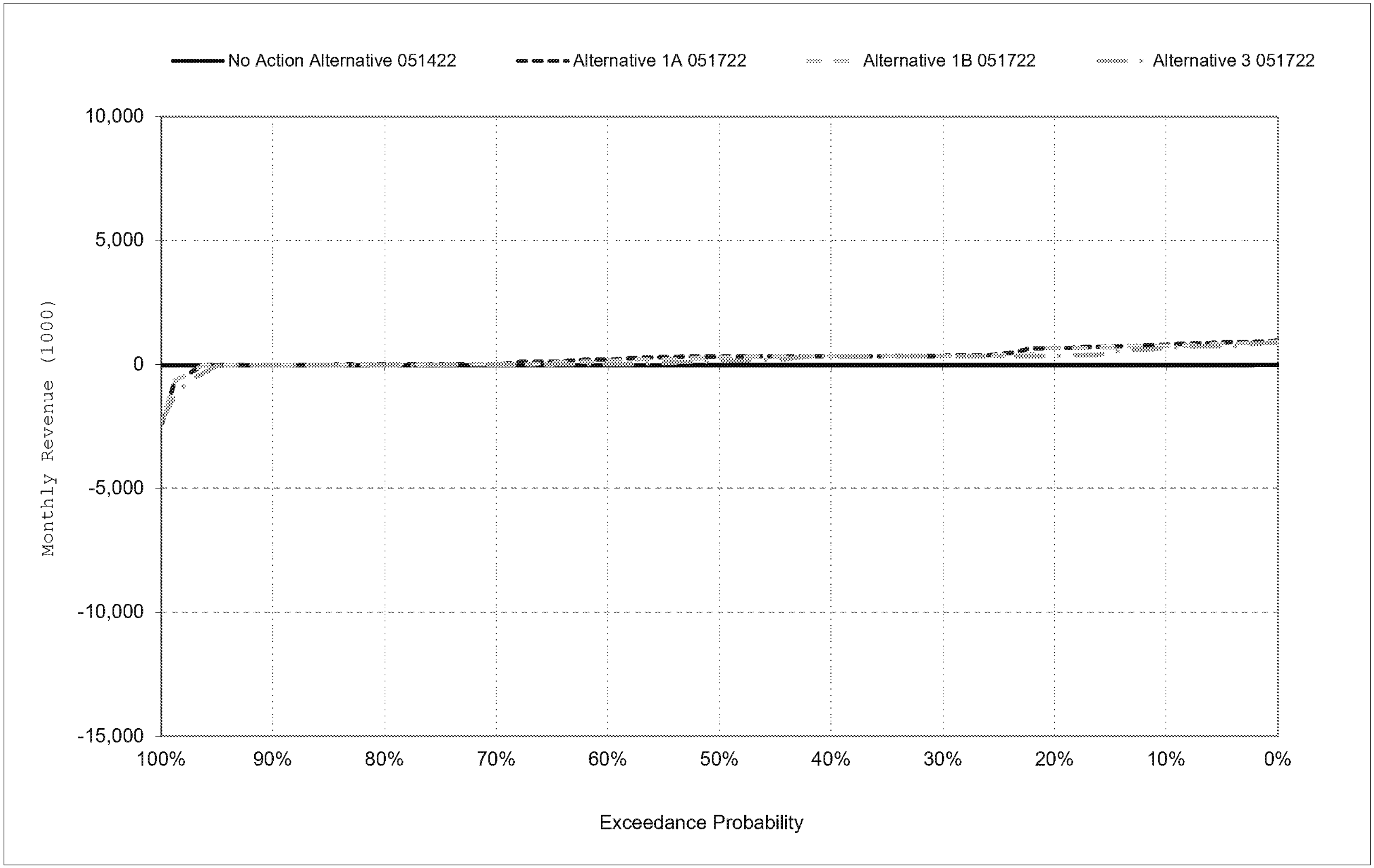


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

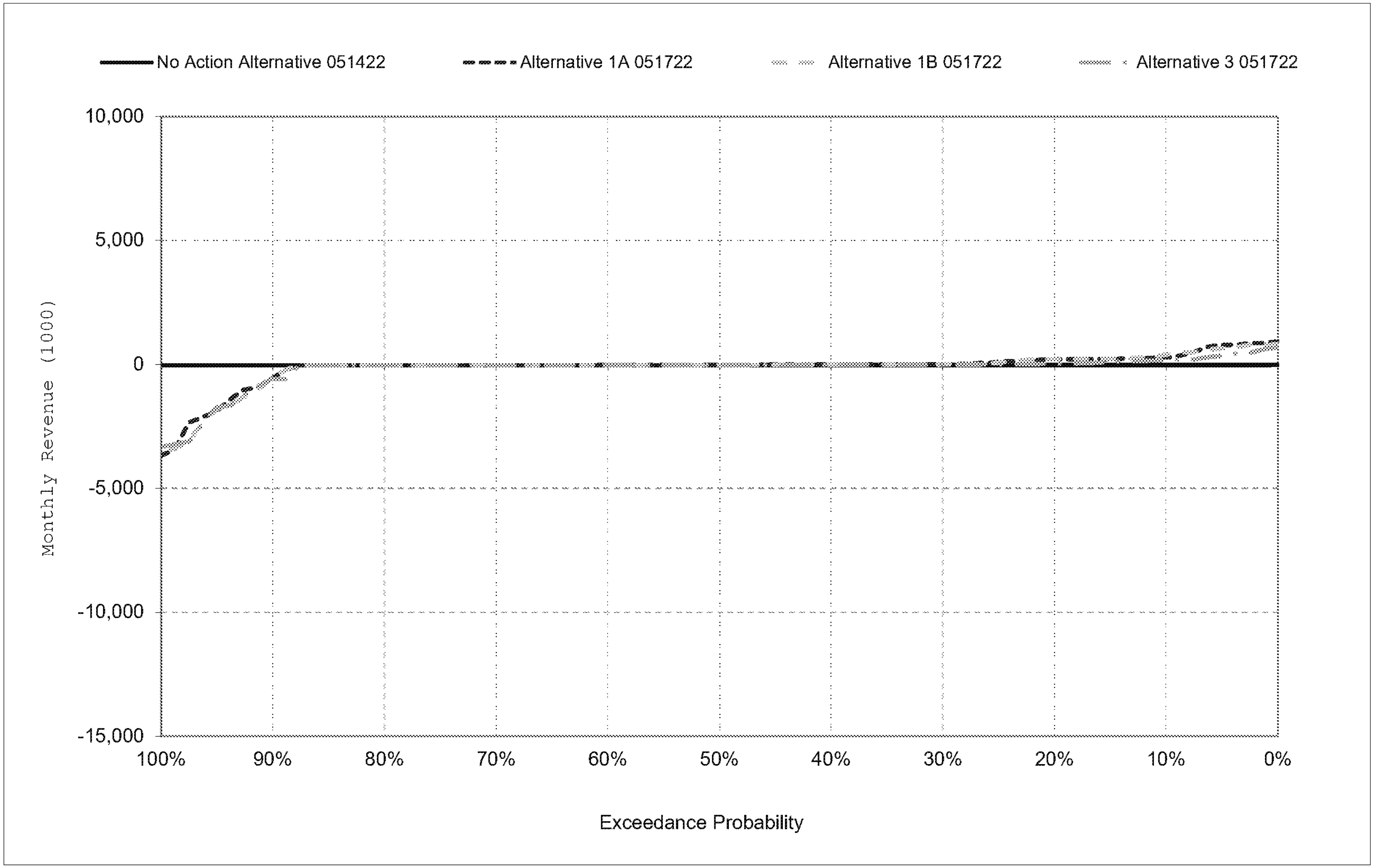
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-7. Sites Project Facilities Net Revenue, October



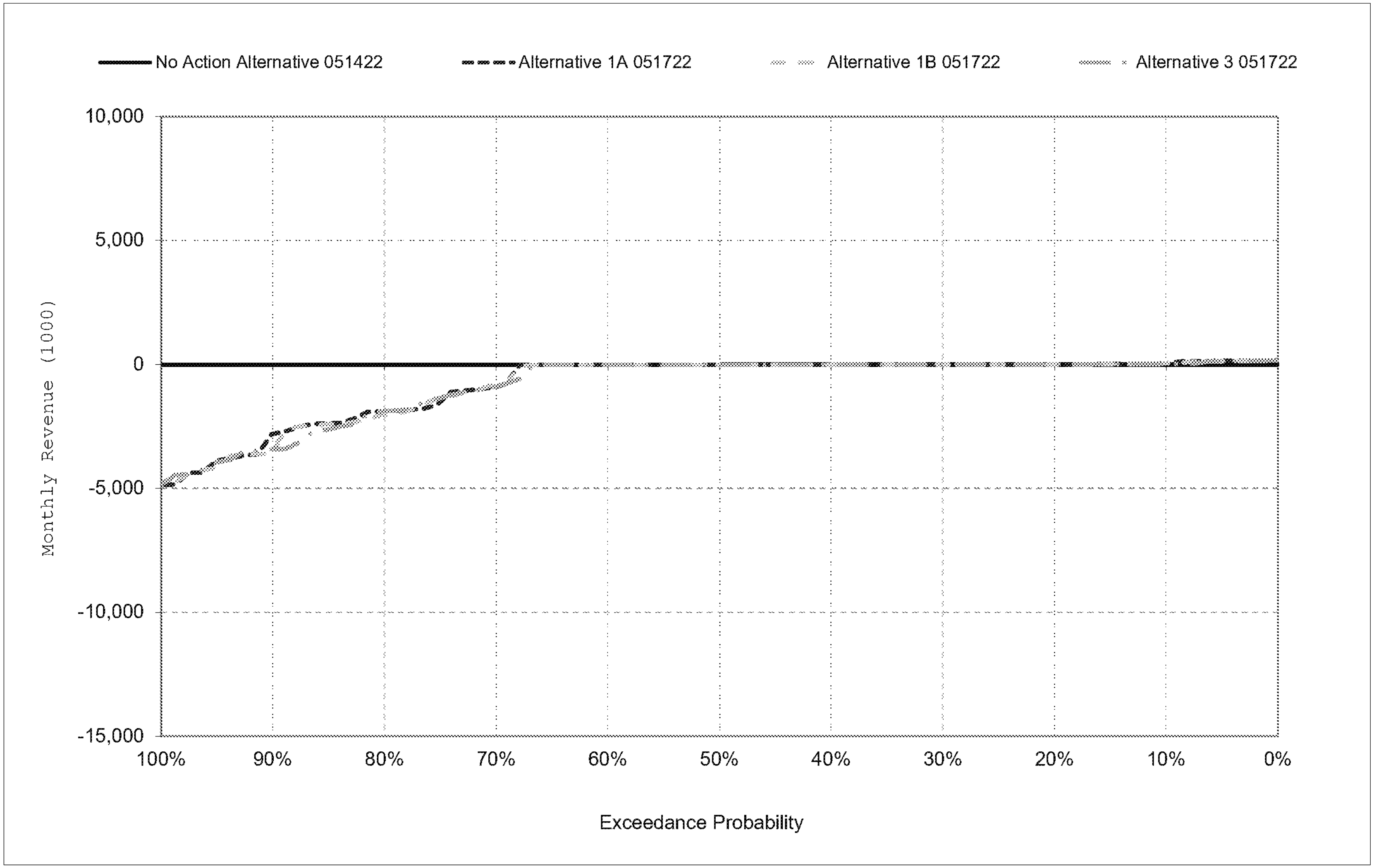
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-8. Sites Project Facilities Net Revenue, November



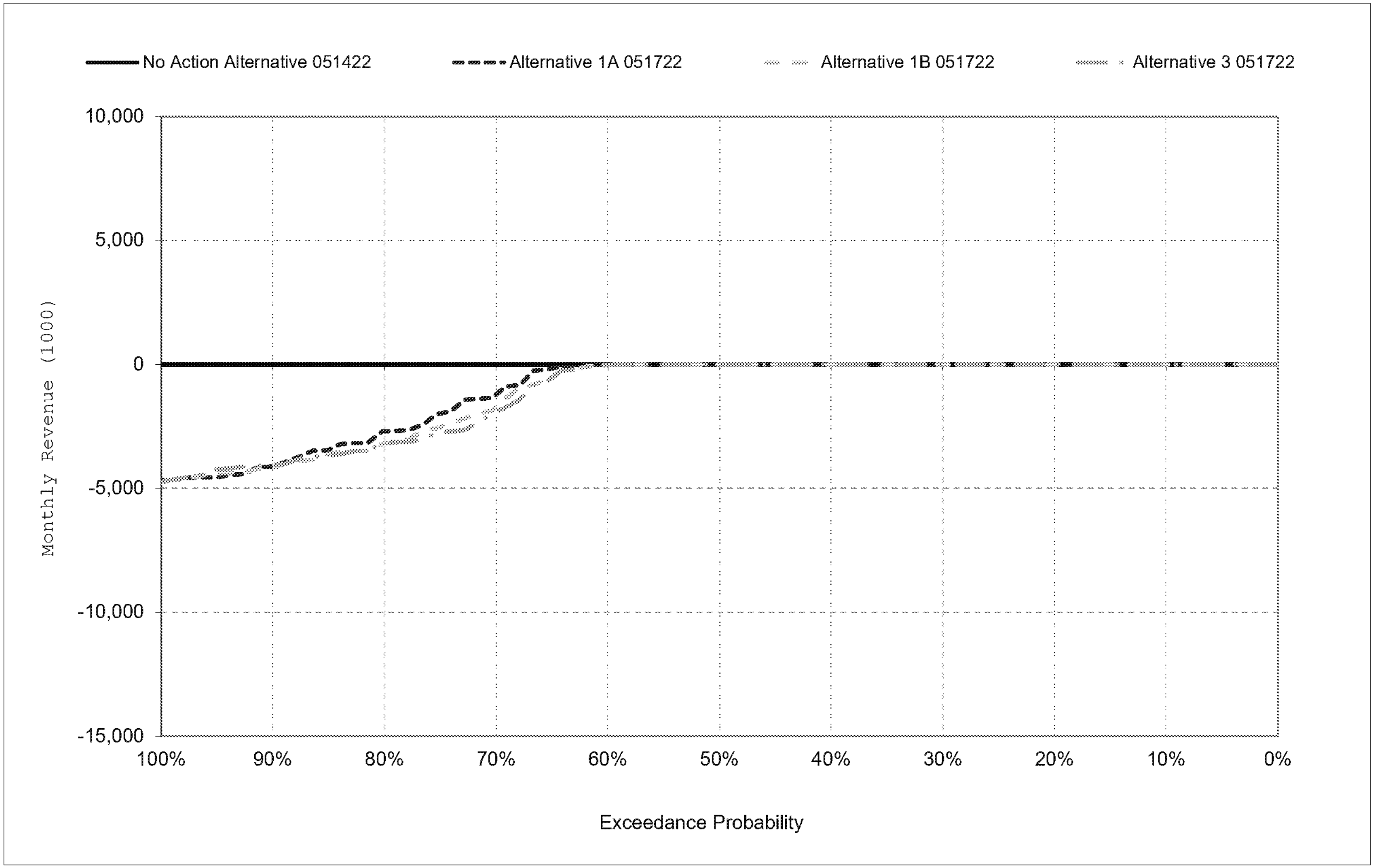
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-9. Sites Project Facilities Net Revenue, December



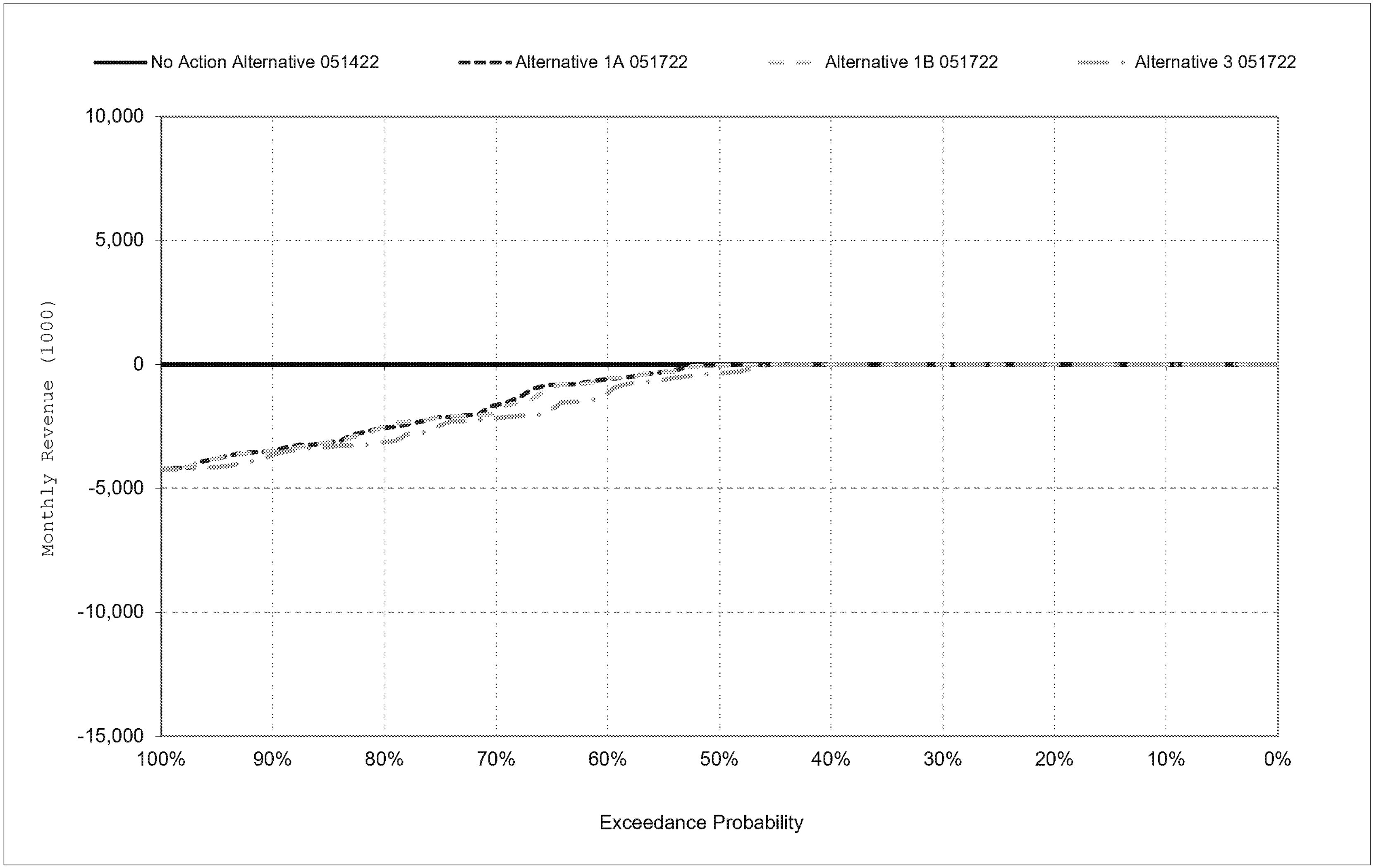
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-10. Sites Project Facilities Net Revenue, January



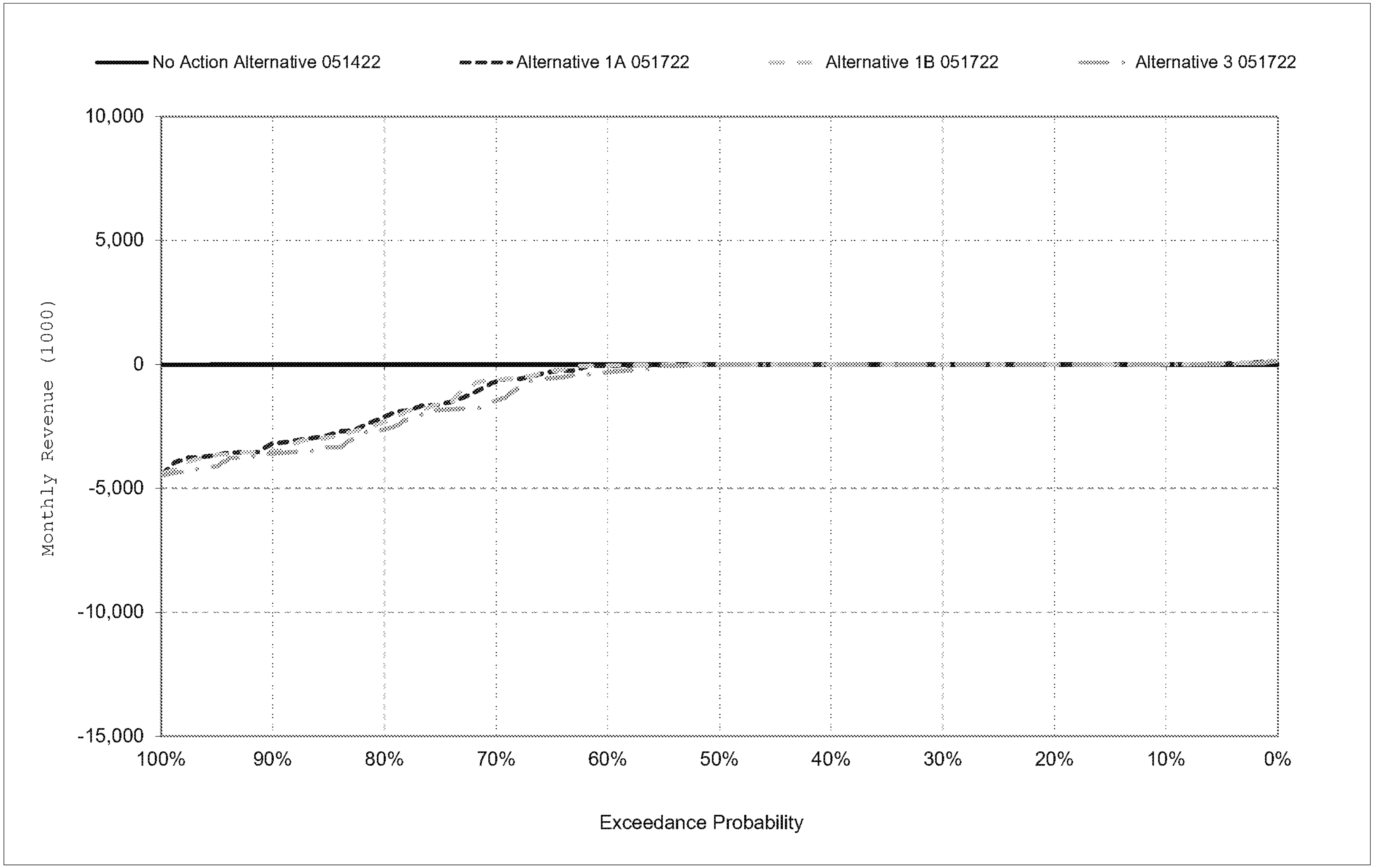
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-11. Sites Project Facilities Net Revenue, February



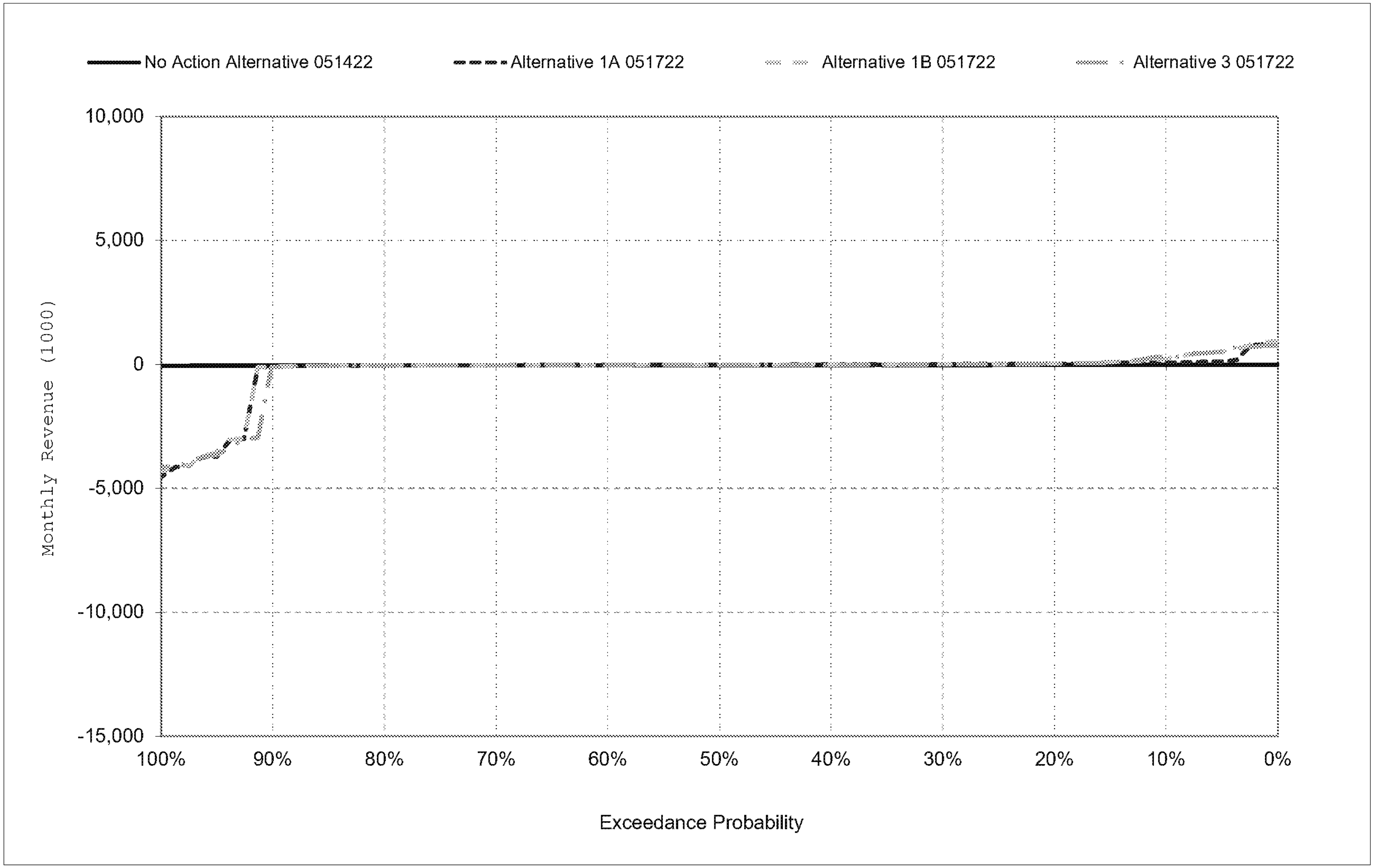
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-12. Sites Project Facilities Net Revenue, March



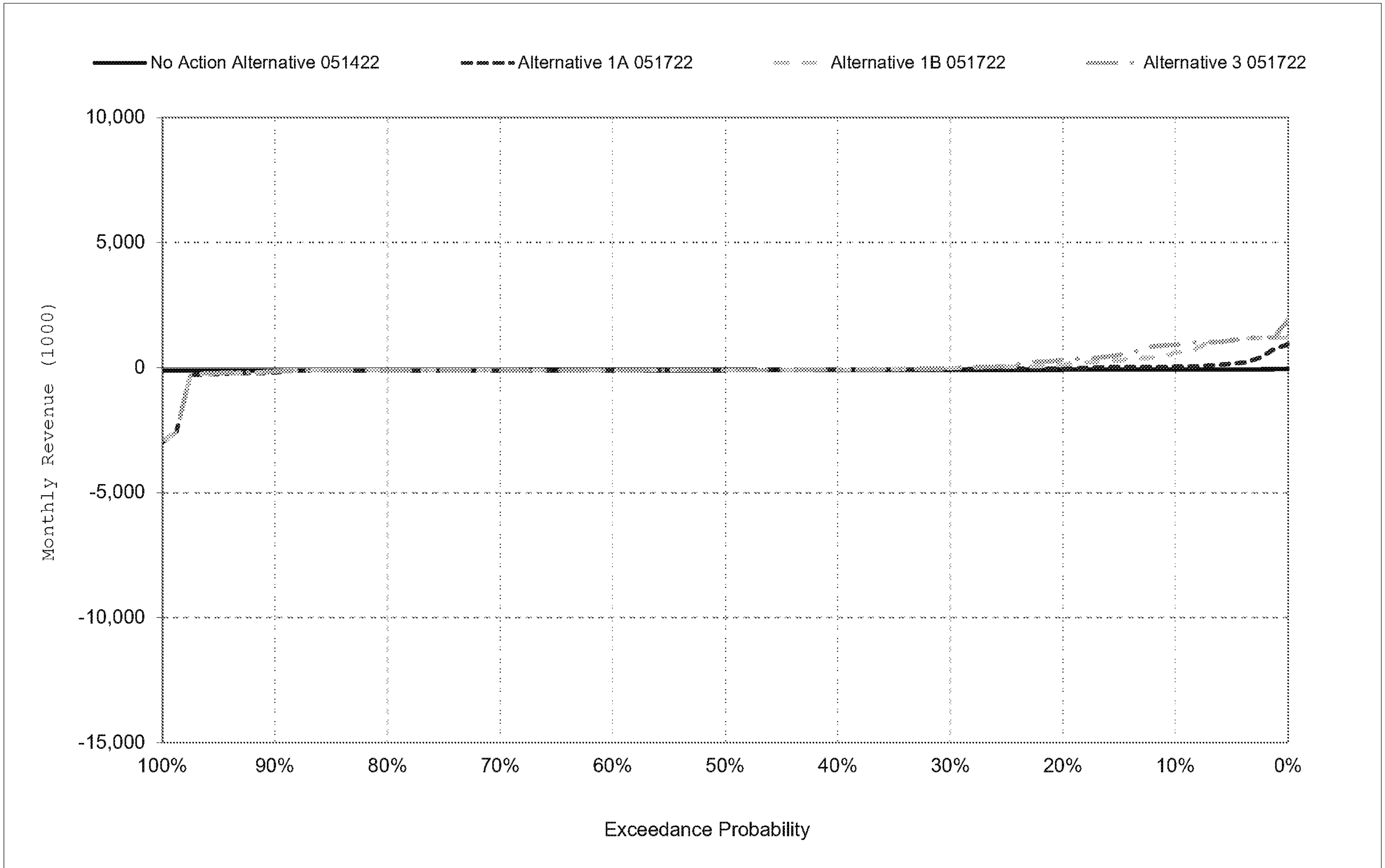
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-13. Sites Project Facilities Net Revenue, April



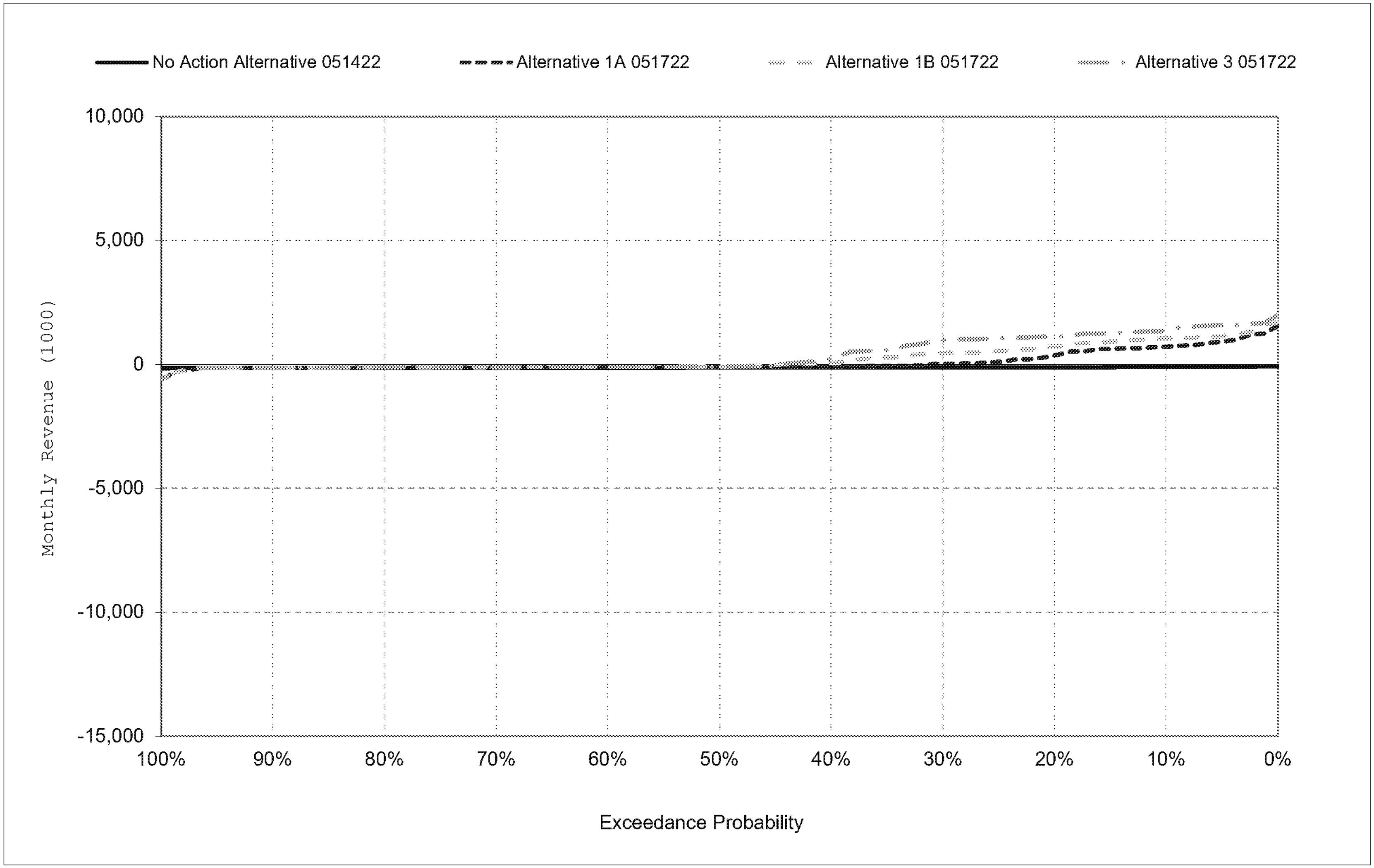
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-14. Sites Project Facilities Net Revenue, May



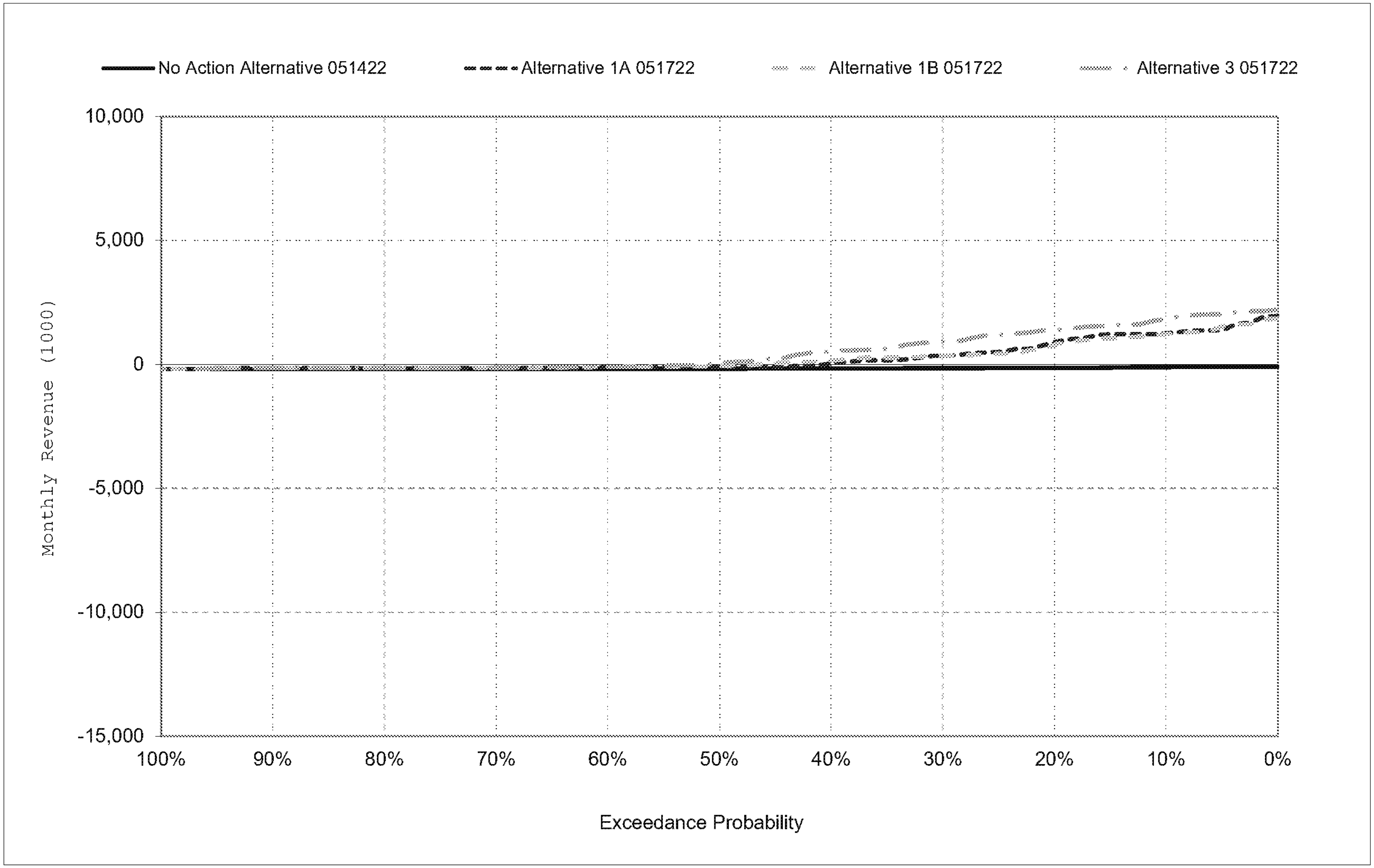
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-15. Sites Project Facilities Net Revenue, June



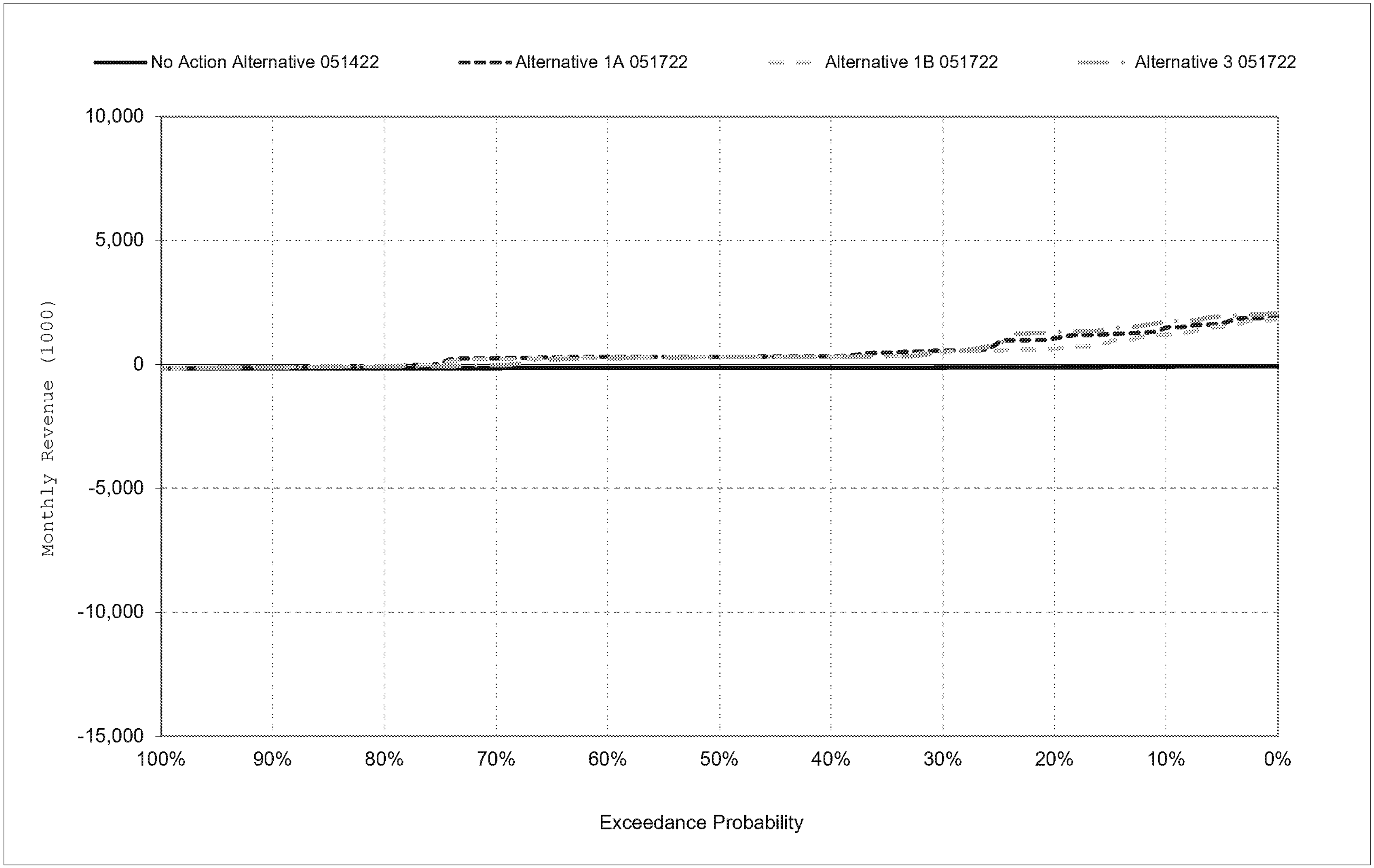
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-16. Sites Project Facilities Net Revenue, July



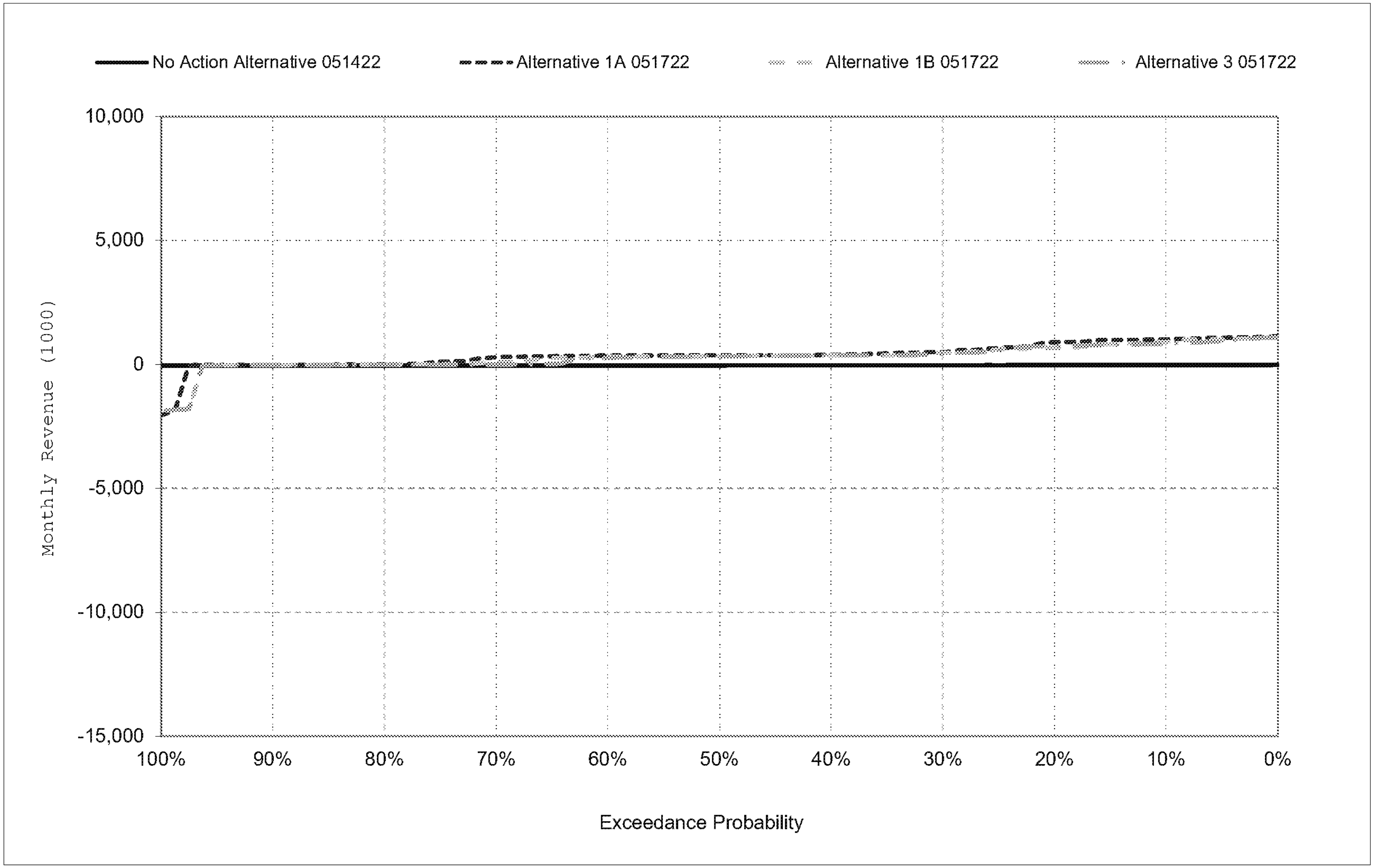
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-17. Sites Project Facilities Net Revenue, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 15-18. Sites Project Facilities Net Revenue, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 16-1a. CVP, SWP, and Sites Project Facilities Net Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	26	-44	201	341	427	521	184	543	365	469	198	147
20%	-20	-107	22	112	255	280	126	365	319	428	172	98
30%	-80	-180	-97	8	61	134	80	317	259	389	154	78
40%	-105	-199	-145	-44	-28	34	61	265	241	337	121	42
50%	-137	-236	-192	-80	-59	-38	29	223	229	299	105	-23
60%	-169	-275	-242	-110	-117	-93	0	190	198	270	91	-65
70%	-214	-305	-281	-151	-143	-130	-31	167	162	232	46	-132
80%	-289	-334	-363	-193	-178	-175	-97	120	112	189	18	-201
90%	-370	-401	-440	-263	-257	-273	-135	59	82	117	-17	-273
Long Term												
Full Simulation Period[a]	-151	-220	-139	-33	3	45	42	253	224	297	97	-41
Water Year Types[b,c]												
Wet (32%)	-77	-225	-64	161	175	254	127	375	229	248	103	104
Above Normal (15%)	-195	-292	-230	-105	54	112	11	259	168	363	144	53
Below Normal (17%)	-334	-300	-197	-207	-138	-170	-69	133	151	291	44	-250
Dry (22%)	-149	-179	-99	-123	-105	-78	-7	207	293	338	113	-139
Critical (15%)	-58	-105	-200	-44	-92	-42	89	191	252	281	79	-58

Table 16-1b. CVP, SWP, and Sites Project Facilities Net Generation, Alternative 1A 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	9	-60	166	341	377	518	161	539	350	443	182	156
20%	-48	-178	-13	70	237	278	115	357	310	387	140	110
30%	-90	-209	-132	-10	36	115	84	312	257	341	121	78
40%	-131	-231	-159	-54	-40	-7	53	269	242	283	105	30
50%	-170	-266	-211	-100	-92	-57	33	222	218	244	51	-77
60%	-205	-293	-244	-121	-117	-97	-1	193	196	215	28	-139
70%	-263	-328	-281	-151	-153	-149	-33	169	157	178	-13	-184
80%	-342	-365	-354	-219	-196	-203	-108	118	106	137	-52	-259
90%	-418	-412	-447	-300	-265	-269	-146	79	83	81	-100	-307
Long Term												
Full Simulation Period[a]	-191	-249	-152	-53	-15	30	31	256	221	256	47	-69
Water Year Types[b,c]												
Wet (32%)	-76	-230	-76	133	146	243	111	370	231	249	111	111
Above Normal (15%)	-189	-297	-245	-146	23	69	-15	288	168	363	147	56
Below Normal (17%)	-370	-355	-218	-221	-147	-179	-76	134	148	281	38	-251
Dry (22%)	-277	-251	-113	-129	-120	-92	-6	209	282	230	-34	-219
Critical (15%)	-105	-117	-208	-50	-91	-47	86	190	245	175	-62	-145

Table 16-1c. CVP, SWP, and Sites Project Facilities Net Generation, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-17	-16	-34	0	-50	-2	-23	-4	-15	-26	-17	9
20%	-28	-71	-35	-43	-17	-2	-12	-8	-9	-41	-32	13
30%	-11	-30	-35	-18	-25	-18	4	-5	-2	-48	-33	0
40%	-26	-32	-14	-10	-12	-41	-8	4	1	-53	-16	-13
50%	-33	-30	-18	-19	-33	-19	4	-2	-11	-56	-54	-53
60%	-35	-19	-2	-11	0	-4	-2	3	-3	-55	-63	-74
70%	-49	-23	0	0	-10	-19	-2	2	-5	-54	-59	-51
80%	-53	-31	9	-27	-19	-27	-10	-1	-6	-52	-70	-58
90%	-48	-11	-7	-37	-8	4	-11	20	1	-35	-83	-34
Long Term												
Full Simulation Period[a]	-40	-29	-14	-19	-18	-15	-10	3	-4	-41	-51	-27
Water Year Types[b,c]												
Wet (32%)	1	-5	-12	-28	-29	-11	-16	-5	1	1	8	7
Above Normal (15%)	7	-5	-15	-41	-32	-43	-25	29	0	0	3	4
Below Normal (17%)	-36	-55	-21	-14	-9	-9	-7	1	-3	-10	-6	0
Dry (22%)	-128	-71	-14	-7	-14	-14	1	2	-11	-108	-146	-79
Critical (15%)	-47	-12	-8	-6	1	-5	-3	-1	-7	-106	-141	-86

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 16-2a. CVP, SWP, and Sites Project Facilities Net Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	26	-44	201	341	427	521	184	543	365	469	198	147
20%	-20	-107	22	112	255	280	126	365	319	428	172	98
30%	-80	-180	-97	8	61	134	80	317	259	389	154	78
40%	-105	-199	-145	-44	-28	34	61	265	241	337	121	42
50%	-137	-236	-192	-80	-59	-38	29	223	229	299	105	-23
60%	-169	-275	-242	-110	-117	-93	0	190	198	270	91	-65
70%	-214	-305	-281	-151	-143	-130	-31	167	162	232	46	-132
80%	-289	-334	-363	-193	-178	-175	-97	120	112	189	18	-201
90%	-370	-401	-440	-263	-257	-273	-135	59	82	117	-17	-273
Long Term												
Full Simulation Period[a]	-151	-220	-139	-33	3	45	42	253	224	297	97	-41
Water Year Types[b,c]												
Wet (32%)	-77	-225	-64	161	175	254	127	375	229	248	103	104
Above Normal (15%)	-195	-292	-230	-105	54	112	11	259	168	363	144	53
Below Normal (17%)	-334	-300	-197	-207	-138	-170	-69	133	151	291	44	-250
Dry (22%)	-149	-179	-99	-123	-105	-78	-7	207	293	338	113	-139
Critical (15%)	-58	-105	-200	-44	-92	-42	89	191	252	281	79	-58

Table 16-2b. CVP, SWP, and Sites Project Facilities Net Generation, Alternative 1B 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	8	-59	211	343	383	518	163	539	350	450	182	155
20%	-54	-176	-3	69	234	278	119	345	315	394	148	101
30%	-91	-202	-93	-10	46	116	84	315	256	342	119	79
40%	-130	-233	-155	-54	-36	-4	52	268	229	285	106	29
50%	-169	-269	-208	-100	-89	-66	19	228	216	243	53	-81
60%	-207	-303	-241	-120	-115	-92	-1	191	191	207	32	-129
70%	-263	-329	-276	-163	-154	-134	-37	162	149	179	-7	-177
80%	-344	-357	-365	-218	-196	-201	-80	114	109	133	-52	-259
90%	-413	-413	-448	-319	-263	-279	-145	79	62	79	-87	-302
Long Term												
Full Simulation Period[a]	-191	-248	-146	-50	-13	30	31	256	218	256	49	-67
Water Year Types[b,c]												
Wet (32%)	-77	-233	-78	143	150	244	111	375	230	247	111	111
Above Normal (15%)	-187	-297	-243	-147	26	72	-14	293	156	361	148	61
Below Normal (17%)	-366	-359	-211	-228	-152	-182	-71	131	146	285	41	-247
Dry (22%)	-282	-235	-85	-128	-115	-94	-13	202	280	233	-25	-219
Critical (15%)	-98	-120	-208	-51	-91	-46	88	188	244	173	-61	-140

Table 16-2c. CVP, SWP, and Sites Project Facilities Net Generation, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-19	-14	11	2	-43	-3	-21	-4	-15	-19	-16	8
20%	-34	-70	-25	-44	-20	-1	-7	-20	-4	-34	-24	4
30%	-11	-23	3	-18	-15	-17	4	-2	-2	-48	-36	1
40%	-25	-34	-11	-10	-8	-38	-9	3	-12	-52	-15	-13
50%	-32	-33	-16	-19	-30	-29	-9	4	-13	-56	-51	-58
60%	-38	-29	1	-10	2	0	-1	0	-7	-62	-59	-64
70%	-49	-24	5	-11	-11	-3	-6	-5	-12	-53	-54	-44
80%	-55	-23	-3	-25	-19	-26	17	-5	-3	-56	-70	-59
90%	-43	-12	-8	-57	-7	-7	-10	20	-20	-38	-70	-29
Long Term												
Full Simulation Period[a]	-40	-28	-7	-17	-17	-15	-11	3	-6	-40	-48	-25
Water Year Types[b,c]												
Wet (32%)	0	-9	-14	-18	-26	-10	-16	0	1	-1	8	7
Above Normal (15%)	8	-5	-13	-42	-28	-40	-25	34	-12	-2	4	8
Below Normal (17%)	-32	-58	-15	-20	-15	-12	-2	-2	-4	-6	-3	3
Dry (22%)	-134	-55	14	-5	-10	-15	-6	-5	-12	-105	-138	-79
Critical (15%)	-40	-15	-8	-6	1	-4	-1	-3	-8	-108	-140	-82

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 16-3a. CVP, SWP, and Sites Project Facilities Net Generation, No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	26	-44	201	341	427	521	184	543	365	469	198	147
20%	-20	-107	22	112	255	280	126	365	319	428	172	98
30%	-80	-180	-97	8	61	134	80	317	259	389	154	78
40%	-105	-199	-145	-44	-28	34	61	265	241	337	121	42
50%	-137	-236	-192	-80	-59	-38	29	223	229	299	105	-23
60%	-169	-275	-242	-110	-117	-93	0	190	198	270	91	-65
70%	-214	-305	-281	-151	-143	-130	-31	167	162	232	46	-132
80%	-289	-334	-363	-193	-178	-175	-97	120	112	189	18	-201
90%	-370	-401	-440	-263	-257	-273	-135	59	82	117	-17	-273
Long Term												
Full Simulation Period[a]	-151	-220	-139	-33	3	45	42	253	224	297	97	-41
Water Year Types[b,c]												
Wet (32%)	-77	-225	-64	161	175	254	127	375	229	248	103	104
Above Normal (15%)	-195	-292	-230	-105	54	112	11	259	168	363	144	53
Below Normal (17%)	-334	-300	-197	-207	-138	-170	-69	133	151	291	44	-250
Dry (22%)	-149	-179	-99	-123	-105	-78	-7	207	293	338	113	-139
Critical (15%)	-58	-105	-200	-44	-92	-42	89	191	252	281	79	-58

Table 16-3b. CVP, SWP, and Sites Project Facilities Net Generation, Alternative 3 051722, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	4	-63	210	341	394	517	162	537	347	434	180	155
20%	-32	-116	20	93	243	274	124	361	304	396	146	107
30%	-83	-192	-115	-4	34	100	83	311	252	337	122	78
40%	-119	-219	-163	-58	-39	-10	61	257	230	288	109	40
50%	-154	-259	-214	-97	-73	-55	27	225	209	251	74	-26
60%	-192	-294	-241	-121	-113	-88	2	195	177	202	40	-108
70%	-236	-319	-272	-149	-155	-138	-37	161	149	183	12	-160
80%	-353	-356	-356	-221	-207	-208	-81	125	107	135	-34	-251
90%	-411	-403	-437	-318	-271	-297	-132	61	38	66	-79	-286
Long Term												
Full Simulation Period[a]	-176	-238	-144	-46	-14	25	36	250	213	255	60	-54
Water Year Types[b,c]												
Wet (32%)	-80	-233	-77	150	149	238	112	374	230	247	111	109
Above Normal (15%)	-186	-291	-243	-138	27	71	15	270	149	344	139	64
Below Normal (17%)	-336	-329	-216	-228	-140	-193	-72	129	134	290	46	-233
Dry (22%)	-241	-221	-81	-128	-119	-87	-10	194	272	236	5	-208
Critical (15%)	-94	-113	-204	-46	-101	-60	86	185	243	169	-28	-86

Table 16-3c. CVP, SWP, and Sites Project Facilities Net Generation, Alternative 3 051722 minus No Action Alternative 051422, Monthly Generation (GWh)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-22	-18	9	0	-32	-4	-22	-6	-17	-34	-18	8
20%	-12	-10	-2	-20	-12	-5	-3	-4	-15	-32	-26	9
30%	-4	-12	-18	-12	-27	-34	4	-6	-6	-52	-33	0
40%	-14	-20	-19	-15	-11	-45	0	-8	-11	-48	-12	-2
50%	-18	-23	-22	-17	-14	-18	-2	1	-20	-49	-31	-2
60%	-22	-19	0	-11	4	4	2	5	-22	-68	-51	-43
70%	-22	-13	9	2	-12	-8	-6	-6	-12	-48	-35	-28
80%	-64	-22	6	-29	-29	-33	16	6	-6	-53	-52	-50
90%	-42	-1	3	-55	-14	-24	4	2	-44	-50	-62	-13
Long Term												
Full Simulation Period[a]	-25	-18	-6	-13	-17	-19	-6	-3	-12	-42	-37	-13
Water Year Types[b,c]												
Wet (32%)	-3	-8	-13	-11	-26	-16	-15	-1	0	-1	8	5
Above Normal (15%)	10	1	-12	-33	-27	-41	5	11	-19	-19	-5	12
Below Normal (17%)	-2	-28	-19	-21	-3	-22	-3	-5	-17	0	1	17
Dry (22%)	-92	-41	19	-5	-14	-8	-3	-13	-21	-102	-108	-69
Critical (15%)	-36	-9	-4	-1	-9	-18	-2	-6	-9	-112	-107	-27

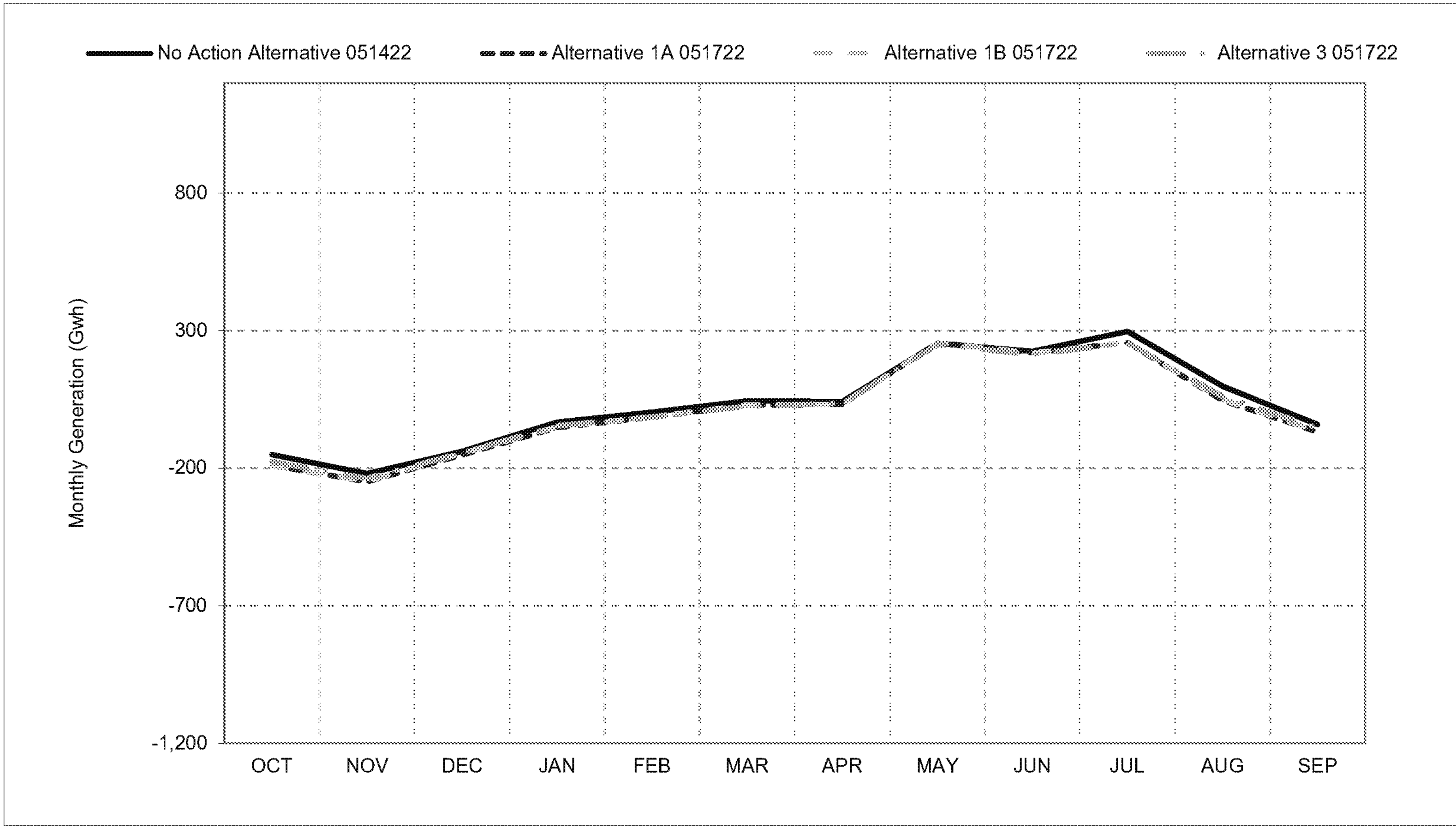
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

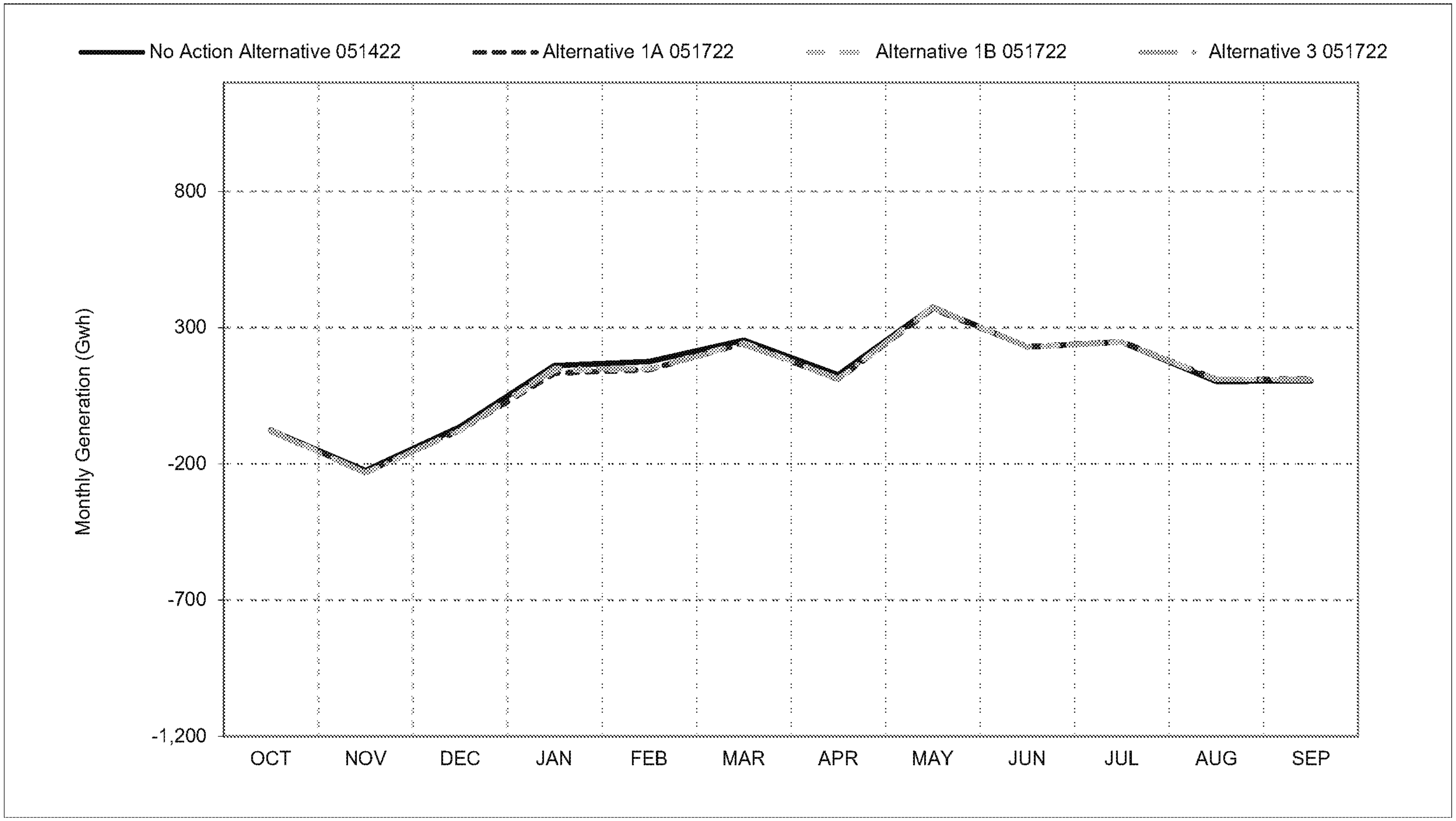
d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-1. CVP, SWP, and Sites Project Facilities Net Generation, Long-Term Average Generation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-2. CVP, SWP, and Sites Project Facilities Net Generation, Wet Year Average Generation

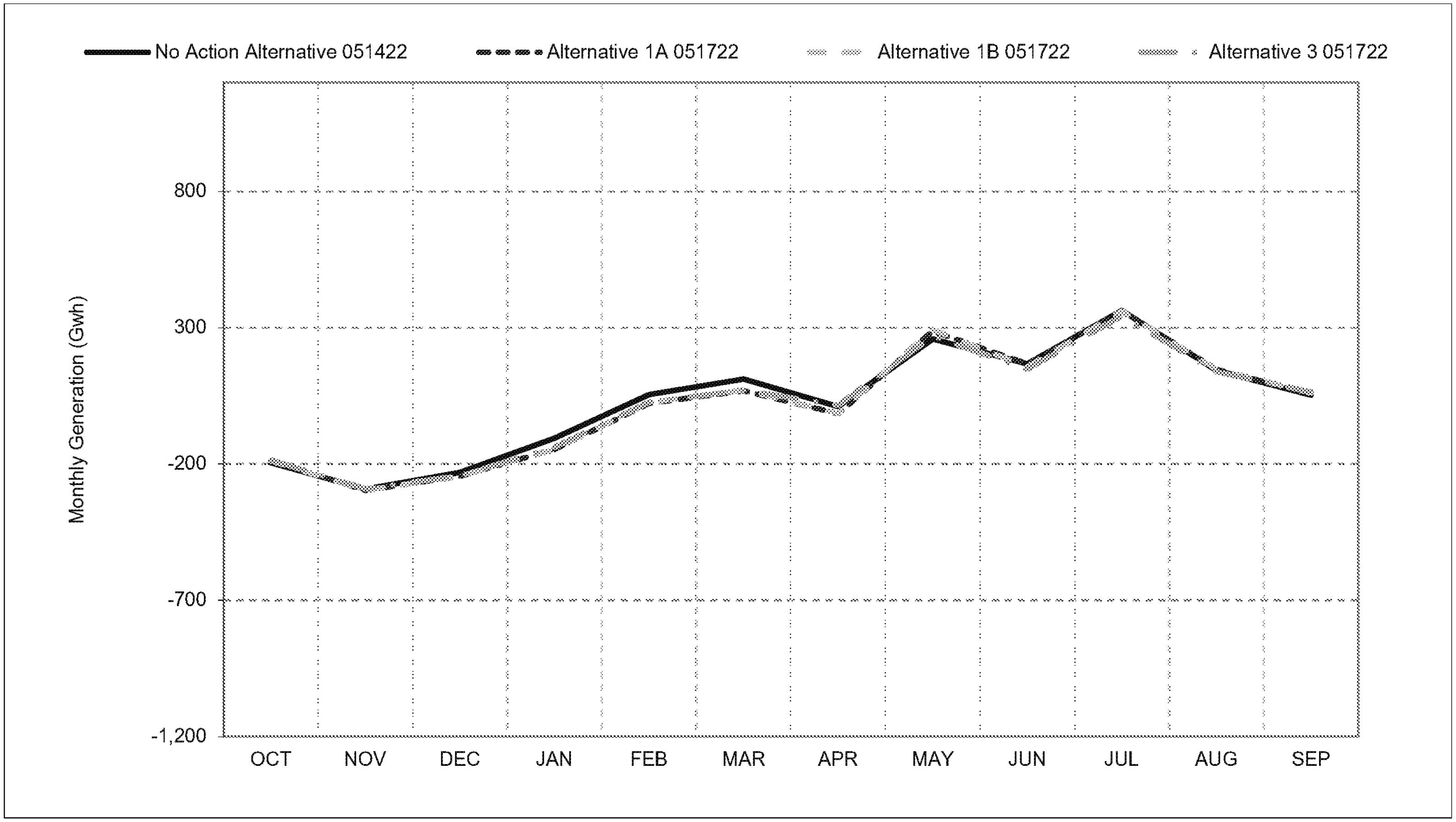


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

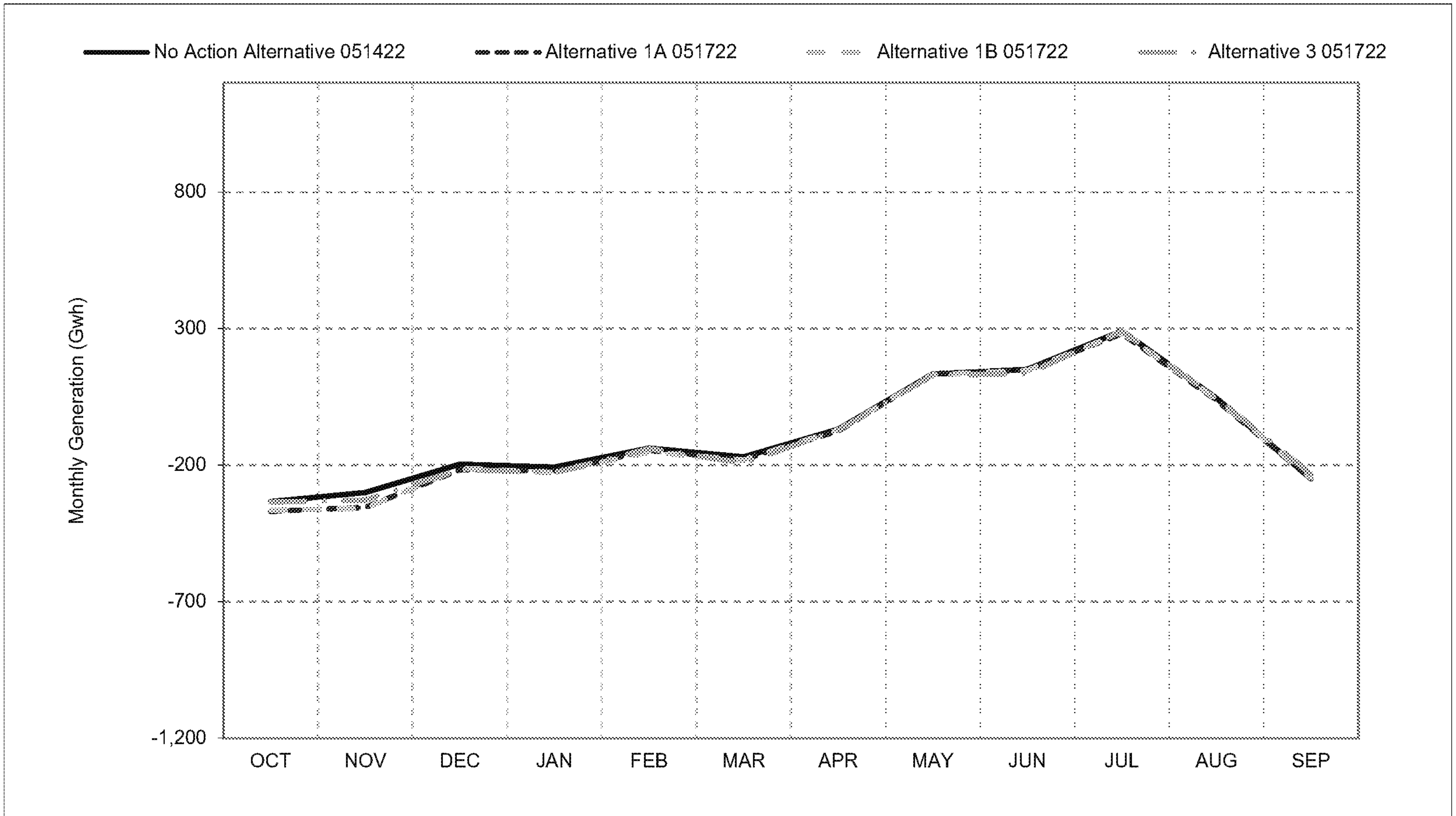
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-3. CVP, SWP, and Sites Project Facilities Net Generation, Above Normal Year Average Generation



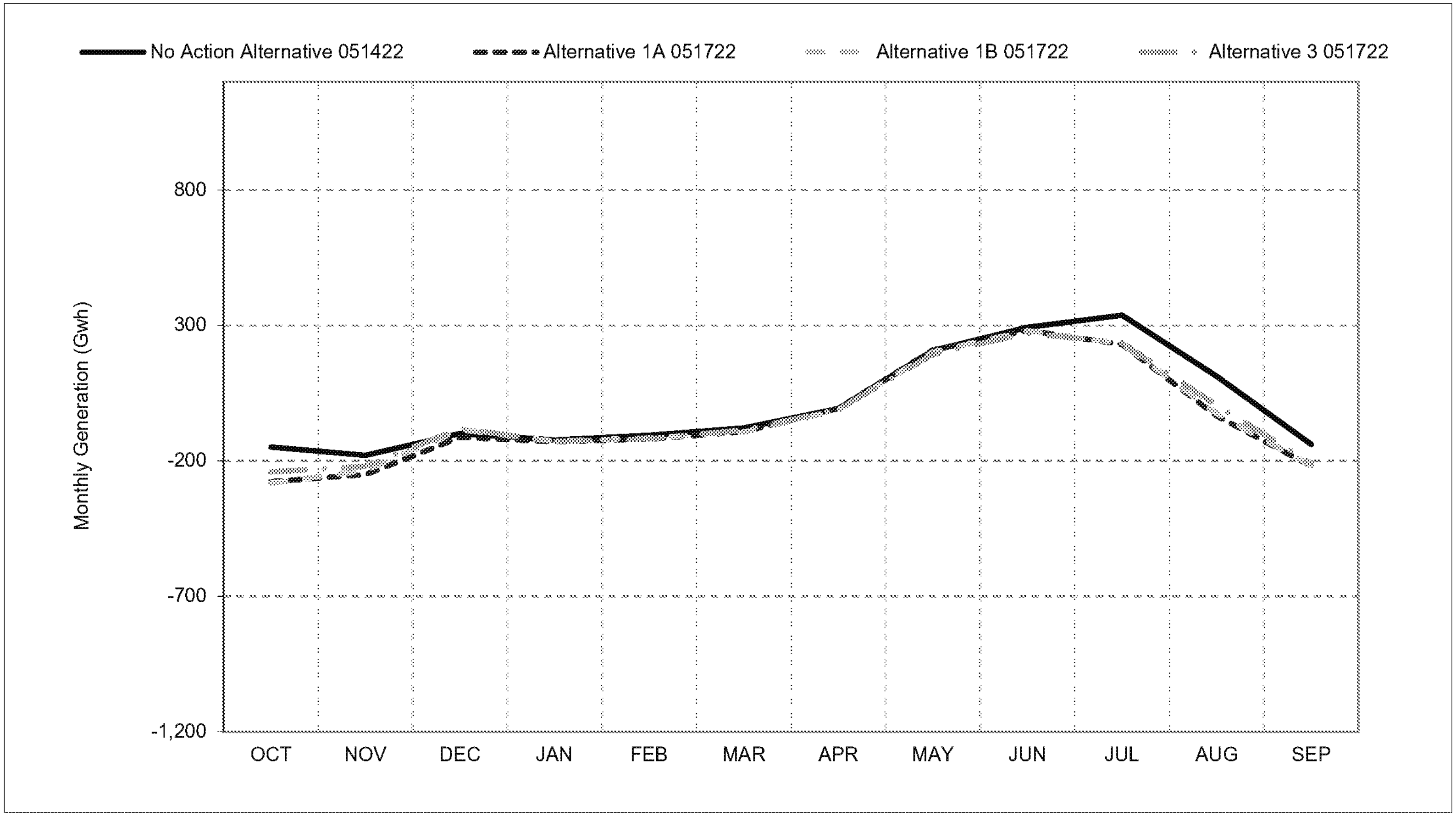
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-4. CVP, SWP, and Sites Project Facilities Net Generation, Below Normal Year Average Generation



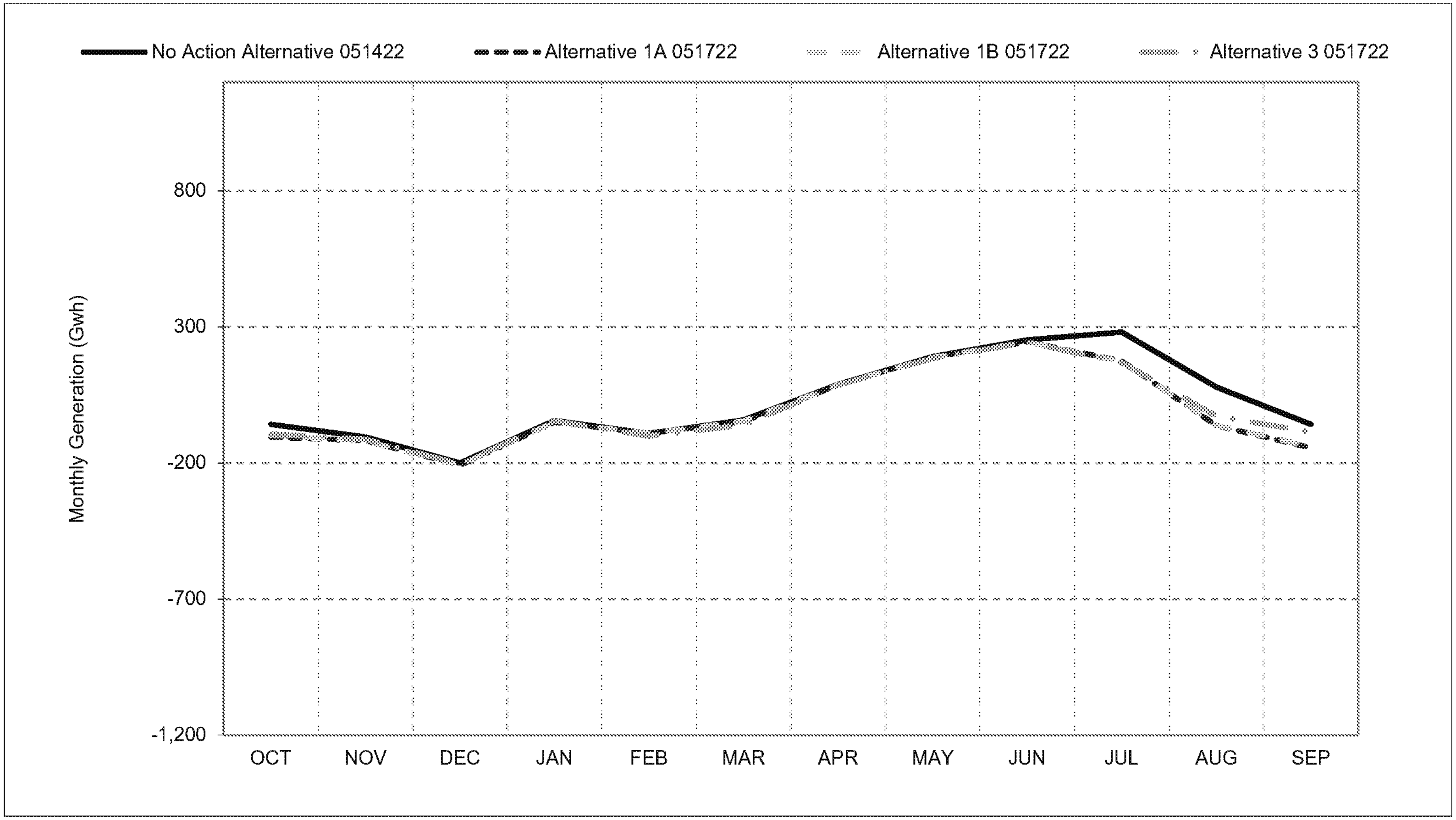
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-5. CVP, SWP, and Sites Project Facilities Net Generation, Dry Year Average Generation



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-6. CVP, SWP, and Sites Project Facilities Net Generation, Critical Year Average Generation

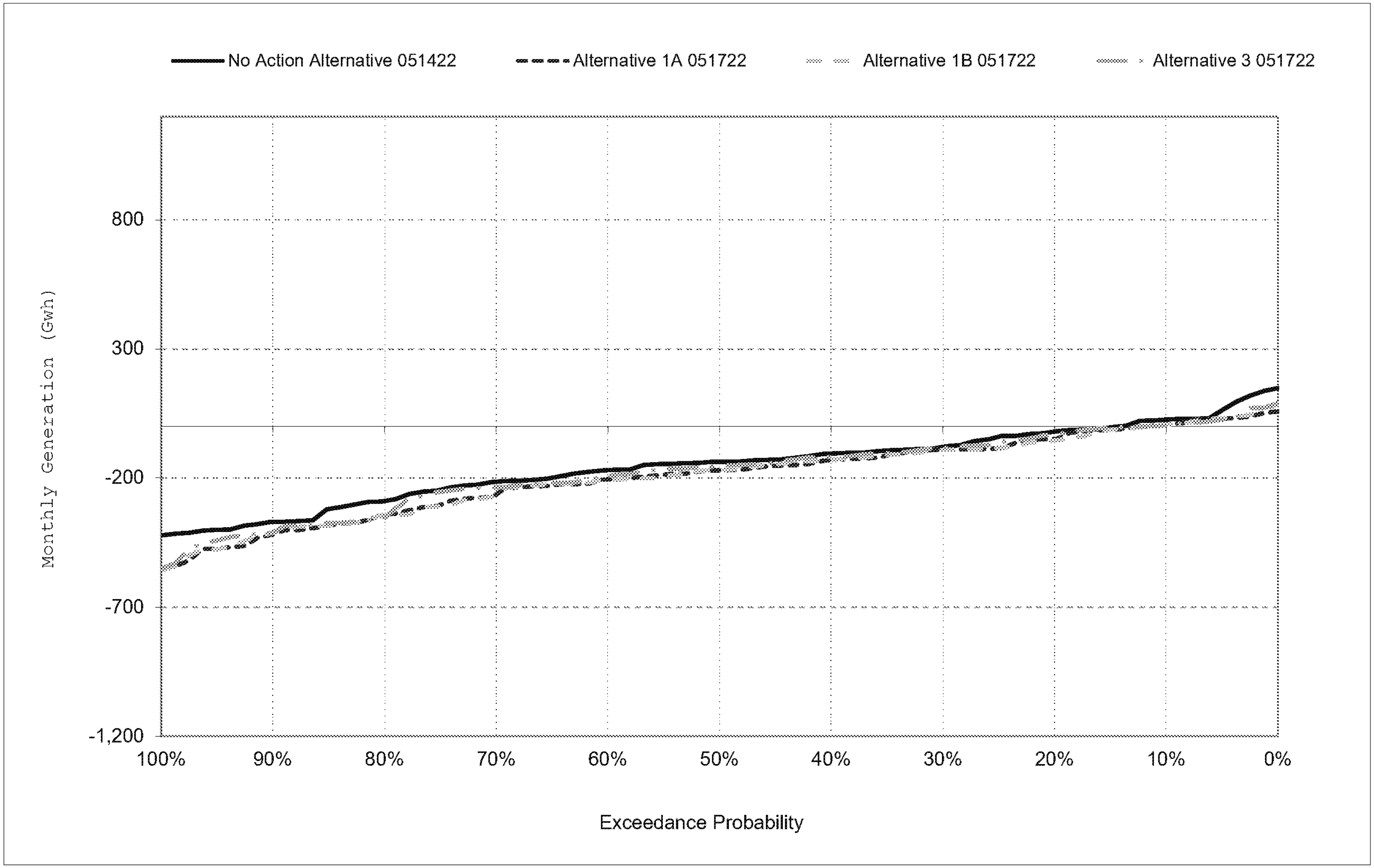


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

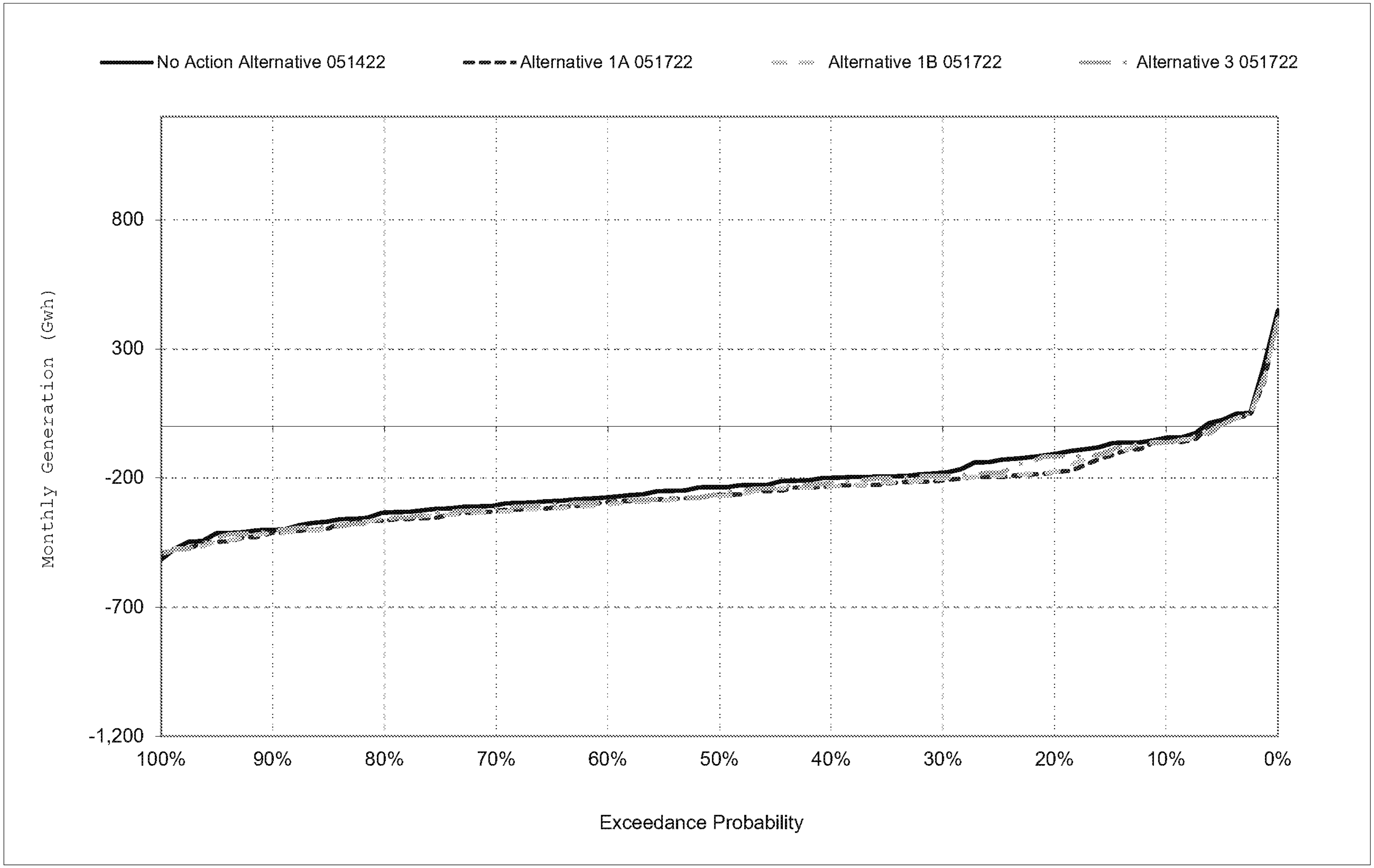
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-7. CVP, SWP, and Sites Project Facilities Net Generation, October



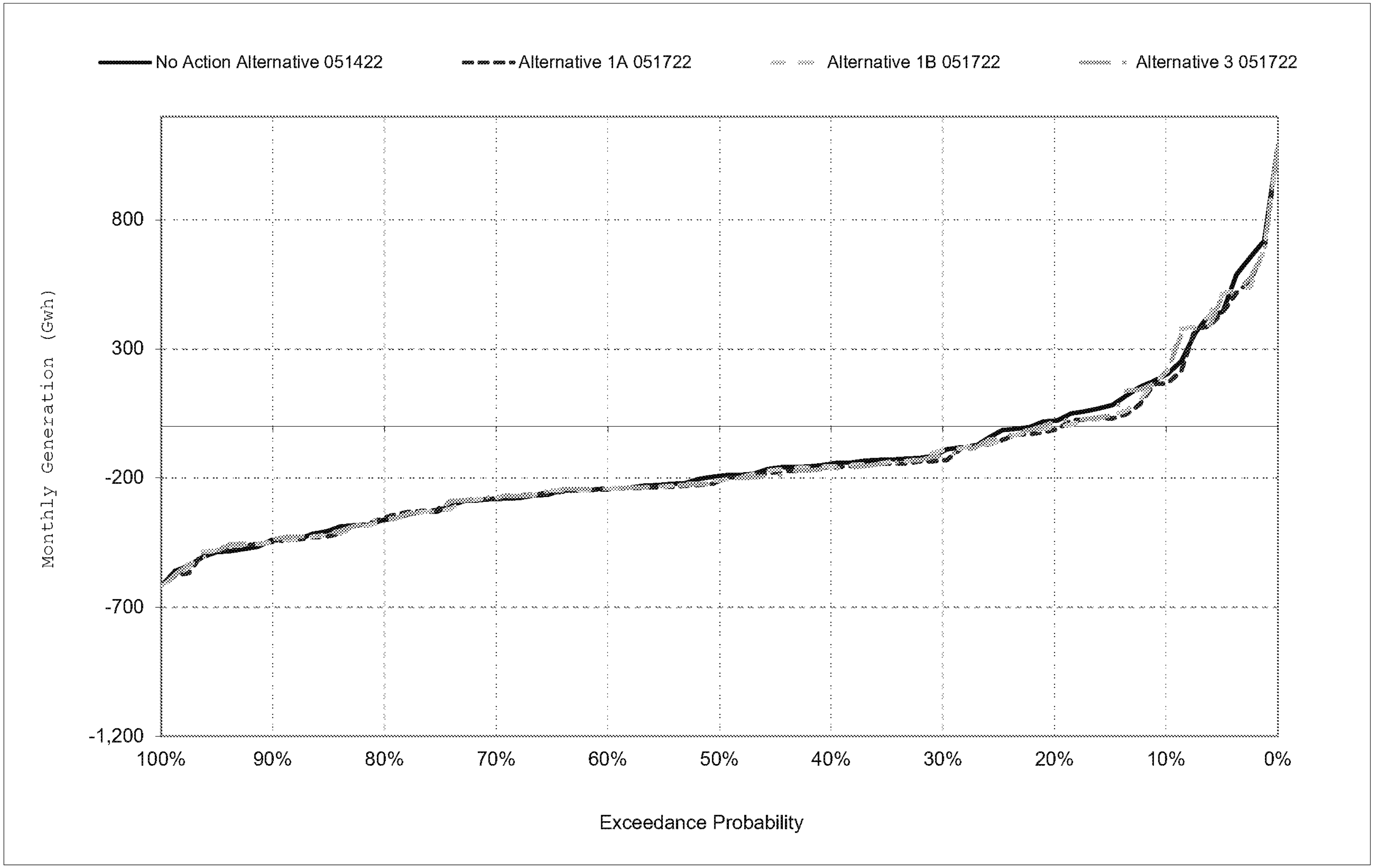
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-8. CVP, SWP, and Sites Project Facilities Net Generation, November



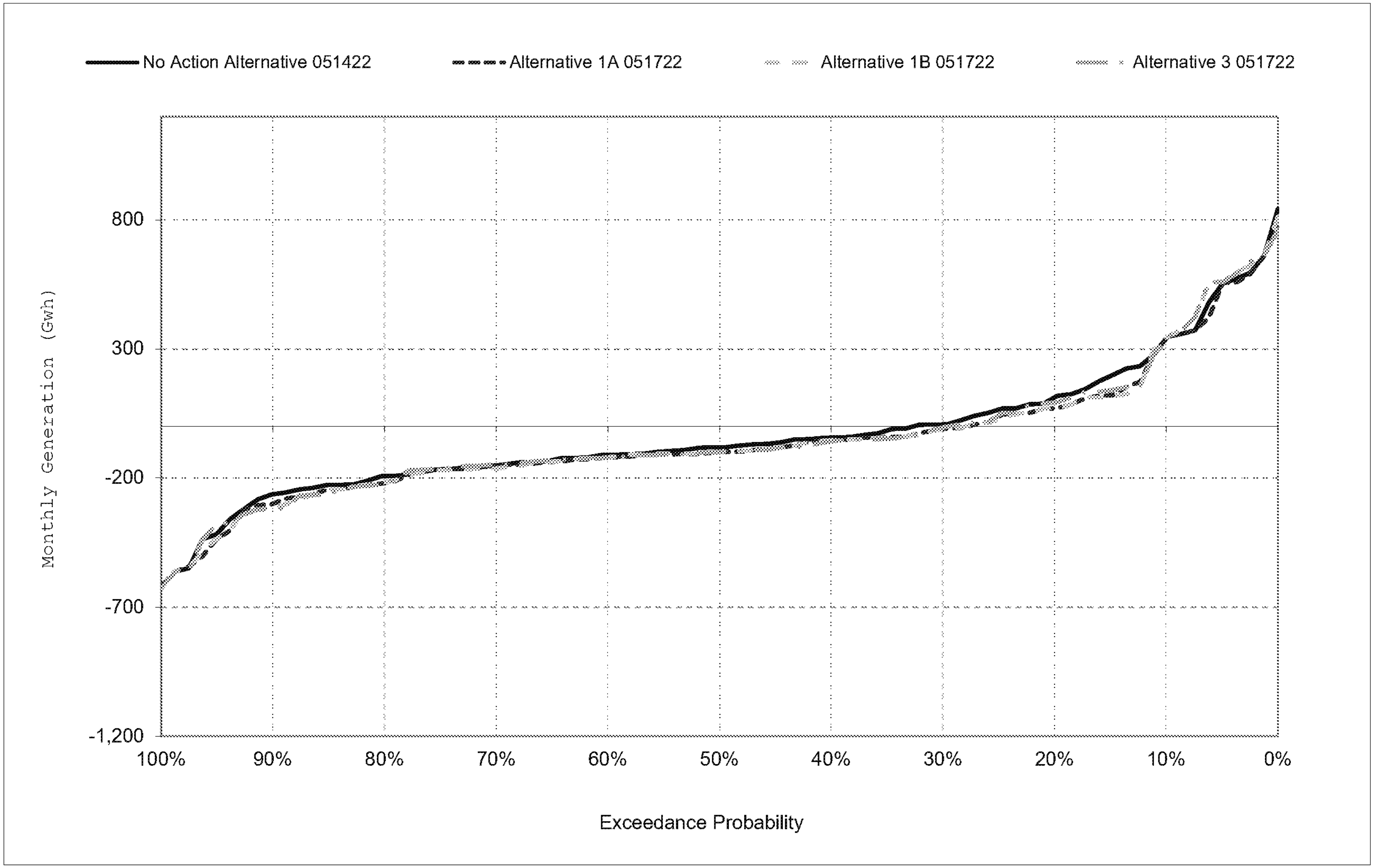
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-9. CVP, SWP, and Sites Project Facilities Net Generation, December



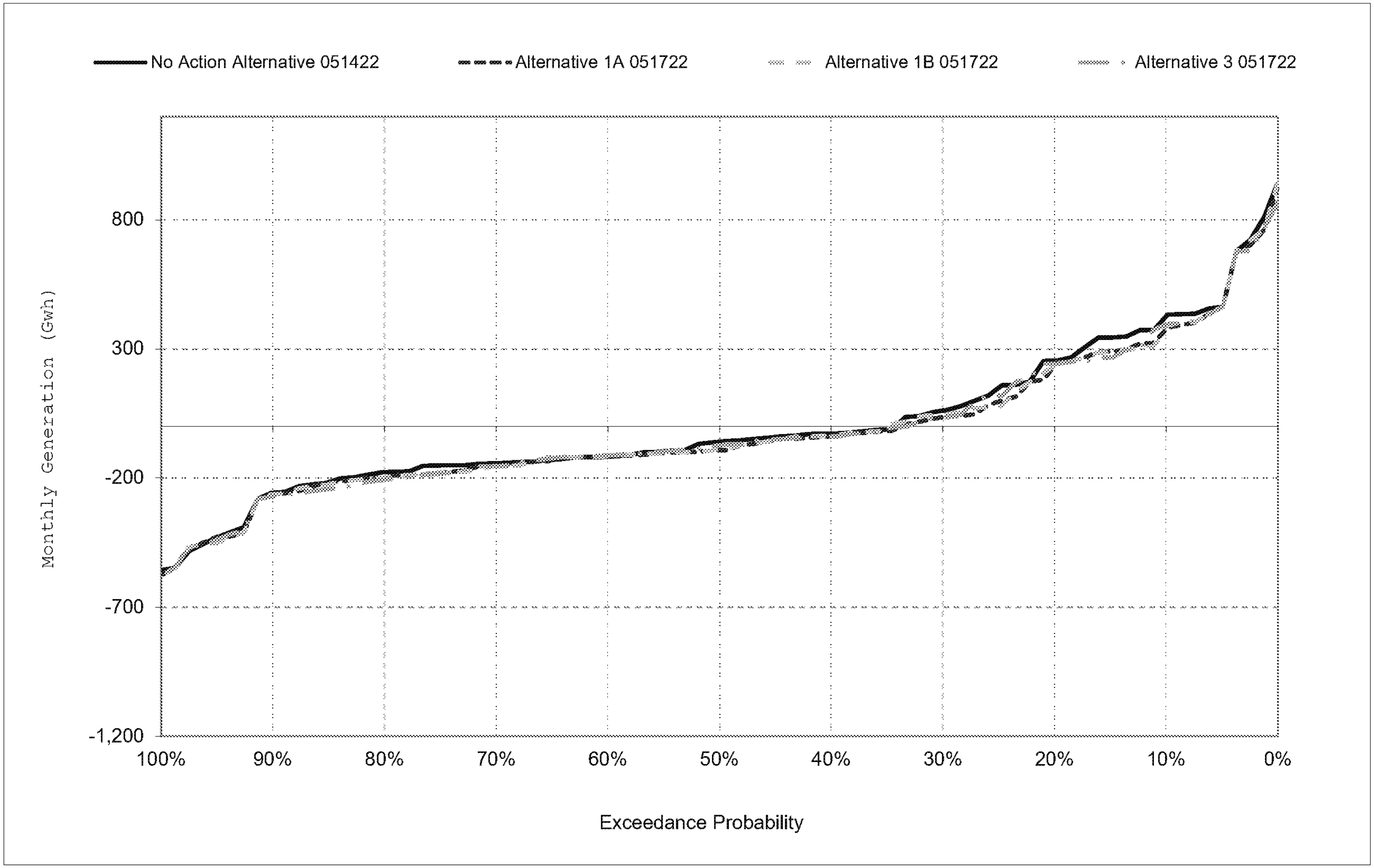
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-10. CVP, SWP, and Sites Project Facilities Net Generation, January



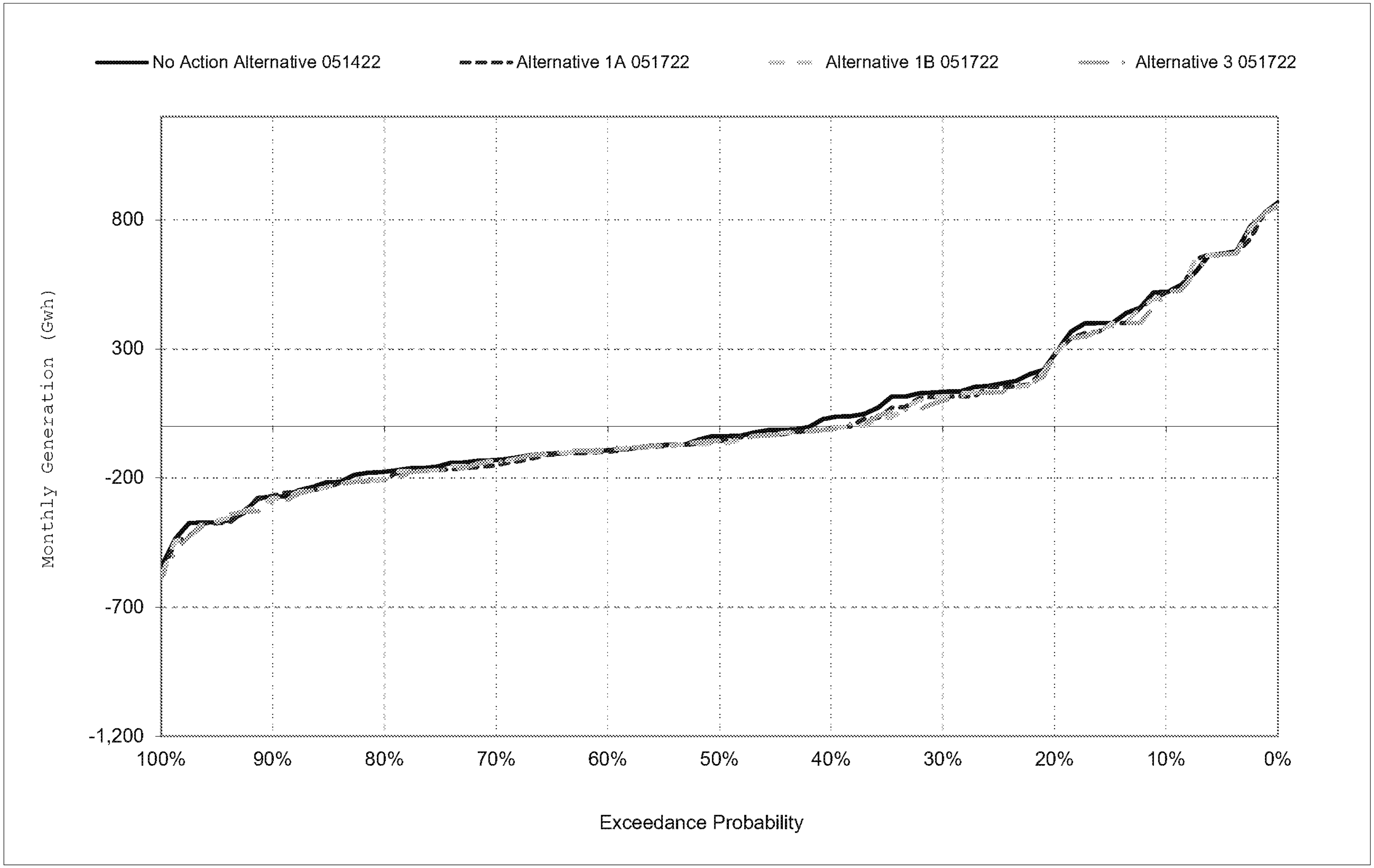
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-11. CVP, SWP, and Sites Project Facilities Net Generation, February



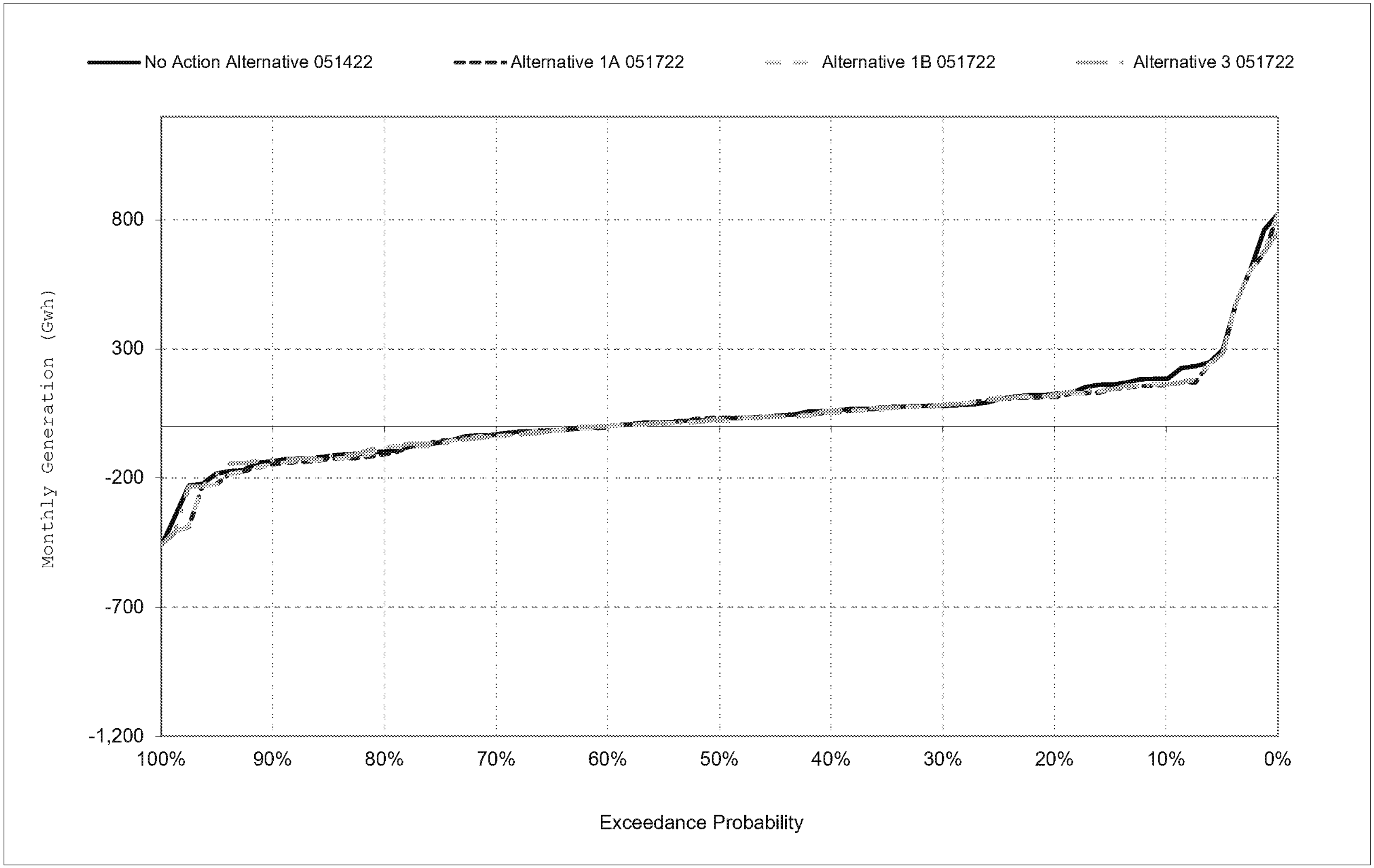
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-12. CVP, SWP, and Sites Project Facilities Net Generation, March



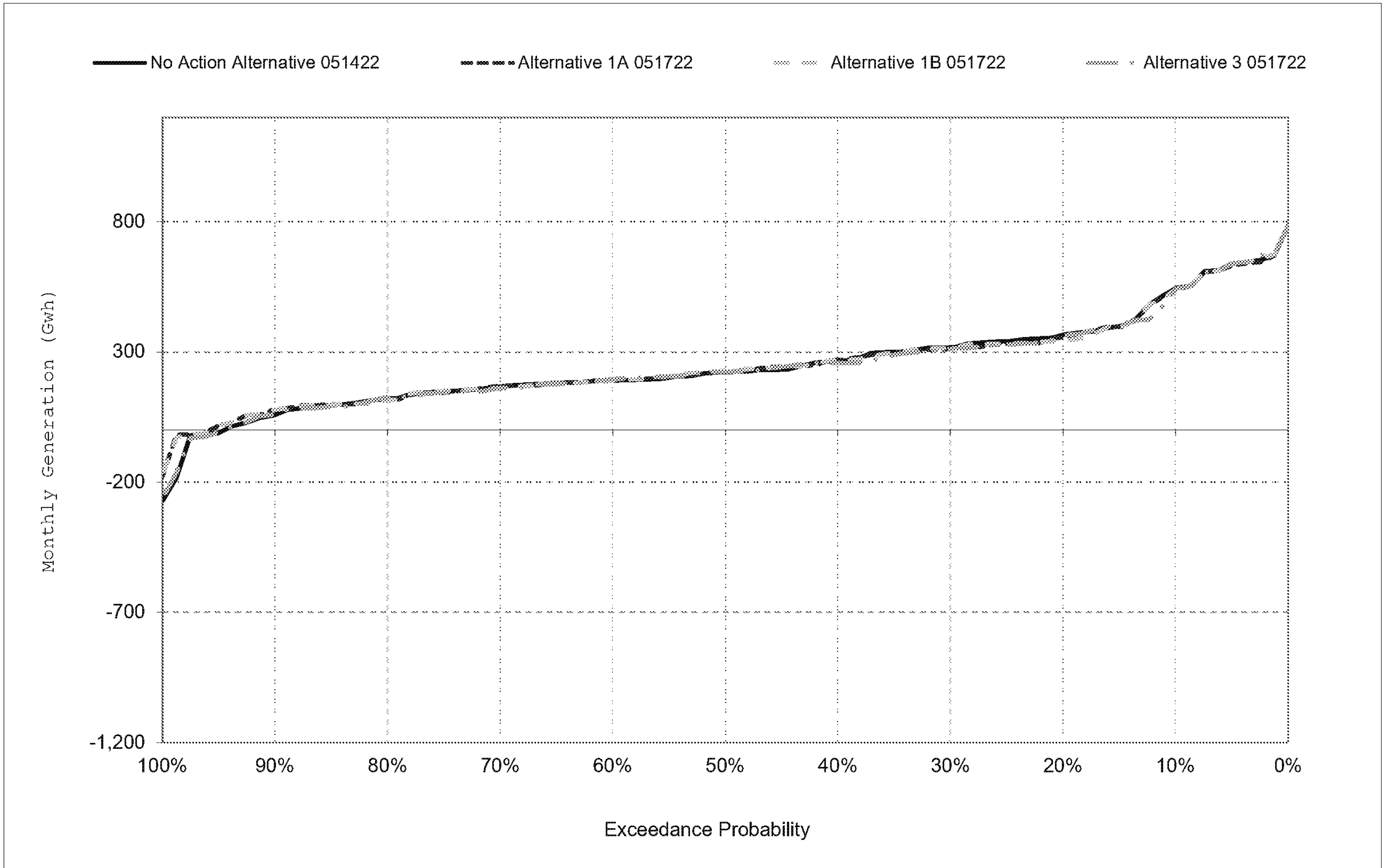
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-13. CVP, SWP, and Sites Project Facilities Net Generation, April



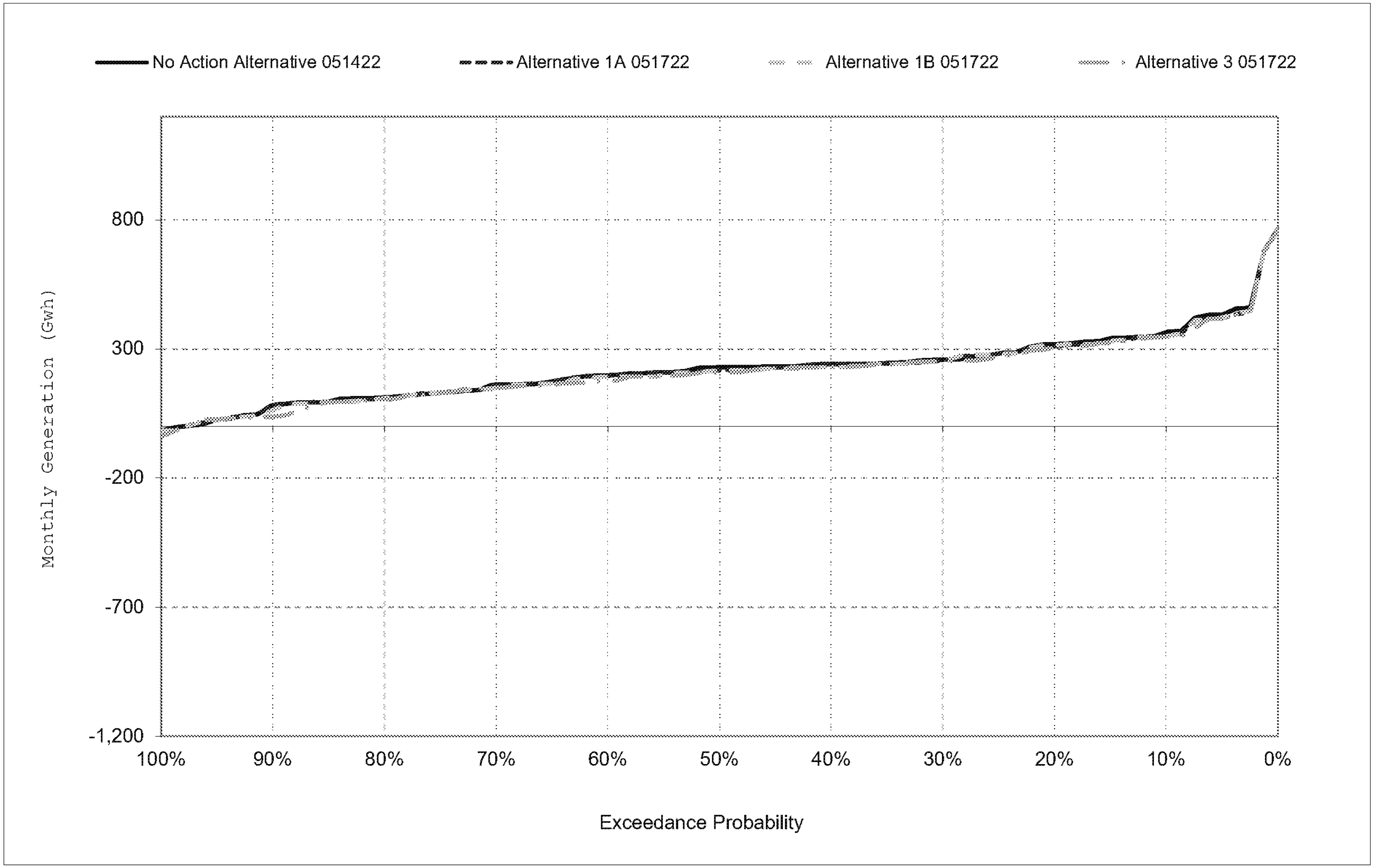
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-14. CVP, SWP, and Sites Project Facilities Net Generation, May



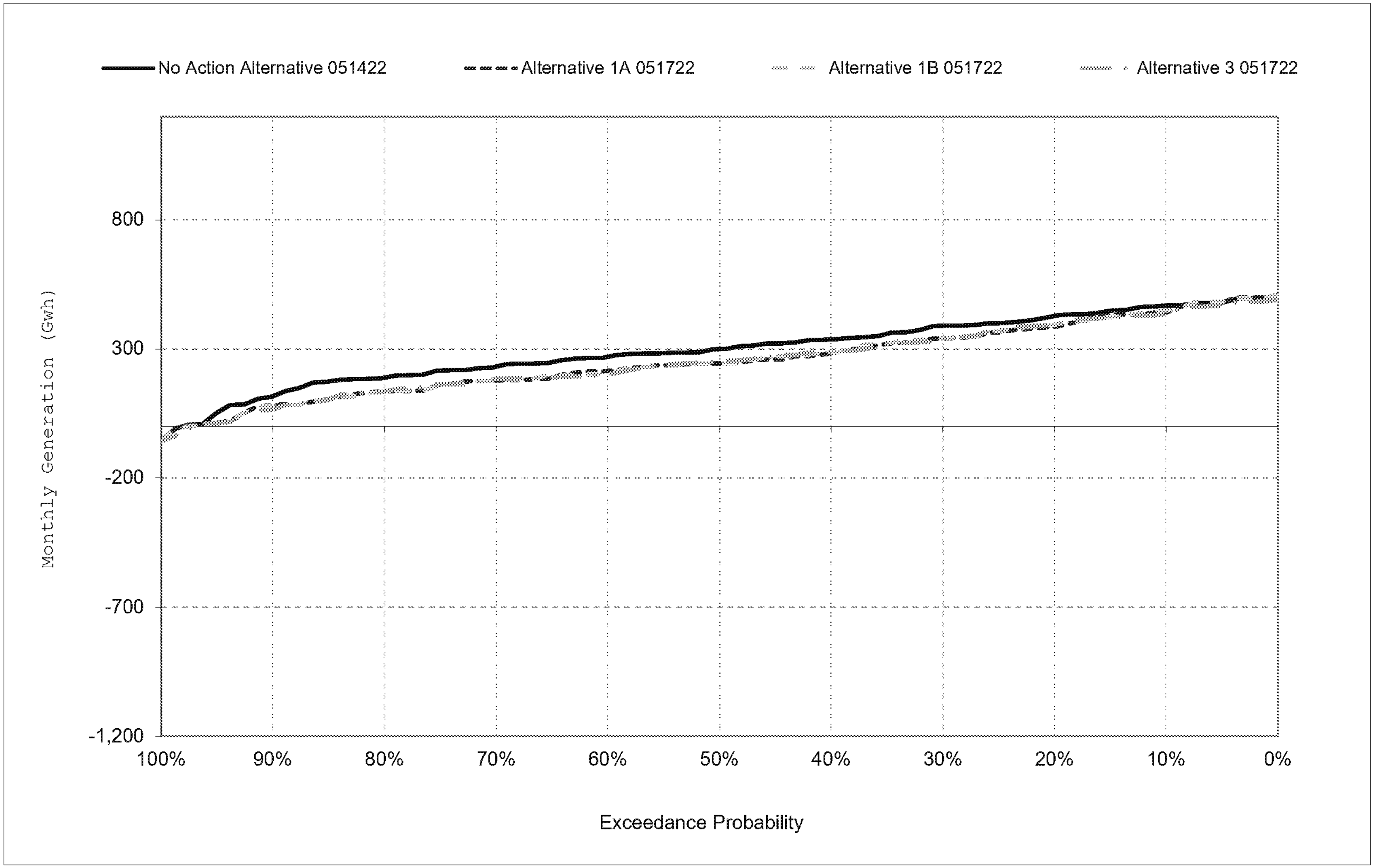
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-15. CVP, SWP, and Sites Project Facilities Net Generation, June



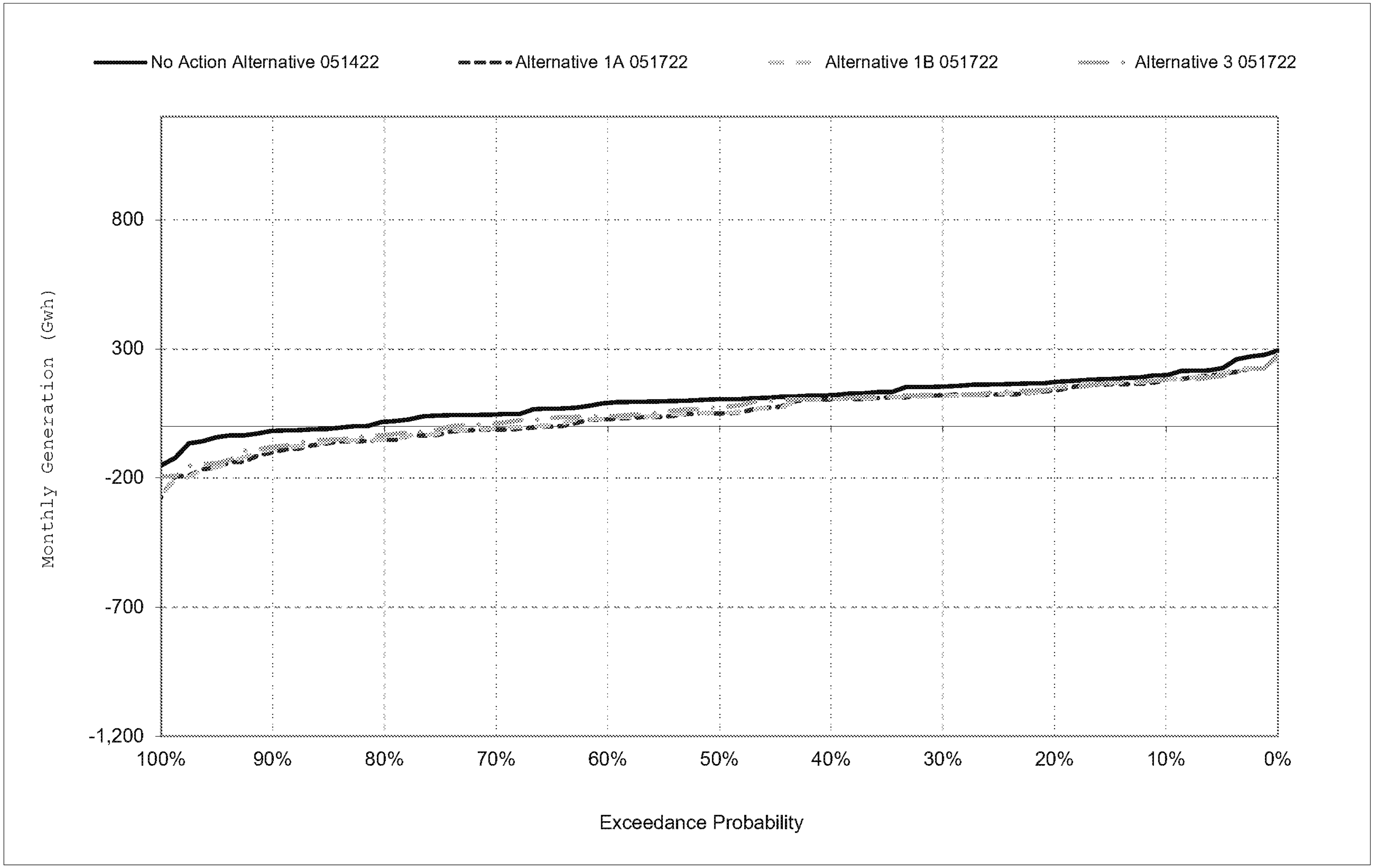
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-16. CVP, SWP, and Sites Project Facilities Net Generation, July



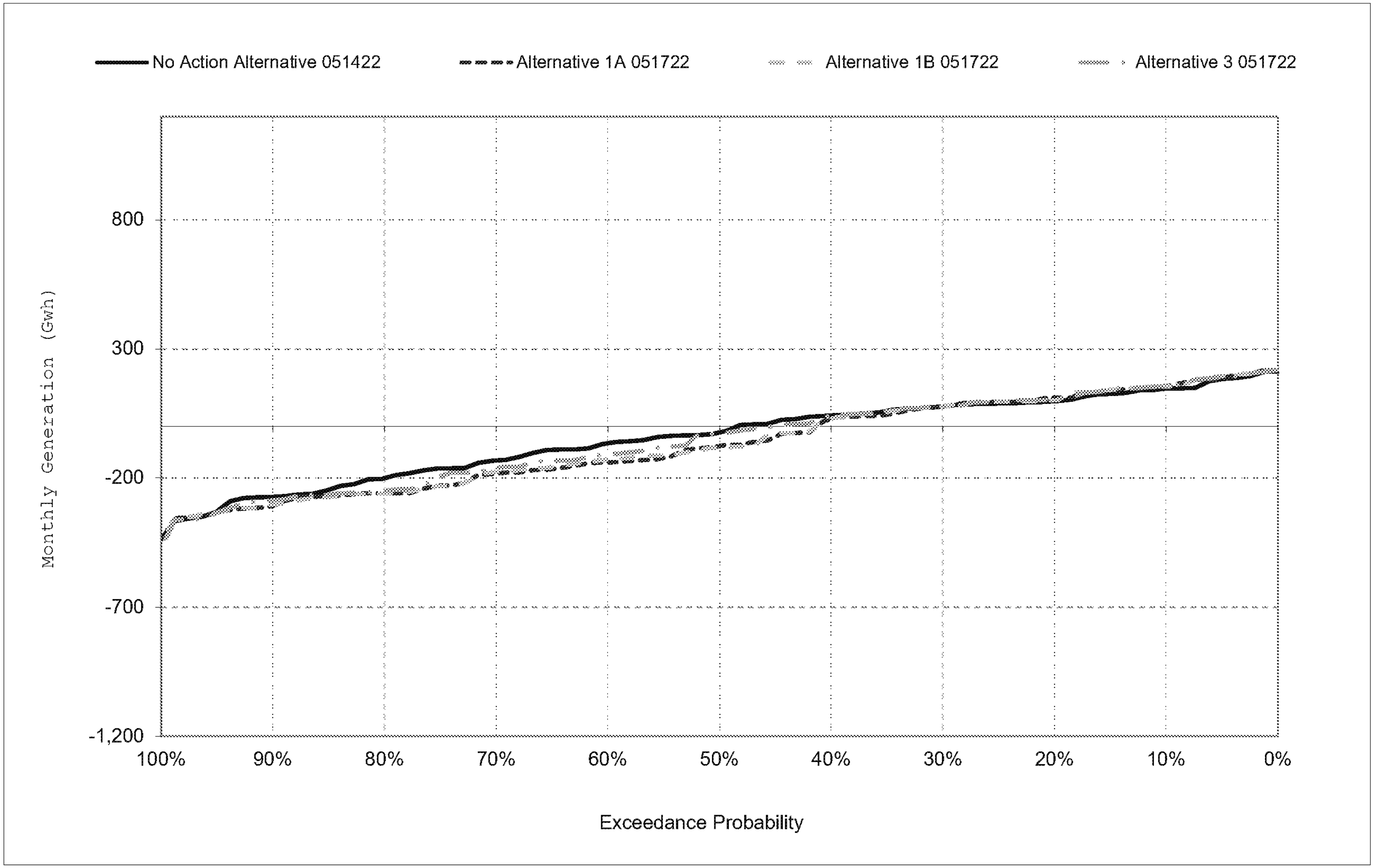
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-17. CVP, SWP, and Sites Project Facilities Net Generation, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 16-18. CVP, SWP, and Sites Project Facilities Net Generation, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 17-1a. CVP, SWP, and Sites Project Facilities Net Revenue, No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,258	-2,166	12,333	21,674	23,406	25,844	8,711	23,444	16,981	26,549	13,736	10,520
20%	183	-5,190	1,643	6,873	13,829	13,647	5,701	15,575	14,561	24,376	11,806	7,987
30%	-3,323	-9,216	-4,805	1,077	3,267	6,117	3,620	13,415	11,986	22,089	11,010	6,310
40%	-4,519	-10,042	-7,676	-2,425	-1,686	1,457	2,448	11,339	10,645	19,166	8,910	4,408
50%	-6,100	-11,867	-10,190	-4,638	-3,539	-2,390	939	9,152	10,080	17,016	7,957	-201
60%	-7,974	-14,100	-13,067	-6,438	-6,637	-5,096	-726	7,640	8,586	15,317	6,411	-2,894
70%	-10,165	-15,657	-15,178	-8,708	-8,151	-7,115	-2,100	6,478	6,738	13,218	4,287	-6,248
80%	-13,957	-17,105	-19,636	-11,291	-10,123	-9,180	-5,550	4,225	4,421	10,855	2,595	-10,339
90%	-18,300	-20,785	-24,342	-15,469	-14,449	-14,524	-7,436	1,744	2,953	6,871	-68	-14,061
Long Term												
Full Simulation Period[a]	-6,887	-11,121	-7,120	-1,518	18	1,698	1,431	10,387	9,945	16,884	7,354	-661
Water Year Types[b,c]												
Wet (32%)	-2,839	-11,196	-2,730	10,497	9,516	12,149	5,464	15,680	10,032	14,186	7,981	8,259
Above Normal (15%)	-9,011	-14,827	-12,230	-5,864	2,810	5,062	-144	10,577	7,105	20,638	10,446	5,252
Below Normal (17%)	-16,231	-15,388	-10,357	-12,105	-7,840	-9,231	-4,035	4,762	6,294	16,548	4,331	-12,682
Dry (22%)	-6,966	-9,107	-4,990	-7,117	-5,969	-4,390	-851	8,499	13,383	19,183	7,937	-6,855
Critical (15%)	-2,515	-5,296	-10,942	-2,456	-5,201	-2,426	4,068	8,123	11,701	15,922	5,558	-2,586

Table 17-1b. CVP, SWP, and Sites Project Facilities Net Revenue, Alternative 1A 051722, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,156	-2,962	10,324	21,623	20,925	25,711	7,525	23,257	16,242	25,134	12,783	11,327
20%	-1,735	-8,958	-323	4,419	12,901	13,553	5,313	15,491	14,393	21,906	10,207	8,617
30%	-3,964	-10,527	-6,885	-391	1,916	5,309	3,689	13,048	11,630	19,468	9,044	6,752
40%	-5,565	-11,776	-8,390	-2,767	-2,288	-893	2,266	11,229	10,667	16,133	7,933	3,176
50%	-7,894	-13,522	-11,255	-5,706	-5,363	-3,324	1,091	9,255	9,588	13,949	4,662	-2,767
60%	-9,831	-15,032	-13,102	-6,767	-6,615	-5,377	-757	7,658	8,469	12,331	2,888	-6,713
70%	-12,670	-16,847	-15,204	-8,783	-8,646	-8,104	-2,207	6,597	6,509	10,174	511	-9,448
80%	-16,668	-18,799	-18,995	-12,903	-11,065	-10,766	-6,027	4,042	4,165	7,804	-1,844	-13,099
90%	-20,578	-21,027	-24,732	-17,587	-14,982	-14,330	-7,975	2,172	3,018	4,625	-4,703	-16,043
Long Term												
Full Simulation Period[a]	-8,895	-12,644	-7,865	-2,661	-995	931	919	10,530	9,782	14,582	4,320	-2,173
Water Year Types[b,c]												
Wet (32%)	-2,811	-11,475	-3,368	8,881	7,898	11,606	4,648	15,433	10,105	14,229	8,447	8,675
Above Normal (15%)	-8,668	-15,070	-13,041	-8,275	1,079	2,849	-1,423	11,971	7,118	20,616	10,622	5,443
Below Normal (17%)	-18,030	-18,237	-11,509	-12,925	-8,320	-9,687	-4,384	4,803	6,155	15,980	3,957	-12,681
Dry (22%)	-13,410	-12,830	-5,739	-7,509	-6,762	-5,093	-795	8,582	12,863	13,083	-795	-11,257
Critical (15%)	-4,876	-5,945	-11,373	-2,808	-5,139	-2,692	3,943	8,068	11,353	9,933	-2,830	-7,410

Table 17-1c. CVP, SWP, and Sites Project Facilities Net Revenue, Alternative 1A 051722 minus No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1,101	-795	-2,008	-51	-2,482	-133	-1,186	-186	-739	-1,415	-954	807
20%	-1,918	-3,768	-1,966	-2,453	-928	-94	-388	-84	-169	-2,469	-1,599	630
30%	-640	-1,312	-2,080	-1,468	-1,351	-807	69	-367	-356	-2,621	-1,966	442
40%	-1,046	-1,734	-714	-342	-602	-2,350	-182	-110	22	-3,033	-977	-1,231
50%	-1,794	-1,655	-1,066	-1,069	-1,824	-935	152	104	-492	-3,067	-3,295	-2,567
60%	-1,857	-932	-35	-329	22	-280	-31	18	-117	-2,986	-3,522	-3,819
70%	-2,505	-1,189	-26	-75	-495	-989	-107	119	-228	-3,043	-3,775	-3,200
80%	-2,711	-1,694	640	-1,611	-941	-1,586	-477	-182	-256	-3,051	-4,438	-2,760
90%	-2,278	-242	-390	-2,118	-534	193	-539	427	65	-2,247	-4,636	-1,982
Long Term												
Full Simulation Period[a]	-2,008	-1,523	-745	-1,143	-1,013	-767	-511	143	-164	-2,302	-3,035	-1,512
Water Year Types[b,c]												
Wet (32%)	27	-279	-638	-1,617	-1,618	-543	-816	-246	73	43	466	416
Above Normal (15%)	343	-243	-810	-2,411	-1,731	-2,213	-1,279	1,393	14	-22	176	191
Below Normal (17%)	-1,799	-2,850	-1,151	-821	-480	-456	-350	41	-139	-568	-374	1
Dry (22%)	-6,444	-3,723	-749	-392	-793	-703	57	83	-521	-6,101	-8,732	-4,402
Critical (15%)	-2,361	-649	-430	-352	62	-266	-125	-55	-348	-5,989	-8,389	-4,824

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 17-2a. CVP, SWP, and Sites Project Facilities Net Revenue, No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,258	-2,166	12,333	21,674	23,406	25,844	8,711	23,444	16,981	26,549	13,736	10,520
20%	183	-5,190	1,643	6,873	13,829	13,647	5,701	15,575	14,561	24,376	11,806	7,987
30%	-3,323	-9,216	-4,805	1,077	3,267	6,117	3,620	13,415	11,986	22,089	11,010	6,310
40%	-4,519	-10,042	-7,676	-2,425	-1,686	1,457	2,448	11,339	10,645	19,166	8,910	4,408
50%	-6,100	-11,867	-10,190	-4,638	-3,539	-2,390	939	9,152	10,080	17,016	7,957	-201
60%	-7,974	-14,100	-13,067	-6,438	-6,637	-5,096	-726	7,640	8,586	15,317	6,411	-2,894
70%	-10,165	-15,657	-15,178	-8,708	-8,151	-7,115	-2,100	6,478	6,738	13,218	4,287	-6,248
80%	-13,957	-17,105	-19,636	-11,291	-10,123	-9,180	-5,550	4,225	4,421	10,855	2,595	-10,339
90%	-18,300	-20,785	-24,342	-15,469	-14,449	-14,524	-7,436	1,744	2,953	6,871	-68	-14,061
Long Term												
Full Simulation Period[d]	-6,887	-11,121	-7,120	-1,518	18	1,698	1,431	10,387	9,945	16,884	7,354	-661
Water Year Types[b,c]												
Wet (32%)	-2,839	-11,196	-2,730	10,497	9,516	12,149	5,464	15,680	10,032	14,186	7,981	8,259
Above Normal (15%)	-9,011	-14,827	-12,230	-5,864	2,810	5,062	-144	10,577	7,105	20,638	10,446	5,252
Below Normal (17%)	-16,231	-15,388	-10,357	-12,105	-7,840	-9,231	-4,035	4,762	6,294	16,548	4,331	-12,682
Dry (22%)	-6,966	-9,107	-4,990	-7,117	-5,969	-4,390	-851	8,499	13,383	19,183	7,937	-6,855
Critical (15%)	-2,515	-5,296	-10,942	-2,456	-5,201	-2,426	4,068	8,123	11,701	15,922	5,558	-2,586

Table 17-2b. CVP, SWP, and Sites Project Facilities Net Revenue, Alternative 1B 051722, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,038	-2,871	12,881	21,919	21,205	25,693	7,497	23,239	16,223	25,530	12,482	11,254
20%	-2,070	-8,921	558	4,398	12,919	13,572	5,309	14,652	14,491	22,362	10,736	8,037
30%	-3,945	-10,144	-4,783	-373	2,481	5,764	3,685	13,591	11,548	19,522	8,718	6,819
40%	-5,497	-11,770	-8,006	-2,777	-2,170	-716	2,190	11,070	10,123	16,228	8,001	3,755
50%	-7,778	-13,709	-11,134	-5,622	-5,214	-3,826	432	9,429	9,430	13,919	4,754	-3,434
60%	-9,971	-15,522	-12,866	-6,709	-6,493	-5,145	-765	7,606	8,308	11,887	3,082	-6,235
70%	-12,665	-16,953	-15,034	-9,035	-8,680	-7,275	-2,429	6,227	6,290	10,222	841	-8,575
80%	-16,737	-18,355	-19,817	-12,792	-11,064	-10,681	-4,608	3,932	4,470	7,659	-1,623	-13,072
90%	-20,323	-21,060	-24,778	-18,731	-14,903	-14,868	-7,921	2,175	2,047	4,622	-3,709	-15,836
Long Term												
Full Simulation Period[d]	-8,874	-12,570	-7,491	-2,531	-894	929	901	10,536	9,658	14,602	4,488	-2,059
Water Year Types[b,c]												
Wet (32%)	-2,852	-11,643	-3,505	9,453	8,120	11,652	4,653	15,682	10,059	14,153	8,458	8,665
Above Normal (15%)	-8,590	-15,091	-12,934	-8,315	1,269	3,013	-1,393	12,190	6,556	20,515	10,707	5,731
Below Normal (17%)	-17,844	-18,432	-11,153	-13,318	-8,634	-9,837	-4,153	4,665	6,096	16,222	4,141	-12,451
Dry (22%)	-13,681	-12,005	-4,189	-7,400	-6,503	-5,175	-1,133	8,252	12,796	13,252	-282	-11,254
Critical (15%)	-4,526	-6,067	-11,366	-2,822	-5,143	-2,670	4,011	8,004	11,340	9,795	-2,770	-7,163

Table 17-2c. CVP, SWP, and Sites Project Facilities Net Revenue, Alternative 1B 051722 minus No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1,219	-705	548	245	-2,202	-151	-1,214	-205	-758	-1,019	-1,254	735
20%	-2,254	-3,731	-1,085	-2,475	-910	-75	-392	-923	-70	-2,014	-1,070	50
30%	-622	-929	21	-1,450	-786	-353	65	176	-437	-2,567	-2,292	509
40%	-978	-1,728	-330	-352	-484	-2,173	-258	-269	-522	-2,938	-909	-653
50%	-1,678	-1,842	-944	-984	-1,675	-1,437	-507	278	-650	-3,096	-3,204	-3,234
60%	-1,997	-1,422	201	-271	144	-49	-39	-34	-277	-3,429	-3,329	-3,341
70%	-2,499	-1,296	144	-326	-529	-160	-329	-251	-447	-2,995	-3,446	-2,326
80%	-2,781	-1,250	-182	-1,501	-940	-1,501	942	-292	49	-3,196	-4,218	-2,733
90%	-2,023	-275	-436	-3,261	-454	-344	-485	430	-906	-2,250	-3,641	-1,775
Long Term												
Full Simulation Period[d]	-1,986	-1,449	-371	-1,013	-912	-769	-530	149	-287	-2,283	-2,866	-1,397
Water Year Types[b,c]												
Wet (32%)	-14	-447	-775	-1,044	-1,395	-497	-810	2	27	-33	477	406
Above Normal (15%)	421	-264	-704	-2,451	-1,541	-2,049	-1,249	1,613	-549	-124	260	479
Below Normal (17%)	-1,613	-3,044	-796	-1,213	-794	-606	-119	-97	-198	-326	-191	230
Dry (22%)	-6,715	-2,899	800	-283	-533	-785	-282	-247	-587	-5,931	-8,218	-4,398
Critical (15%)	-2,011	-771	-423	-366	58	-244	-58	-119	-361	-6,126	-8,329	-4,578

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 17-3a. CVP, SWP, and Sites Project Facilities Net Revenue, No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	2,258	-2,166	12,333	21,674	23,406	25,844	8,711	23,444	16,981	26,549	13,736	10,520
20%	183	-5,190	1,643	6,873	13,829	13,647	5,701	15,575	14,561	24,376	11,806	7,987
30%	-3,323	-9,216	-4,805	1,077	3,267	6,117	3,620	13,415	11,986	22,089	11,010	6,310
40%	-4,519	-10,042	-7,676	-2,425	-1,686	1,457	2,448	11,339	10,645	19,166	8,910	4,408
50%	-6,100	-11,867	-10,190	-4,638	-3,539	-2,390	939	9,152	10,080	17,016	7,957	-201
60%	-7,974	-14,100	-13,067	-6,438	-6,637	-5,096	-726	7,640	8,586	15,317	6,411	-2,894
70%	-10,165	-15,657	-15,178	-8,708	-8,151	-7,115	-2,100	6,478	6,738	13,218	4,287	-6,248
80%	-13,957	-17,105	-19,636	-11,291	-10,123	-9,180	-5,550	4,225	4,421	10,855	2,595	-10,339
90%	-18,300	-20,785	-24,342	-15,469	-14,449	-14,524	-7,436	1,744	2,953	6,871	-68	-14,061
Long Term												
Full Simulation Period[a]	-6,887	-11,121	-7,120	-1,518	18	1,698	1,431	10,387	9,945	16,884	7,354	-661
Water Year Types[b,c]												
Wet (32%)	-2,839	-11,196	-2,730	10,497	9,516	12,149	5,464	15,680	10,032	14,186	7,981	8,259
Above Normal (15%)	-9,011	-14,827	-12,230	-5,864	2,810	5,062	-144	10,577	7,105	20,638	10,446	5,252
Below Normal (17%)	-16,231	-15,388	-10,357	-12,105	-7,840	-9,231	-4,035	4,762	6,294	16,548	4,331	-12,682
Dry (22%)	-6,966	-9,107	-4,990	-7,117	-5,969	-4,390	-851	8,499	13,383	19,183	7,937	-6,855
Critical (15%)	-2,515	-5,296	-10,942	-2,456	-5,201	-2,426	4,068	8,123	11,701	15,922	5,558	-2,586

Table 17-3b. CVP, SWP, and Sites Project Facilities Net Revenue, Alternative 3 051722, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	1,095	-3,081	12,794	21,818	21,631	25,647	7,435	23,192	16,205	24,583	12,626	11,271
20%	-686	-5,824	1,474	5,724	13,356	13,372	5,406	15,156	14,069	22,505	10,537	8,512
30%	-3,315	-9,612	-5,267	-47	1,824	4,601	3,519	13,013	11,308	19,344	9,108	6,763
40%	-5,191	-11,258	-8,552	-3,326	-2,279	-1,067	2,440	10,966	10,416	16,382	8,295	3,940
50%	-7,043	-13,048	-11,460	-5,555	-4,150	-3,423	852	9,400	9,148	14,421	5,784	55
60%	-8,948	-14,747	-12,880	-6,937	-6,382	-5,007	-600	7,800	7,558	11,448	3,879	-5,126
70%	-11,283	-16,402	-14,858	-8,457	-8,708	-7,542	-2,506	6,234	6,334	10,429	2,273	-8,134
80%	-16,899	-18,326	-19,205	-12,958	-11,623	-11,103	-4,620	4,350	4,286	7,743	-232	-12,749
90%	-20,113	-20,578	-24,020	-18,691	-15,248	-15,519	-7,237	1,856	718	3,827	-3,680	-14,849
Long Term												
Full Simulation Period[a]	-8,138	-12,025	-7,419	-2,281	-903	718	1,157	10,231	9,400	14,504	5,123	-1,355
Water Year Types[b,c]												
Wet (32%)	-2,998	-11,615	-3,444	9,878	8,104	11,363	4,746	15,622	10,046	14,112	8,443	8,577
Above Normal (15%)	-8,472	-14,775	-12,887	-7,793	1,356	2,966	96	11,074	6,203	19,534	10,101	5,921
Below Normal (17%)	-16,275	-16,819	-11,395	-13,345	-7,972	-10,373	-4,197	4,561	5,512	16,521	4,404	-11,693
Dry (22%)	-11,578	-11,244	-3,925	-7,408	-6,725	-4,812	-1,018	7,878	12,378	13,410	1,516	-10,680
Critical (15%)	-4,290	-5,741	-11,168	-2,514	-5,693	-3,362	3,953	7,850	11,270	9,608	-802	-4,098

Table 17-3c. CVP, SWP, and Sites Project Facilities Net Revenue, Alternative 3 051722 minus No Action Alternative 051422, Monthly Revenue (1000)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-1,162	-914	461	145	-1,775	-198	-1,276	-252	-776	-1,966	-1,111	751
20%	-870	-634	-169	-1,149	-473	-275	-295	-419	-493	-1,871	-1,269	525
30%	8	-396	-462	-1,124	-1,442	-1,516	-101	-402	-678	-2,745	-1,901	453
40%	-672	-1,216	-876	-901	-593	-2,524	-8	-373	-229	-2,784	-615	-468
50%	-943	-1,181	-1,270	-917	-611	-1,033	-86	248	-932	-2,595	-2,173	256
60%	-974	-647	187	-500	255	90	126	160	-1,027	-3,868	-2,532	-2,232
70%	-1,118	-745	321	251	-557	-427	-406	-245	-403	-2,789	-2,014	-1,886
80%	-2,942	-1,221	431	-1,667	-1,500	-1,923	930	126	-135	-3,112	-2,827	-2,410
90%	-1,813	206	321	-3,222	-799	-995	199	112	-2,236	-3,044	-3,612	-787
Long Term												
Full Simulation Period[a]	-1,251	-904	-299	-763	-921	-981	-274	-156	-545	-2,381	-2,232	-694
Water Year Types[b,c]												
Wet (32%)	-160	-419	-714	-619	-1,412	-786	-718	-58	14	-74	462	318
Above Normal (15%)	539	52	-657	-1,929	-1,454	-2,096	241	497	-902	-1,104	-345	669
Below Normal (17%)	-44	-1,431	-1,037	-1,240	-132	-1,143	-162	-201	-782	-27	73	988
Dry (22%)	-4,612	-2,137	1,064	-291	-756	-422	-167	-620	-1,006	-5,773	-6,420	-3,825
Critical (15%)	-1,774	-445	-226	-58	-492	-936	-116	-273	-431	-6,314	-6,361	-1,513

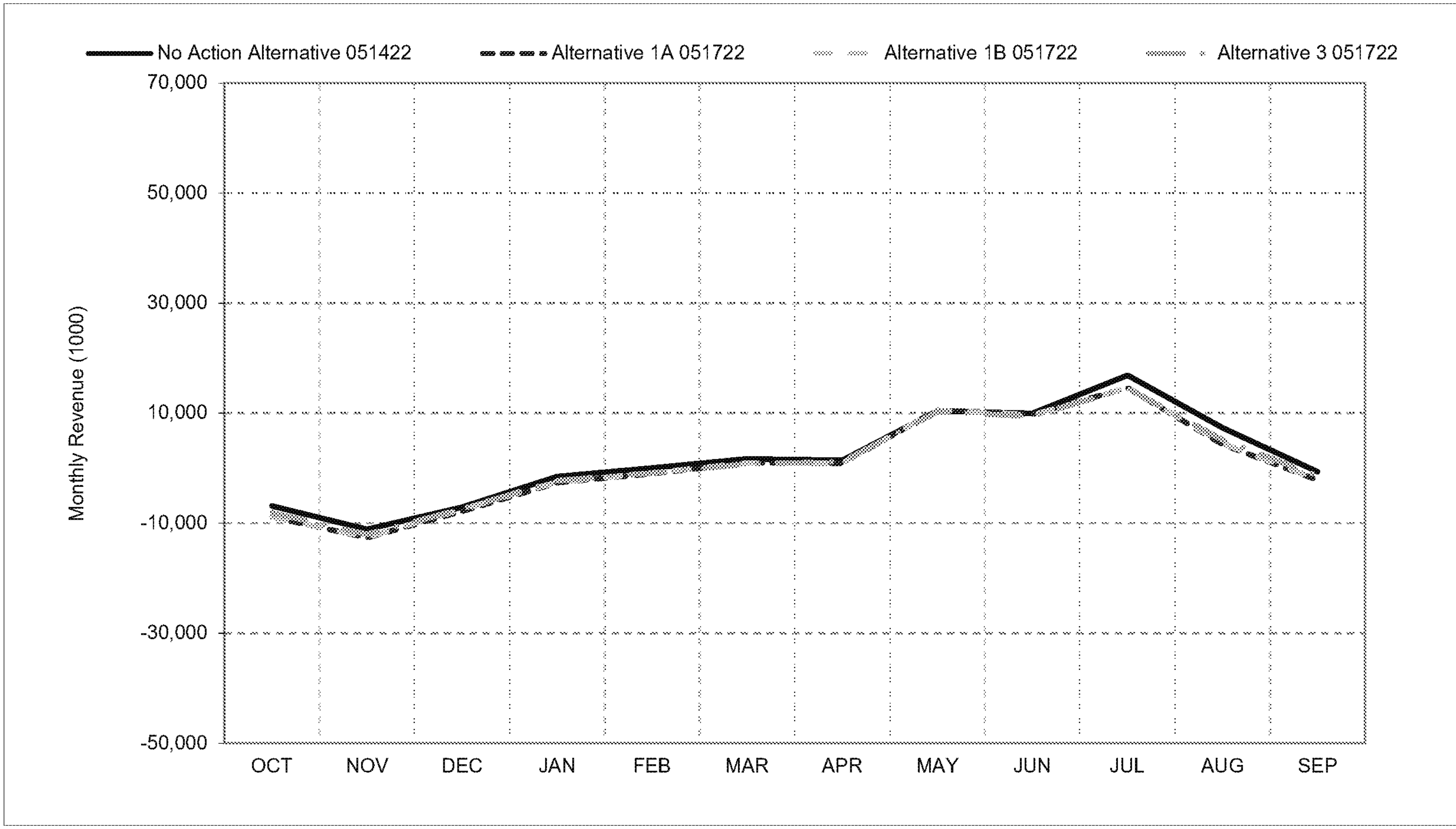
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

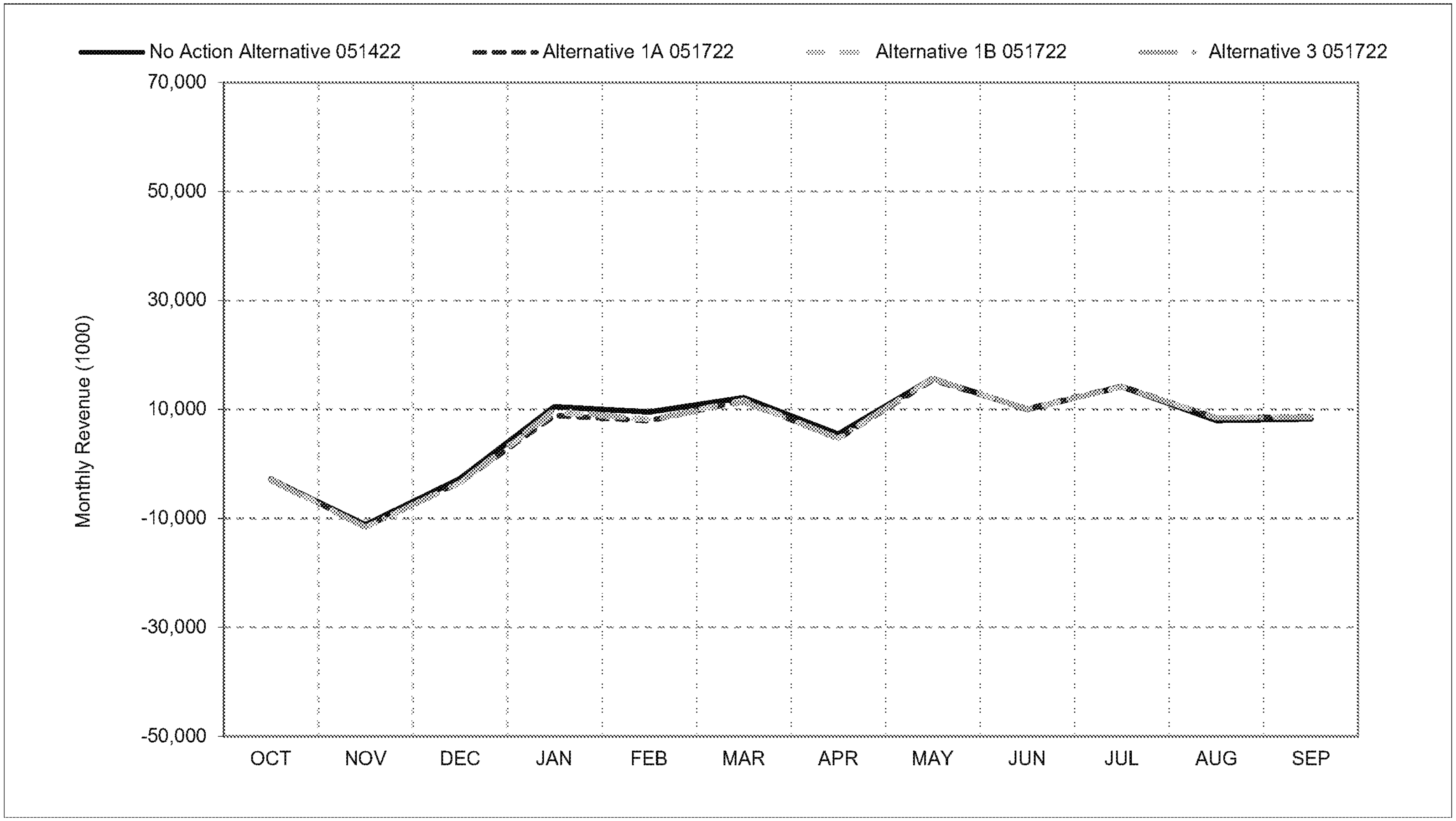
d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-1. CVP, SWP, and Sites Project Facilities Net Revenue, Long-Term Average Revenue



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-2. CVP, SWP, and Sites Project Facilities Net Revenue, Wet Year Average Revenue

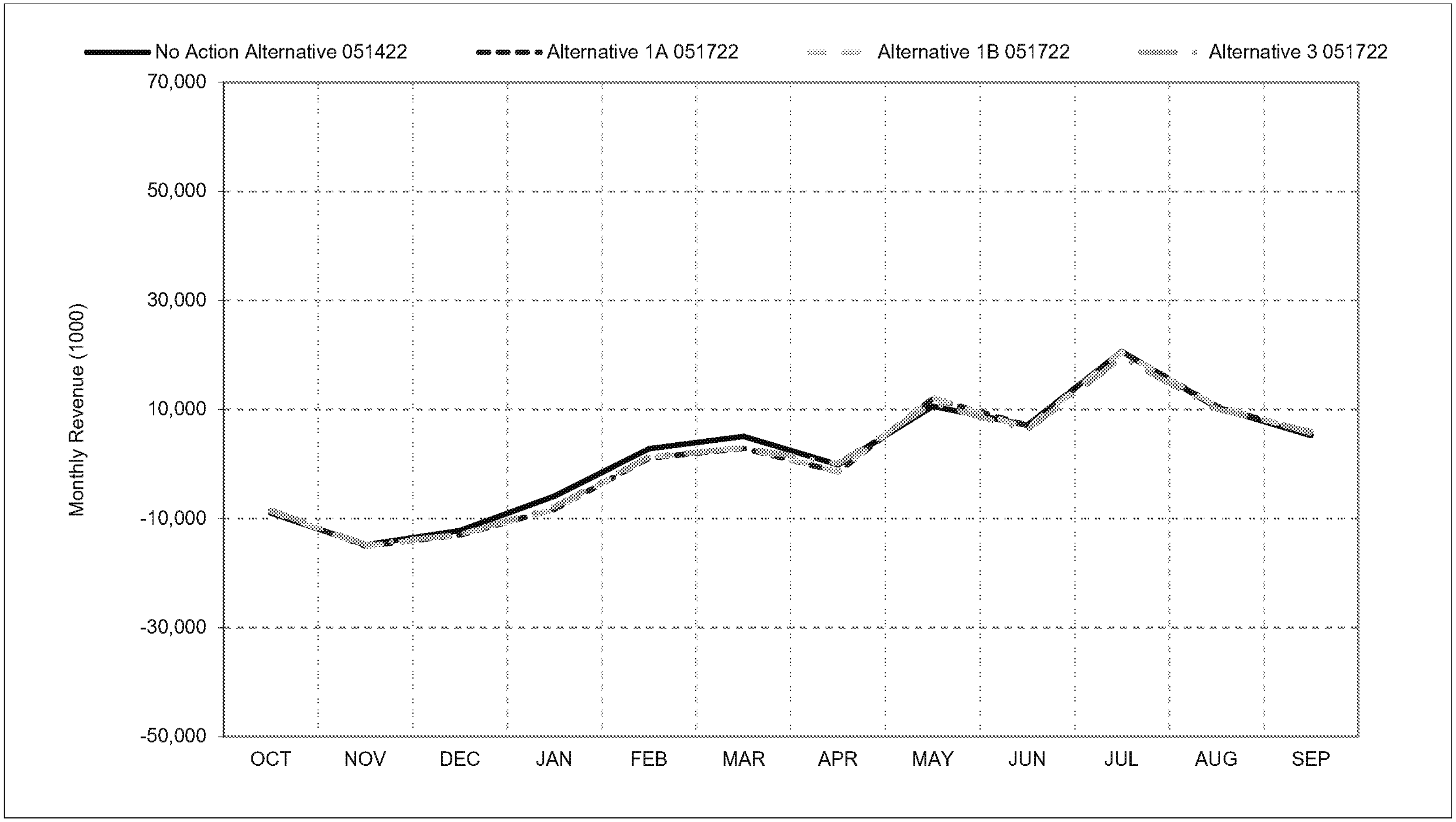


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

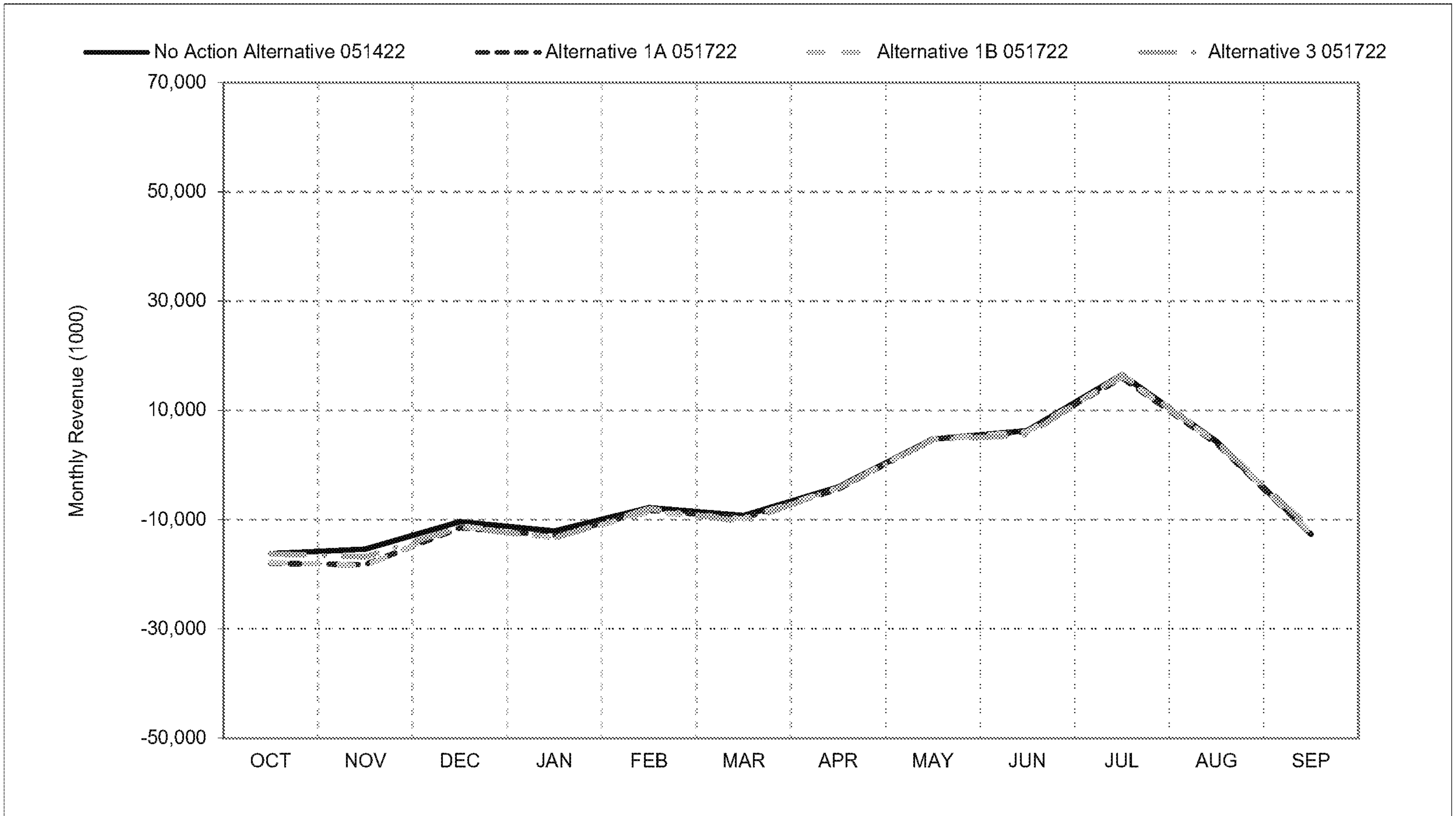
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-3. CVP, SWP, and Sites Project Facilities Net Revenue, Above Normal Year Average Revenue



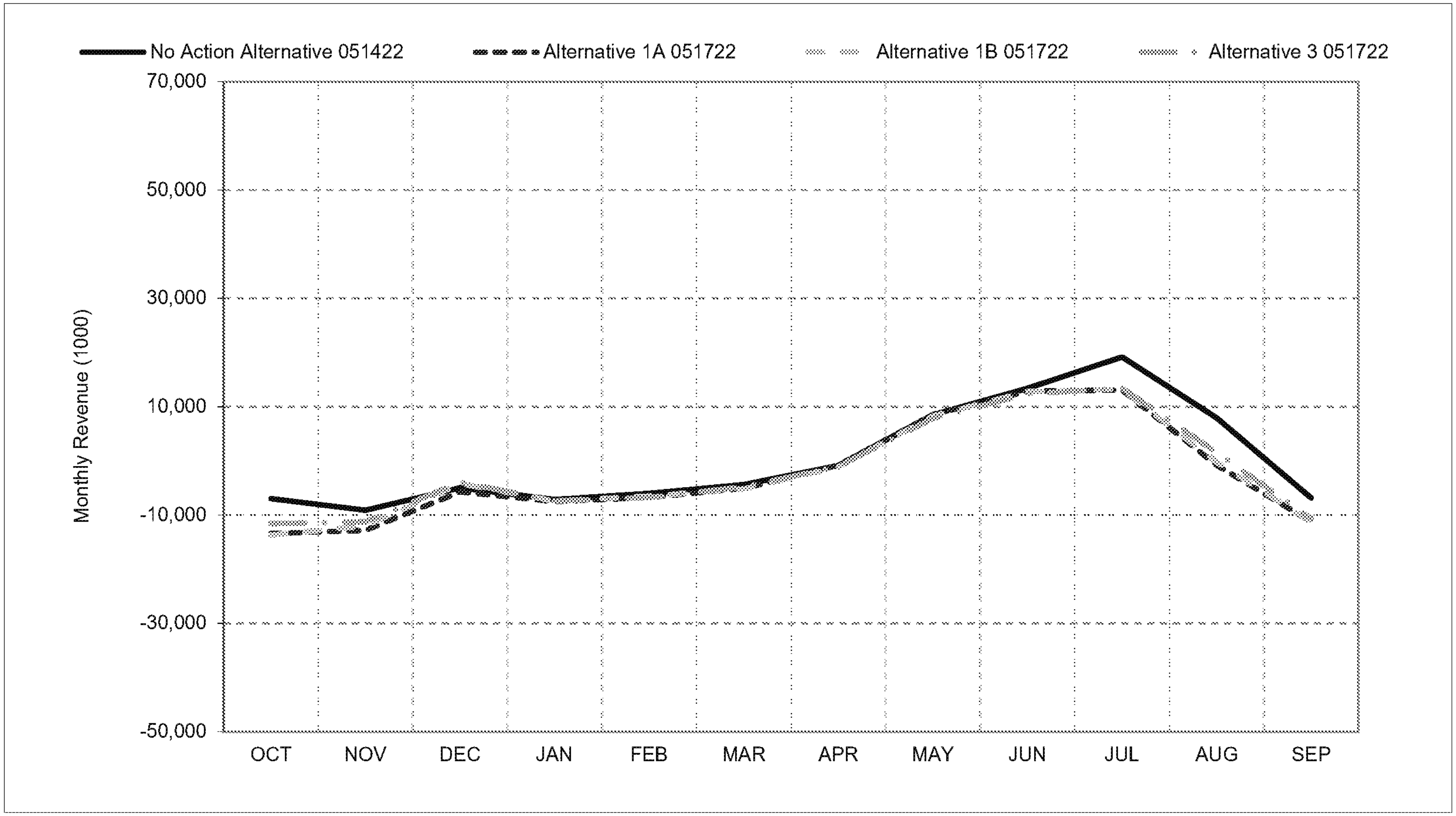
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-4. CVP, SWP, and Sites Project Facilities Net Revenue, Below Normal Year Average Revenue



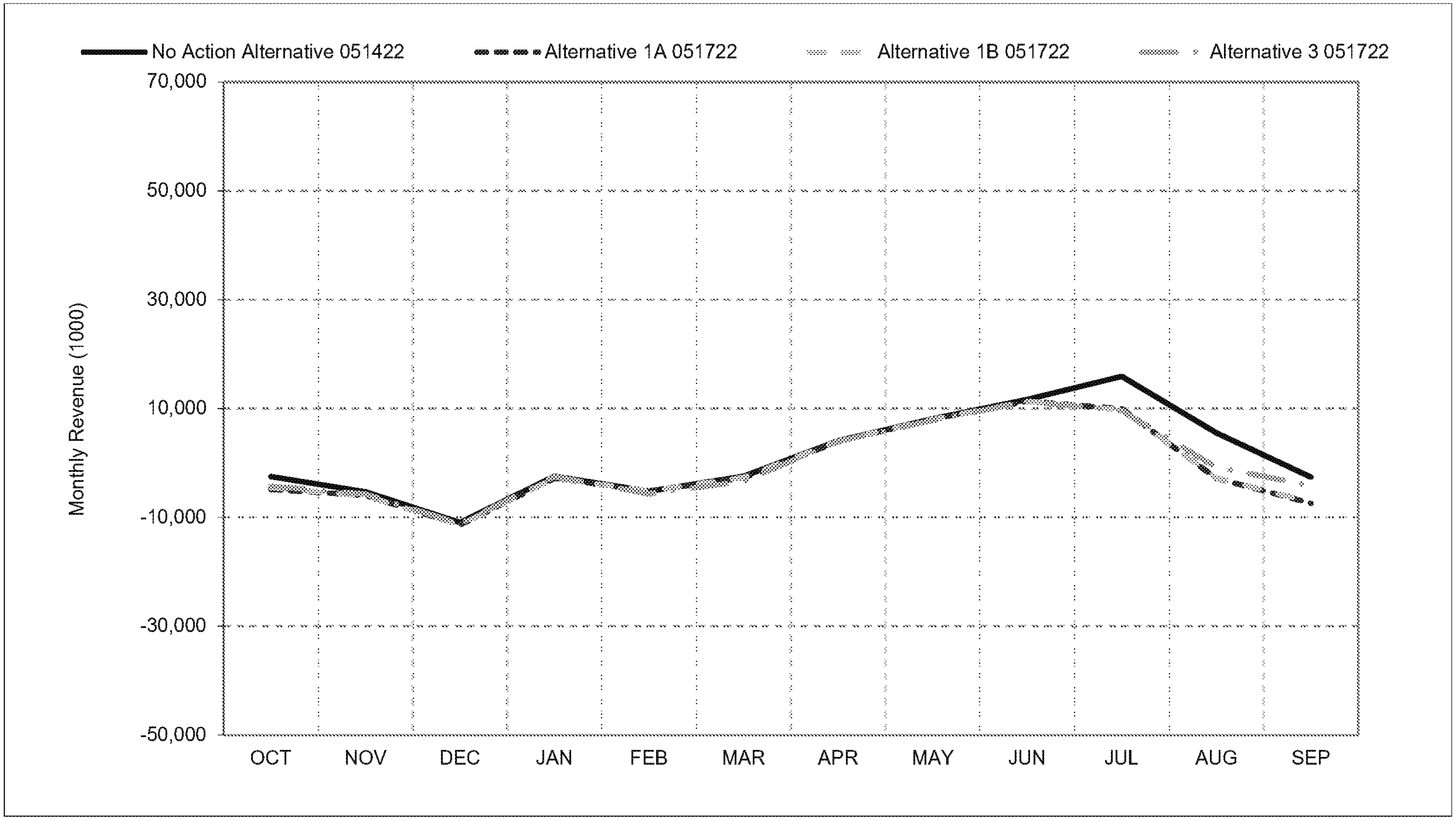
*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-5. CVP, SWP, and Sites Project Facilities Net Revenue, Dry Year Average Revenue



*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
*These results are displayed with calendar year - year type sorting.
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-6. CVP, SWP, and Sites Project Facilities Net Revenue, Critical Year Average Revenue

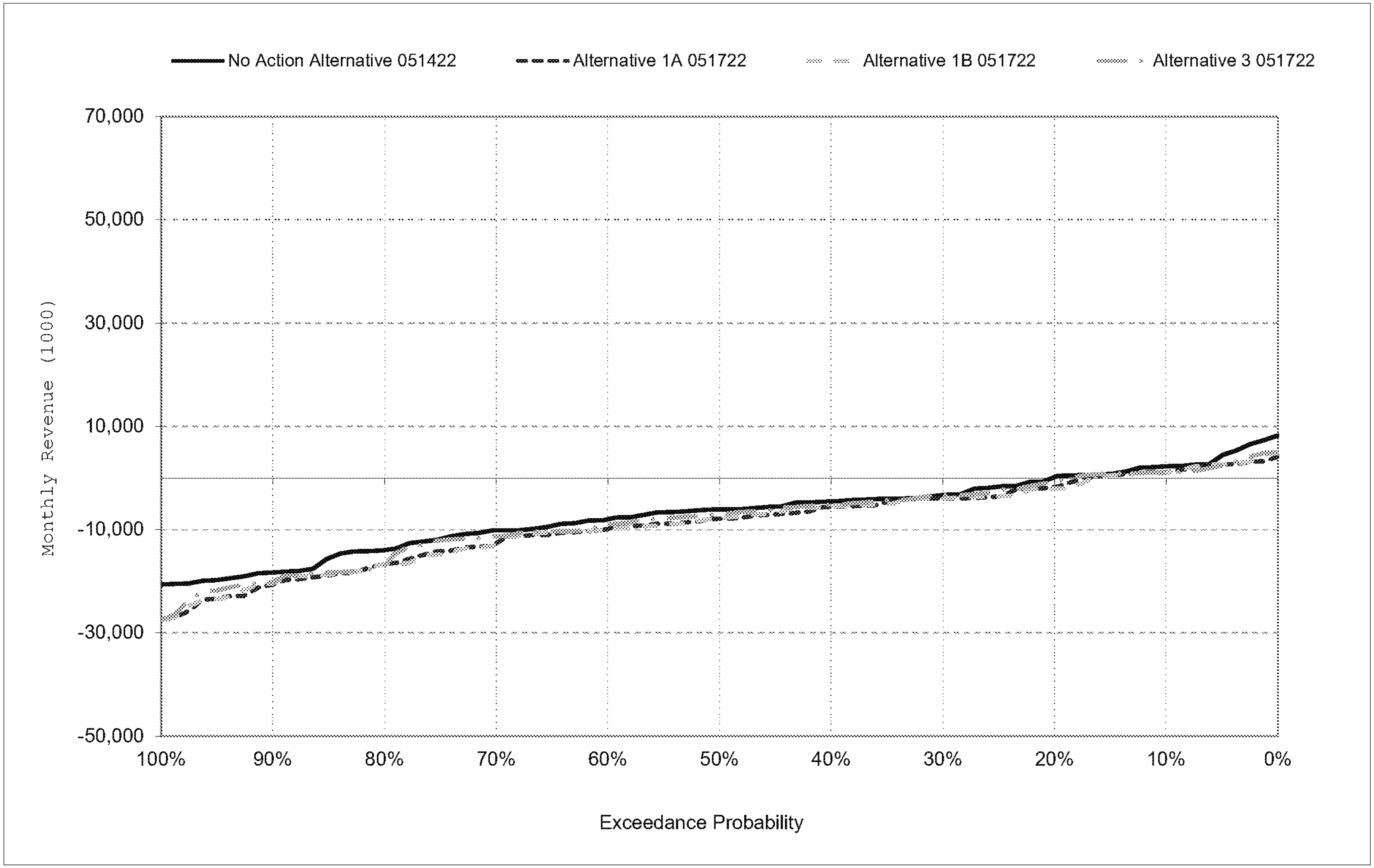


*As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

*These results are displayed with calendar year - year type sorting.

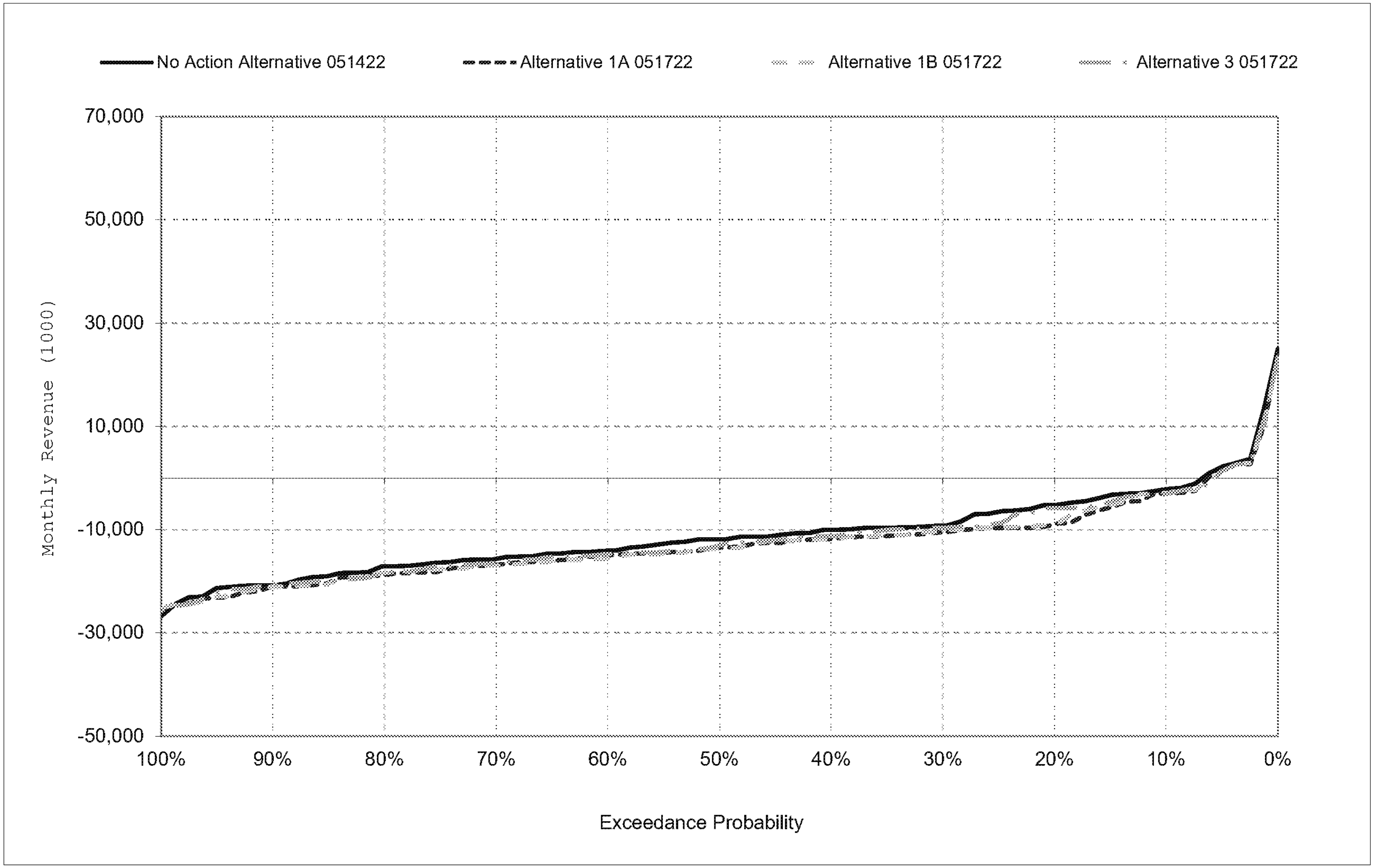
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-7. CVP, SWP, and Sites Project Facilities Net Revenue, October



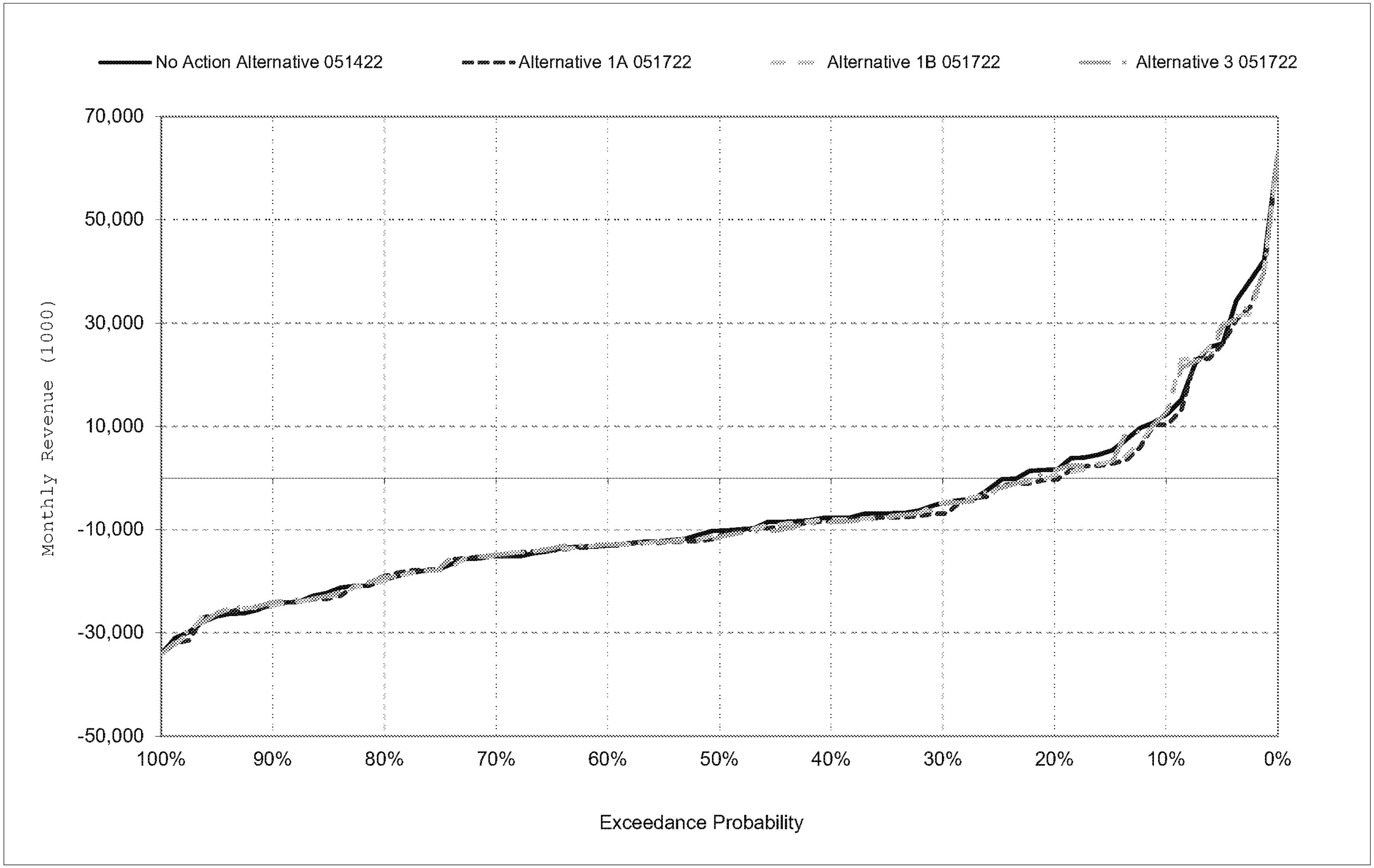
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-8. CVP, SWP, and Sites Project Facilities Net Revenue, November



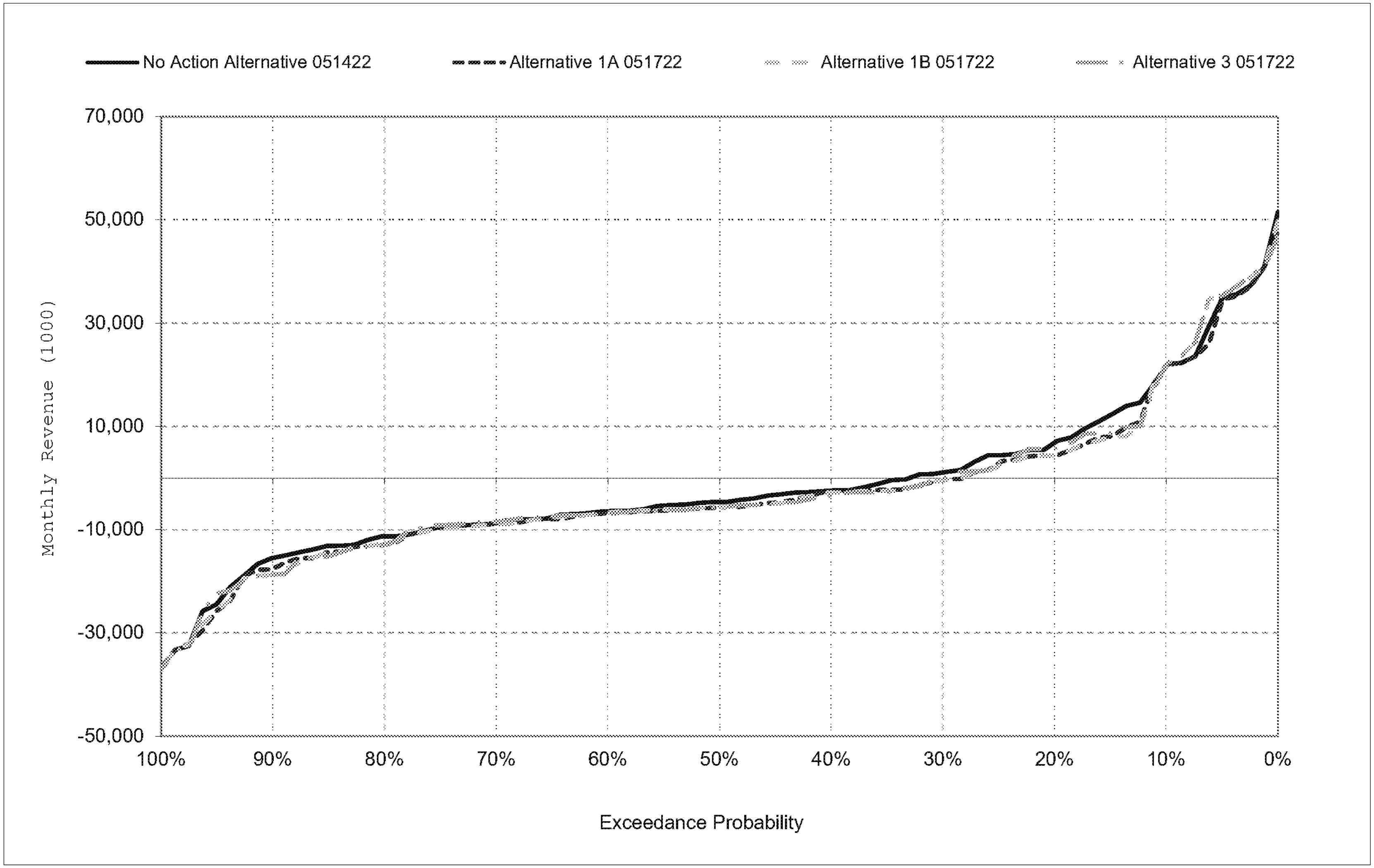
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-9. CVP, SWP, and Sites Project Facilities Net Revenue, December



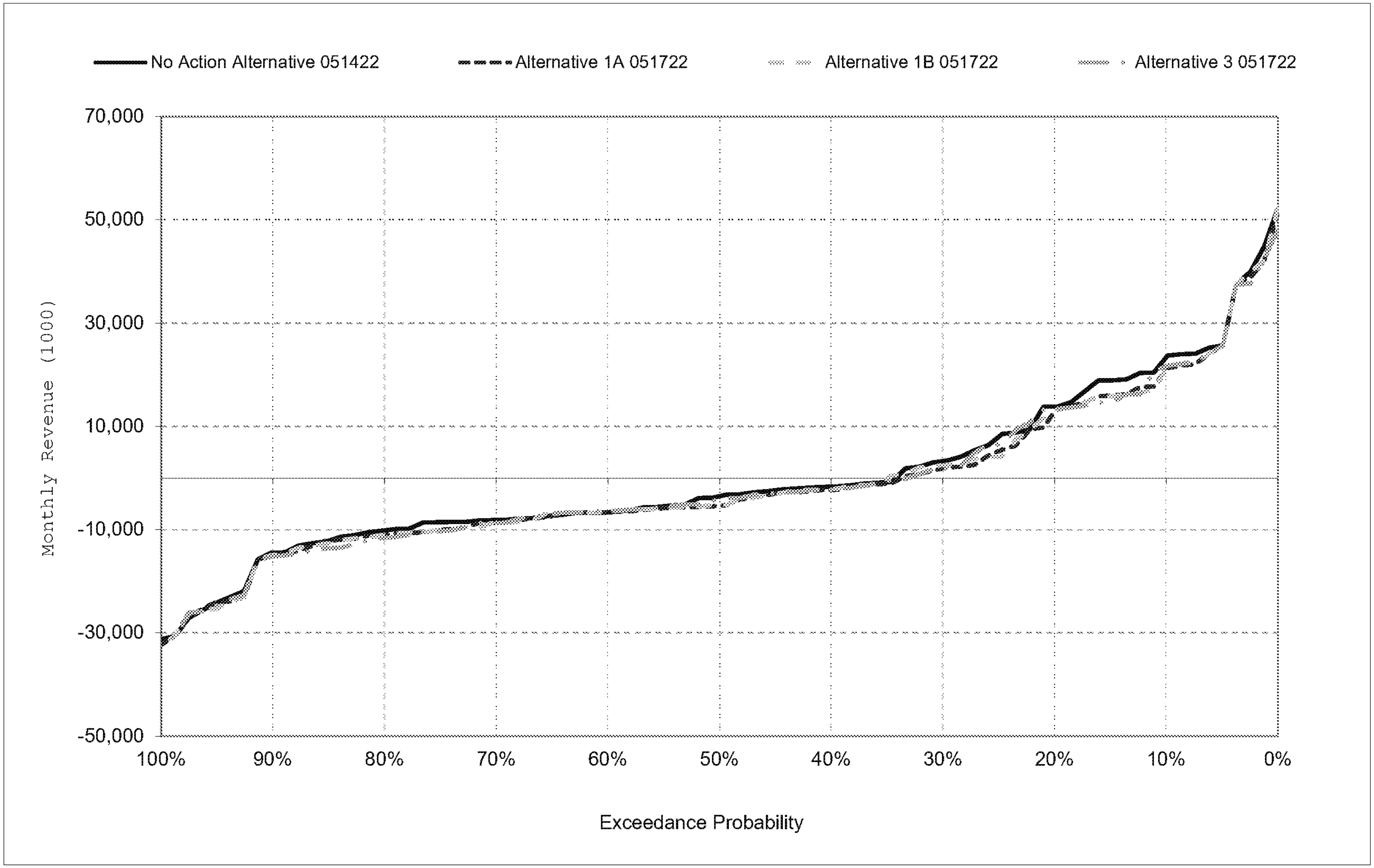
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-10. CVP, SWP, and Sites Project Facilities Net Revenue, January



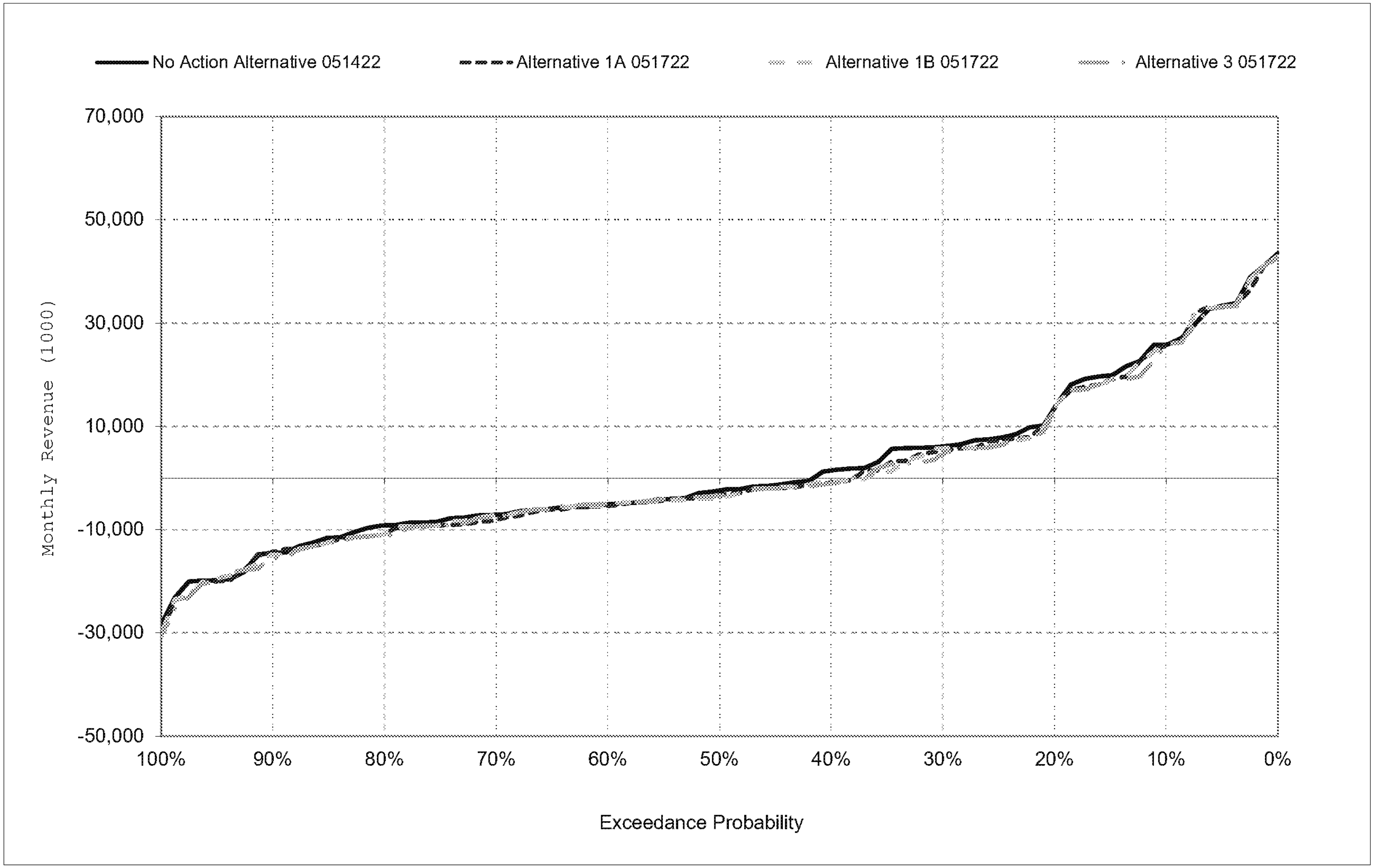
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-11. CVP, SWP, and Sites Project Facilities Net Revenue, February



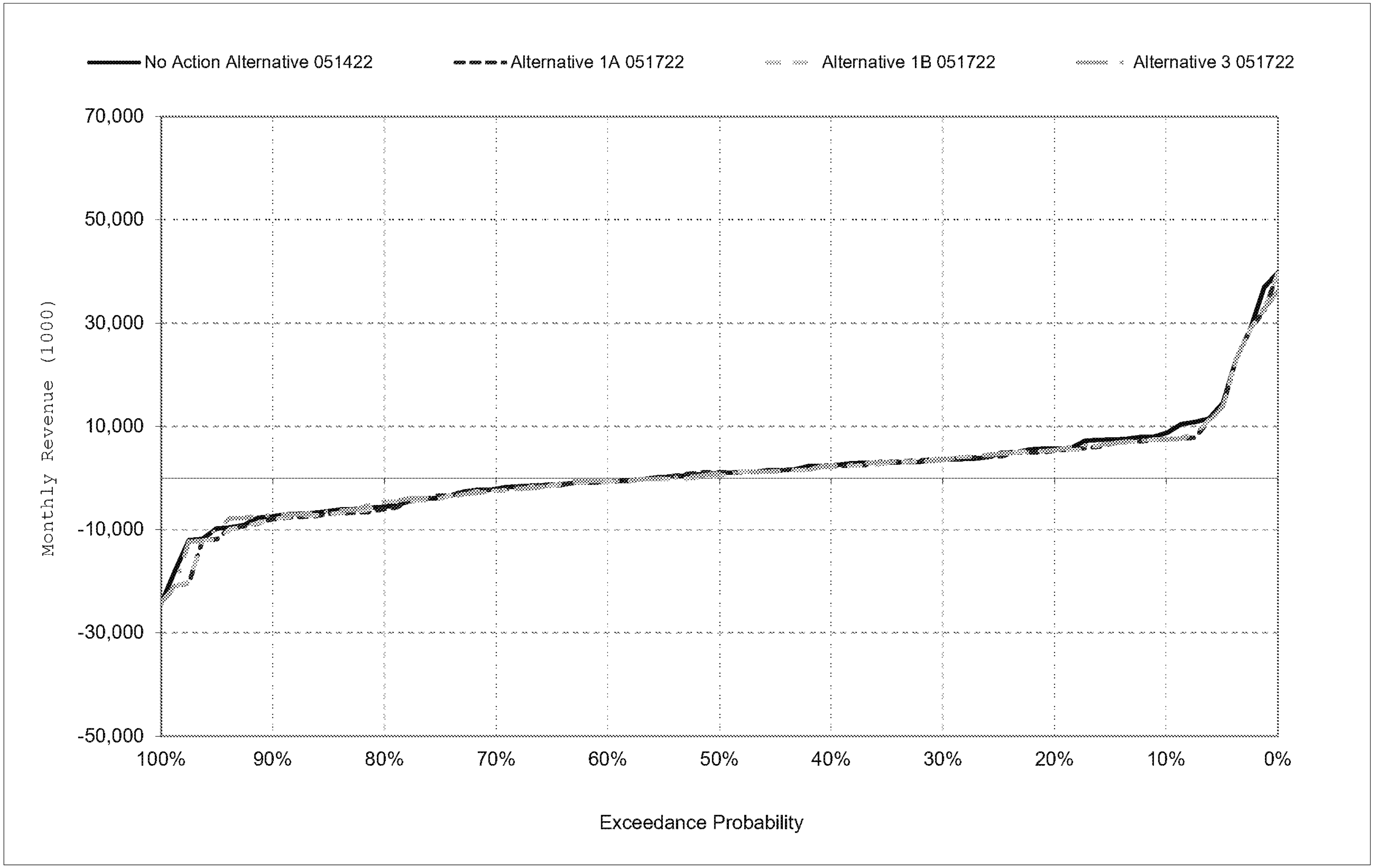
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-12. CVP, SWP, and Sites Project Facilities Net Revenue, March



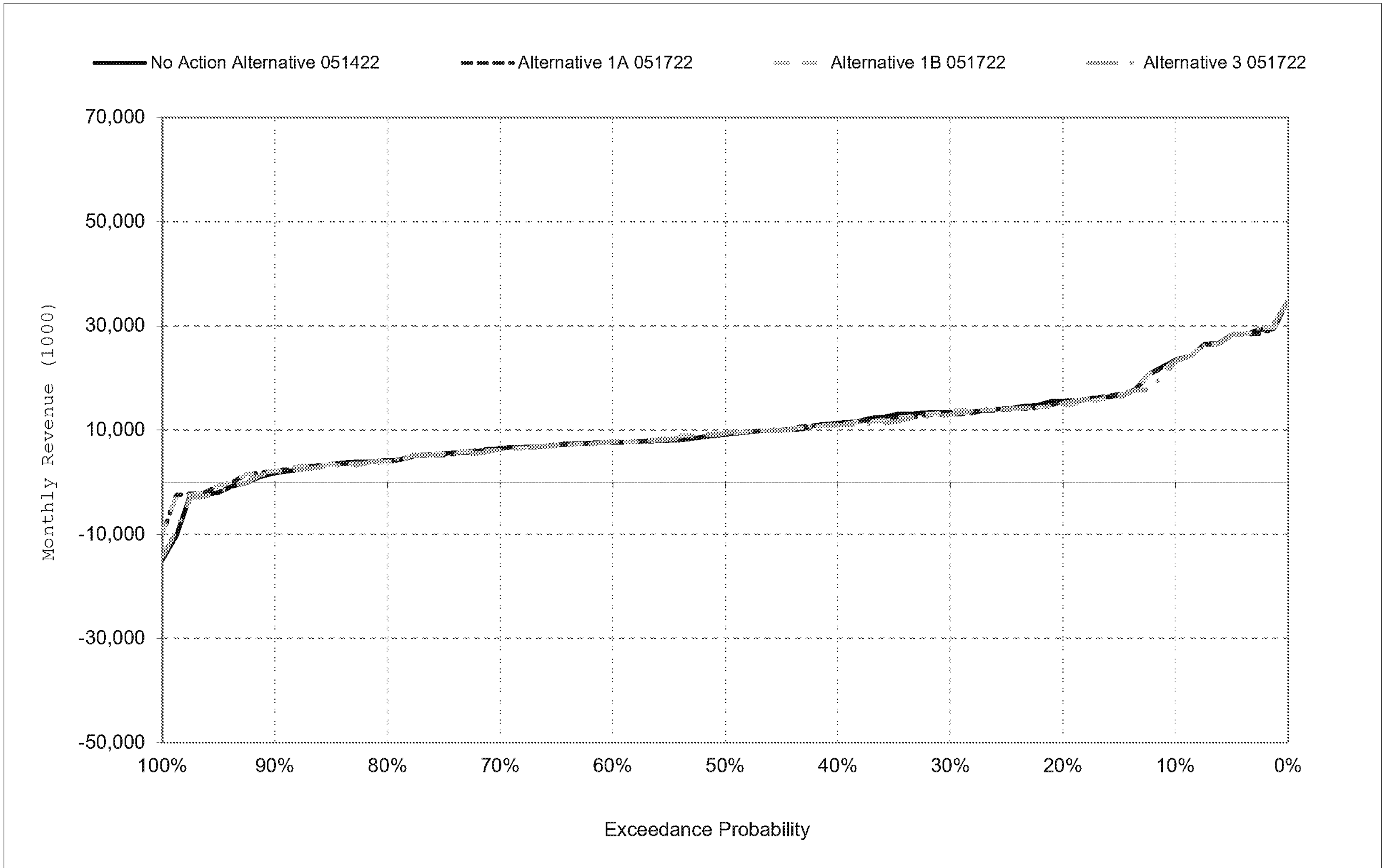
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-13. CVP, SWP, and Sites Project Facilities Net Revenue, April



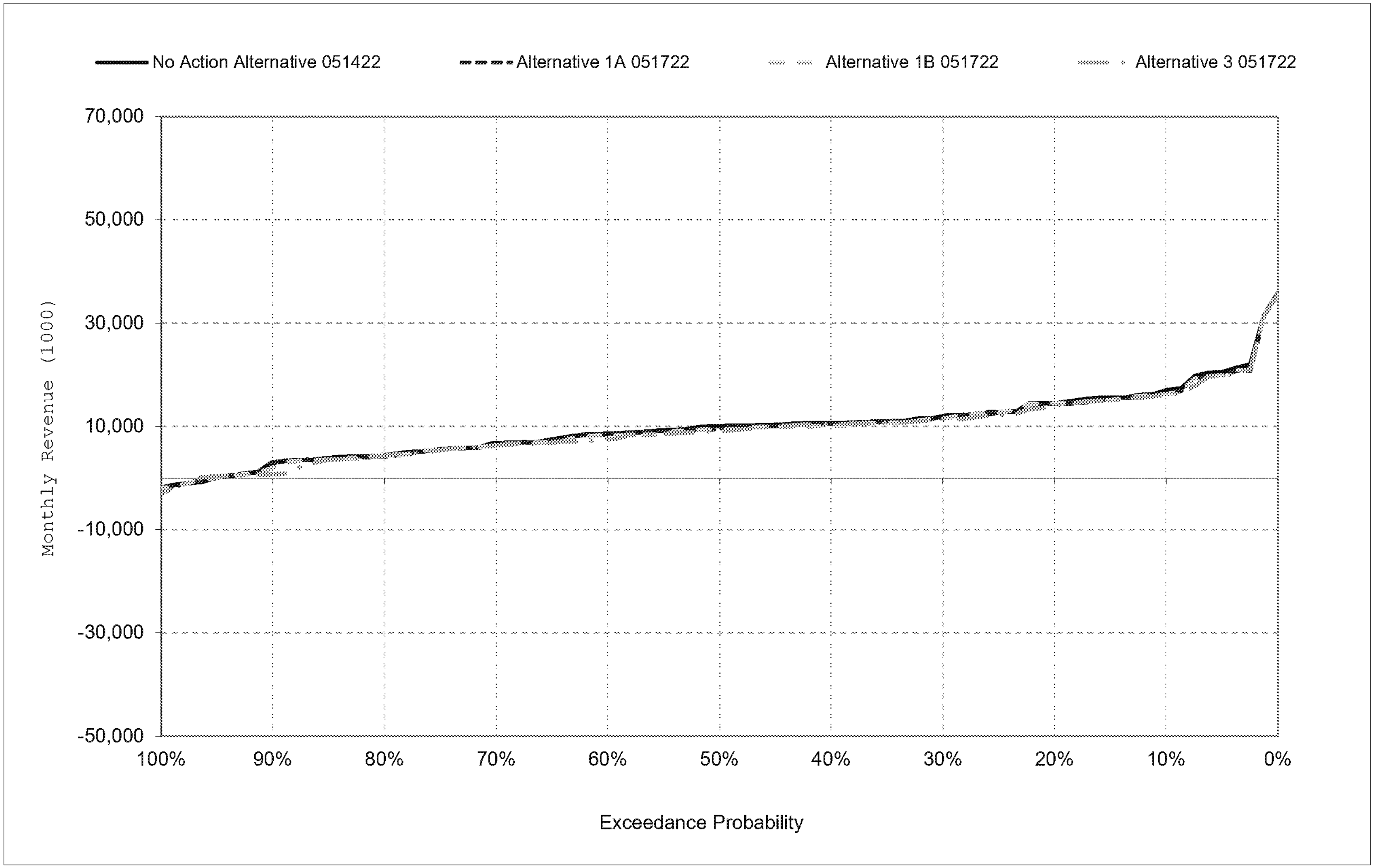
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-14. CVP, SWP, and Sites Project Facilities Net Revenue, May



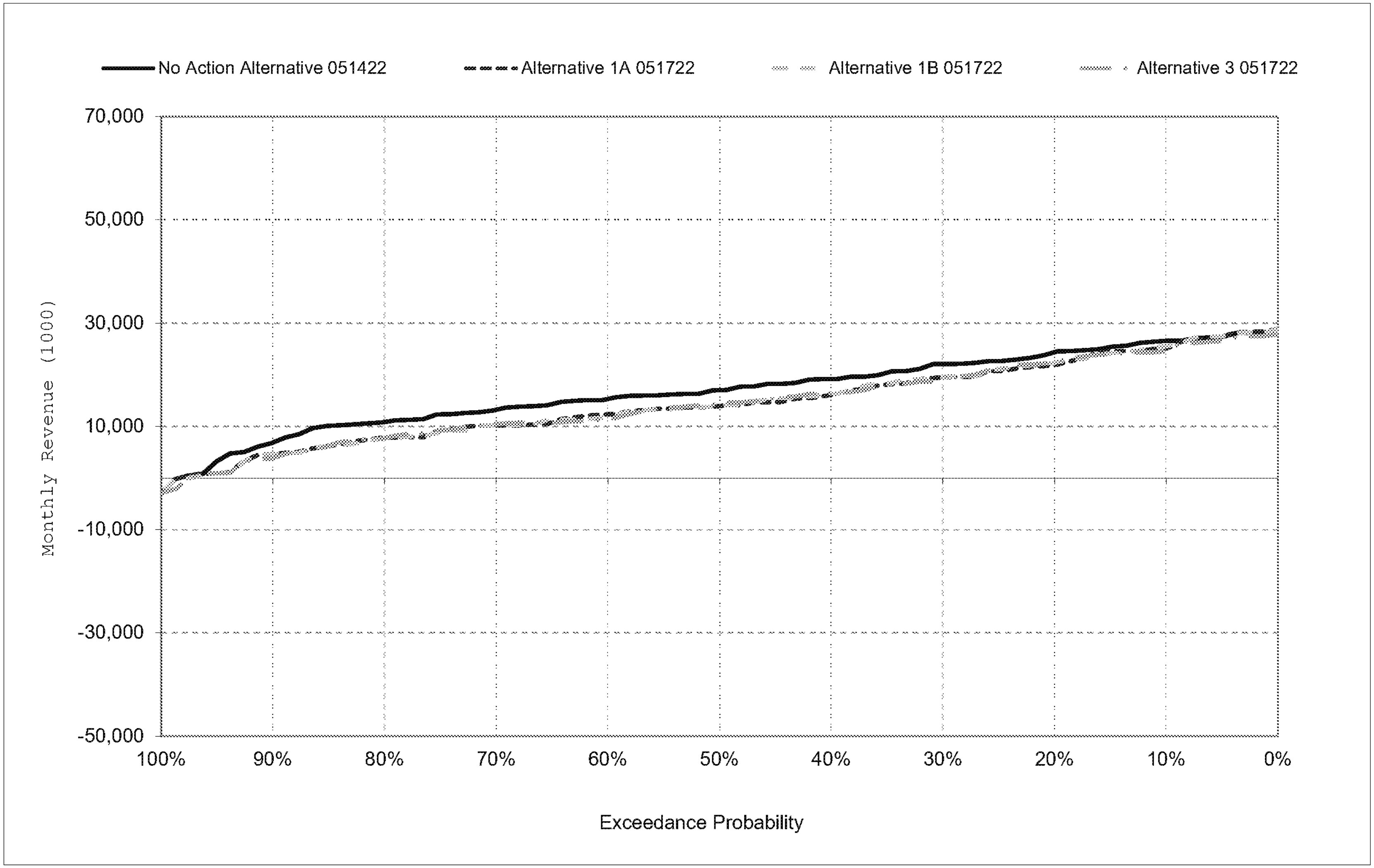
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-15. CVP, SWP, and Sites Project Facilities Net Revenue, June



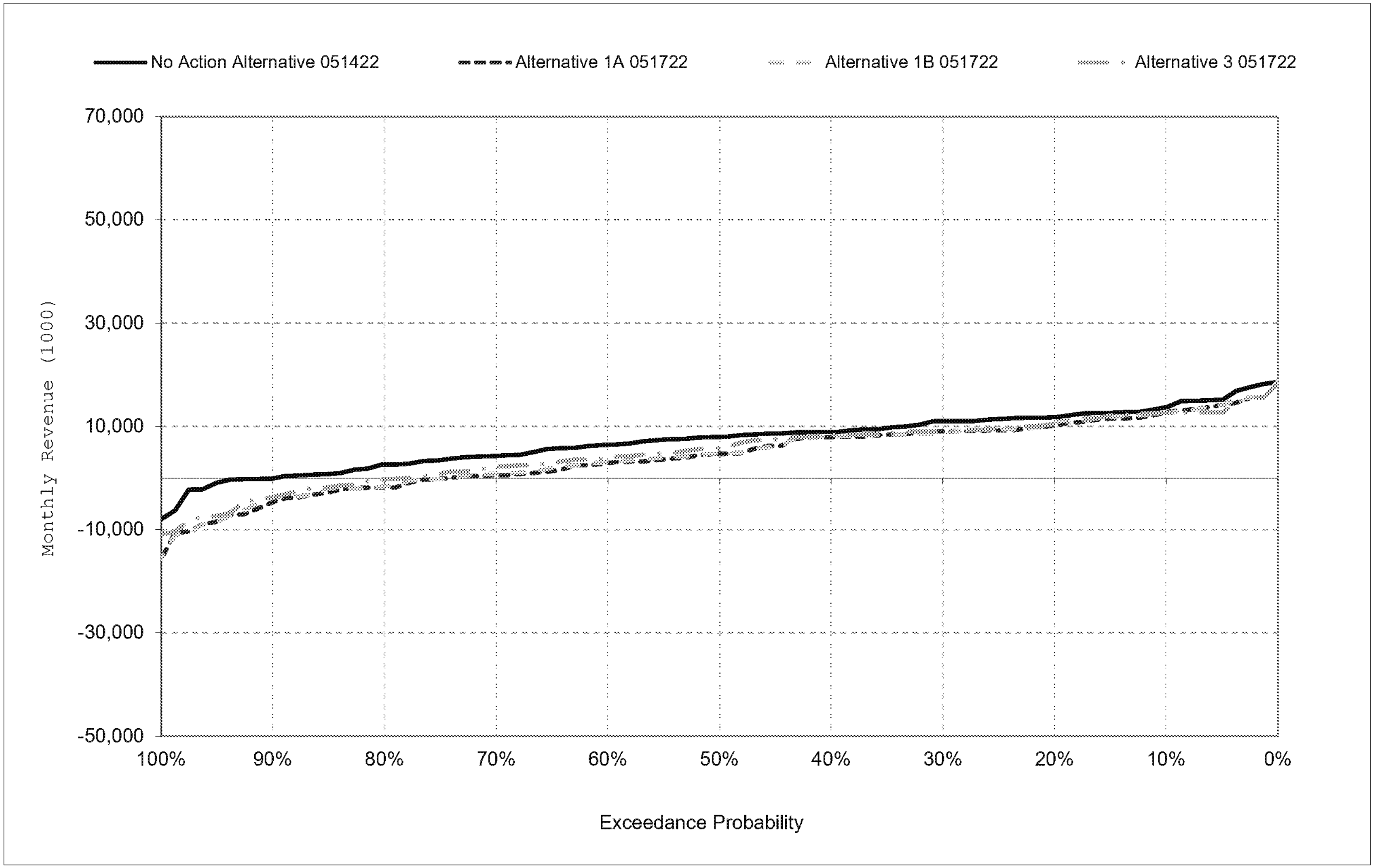
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-16. CVP, SWP, and Sites Project Facilities Net Revenue, July



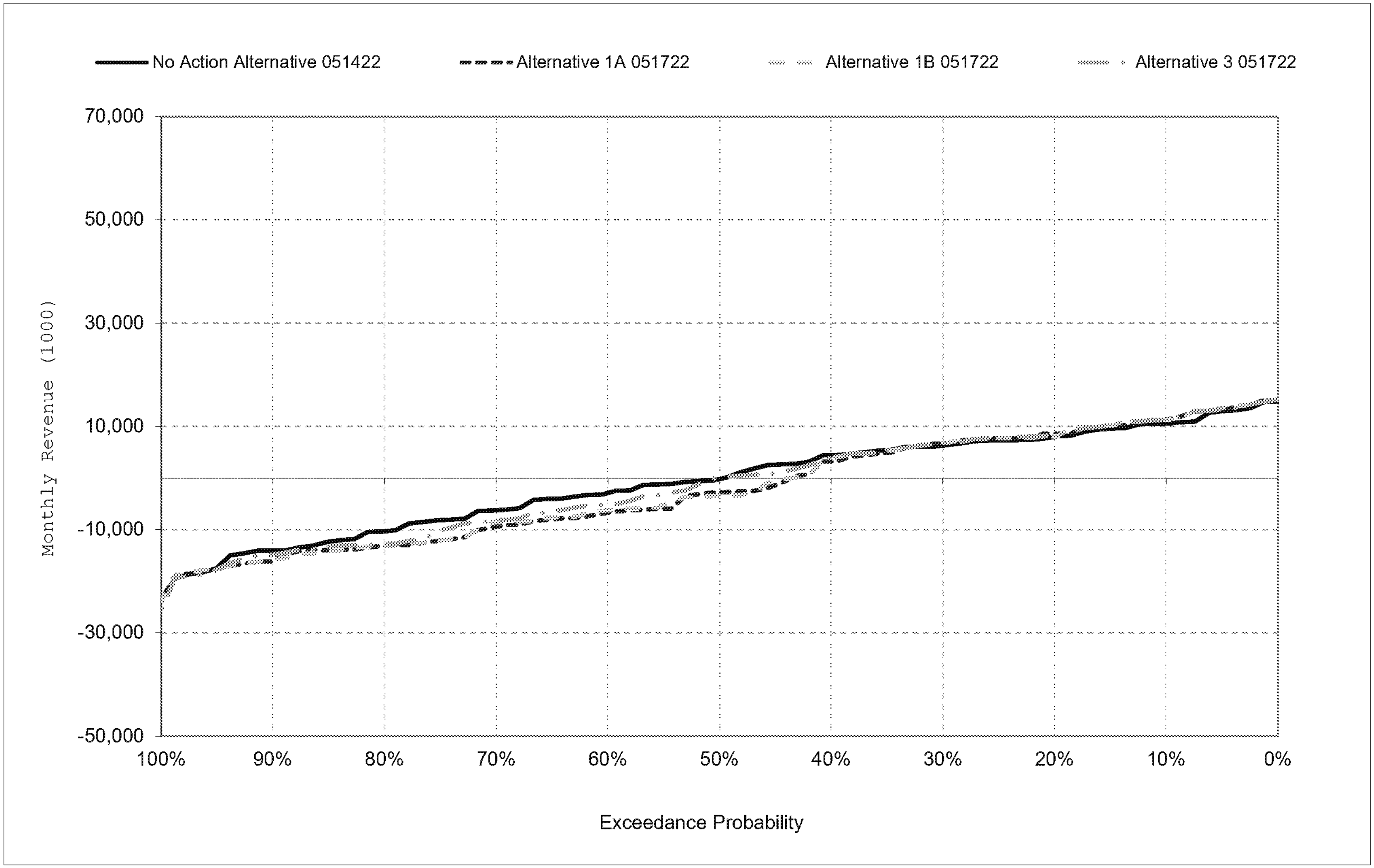
*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-17. CVP, SWP, and Sites Project Facilities Net Revenue, August



*All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 17-18. CVP, SWP, and Sites Project Facilities Net Revenue, September



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 18-1a. CVP Facilities Total Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	6,477
20%	6,051
30%	5,259
40%	4,996
50%	4,559
60%	4,040
70%	3,829
80%	3,519
90%	2,879
Long Term	
Full Simulation Period[a]	4,685
Water Year Types[b,c]	
Wet (32%)	6,214
Above Normal (15%)	5,174
Below Normal (17%)	4,164
Dry (22%)	3,702
Critical (15%)	2,963

Table 18-1b. CVP Facilities Total Generation, Alternative 1A 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	6,473
20%	6,052
30%	5,316
40%	4,976
50%	4,560
60%	4,043
70%	3,845
80%	3,526
90%	2,893
Long Term	
Full Simulation Period[a]	4,689
Water Year Types[b,c]	
Wet (32%)	6,227
Above Normal (15%)	5,167
Below Normal (17%)	4,151
Dry (22%)	3,714
Critical (15%)	2,967

Table 18-1c. CVP Facilities Total Generation, Alternative 1A 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-5
20%	1
30%	57
40%	-20
50%	0
60%	3
70%	16
80%	7
90%	14
Long Term	
Full Simulation Period[a]	4
Water Year Types[b,c]	
Wet (32%)	13
Above Normal (15%)	-7
Below Normal (17%)	-12
Dry (22%)	12
Critical (15%)	4

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 18-2a. CVP Facilities Total Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	6,477
20%	6,051
30%	5,259
40%	4,996
50%	4,559
60%	4,040
70%	3,829
80%	3,519
90%	2,879
Long Term	
Full Simulation Period[a]	4,685
Water Year Types[b,c]	
Wet (32%)	6,214
Above Normal (15%)	5,174
Below Normal (17%)	4,164
Dry (22%)	3,702
Critical (15%)	2,963

Table 18-2b. CVP Facilities Total Generation, Alternative 1B 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	6,482
20%	6,055
30%	5,329
40%	4,986
50%	4,545
60%	4,013
70%	3,826
80%	3,530
90%	2,883
Long Term	
Full Simulation Period[a]	4,689
Water Year Types[b,c]	
Wet (32%)	6,234
Above Normal (15%)	5,162
Below Normal (17%)	4,153
Dry (22%)	3,704
Critical (15%)	2,972

Table 18-2c. CVP Facilities Total Generation, Alternative 1B 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	5
20%	4
30%	70
40%	-10
50%	-14
60%	-26
70%	-3
80%	11
90%	5
Long Term	
Full Simulation Period[a]	5
Water Year Types[b,c]	
Wet (32%)	20
Above Normal (15%)	-12
Below Normal (17%)	-11
Dry (22%)	3
Critical (15%)	9

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 18-3a. CVP Facilities Total Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	6,477
20%	6,051
30%	5,259
40%	4,996
50%	4,559
60%	4,040
70%	3,829
80%	3,519
90%	2,879
Long Term	
Full Simulation Period[a]	4,685
Water Year Types[b,c]	
Wet (32%)	6,214
Above Normal (15%)	5,174
Below Normal (17%)	4,164
Dry (22%)	3,702
Critical (15%)	2,963

Table 18-3b. CVP Facilities Total Generation, Alternative 3 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	6,478
20%	6,064
30%	5,358
40%	4,950
50%	4,575
60%	3,991
70%	3,861
80%	3,518
90%	2,939
Long Term	
Full Simulation Period[a]	4,692
Water Year Types[b,c]	
Wet (32%)	6,263
Above Normal (15%)	5,136
Below Normal (17%)	4,112
Dry (22%)	3,713
Critical (15%)	2,988

Table 18-3c. CVP Facilities Total Generation, Alternative 3 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	1
20%	14
30%	99
40%	-47
50%	16
60%	-49
70%	32
80%	-1
90%	61
Long Term	
Full Simulation Period[a]	7
Water Year Types[b,c]	
Wet (32%)	49
Above Normal (15%)	-38
Below Normal (17%)	-52
Dry (22%)	12
Critical (15%)	25

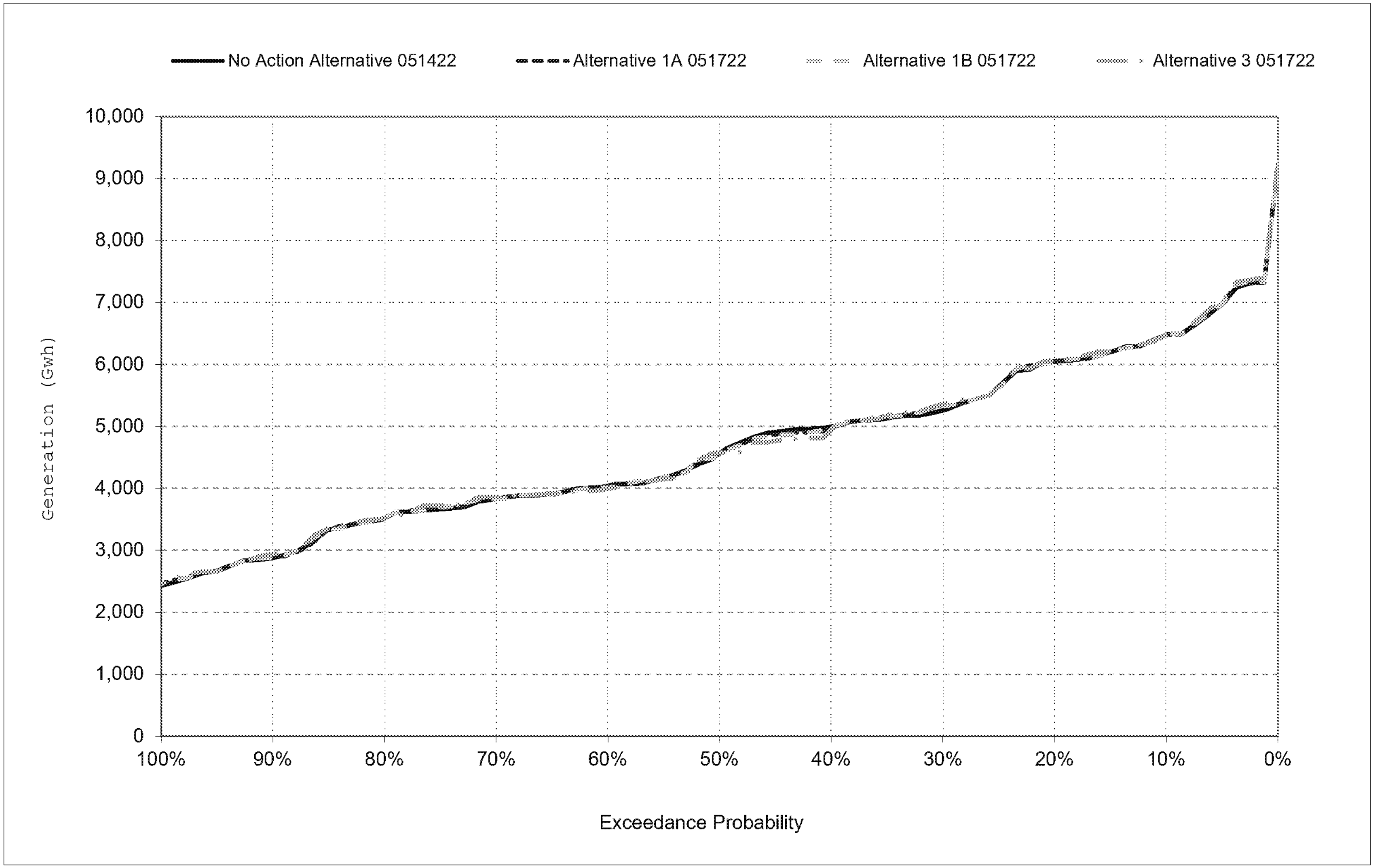
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 18-1. October-September CVP Facilities Total Generation



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 19-1a. CVP Facilities Total Energy Use, No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	1,589
20%	1,514
30%	1,462
40%	1,375
50%	1,344
60%	1,294
70%	1,239
80%	1,159
90%	913
Long Term	
Full Simulation Period[a]	1,305
Water Year Types[b,c]	
Wet (32%)	1,510
Above Normal (15%)	1,368
Below Normal (17%)	1,382
Dry (22%)	1,195
Critical (15%)	873

Table 19-1b. CVP Facilities Total Energy Use, Alternative 1A 051722, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	1,591
20%	1,522
30%	1,479
40%	1,374
50%	1,351
60%	1,297
70%	1,242
80%	1,162
90%	920
Long Term	
Full Simulation Period[a]	1,309
Water Year Types[b,c]	
Wet (32%)	1,514
Above Normal (15%)	1,377
Below Normal (17%)	1,383
Dry (22%)	1,199
Critical (15%)	878

Table 19-1c. CVP Facilities Total Energy Use, Alternative 1A 051722 minus No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	2
20%	9
30%	17
40%	-1
50%	7
60%	3
70%	3
80%	3
90%	7
Long Term	
Full Simulation Period[a]	4
Water Year Types[b,c]	
Wet (32%)	4
Above Normal (15%)	9
Below Normal (17%)	1
Dry (22%)	4
Critical (15%)	5

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 19-2a. CVP Facilities Total Energy Use, No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	1,589
20%	1,514
30%	1,462
40%	1,375
50%	1,344
60%	1,294
70%	1,239
80%	1,159
90%	913
Long Term	
Full Simulation Period[a]	1,305
Water Year Types[b,c]	
Wet (32%)	1,510
Above Normal (15%)	1,368
Below Normal (17%)	1,382
Dry (22%)	1,195
Critical (15%)	873

Table 19-2b. CVP Facilities Total Energy Use, Alternative 1B 051722, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	1,590
20%	1,520
30%	1,478
40%	1,379
50%	1,345
60%	1,298
70%	1,244
80%	1,160
90%	951
Long Term	
Full Simulation Period[a]	1,312
Water Year Types[b,c]	
Wet (32%)	1,512
Above Normal (15%)	1,377
Below Normal (17%)	1,388
Dry (22%)	1,204
Critical (15%)	888

Table 19-2c. CVP Facilities Total Energy Use, Alternative 1B 051722 minus No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	1
20%	6
30%	16
40%	4
50%	1
60%	4
70%	5
80%	1
90%	38
Long Term	
Full Simulation Period[a]	7
Water Year Types[b,c]	
Wet (32%)	2
Above Normal (15%)	9
Below Normal (17%)	6
Dry (22%)	10
Critical (15%)	15

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 19-3a. CVP Facilities Total Energy Use, No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	1,589
20%	1,514
30%	1,462
40%	1,375
50%	1,344
60%	1,294
70%	1,239
80%	1,159
90%	913
Long Term	
Full Simulation Period[a]	1,305
Water Year Types[b,c]	
Wet (32%)	1,510
Above Normal (15%)	1,368
Below Normal (17%)	1,382
Dry (22%)	1,195
Critical (15%)	873

Table 19-3b. CVP Facilities Total Energy Use, Alternative 3 051722, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	1,593
20%	1,510
30%	1,475
40%	1,394
50%	1,349
60%	1,295
70%	1,250
80%	1,169
90%	950
Long Term	
Full Simulation Period[a]	1,319
Water Year Types[b,c]	
Wet (32%)	1,515
Above Normal (15%)	1,379
Below Normal (17%)	1,375
Dry (22%)	1,230
Critical (15%)	905

Table 19-3c. CVP Facilities Total Energy Use, Alternative 3 051722 minus No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	4
20%	-3
30%	13
40%	18
50%	5
60%	1
70%	11
80%	11
90%	37
Long Term	
Full Simulation Period[a]	14
Water Year Types[b,c]	
Wet (32%)	5
Above Normal (15%)	11
Below Normal (17%)	-8
Dry (22%)	35
Critical (15%)	32

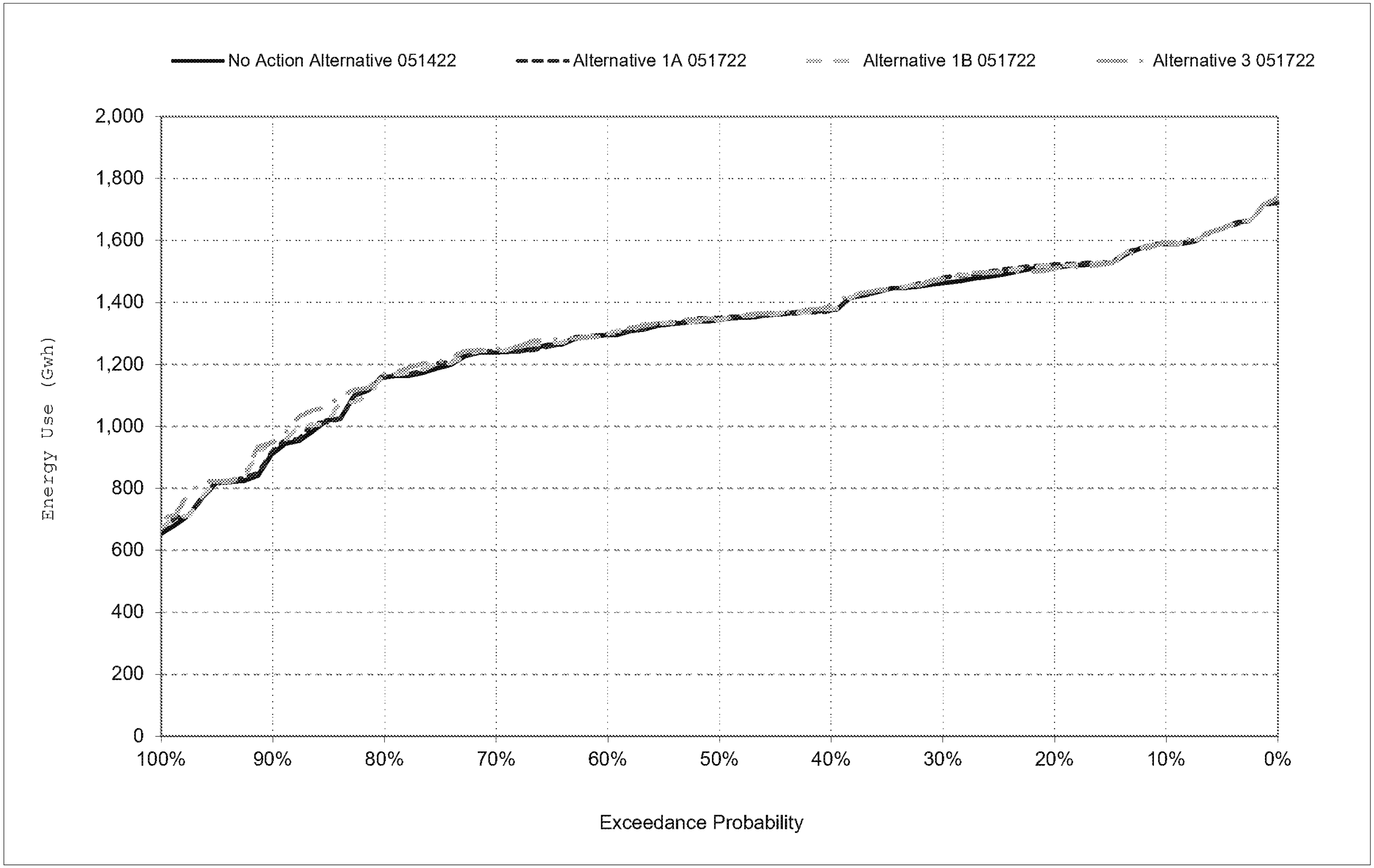
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 19-1. October-September CVP Facilities Total Energy Use



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 20-1a. CVP Facilities Net Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	4,941
20%	4,506
30%	3,921
40%	3,623
50%	3,147
60%	2,767
70%	2,540
80%	2,344
90%	1,989
Long Term	
Full Simulation Period[a]	3,380
Water Year Types[b,c]	
Wet (32%)	4,704
Above Normal (15%)	3,806
Below Normal (17%)	2,781
Dry (22%)	2,507
Critical (15%)	2,090

Table 20-1b. CVP Facilities Net Generation, Alternative 1A 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	4,907
20%	4,519
30%	3,964
40%	3,605
50%	3,145
60%	2,765
70%	2,554
80%	2,335
90%	1,988
Long Term	
Full Simulation Period[a]	3,380
Water Year Types[b,c]	
Wet (32%)	4,713
Above Normal (15%)	3,790
Below Normal (17%)	2,768
Dry (22%)	2,515
Critical (15%)	2,089

Table 20-1c. CVP Facilities Net Generation, Alternative 1A 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-34
20%	13
30%	43
40%	-18
50%	-3
60%	-2
70%	14
80%	-9
90%	-1
Long Term	
Full Simulation Period[a]	0
Water Year Types[b,c]	
Wet (32%)	9
Above Normal (15%)	-15
Below Normal (17%)	-13
Dry (22%)	8
Critical (15%)	-1

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 20-2a. CVP Facilities Net Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	4,941
20%	4,506
30%	3,921
40%	3,623
50%	3,147
60%	2,767
70%	2,540
80%	2,344
90%	1,989
Long Term	
Full Simulation Period[a]	3,380
Water Year Types[b,c]	
Wet (32%)	4,704
Above Normal (15%)	3,806
Below Normal (17%)	2,781
Dry (22%)	2,507
Critical (15%)	2,090

Table 20-2b. CVP Facilities Net Generation, Alternative 1B 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	4,895
20%	4,511
30%	3,957
40%	3,600
50%	3,168
60%	2,728
70%	2,557
80%	2,337
90%	1,985
Long Term	
Full Simulation Period[a]	3,377
Water Year Types[b,c]	
Wet (32%)	4,722
Above Normal (15%)	3,785
Below Normal (17%)	2,765
Dry (22%)	2,500
Critical (15%)	2,084

Table 20-2c. CVP Facilities Net Generation, Alternative 1B 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-46
20%	5
30%	36
40%	-24
50%	20
60%	-40
70%	17
80%	-8
90%	-4
Long Term	
Full Simulation Period[a]	-3
Water Year Types[b,c]	
Wet (32%)	18
Above Normal (15%)	-21
Below Normal (17%)	-16
Dry (22%)	-7
Critical (15%)	-6

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 20-3a. CVP Facilities Net Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	4,941
20%	4,506
30%	3,921
40%	3,623
50%	3,147
60%	2,767
70%	2,540
80%	2,344
90%	1,989
Long Term	
Full Simulation Period[a]	3,380
Water Year Types[b,c]	
Wet (32%)	4,704
Above Normal (15%)	3,806
Below Normal (17%)	2,781
Dry (22%)	2,507
Critical (15%)	2,090

Table 20-3b. CVP Facilities Net Generation, Alternative 3 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	4,877
20%	4,564
30%	3,940
40%	3,559
50%	3,171
60%	2,699
70%	2,535
80%	2,313
90%	1,983
Long Term	
Full Simulation Period[a]	3,373
Water Year Types[b,c]	
Wet (32%)	4,749
Above Normal (15%)	3,757
Below Normal (17%)	2,737
Dry (22%)	2,483
Critical (15%)	2,083

Table 20-3c. CVP Facilities Net Generation, Alternative 3 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-64
20%	58
30%	18
40%	-64
50%	24
60%	-69
70%	-5
80%	-31
90%	-6
Long Term	
Full Simulation Period[a]	-7
Water Year Types[b,c]	
Wet (32%)	45
Above Normal (15%)	-49
Below Normal (17%)	-45
Dry (22%)	-23
Critical (15%)	-8

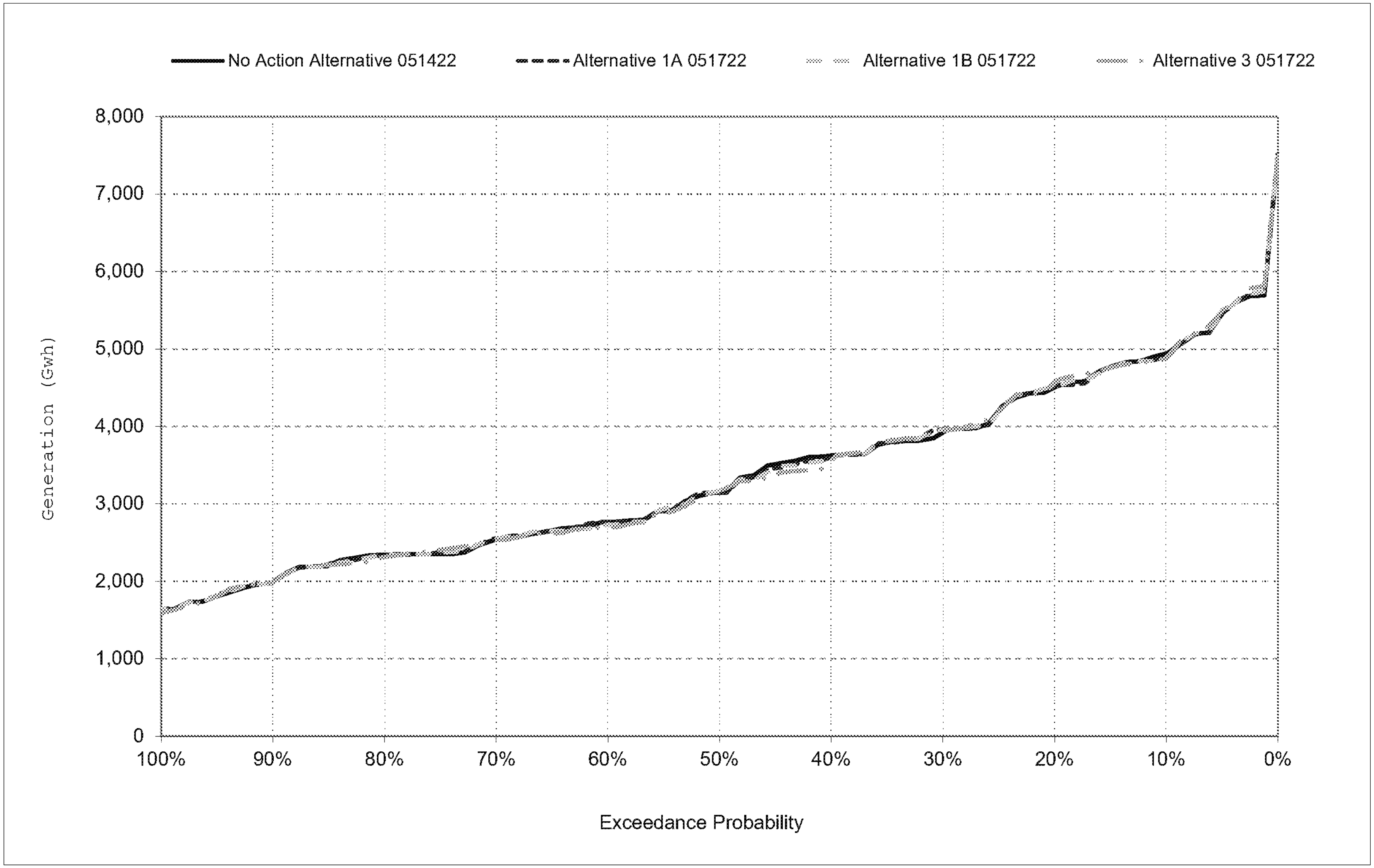
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 20-1. October-September CVP Facilities Net Generation



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 21-1a. CVP Facilities Net Revenue, No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	273,811
20%	245,720
30%	211,616
40%	195,875
50%	167,874
60%	148,598
70%	135,996
80%	125,328
90%	106,216
Long Term	
Full Simulation Period[a]	183,071
Water Year Types[b,c]	
Wet (32%)	256,315
Above Normal (15%)	206,332
Below Normal (17%)	150,079
Dry (22%)	134,639
Critical (15%)	112,251

Table 21-1b. CVP Facilities Net Revenue, Alternative 1A 051722, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	272,325
20%	246,189
30%	213,269
40%	194,656
50%	167,765
60%	148,207
70%	136,925
80%	125,262
90%	106,585
Long Term	
Full Simulation Period[a]	183,079
Water Year Types[b,c]	
Wet (32%)	256,800
Above Normal (15%)	205,435
Below Normal (17%)	149,309
Dry (22%)	135,056
Critical (15%)	112,427

Table 21-1c. CVP Facilities Net Revenue, Alternative 1A 051722 minus No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-1,486
20%	469
30%	1,653
40%	-1,219
50%	-109
60%	-391
70%	929
80%	-65
90%	370
Long Term	
Full Simulation Period[a]	8
Water Year Types[b,c]	
Wet (32%)	485
Above Normal (15%)	-897
Below Normal (17%)	-770
Dry (22%)	417
Critical (15%)	176

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 21-2a. CVP Facilities Net Revenue, No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	273,811
20%	245,720
30%	211,616
40%	195,875
50%	167,874
60%	148,598
70%	135,996
80%	125,328
90%	106,216
Long Term	
Full Simulation Period[a]	183,071
Water Year Types[b,c]	
Wet (32%)	256,315
Above Normal (15%)	206,332
Below Normal (17%)	150,079
Dry (22%)	134,639
Critical (15%)	112,251

Table 21-2b. CVP Facilities Net Revenue, Alternative 1B 051722, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	271,451
20%	245,747
30%	213,844
40%	194,339
50%	168,778
60%	146,621
70%	136,984
80%	125,154
90%	106,404
Long Term	
Full Simulation Period[a]	183,022
Water Year Types[b,c]	
Wet (32%)	257,263
Above Normal (15%)	205,319
Below Normal (17%)	149,292
Dry (22%)	134,387
Critical (15%)	112,170

Table 21-2c. CVP Facilities Net Revenue, Alternative 1B 051722 minus No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-2,360
20%	26
30%	2,228
40%	-1,536
50%	904
60%	-1,978
70%	987
80%	-174
90%	188
Long Term	
Full Simulation Period[a]	-49
Water Year Types[b,c]	
Wet (32%)	949
Above Normal (15%)	-1,013
Below Normal (17%)	-787
Dry (22%)	-252
Critical (15%)	-81

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 21-3a. CVP Facilities Net Revenue, No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	273,811
20%	245,720
30%	211,616
40%	195,875
50%	167,874
60%	148,598
70%	135,996
80%	125,328
90%	106,216
Long Term	
Full Simulation Period[a]	183,071
Water Year Types[b,c]	
Wet (32%)	256,315
Above Normal (15%)	206,332
Below Normal (17%)	150,079
Dry (22%)	134,639
Critical (15%)	112,251

Table 21-3b. CVP Facilities Net Revenue, Alternative 3 051722, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	270,596
20%	249,697
30%	212,383
40%	192,510
50%	169,923
60%	145,406
70%	136,107
80%	124,524
90%	106,312
Long Term	
Full Simulation Period[a]	182,791
Water Year Types[b,c]	
Wet (32%)	258,744
Above Normal (15%)	203,519
Below Normal (17%)	147,817
Dry (22%)	133,575
Critical (15%)	112,127

Table 21-3c. CVP Facilities Net Revenue, Alternative 3 051722 minus No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-3,215
20%	3,977
30%	766
40%	-3,365
50%	2,049
60%	-3,192
70%	111
80%	-804
90%	96
Long Term	
Full Simulation Period[a]	-280
Water Year Types[b,c]	
Wet (32%)	2,429
Above Normal (15%)	-2,813
Below Normal (17%)	-2,262
Dry (22%)	-1,065
Critical (15%)	-124

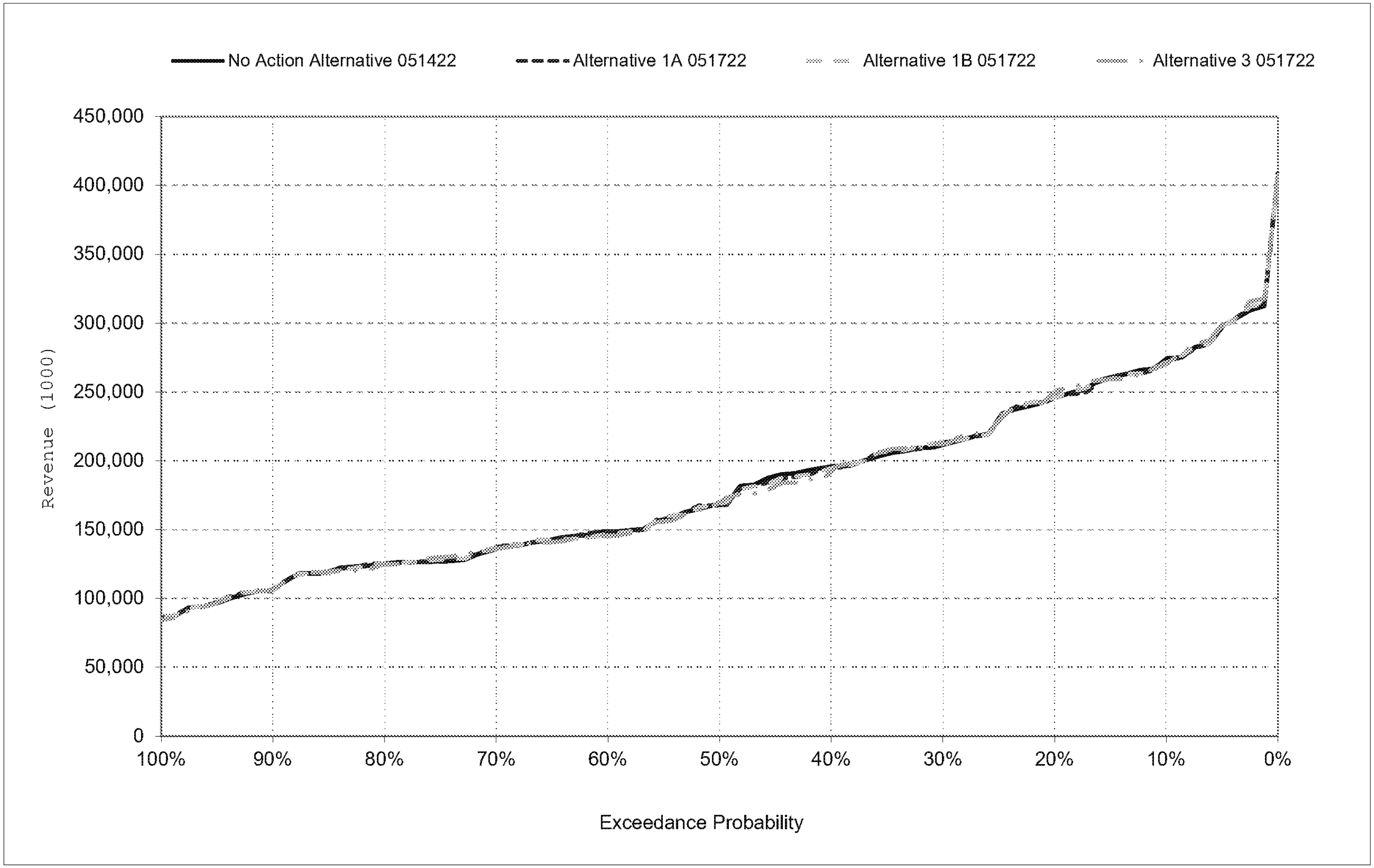
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 21-1. October-September CVP Facilities Net Revenue



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 22-1a. SWP Facilities Total Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	5,683
20%	5,262
30%	4,890
40%	4,470
50%	4,013
60%	3,584
70%	2,907
80%	2,670
90%	2,008
Long Term	
Full Simulation Period[a]	3,940
Water Year Types[b,c]	
Wet (32%)	5,428
Above Normal (15%)	4,332
Below Normal (17%)	3,780
Dry (22%)	2,886
Critical (15%)	2,094

Table 22-1b. SWP Facilities Total Generation, Alternative 1A 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	5,700
20%	5,281
30%	4,922
40%	4,553
50%	4,038
60%	3,623
70%	3,159
80%	2,836
90%	2,204
Long Term	
Full Simulation Period[a]	4,043
Water Year Types[b,c]	
Wet (32%)	5,461
Above Normal (15%)	4,390
Below Normal (17%)	3,854
Dry (22%)	3,066
Critical (15%)	2,309

Table 22-1c. SWP Facilities Total Generation, Alternative 1A 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	17
20%	19
30%	32
40%	83
50%	25
60%	39
70%	253
80%	166
90%	196
Long Term	
Full Simulation Period[a]	103
Water Year Types[b,c]	
Wet (32%)	33
Above Normal (15%)	59
Below Normal (17%)	74
Dry (22%)	180
Critical (15%)	215

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 22-2a. SWP Facilities Total Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	5,683
20%	5,262
30%	4,890
40%	4,470
50%	4,013
60%	3,584
70%	2,907
80%	2,670
90%	2,008
Long Term	
Full Simulation Period[a]	3,940
Water Year Types[b,c]	
Wet (32%)	5,428
Above Normal (15%)	4,332
Below Normal (17%)	3,780
Dry (22%)	2,886
Critical (15%)	2,094

Table 22-2b. SWP Facilities Total Generation, Alternative 1B 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	5,692
20%	5,264
30%	4,908
40%	4,578
50%	4,037
60%	3,614
70%	3,178
80%	2,828
90%	2,227
Long Term	
Full Simulation Period[a]	4,037
Water Year Types[b,c]	
Wet (32%)	5,450
Above Normal (15%)	4,401
Below Normal (17%)	3,842
Dry (22%)	3,052
Critical (15%)	2,316

Table 22-2c. SWP Facilities Total Generation, Alternative 1B 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	9
20%	2
30%	18
40%	108
50%	24
60%	30
70%	272
80%	158
90%	219
Long Term	
Full Simulation Period[a]	97
Water Year Types[b,c]	
Wet (32%)	23
Above Normal (15%)	69
Below Normal (17%)	62
Dry (22%)	166
Critical (15%)	222

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 22-3a. SWP Facilities Total Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	5,683
20%	5,262
30%	4,890
40%	4,470
50%	4,013
60%	3,584
70%	2,907
80%	2,670
90%	2,008
Long Term	
Full Simulation Period[a]	3,940
Water Year Types[b,c]	
Wet (32%)	5,428
Above Normal (15%)	4,332
Below Normal (17%)	3,780
Dry (22%)	2,886
Critical (15%)	2,094

Table 22-3b. SWP Facilities Total Generation, Alternative 3 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	5,673
20%	5,228
30%	4,923
40%	4,562
50%	4,046
60%	3,614
70%	3,144
80%	2,822
90%	2,141
Long Term	
Full Simulation Period[a]	4,020
Water Year Types[b,c]	
Wet (32%)	5,454
Above Normal (15%)	4,364
Below Normal (17%)	3,829
Dry (22%)	3,041
Critical (15%)	2,264

Table 22-3c. SWP Facilities Total Generation, Alternative 3 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-10
20%	-34
30%	33
40%	91
50%	33
60%	31
70%	237
80%	152
90%	134
Long Term	
Full Simulation Period[a]	80
Water Year Types[b,c]	
Wet (32%)	26
Above Normal (15%)	32
Below Normal (17%)	49
Dry (22%)	155
Critical (15%)	170

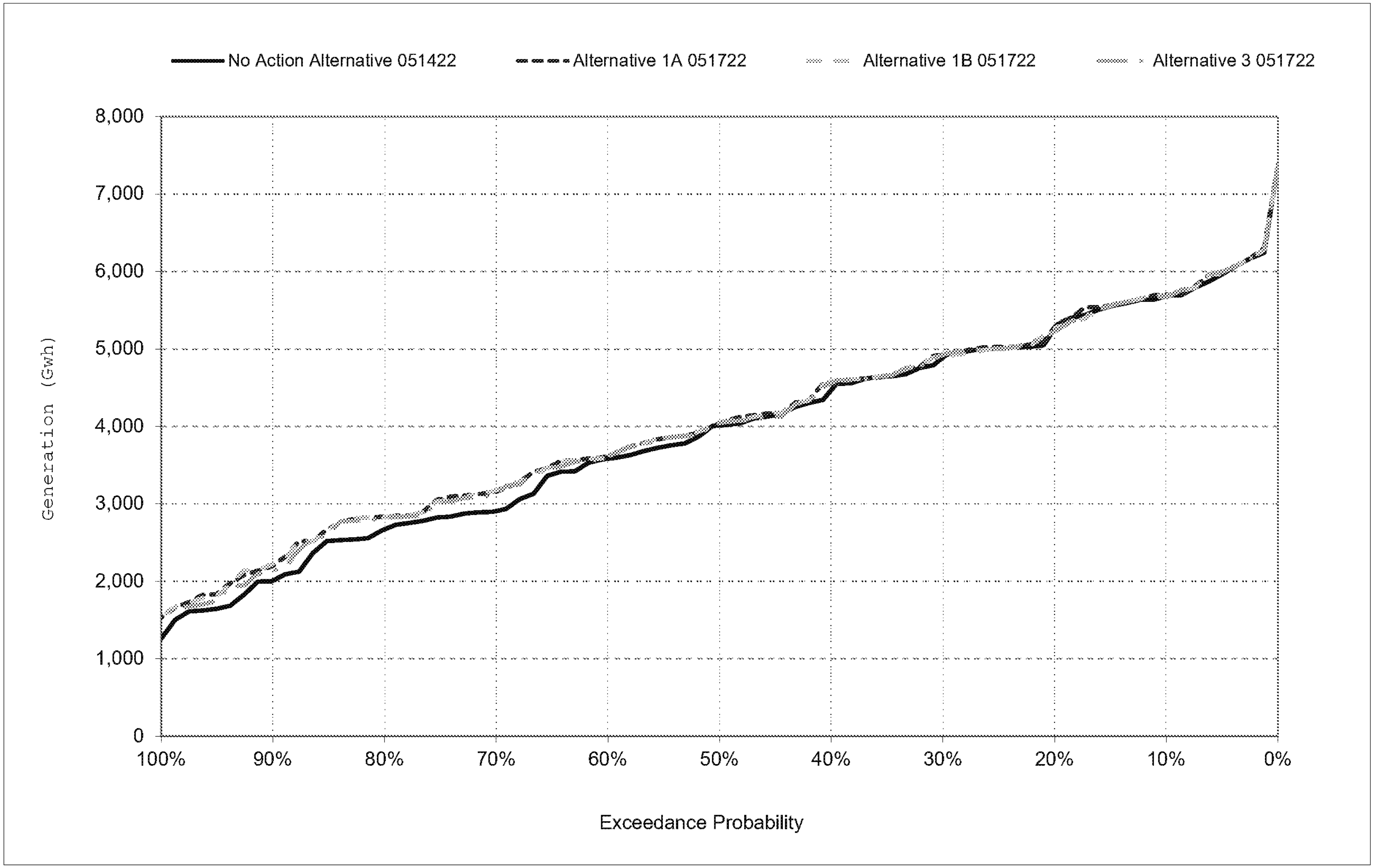
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 22-1. October-September SWP Facilities Total Generation



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 23-1a. SWP Facilities Total Energy Use, No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	8,977
20%	8,722
30%	8,368
40%	7,889
50%	7,304
60%	6,747
70%	5,816
80%	5,168
90%	3,843
Long Term	
Full Simulation Period[a]	6,931
Water Year Types[b,c]	
Wet (32%)	8,646
Above Normal (15%)	7,626
Below Normal (17%)	7,443
Dry (22%)	5,518
Critical (15%)	4,040

Table 23-1b. SWP Facilities Total Energy Use, Alternative 1A 051722, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	9,019
20%	8,756
30%	8,394
40%	8,052
50%	7,672
60%	7,072
70%	6,498
80%	5,755
90%	4,380
Long Term	
Full Simulation Period[a]	7,259
Water Year Types[b,c]	
Wet (32%)	8,723
Above Normal (15%)	7,795
Below Normal (17%)	7,657
Dry (22%)	6,160
Critical (15%)	4,737

Table 23-1c. SWP Facilities Total Energy Use, Alternative 1A 051722 minus No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	42
20%	34
30%	26
40%	163
50%	368
60%	325
70%	682
80%	587
90%	537
Long Term	
Full Simulation Period[a]	328
Water Year Types[b,c]	
Wet (32%)	77
Above Normal (15%)	169
Below Normal (17%)	213
Dry (22%)	642
Critical (15%)	697

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 23-2a. SWP Facilities Total Energy Use, No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	8,977
20%	8,722
30%	8,368
40%	7,889
50%	7,304
60%	6,747
70%	5,816
80%	5,168
90%	3,843
Long Term	
Full Simulation Period[a]	6,931
Water Year Types[b,c]	
Wet (32%)	8,646
Above Normal (15%)	7,626
Below Normal (17%)	7,443
Dry (22%)	5,518
Critical (15%)	4,040

Table 23-2b. SWP Facilities Total Energy Use, Alternative 1B 051722, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	9,011
20%	8,762
30%	8,394
40%	7,988
50%	7,615
60%	6,995
70%	6,508
80%	5,718
90%	4,388
Long Term	
Full Simulation Period[a]	7,236
Water Year Types[b,c]	
Wet (32%)	8,676
Above Normal (15%)	7,806
Below Normal (17%)	7,649
Dry (22%)	6,118
Critical (15%)	4,739

Table 23-2c. SWP Facilities Total Energy Use, Alternative 1B 051722 minus No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	34
20%	40
30%	26
40%	99
50%	311
60%	248
70%	692
80%	550
90%	545
Long Term	
Full Simulation Period[a]	305
Water Year Types[b,c]	
Wet (32%)	30
Above Normal (15%)	180
Below Normal (17%)	205
Dry (22%)	600
Critical (15%)	699

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 23-3a. SWP Facilities Total Energy Use, No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	8,977
20%	8,722
30%	8,368
40%	7,889
50%	7,304
60%	6,747
70%	5,816
80%	5,168
90%	3,843
Long Term	
Full Simulation Period[a]	6,931
Water Year Types[b,c]	
Wet (32%)	8,646
Above Normal (15%)	7,626
Below Normal (17%)	7,443
Dry (22%)	5,518
Critical (15%)	4,040

Table 23-3b. SWP Facilities Total Energy Use, Alternative 3 051722, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	9,013
20%	8,763
30%	8,404
40%	7,981
50%	7,544
60%	7,025
70%	6,419
80%	5,714
90%	3,966
Long Term	
Full Simulation Period[a]	7,174
Water Year Types[b,c]	
Wet (32%)	8,682
Above Normal (15%)	7,728
Below Normal (17%)	7,554
Dry (22%)	6,065
Critical (15%)	4,570

Table 23-3c. SWP Facilities Total Energy Use, Alternative 3 051722 minus No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	36
20%	41
30%	36
40%	93
50%	239
60%	278
70%	603
80%	546
90%	123
Long Term	
Full Simulation Period[a]	243
Water Year Types[b,c]	
Wet (32%)	36
Above Normal (15%)	103
Below Normal (17%)	111
Dry (22%)	547
Critical (15%)	531

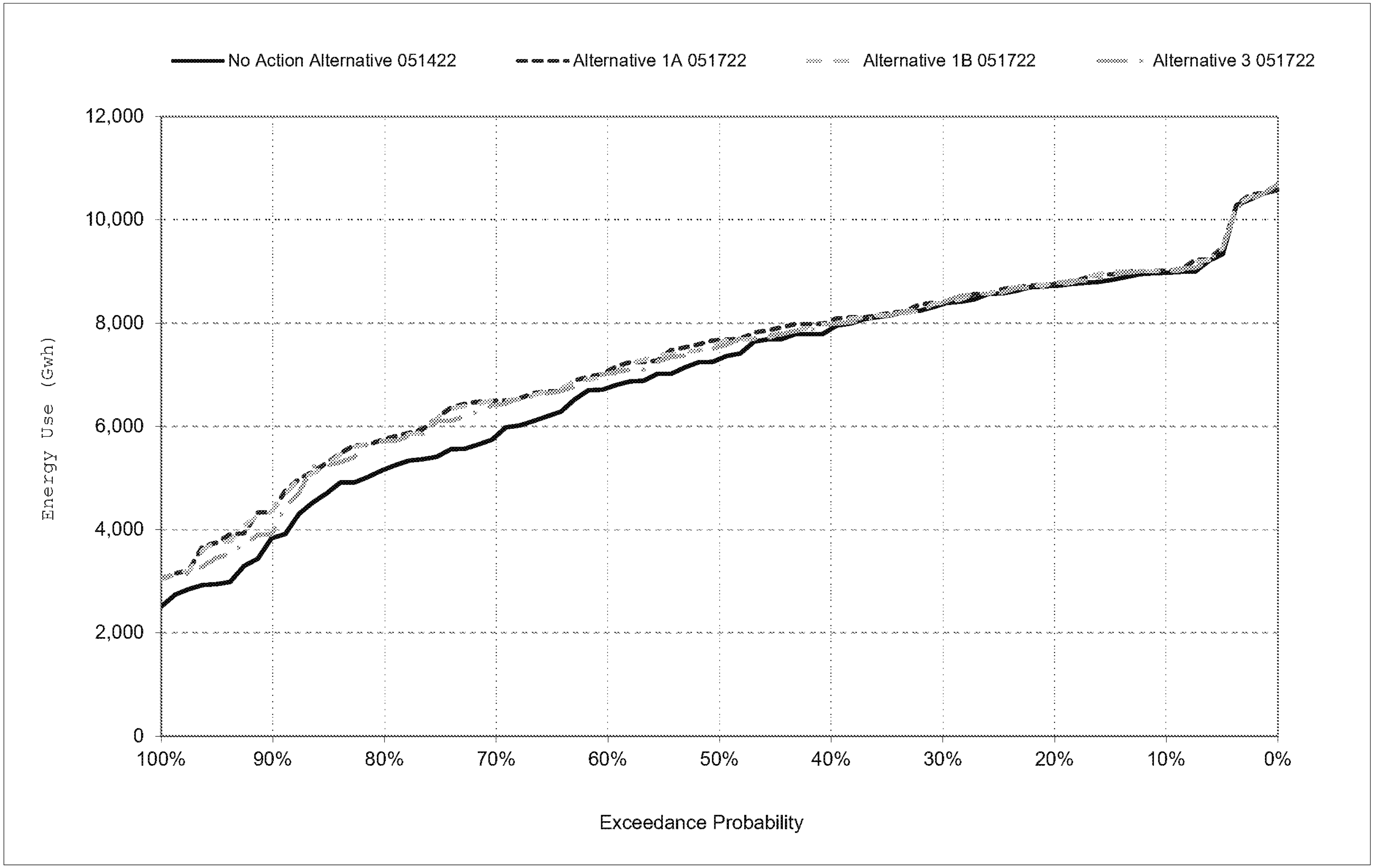
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 23-1. October-September SWP Facilities Total Energy Use



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 24-1a. SWP Facilities Net Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-1,780
20%	-2,373
30%	-2,684
40%	-2,799
50%	-3,003
60%	-3,274
70%	-3,408
80%	-3,637
90%	-4,007
Long Term	
Full Simulation Period[a]	-2,990
Water Year Types[b,c]	
Wet (32%)	-3,218
Above Normal (15%)	-3,294
Below Normal (17%)	-3,663
Dry (22%)	-2,632
Critical (15%)	-1,946

Table 24-1b. SWP Facilities Net Generation, Alternative 1A 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-2,144
20%	-2,762
30%	-2,925
40%	-3,034
50%	-3,311
60%	-3,407
70%	-3,553
80%	-3,824
90%	-4,136
Long Term	
Full Simulation Period[a]	-3,216
Water Year Types[b,c]	
Wet (32%)	-3,262
Above Normal (15%)	-3,404
Below Normal (17%)	-3,803
Dry (22%)	-3,094
Critical (15%)	-2,428

Table 24-1c. SWP Facilities Net Generation, Alternative 1A 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-364
20%	-389
30%	-241
40%	-235
50%	-308
60%	-132
70%	-145
80%	-187
90%	-128
Long Term	
Full Simulation Period[a]	-226
Water Year Types[b,c]	
Wet (32%)	-44
Above Normal (15%)	-111
Below Normal (17%)	-139
Dry (22%)	-462
Critical (15%)	-482

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 24-2a. SWP Facilities Net Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-1,780
20%	-2,373
30%	-2,684
40%	-2,799
50%	-3,003
60%	-3,274
70%	-3,408
80%	-3,637
90%	-4,007
Long Term	
Full Simulation Period[a]	-2,990
Water Year Types[b,c]	
Wet (32%)	-3,218
Above Normal (15%)	-3,294
Below Normal (17%)	-3,663
Dry (22%)	-2,632
Critical (15%)	-1,946

Table 24-2b. SWP Facilities Net Generation, Alternative 1B 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-2,105
20%	-2,673
30%	-2,876
40%	-3,037
50%	-3,296
60%	-3,409
70%	-3,544
80%	-3,809
90%	-4,141
Long Term	
Full Simulation Period[a]	-3,199
Water Year Types[b,c]	
Wet (32%)	-3,226
Above Normal (15%)	-3,405
Below Normal (17%)	-3,807
Dry (22%)	-3,066
Critical (15%)	-2,423

Table 24-2c. SWP Facilities Net Generation, Alternative 1B 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-324
20%	-300
30%	-192
40%	-238
50%	-293
60%	-135
70%	-136
80%	-172
90%	-134
Long Term	
Full Simulation Period[a]	-208
Water Year Types[b,c]	
Wet (32%)	-8
Above Normal (15%)	-111
Below Normal (17%)	-143
Dry (22%)	-434
Critical (15%)	-478

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 24-3a. SWP Facilities Net Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-1,780
20%	-2,373
30%	-2,684
40%	-2,799
50%	-3,003
60%	-3,274
70%	-3,408
80%	-3,637
90%	-4,007
Long Term	
Full Simulation Period[a]	-2,990
Water Year Types[b,c]	
Wet (32%)	-3,218
Above Normal (15%)	-3,294
Below Normal (17%)	-3,663
Dry (22%)	-2,632
Critical (15%)	-1,946

Table 24-3b. SWP Facilities Net Generation, Alternative 3 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-1,973
20%	-2,624
30%	-2,872
40%	-3,033
50%	-3,240
60%	-3,386
70%	-3,514
80%	-3,785
90%	-4,104
Long Term	
Full Simulation Period[a]	-3,153
Water Year Types[b,c]	
Wet (32%)	-3,228
Above Normal (15%)	-3,365
Below Normal (17%)	-3,726
Dry (22%)	-3,024
Critical (15%)	-2,306

Table 24-3c. SWP Facilities Net Generation, Alternative 3 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-193
20%	-251
30%	-189
40%	-235
50%	-237
60%	-112
70%	-106
80%	-149
90%	-97
Long Term	
Full Simulation Period[a]	-163
Water Year Types[b,c]	
Wet (32%)	-10
Above Normal (15%)	-71
Below Normal (17%)	-62
Dry (22%)	-393
Critical (15%)	-361

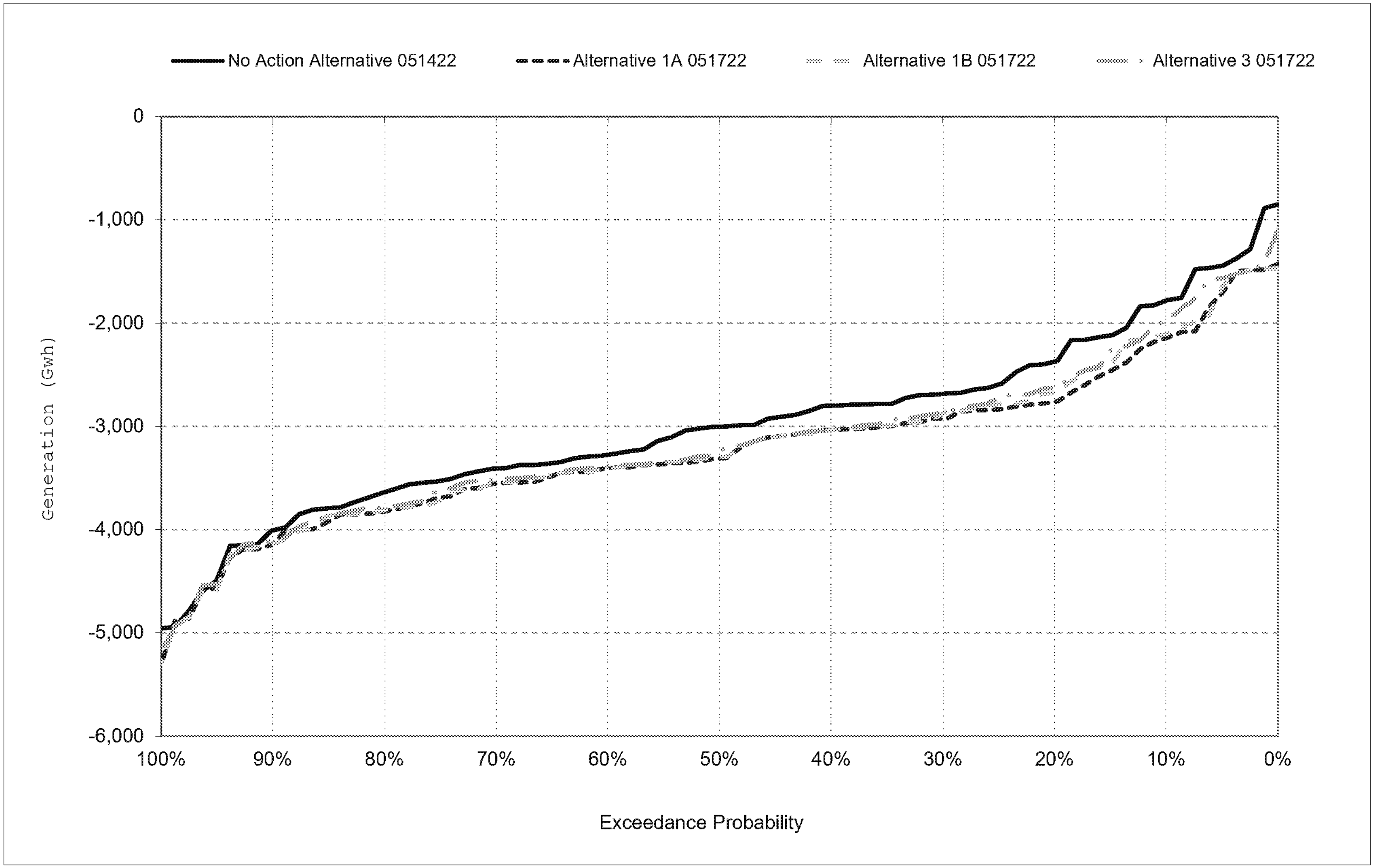
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 24-1. October-September SWP Facilities Net Generation



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 25-1a. SWP Facilities Net Revenue, No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-97,198
20%	-127,136
30%	-145,272
40%	-153,242
50%	-164,194
60%	-176,889
70%	-183,236
80%	-196,577
90%	-216,990
Long Term	
Full Simulation Period[a]	-162,009
Water Year Types[b,c]	
Wet (32%)	-174,845
Above Normal (15%)	-177,845
Below Normal (17%)	-197,905
Dry (22%)	-142,678
Critical (15%)	-105,481

Table 25-1b. SWP Facilities Net Revenue, Alternative 1A 051722, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-117,651
20%	-148,818
30%	-157,905
40%	-166,316
50%	-178,458
60%	-182,970
70%	-193,539
80%	-208,415
90%	-224,836
Long Term	
Full Simulation Period[a]	-174,513
Water Year Types[b,c]	
Wet (32%)	-177,091
Above Normal (15%)	-183,664
Below Normal (17%)	-205,087
Dry (22%)	-168,805
Critical (15%)	-132,670

Table 25-1c. SWP Facilities Net Revenue, Alternative 1A 051722 minus No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-20,452
20%	-21,683
30%	-12,633
40%	-13,075
50%	-14,264
60%	-6,081
70%	-10,303
80%	-11,837
90%	-7,846
Long Term	
Full Simulation Period[a]	-12,504
Water Year Types[b,c]	
Wet (32%)	-2,246
Above Normal (15%)	-5,819
Below Normal (17%)	-7,182
Dry (22%)	-26,127
Critical (15%)	-27,189

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 25-2a. SWP Facilities Net Revenue, No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-97,198
20%	-127,136
30%	-145,272
40%	-153,242
50%	-164,194
60%	-176,889
70%	-183,236
80%	-196,577
90%	-216,990
Long Term	
Full Simulation Period[a]	-162,009
Water Year Types[b,c]	
Wet (32%)	-174,845
Above Normal (15%)	-177,845
Below Normal (17%)	-197,905
Dry (22%)	-142,678
Critical (15%)	-105,481

Table 25-2b. SWP Facilities Net Revenue, Alternative 1B 051722, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-112,380
20%	-143,956
30%	-157,935
40%	-166,593
50%	-178,228
60%	-182,675
70%	-193,564
80%	-207,448
90%	-225,026
Long Term	
Full Simulation Period[a]	-173,518
Water Year Types[b,c]	
Wet (32%)	-175,056
Above Normal (15%)	-183,690
Below Normal (17%)	-205,335
Dry (22%)	-167,176
Critical (15%)	-132,408

Table 25-2c. SWP Facilities Net Revenue, Alternative 1B 051722 minus No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-15,182
20%	-16,821
30%	-12,662
40%	-13,352
50%	-14,034
60%	-5,787
70%	-10,329
80%	-10,870
90%	-8,036
Long Term	
Full Simulation Period[a]	-11,509
Water Year Types[b,c]	
Wet (32%)	-210
Above Normal (15%)	-5,845
Below Normal (17%)	-7,431
Dry (22%)	-24,499
Critical (15%)	-26,927

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 25-3a. SWP Facilities Net Revenue, No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-97,198
20%	-127,136
30%	-145,272
40%	-153,242
50%	-164,194
60%	-176,889
70%	-183,236
80%	-196,577
90%	-216,990
Long Term	
Full Simulation Period[a]	-162,009
Water Year Types[b,c]	
Wet (32%)	-174,845
Above Normal (15%)	-177,845
Below Normal (17%)	-197,905
Dry (22%)	-142,678
Critical (15%)	-105,481

Table 25-3b. SWP Facilities Net Revenue, Alternative 3 051722, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-106,704
20%	-143,013
30%	-156,541
40%	-166,876
50%	-174,641
60%	-183,071
70%	-190,990
80%	-205,119
90%	-223,919
Long Term	
Full Simulation Period[a]	-170,944
Water Year Types[b,c]	
Wet (32%)	-175,114
Above Normal (15%)	-181,464
Below Normal (17%)	-200,932
Dry (22%)	-164,697
Critical (15%)	-125,776

Table 25-3c. SWP Facilities Net Revenue, Alternative 3 051722 minus No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-9,505
20%	-15,877
30%	-11,269
40%	-13,635
50%	-10,447
60%	-6,182
70%	-7,754
80%	-8,542
90%	-6,929
Long Term	
Full Simulation Period[a]	-8,935
Water Year Types[b,c]	
Wet (32%)	-269
Above Normal (15%)	-3,620
Below Normal (17%)	-3,027
Dry (22%)	-22,019
Critical (15%)	-20,295

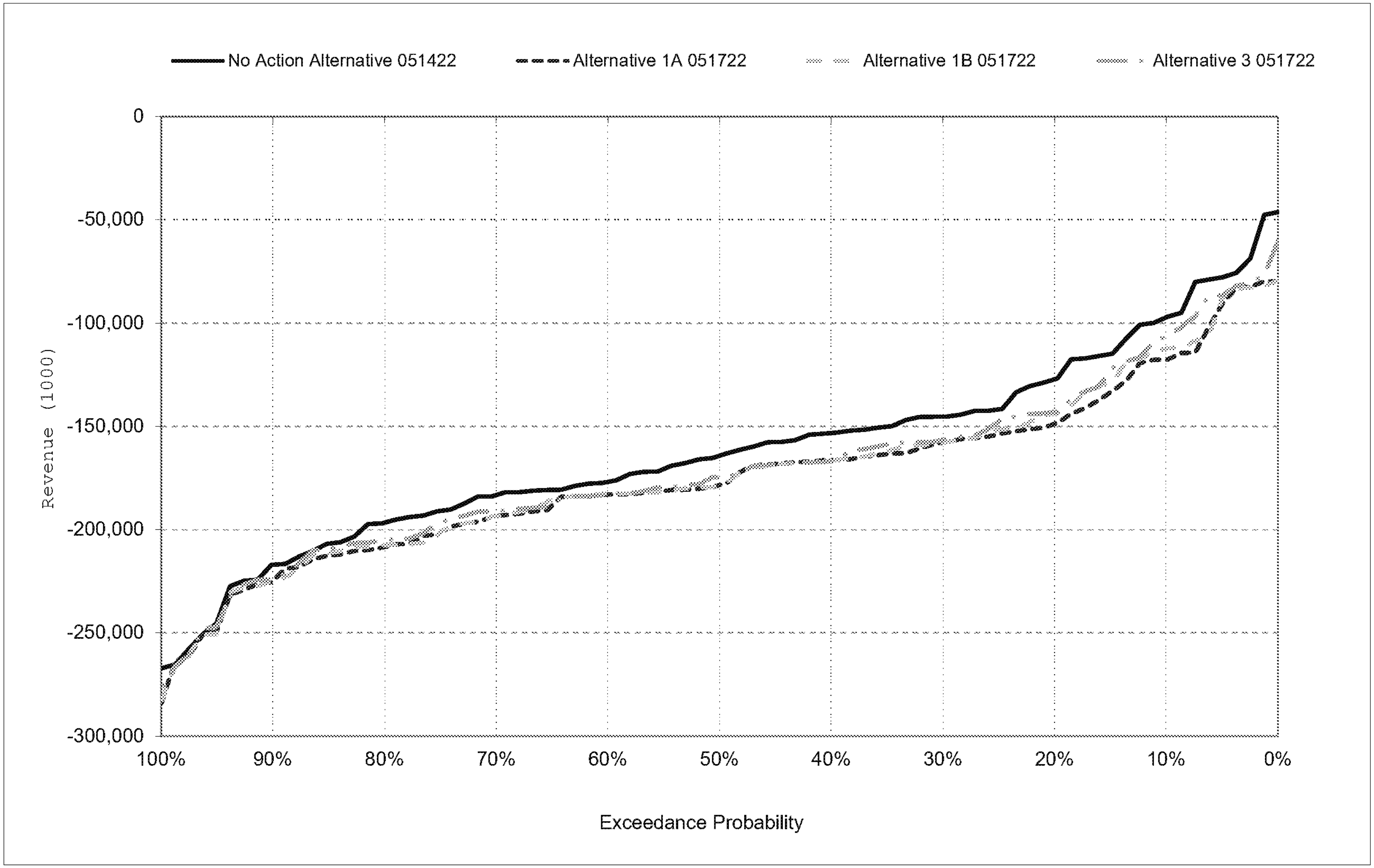
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 25-1. October-September SWP Facilities Net Revenue



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 26-1a. Sites Project Facilities Total Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	0
20%	0
30%	0
40%	0
50%	0
60%	0
70%	0
80%	0
90%	0
Long Term	
Full Simulation Period[a]	0
Water Year Types[b,c]	
Wet (32%)	0
Above Normal (15%)	0
Below Normal (17%)	0
Dry (22%)	0
Critical (15%)	0

Table 26-1b. Sites Project Facilities Total Generation, Alternative 1A 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	107
20%	63
30%	49
40%	37
50%	28
60%	23
70%	16
80%	14
90%	8
Long Term	
Full Simulation Period[a]	42
Water Year Types[b,c]	
Wet (32%)	24
Above Normal (15%)	34
Below Normal (17%)	31
Dry (22%)	73
Critical (15%)	58

Table 26-1c. Sites Project Facilities Total Generation, Alternative 1A 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	107
20%	63
30%	49
40%	37
50%	28
60%	23
70%	16
80%	14
90%	8
Long Term	
Full Simulation Period[a]	42
Water Year Types[b,c]	
Wet (32%)	24
Above Normal (15%)	34
Below Normal (17%)	31
Dry (22%)	73
Critical (15%)	58

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 26-2a. Sites Project Facilities Total Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	0
20%	0
30%	0
40%	0
50%	0
60%	0
70%	0
80%	0
90%	0
Long Term	
Full Simulation Period[a]	0
Water Year Types[b,c]	
Wet (32%)	0
Above Normal (15%)	0
Below Normal (17%)	0
Dry (22%)	0
Critical (15%)	0

Table 26-2b. Sites Project Facilities Total Generation, Alternative 1B 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	110
20%	70
30%	58
40%	41
50%	32
60%	24
70%	22
80%	14
90%	5
Long Term	
Full Simulation Period[a]	45
Water Year Types[b,c]	
Wet (32%)	25
Above Normal (15%)	44
Below Normal (17%)	33
Dry (22%)	76
Critical (15%)	54

Table 26-2c. Sites Project Facilities Total Generation, Alternative 1B 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	110
20%	70
30%	58
40%	41
50%	32
60%	24
70%	22
80%	14
90%	5
Long Term	
Full Simulation Period[a]	45
Water Year Types[b,c]	
Wet (32%)	25
Above Normal (15%)	44
Below Normal (17%)	33
Dry (22%)	76
Critical (15%)	54

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 26-3a. Sites Project Facilities Total Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	0
20%	0
30%	0
40%	0
50%	0
60%	0
70%	0
80%	0
90%	0
Long Term	
Full Simulation Period[a]	0
Water Year Types[b,c]	
Wet (32%)	0
Above Normal (15%)	0
Below Normal (17%)	0
Dry (22%)	0
Critical (15%)	0

Table 26-3b. Sites Project Facilities Total Generation, Alternative 3 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	127
20%	108
30%	64
40%	43
50%	30
60%	24
70%	20
80%	14
90%	3
Long Term	
Full Simulation Period[a]	51
Water Year Types[b,c]	
Wet (32%)	23
Above Normal (15%)	76
Below Normal (17%)	54
Dry (22%)	80
Critical (15%)	41

Table 26-3c. Sites Project Facilities Total Generation, Alternative 3 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	127
20%	108
30%	64
40%	43
50%	30
60%	24
70%	20
80%	14
90%	3
Long Term	
Full Simulation Period[a]	51
Water Year Types[b,c]	
Wet (32%)	23
Above Normal (15%)	76
Below Normal (17%)	54
Dry (22%)	80
Critical (15%)	41

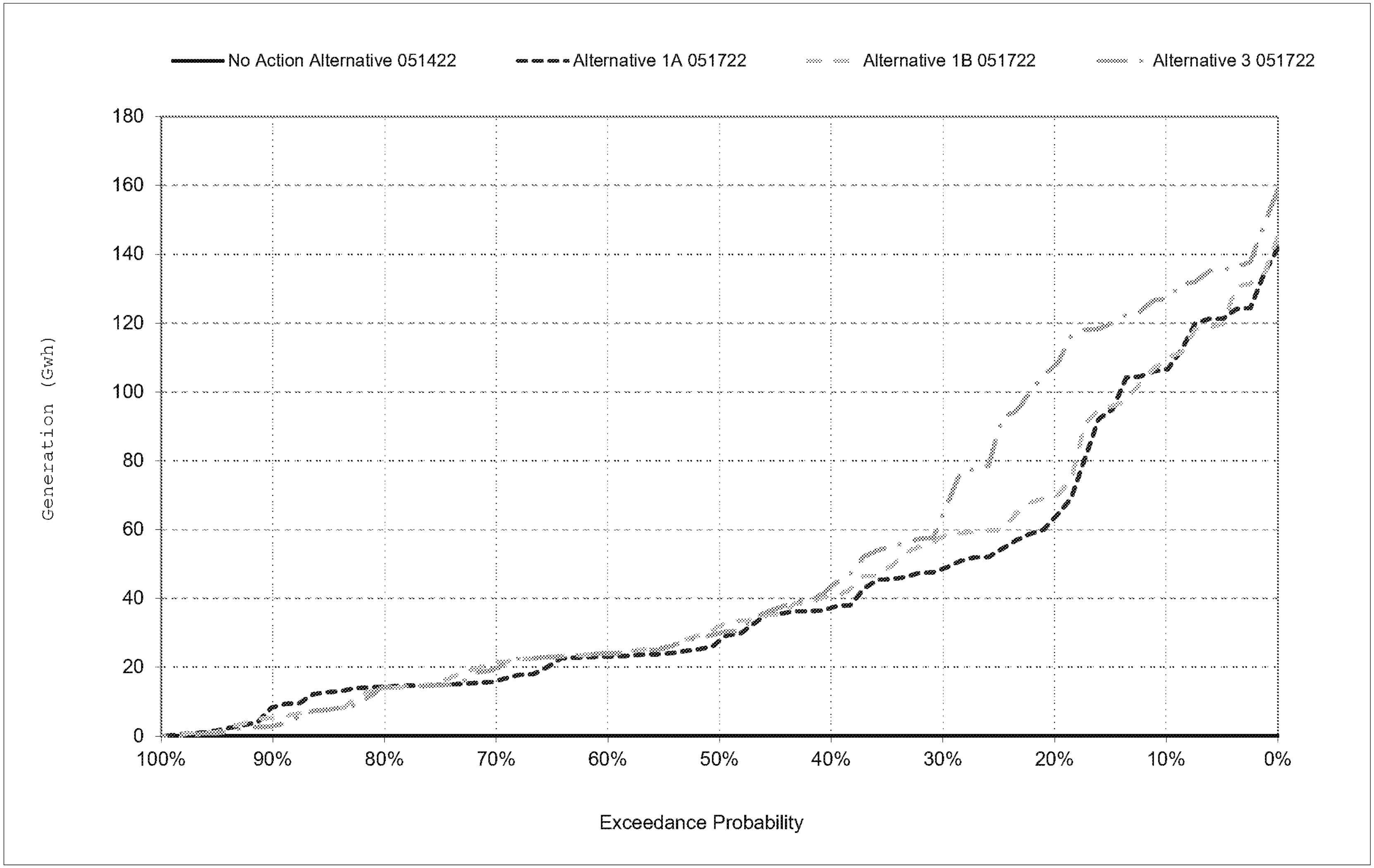
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 26-1. October-September Sites Project Facilities Total Generation



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 27-1a. Sites Project Facilities Total Energy Use, No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	14
20%	13
30%	13
40%	13
50%	13
60%	13
70%	12
80%	11
90%	9
Long Term	
Full Simulation Period[a]	12
Water Year Types[b,c]	
Wet (32%)	13
Above Normal (15%)	13
Below Normal (17%)	13
Dry (22%)	12
Critical (15%)	9

Table 27-1b. Sites Project Facilities Total Energy Use, Alternative 1A 051722, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	224
20%	168
30%	97
40%	72
50%	61
60%	56
70%	48
80%	33
90%	12
Long Term	
Full Simulation Period[a]	94
Water Year Types[b,c]	
Wet (32%)	146
Above Normal (15%)	147
Below Normal (17%)	66
Dry (22%)	55
Critical (15%)	20

Table 27-1c. Sites Project Facilities Total Energy Use, Alternative 1A 051722 minus No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	210
20%	154
30%	83
40%	59
50%	48
60%	44
70%	36
80%	22
90%	3
Long Term	
Full Simulation Period[a]	82
Water Year Types[b,c]	
Wet (32%)	133
Above Normal (15%)	134
Below Normal (17%)	53
Dry (22%)	43
Critical (15%)	11

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 27-2a. Sites Project Facilities Total Energy Use, No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	14
20%	13
30%	13
40%	13
50%	13
60%	13
70%	12
80%	11
90%	9
Long Term	
Full Simulation Period[a]	12
Water Year Types[b,c]	
Wet (32%)	13
Above Normal (15%)	13
Below Normal (17%)	13
Dry (22%)	12
Critical (15%)	9

Table 27-2b. Sites Project Facilities Total Energy Use, Alternative 1B 051722, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	232
20%	164
30%	119
40%	71
50%	61
60%	56
70%	46
80%	29
90%	12
Long Term	
Full Simulation Period[a]	97
Water Year Types[b,c]	
Wet (32%)	155
Above Normal (15%)	147
Below Normal (17%)	67
Dry (22%)	53
Critical (15%)	20

Table 27-2c. Sites Project Facilities Total Energy Use, Alternative 1B 051722 minus No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	219
20%	150
30%	105
40%	58
50%	48
60%	43
70%	34
80%	18
90%	2
Long Term	
Full Simulation Period[a]	85
Water Year Types[b,c]	
Wet (32%)	142
Above Normal (15%)	134
Below Normal (17%)	54
Dry (22%)	41
Critical (15%)	10

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 27-3a. Sites Project Facilities Total Energy Use, No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	14
20%	13
30%	13
40%	13
50%	13
60%	13
70%	12
80%	11
90%	9
Long Term	
Full Simulation Period[a]	12
Water Year Types[b,c]	
Wet (32%)	13
Above Normal (15%)	13
Below Normal (17%)	13
Dry (22%)	12
Critical (15%)	9

Table 27-3b. Sites Project Facilities Total Energy Use, Alternative 3 051722, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	254
20%	205
30%	115
40%	71
50%	61
60%	55
70%	43
80%	28
90%	9
Long Term	
Full Simulation Period[a]	104
Water Year Types[b,c]	
Wet (32%)	177
Above Normal (15%)	146
Below Normal (17%)	72
Dry (22%)	54
Critical (15%)	19

Table 27-3c. Sites Project Facilities Total Energy Use, Alternative 3 051722 minus No Action Alternative 051422, Annual Energy Use (GWh)

Statistic	Energy Use (Gwh)
Probability of Exceedance	
10%	240
20%	192
30%	102
40%	57
50%	48
60%	43
70%	31
80%	17
90%	0
Long Term	
Full Simulation Period[a]	92
Water Year Types[b,c]	
Wet (32%)	164
Above Normal (15%)	133
Below Normal (17%)	59
Dry (22%)	42
Critical (15%)	10

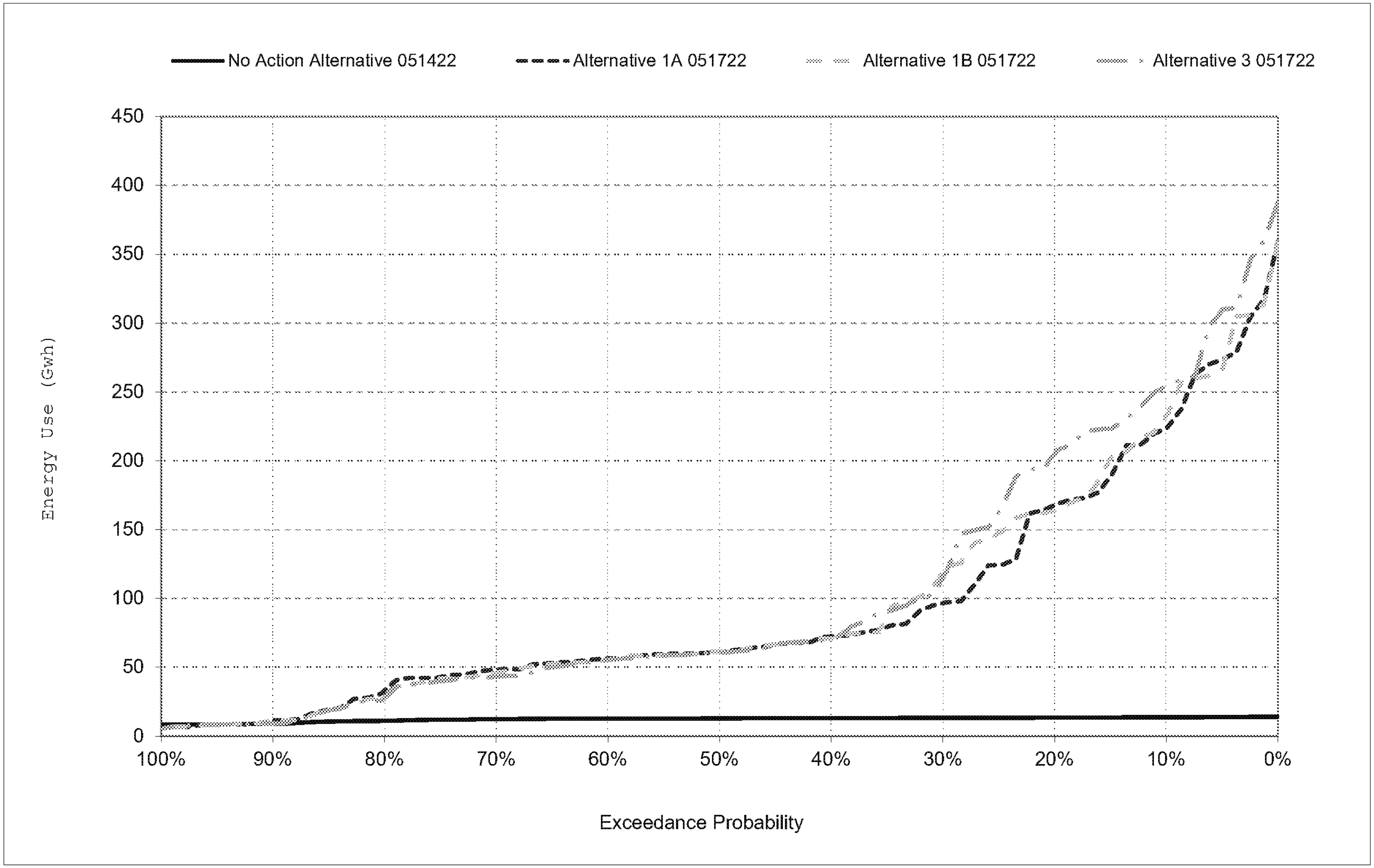
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 27-1. October-September Sites Project Facilities Total Energy Use



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 28-1a. Sites Project Facilities Net Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-9
20%	-11
30%	-12
40%	-13
50%	-13
60%	-13
70%	-13
80%	-13
90%	-14
Long Term	
Full Simulation Period[a]	-12
Water Year Types[b,c]	
Wet (32%)	-13
Above Normal (15%)	-13
Below Normal (17%)	-13
Dry (22%)	-12
Critical (15%)	-9

Table 28-1b. Sites Project Facilities Net Generation, Alternative 1A 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	78
20%	6
30%	-9
40%	-21
50%	-35
60%	-41
70%	-58
80%	-120
90%	-196
Long Term	
Full Simulation Period[a]	-52
Water Year Types[b,c]	
Wet (32%)	-122
Above Normal (15%)	-113
Below Normal (17%)	-35
Dry (22%)	17
Critical (15%)	38

Table 28-1c. Sites Project Facilities Net Generation, Alternative 1A 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	87
20%	17
30%	3
40%	-8
50%	-22
60%	-28
70%	-44
80%	-107
90%	-183
Long Term	
Full Simulation Period[a]	-39
Water Year Types[b,c]	
Wet (32%)	-109
Above Normal (15%)	-100
Below Normal (17%)	-22
Dry (22%)	29
Critical (15%)	47

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 28-2a. Sites Project Facilities Net Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-9
20%	-11
30%	-12
40%	-13
50%	-13
60%	-13
70%	-13
80%	-13
90%	-14
Long Term	
Full Simulation Period[a]	-12
Water Year Types[b,c]	
Wet (32%)	-13
Above Normal (15%)	-13
Below Normal (17%)	-13
Dry (22%)	-12
Critical (15%)	-9

Table 28-2b. Sites Project Facilities Net Generation, Alternative 1B 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	79
20%	18
30%	-8
40%	-18
50%	-33
60%	-43
70%	-80
80%	-119
90%	-208
Long Term	
Full Simulation Period[a]	-52
Water Year Types[b,c]	
Wet (32%)	-130
Above Normal (15%)	-104
Below Normal (17%)	-35
Dry (22%)	23
Critical (15%)	35

Table 28-2c. Sites Project Facilities Net Generation, Alternative 1B 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	88
20%	29
30%	4
40%	-5
50%	-21
60%	-30
70%	-66
80%	-106
90%	-194
Long Term	
Full Simulation Period[a]	-40
Water Year Types[b,c]	
Wet (32%)	-117
Above Normal (15%)	-90
Below Normal (17%)	-22
Dry (22%)	35
Critical (15%)	44

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 28-3a. Sites Project Facilities Net Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-9
20%	-11
30%	-12
40%	-13
50%	-13
60%	-13
70%	-13
80%	-13
90%	-14
Long Term	
Full Simulation Period[a]	-12
Water Year Types[b,c]	
Wet (32%)	-13
Above Normal (15%)	-13
Below Normal (17%)	-13
Dry (22%)	-12
Critical (15%)	-9

Table 28-3b. Sites Project Facilities Net Generation, Alternative 3 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	79
20%	46
30%	-1
40%	-16
50%	-32
60%	-42
70%	-66
80%	-157
90%	-233
Long Term	
Full Simulation Period[a]	-53
Water Year Types[b,c]	
Wet (32%)	-154
Above Normal (15%)	-70
Below Normal (17%)	-18
Dry (22%)	26
Critical (15%)	22

Table 28-3c. Sites Project Facilities Net Generation, Alternative 3 051722 minus No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	88
20%	57
30%	12
40%	-3
50%	-20
60%	-29
70%	-53
80%	-143
90%	-220
Long Term	
Full Simulation Period[a]	-41
Water Year Types[b,c]	
Wet (32%)	-140
Above Normal (15%)	-56
Below Normal (17%)	-5
Dry (22%)	38
Critical (15%)	31

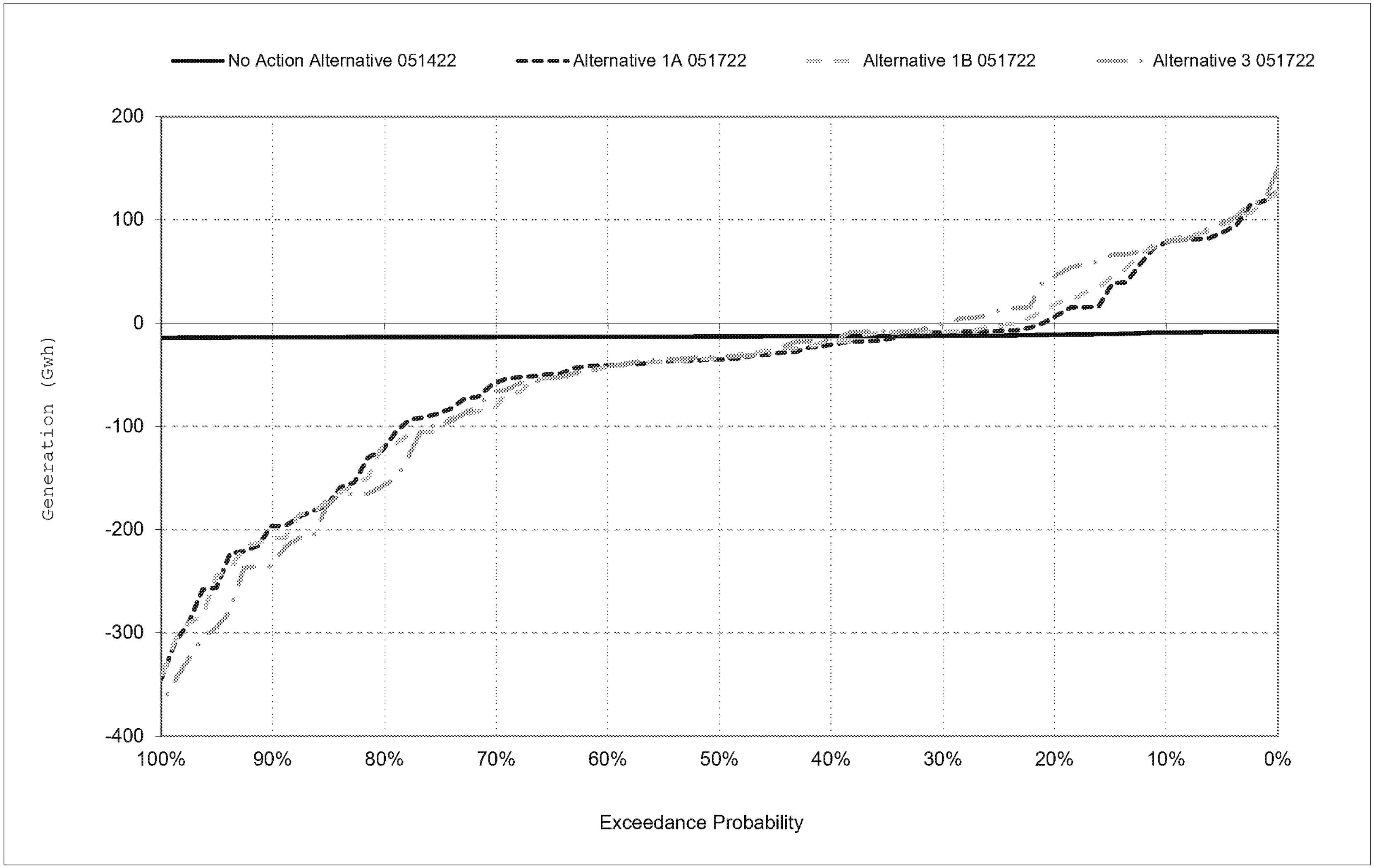
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 28-1. October-September Sites Project Facilities Net Generation



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 29-1a. Sites Project Facilities Net Revenue, No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-476
20%	-587
30%	-648
40%	-676
50%	-684
60%	-696
70%	-704
80%	-709
90%	-722
Long Term	
Full Simulation Period[a]	-650
Water Year Types[b,c]	
Wet (32%)	-694
Above Normal (15%)	-697
Below Normal (17%)	-693
Dry (22%)	-636
Critical (15%)	-481

Table 29-1b. Sites Project Facilities Net Revenue, Alternative 1A 051722, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	4,168
20%	669
30%	-458
40%	-1,027
50%	-1,849
60%	-2,128
70%	-3,291
80%	-6,656
90%	-10,712
Long Term	
Full Simulation Period[a]	-2,735
Water Year Types[b,c]	
Wet (32%)	-6,529
Above Normal (15%)	-6,072
Below Normal (17%)	-1,847
Dry (22%)	1,088
Critical (15%)	2,049

Table 29-1c. Sites Project Facilities Net Revenue, Alternative 1A 051722 minus No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	4,644
20%	1,256
30%	191
40%	-351
50%	-1,165
60%	-1,432
70%	-2,587
80%	-5,948
90%	-9,990
Long Term	
Full Simulation Period[a]	-2,085
Water Year Types[b,c]	
Wet (32%)	-5,835
Above Normal (15%)	-5,375
Below Normal (17%)	-1,154
Dry (22%)	1,724
Critical (15%)	2,530

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 29-2a. Sites Project Facilities Net Revenue, No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-476
20%	-587
30%	-648
40%	-676
50%	-684
60%	-696
70%	-704
80%	-709
90%	-722
Long Term	
Full Simulation Period[a]	-650
Water Year Types[b,c]	
Wet (32%)	-694
Above Normal (15%)	-697
Below Normal (17%)	-693
Dry (22%)	-636
Critical (15%)	-481

Table 29-2b. Sites Project Facilities Net Revenue, Alternative 1B 051722, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	4,477
20%	1,076
30%	-406
40%	-912
50%	-1,743
60%	-2,434
70%	-4,250
80%	-6,788
90%	-11,513
Long Term	
Full Simulation Period[a]	-2,808
Water Year Types[b,c]	
Wet (32%)	-6,996
Above Normal (15%)	-5,642
Below Normal (17%)	-1,915
Dry (22%)	1,329
Critical (15%)	1,853

Table 29-2c. Sites Project Facilities Net Revenue, Alternative 1B 051722 minus No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	4,953
20%	1,663
30%	242
40%	-236
50%	-1,058
60%	-1,738
70%	-3,546
80%	-6,079
90%	-10,791
Long Term	
Full Simulation Period[a]	-2,157
Water Year Types[b,c]	
Wet (32%)	-6,302
Above Normal (15%)	-4,945
Below Normal (17%)	-1,221
Dry (22%)	1,965
Critical (15%)	2,334

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 29-3a. Sites Project Facilities Net Revenue, No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-476
20%	-587
30%	-648
40%	-676
50%	-684
60%	-696
70%	-704
80%	-709
90%	-722
Long Term	
Full Simulation Period[a]	-650
Water Year Types[b,c]	
Wet (32%)	-694
Above Normal (15%)	-697
Below Normal (17%)	-693
Dry (22%)	-636
Critical (15%)	-481

Table 29-3b. Sites Project Facilities Net Revenue, Alternative 3 051722, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	4,222
20%	2,631
30%	215
40%	-879
50%	-1,783
60%	-2,301
70%	-3,667
80%	-8,412
90%	-12,089
Long Term	
Full Simulation Period[a]	-2,835
Water Year Types[b,c]	
Wet (32%)	-8,245
Above Normal (15%)	-3,664
Below Normal (17%)	-1,009
Dry (22%)	1,461
Critical (15%)	1,141

Table 29-3c. Sites Project Facilities Net Revenue, Alternative 3 051722 minus No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	4,698
20%	3,218
30%	863
40%	-203
50%	-1,098
60%	-1,606
70%	-2,963
80%	-7,704
90%	-11,367
Long Term	
Full Simulation Period[a]	-2,185
Water Year Types[b,c]	
Wet (32%)	-7,551
Above Normal (15%)	-2,967
Below Normal (17%)	-316
Dry (22%)	2,097
Critical (15%)	1,622

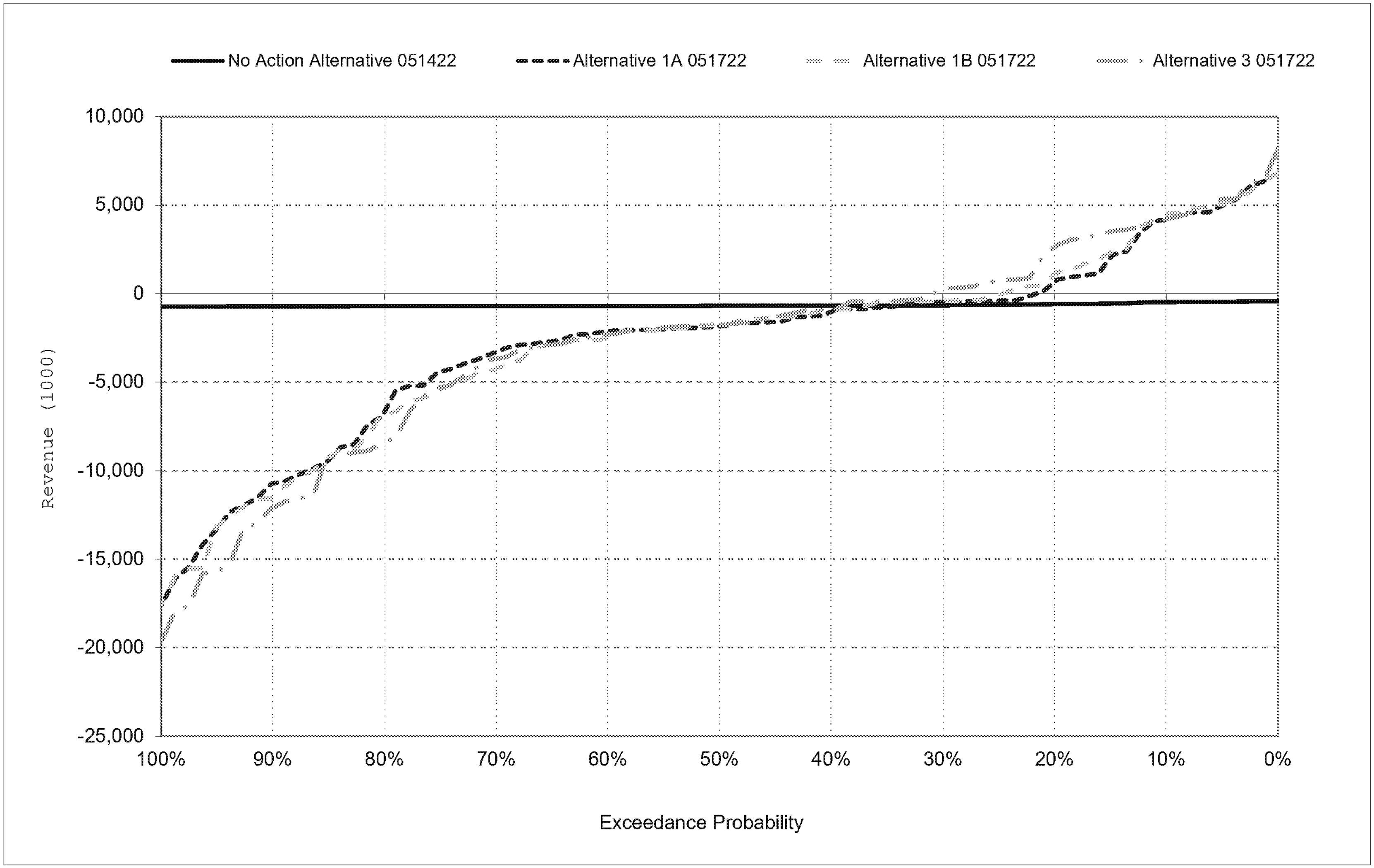
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 29-1. October-September Sites Project Facilities Net Revenue



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 30-1a. CVP, SWP, and Sites Project Facilities Net Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	1,830
20%	1,278
30%	979
40%	748
50%	435
60%	79
70%	-308
80%	-518
90%	-1,153
Long Term	
Full Simulation Period[a]	377
Water Year Types[b,c]	
Wet (32%)	1,473
Above Normal (15%)	499
Below Normal (17%)	-895
Dry (22%)	-137
Critical (15%)	136

Table 30-1b. CVP, SWP, and Sites Project Facilities Net Generation, Alternative 1A 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	1,652
20%	981
30%	721
40%	431
50%	114
60%	-237
70%	-542
80%	-979
90%	-1,310
Long Term	
Full Simulation Period[a]	112
Water Year Types[b,c]	
Wet (32%)	1,329
Above Normal (15%)	273
Below Normal (17%)	-1,069
Dry (22%)	-562
Critical (15%)	-300

Table 30-1c. CVP, SWP, and Sites Project Facilities Net Generation, Alternative 1A 051722 minus No Action Alternative 051422, Annual

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-178
20%	-297
30%	-258
40%	-316
50%	-321
60%	-316
70%	-234
80%	-461
90%	-158
Long Term	
Full Simulation Period[a]	-265
Water Year Types[b,c]	
Wet (32%)	-144
Above Normal (15%)	-226
Below Normal (17%)	-174
Dry (22%)	-425
Critical (15%)	-436

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 30-2a. CVP, SWP, and Sites Project Facilities Net Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	1,830
20%	1,278
30%	979
40%	748
50%	435
60%	79
70%	-308
80%	-518
90%	-1,153
Long Term	
Full Simulation Period[a]	377
Water Year Types[b,c]	
Wet (32%)	1,473
Above Normal (15%)	499
Below Normal (17%)	-895
Dry (22%)	-137
Critical (15%)	136

Table 30-2b. CVP, SWP, and Sites Project Facilities Net Generation, Alternative 1B 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	1,670
20%	977
30%	727
40%	414
50%	151
60%	-180
70%	-523
80%	-961
90%	-1,313
Long Term	
Full Simulation Period[a]	126
Water Year Types[b,c]	
Wet (32%)	1,366
Above Normal (15%)	276
Below Normal (17%)	-1,076
Dry (22%)	-543
Critical (15%)	-304

Table 30-2c. CVP, SWP, and Sites Project Facilities Net Generation, Alternative 1B 051722 minus No Action Alternative 051422, Annual

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-160
20%	-301
30%	-252
40%	-334
50%	-284
60%	-260
70%	-214
80%	-443
90%	-160
Long Term	
Full Simulation Period[a]	-251
Water Year Types[b,c]	
Wet (32%)	-107
Above Normal (15%)	-223
Below Normal (17%)	-181
Dry (22%)	-406
Critical (15%)	-440

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 30-3a. CVP, SWP, and Sites Project Facilities Net Generation, No Action Alternative 051422, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	1,830
20%	1,278
30%	979
40%	748
50%	435
60%	79
70%	-308
80%	-518
90%	-1,153
Long Term	
Full Simulation Period[a]	377
Water Year Types[b,c]	
Wet (32%)	1,473
Above Normal (15%)	499
Below Normal (17%)	-895
Dry (22%)	-137
Critical (15%)	136

Table 30-3b. CVP, SWP, and Sites Project Facilities Net Generation, Alternative 3 051722, Annual Generation (GWh)

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	1,529
20%	1,013
30%	776
40%	486
50%	181
60%	-218
70%	-497
80%	-827
90%	-1,298
Long Term	
Full Simulation Period[a]	166
Water Year Types[b,c]	
Wet (32%)	1,367
Above Normal (15%)	323
Below Normal (17%)	-1,007
Dry (22%)	-515
Critical (15%)	-201

Table 30-3c. CVP, SWP, and Sites Project Facilities Net Generation, Alternative 3 051722 minus No Action Alternative 051422, Annual

Statistic	Generation (Gwh)
Probability of Exceedance	
10%	-301
20%	-265
30%	-203
40%	-261
50%	-254
60%	-298
70%	-189
80%	-309
90%	-146
Long Term	
Full Simulation Period[a]	-211
Water Year Types[b,c]	
Wet (32%)	-106
Above Normal (15%)	-176
Below Normal (17%)	-112
Dry (22%)	-378
Critical (15%)	-337

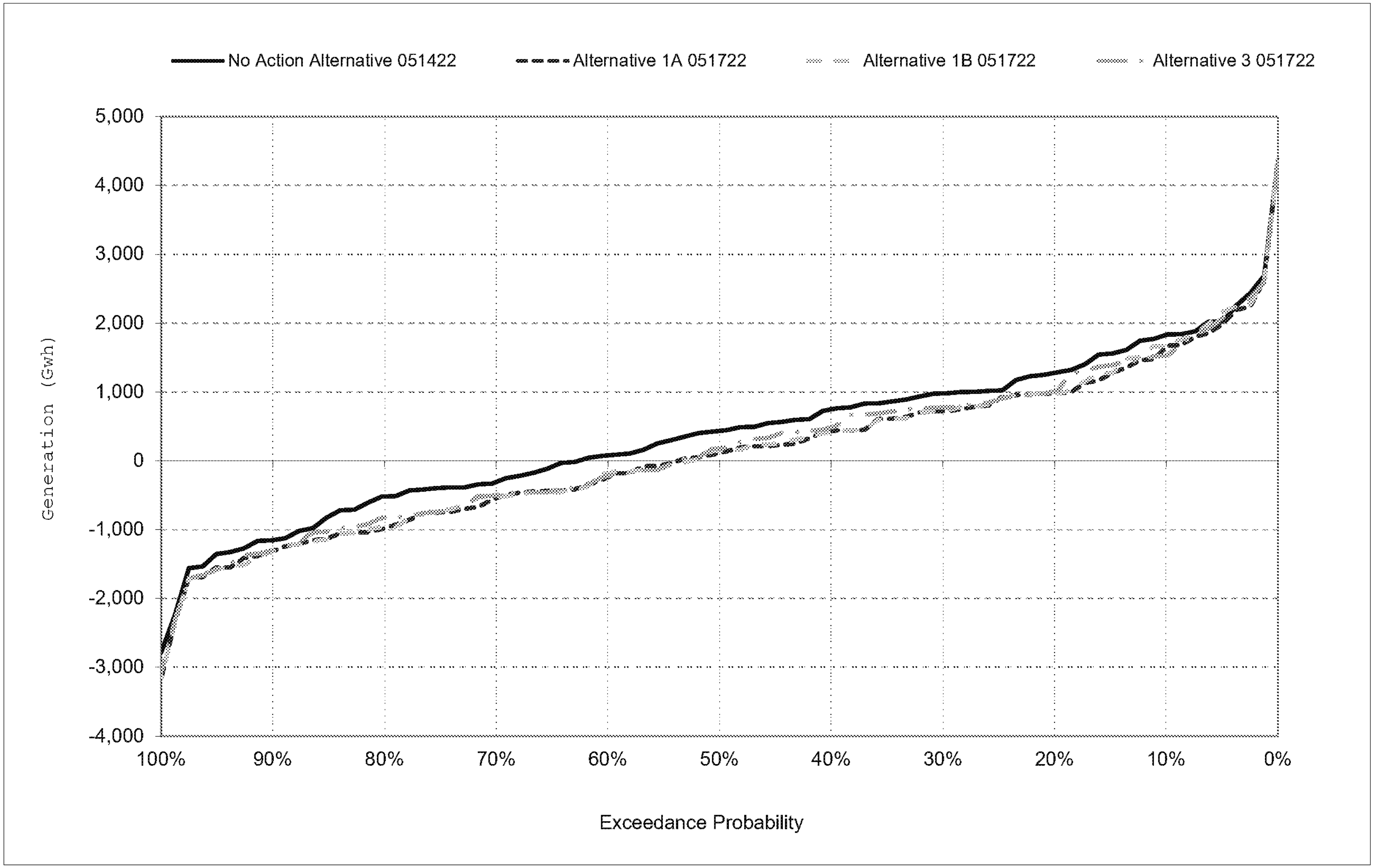
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 30-1. October-September CVP, SWP, and Sites Project Facilities Net Generation



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 31-1a. CVP, SWP, and Sites Project Facilities Net Revenue, No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	101,237
20%	69,435
30%	52,165
40%	38,021
50%	23,599
60%	3,121
70%	-18,258
80%	-28,846
90%	-60,494
Long Term	
Full Simulation Period[a]	20,411
Water Year Types[b,c]	
Wet (32%)	80,776
Above Normal (15%)	27,790
Below Normal (17%)	-48,519
Dry (22%)	-8,675
Critical (15%)	6,288

Table 31-1b. CVP, SWP, and Sites Project Facilities Net Revenue, Alternative 1A 051722, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	90,290
20%	55,086
30%	38,927
40%	21,214
50%	2,962
60%	-13,760
70%	-33,917
80%	-51,491
90%	-71,024
Long Term	
Full Simulation Period[a]	5,830
Water Year Types[b,c]	
Wet (32%)	73,180
Above Normal (15%)	15,699
Below Normal (17%)	-57,625
Dry (22%)	-32,660
Critical (15%)	-18,194

Table 31-1c. CVP, SWP, and Sites Project Facilities Net Revenue, Alternative 1A 051722 minus No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-10,947
20%	-14,349
30%	-13,238
40%	-16,807
50%	-20,636
60%	-16,881
70%	-15,659
80%	-22,645
90%	-10,530
Long Term	
Full Simulation Period[a]	-14,581
Water Year Types[b,c]	
Wet (32%)	-7,596
Above Normal (15%)	-12,091
Below Normal (17%)	-9,106
Dry (22%)	-23,985
Critical (15%)	-24,482

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 31-2a. CVP, SWP, and Sites Project Facilities Net Revenue, No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	101,237
20%	69,435
30%	52,165
40%	38,021
50%	23,599
60%	3,121
70%	-18,258
80%	-28,846
90%	-60,494
Long Term	
Full Simulation Period[a]	20,411
Water Year Types[b,c]	
Wet (32%)	80,776
Above Normal (15%)	27,790
Below Normal (17%)	-48,519
Dry (22%)	-8,675
Critical (15%)	6,288

Table 31-2b. CVP, SWP, and Sites Project Facilities Net Revenue, Alternative 1B 051722, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	95,527
20%	54,367
30%	39,492
40%	19,614
50%	4,567
60%	-12,168
70%	-30,542
80%	-51,221
90%	-70,233
Long Term	
Full Simulation Period[a]	6,696
Water Year Types[b,c]	
Wet (32%)	75,212
Above Normal (15%)	15,988
Below Normal (17%)	-57,958
Dry (22%)	-31,460
Critical (15%)	-18,385

Table 31-2c. CVP, SWP, and Sites Project Facilities Net Revenue, Alternative 1B 051722 minus No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-5,710
20%	-15,068
30%	-12,673
40%	-18,407
50%	-19,032
60%	-15,289
70%	-12,283
80%	-22,375
90%	-9,739
Long Term	
Full Simulation Period[a]	-13,715
Water Year Types[b,c]	
Wet (32%)	-5,564
Above Normal (15%)	-11,802
Below Normal (17%)	-9,439
Dry (22%)	-22,785
Critical (15%)	-24,674

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Table 31-3a. CVP, SWP, and Sites Project Facilities Net Revenue, No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	101,237
20%	69,435
30%	52,165
40%	38,021
50%	23,599
60%	3,121
70%	-18,258
80%	-28,846
90%	-60,494
Long Term	
Full Simulation Period[a]	20,411
Water Year Types[b,c]	
Wet (32%)	80,776
Above Normal (15%)	27,790
Below Normal (17%)	-48,519
Dry (22%)	-8,675
Critical (15%)	6,288

Table 31-3b. CVP, SWP, and Sites Project Facilities Net Revenue, Alternative 3 051722, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	83,248
20%	56,161
30%	41,173
40%	28,215
50%	9,205
60%	-12,872
70%	-29,245
80%	-47,033
90%	-69,146
Long Term	
Full Simulation Period[a]	9,012
Water Year Types[b,c]	
Wet (32%)	75,385
Above Normal (15%)	18,391
Below Normal (17%)	-54,124
Dry (22%)	-29,661
Critical (15%)	-12,508

Table 31-3c. CVP, SWP, and Sites Project Facilities Net Revenue, Alternative 3 051722 minus No Action Alternative 051422, Annual Revenue (1000)

Statistic	Revenue (1000)
Probability of Exceedance	
10%	-17,989
20%	-13,274
30%	-10,993
40%	-9,807
50%	-14,394
60%	-15,992
70%	-10,987
80%	-18,188
90%	-8,652
Long Term	
Full Simulation Period[a]	-11,399
Water Year Types[b,c]	
Wet (32%)	-5,391
Above Normal (15%)	-9,399
Below Normal (17%)	-5,605
Dry (22%)	-20,986
Critical (15%)	-18,797

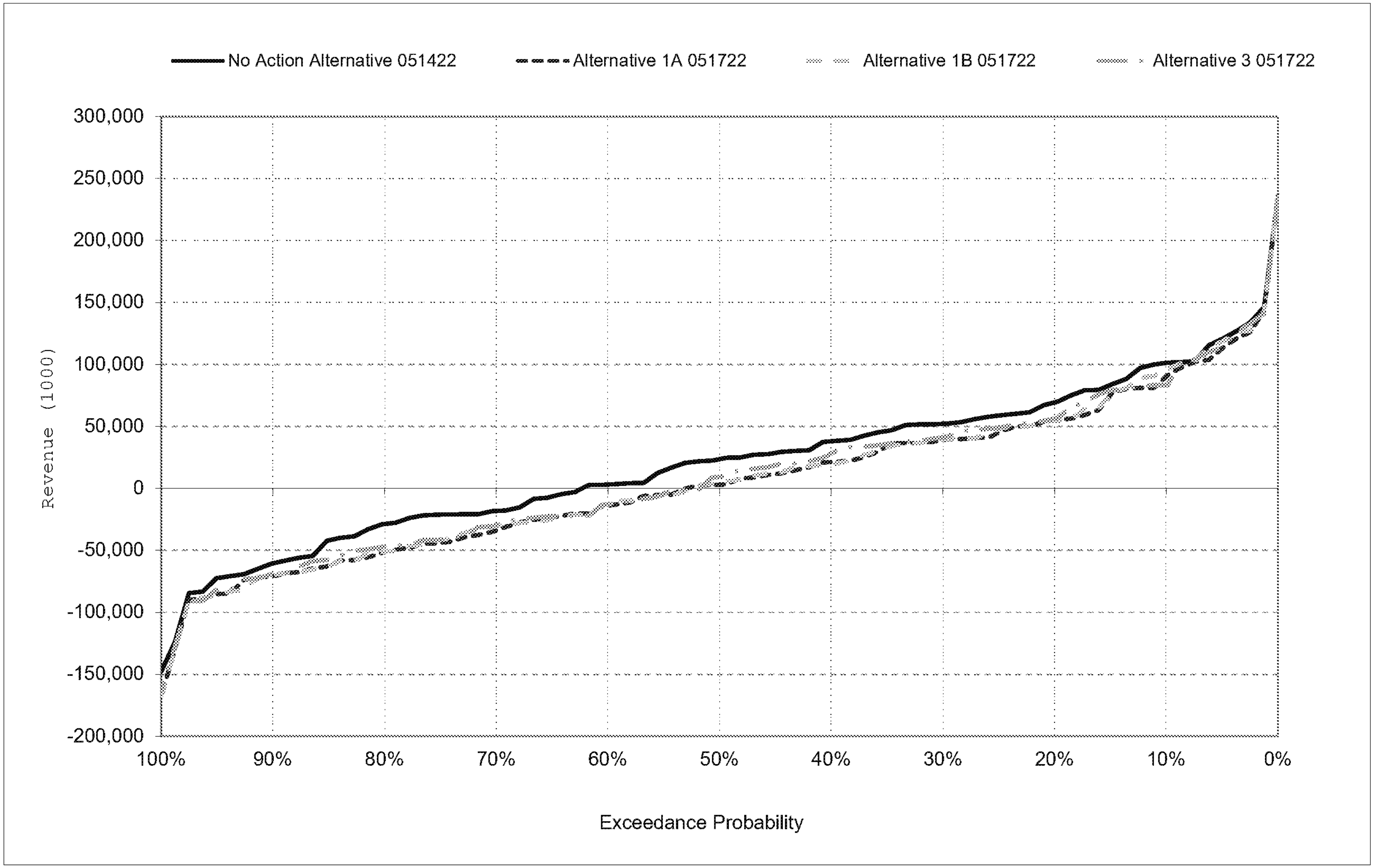
a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with Oct-Sep water year - year type sorting.

d All scenarios are simulated at current climate and 0 cm sea level rise.

Figure 31-1. October-September CVP, SWP, and Sites Project Facilities Net Revenue



*All scenarios are simulated at current climate and 0 cm sea level rise.

Table 1a-1 Mortality of Winter-Run Chinook Salmon by Life-stage and Source
NOACTION 051422 vs. ALT1A 051722

Analysis Period	Pre-Spawn Mortality	Eggs Flow	Eggs - Temperature	Fry - Temperature	Fry - Habitat	Juvenile Temperature	Juvenile Habitat	Total
Long-term Average and Average by Water Year Type Annual Mortality								
	Annual Mortality[4] (# of Fish/year)							
Long-term								
Full Simulation Period[1]								
NOACTION 051422	9,120	401,649	47,782	585	101,914	149	6	561,206
ALT1A 051722	8,820	396,862	44,005	622	102,810	166	5	553,291
Difference	-300	-4,786	-3,777	37	896	17	-1	-7,915
Percent Difference[3]	-3	-1	-8	6	1	11	-19	-1
Water Year Types[2]								
Wet (32.9%)								
NOACTION 051422	9,022	374,656	439	0	129,154	0	3	513,274
ALT1A 051722	8,911	372,406	424	0	128,135	0	2	509,878
Difference	-111	-2,250	-15	0	-1,019	0	-1	-3,396
Percent Difference	-1	-1	-3	0	-1	0	-43	-1
Above Normal (12.2%)								
NOACTION 051422	10,125	327,975	463,701	5,854	108,781	1,494	3	917,932
ALT1A 051722	10,125	325,635	425,980	6,222	112,596	1,662	0	882,218
Difference	0	-2,341	-37,721	368	3,815	168	-3	-35,714
Percent Difference	0	-1	-8	6	4	11	-100	-4
Below Normal (18.3%)								
NOACTION 051422	8,200	363,139	1,349	0	90,784	0	0	463,472
ALT1A 051722	7,600	368,168	1,852	0	94,465	0	0	472,085
Difference	-600	5,029	503	0	3,681	0	0	8,613
Percent Difference	-7	1	37	0	4	0	0	2
Dry (22%)								
NOACTION 051422	9,168	473,699	1,334	0	87,013	0	11	571,226
ALT1A 051722	8,501	457,788	1,275	0	85,003	0	6	552,572
Difference	-668	-15,911	-60	0	-2,010	0	-5	-18,654
Percent Difference	-7	-3	-4	0	-2	0	-48	-3
Critical (14.6%)								
NOACTION 051422	9,751	451,558	4,739	0	72,310	0	14	538,371
ALT1A 051722	9,750	443,853	4,198	1	76,446	1	20	534,269
Difference	-1	-7,704	-540	1	4,137	1	6	-4,102
Percent Difference	0	-2	-11	0	6	0	41	-1

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

[4] Mortality values do not include base mortality

Table 1a-2 Mortality of Winter-Run Chinook Salmon by Life-stage and Source
NOACTION 051422 vs. ALT1B 051722

Long-term Average and Average by Water Year Type Annual Mortality								
	Annual Mortality[4] (# of Fish/year)							
Analysis Period	Pre-Spawn Mortality	Eggs Flow	Eggs - Temperature	Fry - Temperature	Fry - Habitat	Juvenile Temperature	Juvenile Habitat	Total
Long-term								
Full Simulation Period[1]								
NOACTION 051422	9,120	401,649	47,782	585	101,914	149	6	561,206
ALT1B 051722	8,777	390,400	40,259	551	104,381	156	4	544,529
Difference	-343	-11,249	-7,523	-34	2,468	7	-3	-16,677
Percent Difference[3]	-4	-3	-16	-6	2	5	-42	-3
Water Year Types[2]								
Wet (32.9%)								
NOACTION 051422	9,022	374,656	439	0	129,154	0	3	513,274
ALT1B 051722	9,117	355,077	416	0	129,611	0	1	494,222
Difference	95	-19,579	-23	0	457	0	-3	-19,052
Percent Difference	1	-5	-5	0	0	0	-73	-4
Above Normal (12.2%)								
NOACTION 051422	10,125	327,975	463,701	5,854	108,781	1,494	3	917,932
ALT1B 051722	9,000	337,623	388,898	5,509	108,498	1,563	0	851,091
Difference	-1,125	9,648	-74,804	-344	-283	69	-3	-66,841
Percent Difference	-11	3	-16	-6	0	5	-100	-7
Below Normal (18.3%)								
NOACTION 051422	8,200	363,139	1,349	0	90,784	0	0	463,472
ALT1B 051722	7,800	362,842	1,688	0	99,345	0	5	471,679
Difference	-400	-298	339	0	8,561	0	5	8,207
Percent Difference	-5	0	25	0	9	0	1,014	2
Dry (22%)								
NOACTION 051422	9,168	473,699	1,334	0	87,013	0	11	571,226
ALT1B 051722	8,667	449,489	1,294	0	87,508	0	4	546,962
Difference	-501	-24,211	-40	0	495	0	-8	-24,265
Percent Difference	-5	-5	-3	0	1	0	-68	-4
Critical (14.6%)								
NOACTION 051422	9,751	451,558	4,739	0	72,310	0	14	538,371
ALT1B 051722	9,250	450,875	4,143	0	76,477	0	10	540,755
Difference	-501	-683	-596	0	4,167	0	-4	2,384
Percent Difference	-5	0	-13	0	6	0	-28	0

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

[4] Mortality values do not include base mortality

Table 1a-3 Mortality of Winter-Run Chinook Salmon by Life-stage and Source
NOACTION 051422 vs. ALT3 051722

Long-term Average and Average by Water Year Type Annual Mortality								
	Annual Mortality[4] (# of Fish/year)							
Analysis Period	Pre-Spawn Mortality	Eggs Flow	Eggs - Temperature	Fry - Temperature	Fry - Habitat	Juvenile Temperature	Juvenile Habitat	Total
Long-term								
Full Simulation Period[1]								
NOACTION 051422	9,120	401,649	47,782	585	101,914	149	6	561,206
ALT3 051722	8,964	382,397	20,712	279	106,313	69	4	518,739
Difference	-156	-19,252	-27,070	-306	4,399	-80	-2	-42,467
Percent Difference[3]	-2	-5	-57	-52	4	-54	-40	-8
Water Year Types[2]								
Wet (32.9%)								
NOACTION 051422	9,022	374,656	439	0	129,154	0	3	513,274
ALT3 051722	9,116	342,835	464	0	135,361	0	1	487,777
Difference	95	-31,822	25	0	6,207	0	-3	-25,497
Percent Difference	1	-8	6	0	5	0	-73	-5
Above Normal (12.2%)								
NOACTION 051422	10,125	327,975	463,701	5,854	108,781	1,494	3	917,932
ALT3 051722	9,750	385,159	192,820	2,793	106,082	693	17	697,314
Difference	-375	57,184	-270,882	-3,061	-2,699	-801	14	-220,619
Percent Difference	-4	17	-58	-52	-2	-54	444	-24
Below Normal (18.3%)								
NOACTION 051422	8,200	363,139	1,349	0	90,784	0	0	463,472
ALT3 051722	7,800	345,449	1,762	0	97,607	0	4	452,622
Difference	-400	-17,690	413	0	6,823	0	4	-10,850
Percent Difference	-5	-5	31	0	8	0	771	-2
Dry (22%)								
NOACTION 051422	9,168	473,699	1,334	0	87,013	0	11	571,226
ALT3 051722	8,833	430,375	1,196	0	87,815	0	3	528,223
Difference	-335	-43,325	-138	0	802	0	-8	-43,004
Percent Difference	-4	-9	-10	0	1	0	-73	-8
Critical (14.6%)								
NOACTION 051422	9,751	451,558	4,739	0	72,310	0	14	538,371
ALT3 051722	9,750	443,786	4,496	0	79,740	0	2	537,773
Difference	-1	-7,772	-243	0	7,430	0	-12	-598
Percent Difference	0	-2	-5	0	10	0	-86	0

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

[4] Mortality values do not include base mortality

Table 1b-1 Mortality of Spring-Run Chinook Salmon by Life-stage and Source
NOACTION 051422 vs. ALT1A 051722

Analysis Period	Pre-Spawn Mortality	Eggs Flow	Eggs - Temperature	Fry - Temperature	Fry - Habitat	Juvenile Temperature	Juvenile Habitat	Total
				Annual Mortality[4] (# of Fish/year)				
Long-term								
Full Simulation Period[1]								
NOACTION 051422	2,508	4,406	18,248	0	2,686	2	0	27,849
ALT1A 051722	1,258	4,483	19,198	0	2,722	1	0	27,663
Difference	-1,249	77	949	0	37	0	0	-186
Percent Difference[3]	-50	2	5	0	1	-9	0	-1
Water Year Types[2]								
Wet (32.9%)								
NOACTION 051422	315	5,362	2,395	0	2,207	0	0	10,279
ALT1A 051722	316	5,215	2,407	0	2,174	0	0	10,112
Difference	1	-147	12	0	-33	0	0	-167
Percent Difference	0	-3	0	0	-1	0	0	-2
Above Normal (12.2%)								
NOACTION 051422	23,579	1,465	127,701	0	2,415	0	0	155,160
ALT1A 051722	11,173	1,258	138,577	0	2,696	0	0	153,703
Difference	-12,406	-208	10,875	0	281	0	0	-1,457
Percent Difference	-53	-14	9	0	12	0	0	-1
Below Normal (18.3%)								
NOACTION 051422	26	3,333	6,882	0	2,870	0	0	13,112
ALT1A 051722	29	3,869	8,527	0	2,829	0	0	15,254
Difference	2	535	1,646	0	-41	0	0	2,142
Percent Difference	8	16	24	0	-1	0	0	16
Dry (22%)								
NOACTION 051422	18	5,123	6,308	0	3,098	0	0	14,547
ALT1A 051722	27	5,487	4,689	0	3,163	0	0	13,367
Difference	9	365	-1,619	0	65	0	0	-1,181
Percent Difference	52	7	-26	0	2	0	0	-8
Critical (14.6%)								
NOACTION 051422	230	4,478	13,066	0	3,095	11	0	20,880
ALT1A 051722	154	4,246	12,491	0	3,180	10	0	20,081
Difference	-76	-232	-575	0	85	-1	0	-799
Percent Difference	-33	-5	-4	0	3	-9	0	-4

Long-term Average and Average by Water Year Type Annual Mortality

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

[4] Mortality values do not include base mortality

Table 1b-2 Mortality of Spring-Run Chinook Salmon by Life-stage and Source
NOACTION 051422 vs. ALT1B 051722

Long-term Average and Average by Water Year Type Annual Mortality								
	Annual Mortality[4] (# of Fish/year)							
Analysis Period	Pre-Spawn Mortality	Eggs Flow	Eggs - Temperature	Fry - Temperature	Fry - Habitat	Juvenile Temperature	Juvenile Habitat	Total
Long-term								
Full Simulation Period[1]								
NOACTION 051422	2,508	4,406	18,248	0	2,686	2	0	27,849
ALT1B 051722	545	4,244	19,148	0	2,749	1	0	26,688
Difference	-1,963	-161	900	0	63	0	0	-1,161
Percent Difference[3]	-78	-4	5	0	2	-8	0	-4
Water Year Types[2]								
Wet (32.9%)								
NOACTION 051422	315	5,362	2,395	0	2,207	0	0	10,279
ALT1B 051722	121	5,205	2,277	0	2,139	0	0	9,741
Difference	-194	-157	-118	0	-68	0	0	-538
Percent Difference	-62	-3	-5	0	-3	0	0	-5
Above Normal (12.2%)								
NOACTION 051422	23,579	1,465	127,701	0	2,415	0	0	155,160
ALT1B 051722	4,680	1,271	141,864	0	2,564	0	0	150,377
Difference	-18,900	-195	14,162	0	149	0	0	-4,783
Percent Difference	-80	-13	11	0	6	0	0	-3
Below Normal (18.3%)								
NOACTION 051422	26	3,333	6,882	0	2,870	0	0	13,112
ALT1B 051722	30	3,841	8,007	0	3,058	0	0	14,935
Difference	3	507	1,125	0	187	0	0	1,824
Percent Difference	13	15	16	0	7	0	0	14
Dry (22%)								
NOACTION 051422	18	5,123	6,308	0	3,098	0	0	14,547
ALT1B 051722	25	4,407	4,530	0	3,256	0	0	12,217
Difference	7	-716	-1,779	0	158	0	0	-2,330
Percent Difference	40	-14	-28	0	5	0	0	-16
Critical (14.6%)								
NOACTION 051422	230	4,478	13,066	0	3,095	11	0	20,880
ALT1B 051722	168	4,326	11,149	0	3,099	10	0	18,752
Difference	-61	-152	-1,917	0	4	-1	0	-2,128
Percent Difference	-27	-3	-15	0	0	-8	0	-10

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

[4] Mortality values do not include base mortality

Table 1b-3 Mortality of Spring-Run Chinook Salmon by Life-stage and Source
NOACTION 051422 vs. ALT3 051722

Analysis Period	Pre-Spawn Mortality	Eggs Flow	Eggs - Temperature	Fry - Temperature	Fry - Habitat	Juvenile Temperature	Juvenile Habitat	Total
Long-term Average and Average by Water Year Type Annual Mortality								
	Annual Mortality[4] (# of Fish/year)							
Long-term								
Full Simulation Period[1]								
NOACTION 051422	2,508	4,406	18,248	0	2,686	2	0	27,849
ALT3 051722	176	4,219	18,129	0	2,686	2	0	25,212
Difference	-2,332	-187	-119	0	0	0	0	-2,637
Percent Difference[3]	-93	-4	-1	0	0	-5	0	-9
Water Year Types[2]								
Wet (32.9%)								
NOACTION 051422	315	5,362	2,395	0	2,207	0	0	10,279
ALT3 051722	119	4,457	2,406	0	2,199	0	0	9,181
Difference	-196	-905	11	0	-8	0	0	-1,098
Percent Difference	-62	-17	0	0	0	0	0	-11
Above Normal (12.2%)								
NOACTION 051422	23,579	1,465	127,701	0	2,415	0	0	155,160
ALT3 051722	887	843	131,590	0	2,596	0	0	135,916
Difference	-22,692	-622	3,889	0	181	0	0	-19,244
Percent Difference	-96	-42	3	0	8	0	0	-12
Below Normal (18.3%)								
NOACTION 051422	26	3,333	6,882	0	2,870	0	0	13,112
ALT3 051722	30	3,366	8,044	0	2,892	0	0	14,332
Difference	3	33	1,162	0	22	0	0	1,220
Percent Difference	13	1	17	0	1	0	0	9
Dry (22%)								
NOACTION 051422	18	5,123	6,308	0	3,098	0	0	14,547
ALT3 051722	37	5,712	4,541	0	3,101	0	0	13,391
Difference	19	589	-1,768	0	3	0	0	-1,156
Percent Difference	107	12	-28	0	0	0	0	-8
Critical (14.6%)								
NOACTION 051422	230	4,478	13,066	0	3,095	11	0	20,880
ALT3 051722	220	4,759	10,856	0	2,964	10	0	18,809
Difference	-10	281	-2,210	0	-131	-1	0	-2,071
Percent Difference	-4	6	-17	0	-4	-5	0	-10

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

[4] Mortality values do not include base mortality

Table 1c-1 Mortality of Fall-Run Chinook Salmon by Life-stage and Source
NOACTION 051422 vs. ALT1A 051722

Long-term Average and Average by Water Year Type Annual Mortality								
	Annual Mortality[4] (# of Fish/year)							
Analysis Period	Pre-Spawn Mortality	Eggs Flow	Eggs - Temperature	Fry - Temperature	Fry - Habitat	Juvenile Temperature	Juvenile Habitat	Total
Long-term								
Full Simulation Period[1]								
NOACTION 051422	497,434	1,651,820	143,906	689	5,465,904	15,797	417,534	8,193,084
ALT1A 051722	389,735	1,589,755	186,726	642	5,495,135	14,770	425,982	8,102,744
Difference	-107,699	-62,066	42,820	-47	29,231	-1,027	8,448	-90,340
Percent Difference[3]	-22	-4	30	-7	1	-7	2	-1
Water Year Types[2]								
Wet (32.9%)								
NOACTION 051422	1,850	3,916,421	20,348	1,224	5,783,118	14,205	112,146	9,849,312
ALT1A 051722	1,967	3,723,560	19,616	1,216	5,856,420	14,123	109,269	9,726,170
Difference	117	-192,861	-732	-8	73,302	-83	-2,877	-123,142
Percent Difference	6	-5	-4	-1	1	-1	-3	-1
Above Normal (12.2%)								
NOACTION 051422	4,924,263	185,048	595,073	124	5,941,447	4,152	235,806	11,885,913
ALT1A 051722	3,847,368	197,880	1,002,536	117	6,025,413	4,131	222,600	11,300,044
Difference	-1,076,894	12,832	407,463	-8	83,966	-21	-13,207	-585,868
Percent Difference	-22	7	68	-6	1	0	-6	-5
Below Normal (18.3%)								
NOACTION 051422	572	598,927	175,692	36	5,587,059	3,475	346,384	6,712,147
ALT1A 051722	352	602,527	211,113	41	5,514,863	3,592	362,449	6,694,937
Difference	-220	3,600	35,420	4	-72,196	116	16,065	-17,210
Percent Difference	-38	1	20	12	-1	3	5	0
Dry (22%)								
NOACTION 051422	1,666	539,057	111,750	369	5,107,225	17,010	733,103	6,510,180
ALT1A 051722	603	534,996	92,272	208	5,122,835	13,231	734,886	6,499,030
Difference	-1,063	-4,060	-19,479	-161	15,611	-3,780	1,783	-11,150
Percent Difference	-64	-1	-17	-44	0	-22	0	0
Critical (14.6%)								
NOACTION 051422	26,006	519,581	129,632	1,160	4,821,716	40,726	841,391	6,380,214
ALT1A 051722	27,549	532,782	130,047	1,104	4,862,514	39,603	890,237	6,483,835
Difference	1,543	13,201	414	-56	40,798	-1,123	48,845	103,621
Percent Difference	6	3	0	-5	1	-3	6	2

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

[4] Mortality values do not include base mortality

Table 1c-2 Mortality of Fall-Run Chinook Salmon by Life-stage and Source
NOACTION 051422 vs. ALT1B 051722

Long-term Average and Average by Water Year Type Annual Mortality								
	Annual Mortality[4] (# of Fish/year)							
Analysis Period	Pre-Spawn Mortality	Eggs Flow	Eggs - Temperature	Fry - Temperature	Fry - Habitat	Juvenile Temperature	Juvenile Habitat	Total
Long-term								
Full Simulation Period[1]								
NOACTION 051422	497,434	1,651,820	143,906	689	5,465,904	15,797	417,534	8,193,084
ALT1B 051722	262,007	1,611,523	216,317	332	5,492,836	14,378	406,415	8,003,809
Difference	-235,427	-40,298	72,412	-357	26,932	-1,419	-11,119	-189,276
Percent Difference[3]	-47	-2	50	-52	0	-9	-3	-2
Water Year Types[2]								
Wet (32.9%)								
NOACTION 051422	1,850	3,916,421	20,348	1,224	5,783,118	14,205	112,146	9,849,312
ALT1B 051722	1,205	3,783,448	21,082	249	5,802,231	8,873	119,937	9,737,026
Difference	-645	-132,972	734	-975	19,113	-5,333	7,791	-112,286
Percent Difference	-35	-3	4	-80	0	-38	7	-1
Above Normal (12.2%)								
NOACTION 051422	4,924,263	185,048	595,073	124	5,941,447	4,152	235,806	11,885,913
ALT1B 051722	2,586,006	208,413	1,345,497	159	6,043,475	4,082	214,183	10,401,815
Difference	-2,338,257	23,366	750,424	35	102,028	-70	-21,623	-1,484,098
Percent Difference	-47	13	126	28	2	-2	-9	-12
Below Normal (18.3%)								
NOACTION 051422	572	598,927	175,692	36	5,587,059	3,475	346,384	6,712,147
ALT1B 051722	352	604,270	197,665	55	5,529,366	4,794	336,640	6,673,143
Difference	-220	5,344	21,972	18	-57,693	1,319	-9,744	-39,004
Percent Difference	-38	1	13	50	-1	38	-3	-1
Dry (22%)								
NOACTION 051422	1,666	539,057	111,750	369	5,107,225	17,010	733,103	6,510,180
ALT1B 051722	251	535,314	91,563	186	5,154,985	13,001	704,044	6,499,344
Difference	-1,415	-3,743	-20,187	-183	47,760	-4,010	-29,059	-10,836
Percent Difference	-85	-1	-18	-49	1	-24	-4	0
Critical (14.6%)								
NOACTION 051422	26,006	519,581	129,632	1,160	4,821,716	40,726	841,391	6,380,214
ALT1B 051722	19,180	533,476	113,256	1,200	4,890,719	47,677	819,920	6,425,427
Difference	-6,826	13,894	-16,376	40	69,002	6,950	-21,471	45,214
Percent Difference	-26	3	-13	3	1	17	-3	1

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

[4] Mortality values do not include base mortality

Table 1c-3 Mortality of Fall-Run Chinook Salmon by Life-stage and Source
NOACTION 051422 vs. ALT3 051722

Long-term Average and Average by Water Year Type Annual Mortality								
	Annual Mortality[4] (# of Fish/year)							
Analysis Period	Pre-Spawn Mortality	Eggs Flow	Eggs - Temperature	Fry - Temperature	Fry - Habitat	Juvenile Temperature	Juvenile Habitat	Total
Long-term								
Full Simulation Period[1]								
NOACTION 051422	497,434	1,651,820	143,906	689	5,465,904	15,797	417,534	8,193,084
ALT3 051722	93,833	1,654,323	238,638	274	5,461,567	13,988	408,216	7,870,839
Difference	-403,601	2,502	94,733	-415	-4,336	-1,810	-9,318	-322,245
Percent Difference[3]	-81	0	66	-60	0	-11	-2	-4
Water Year Types[2]								
Wet (32.9%)								
NOACTION 051422	1,850	3,916,421	20,348	1,224	5,783,118	14,205	112,146	9,849,312
ALT3 051722	1,205	3,889,167	25,603	270	5,767,617	8,869	116,582	9,809,314
Difference	-645	-27,254	5,255	-955	-15,501	-5,336	4,436	-39,998
Percent Difference	-35	-1	26	-78	0	-38	4	0
Above Normal (12.2%)								
NOACTION 051422	4,924,263	185,048	595,073	124	5,941,447	4,152	235,806	11,885,913
ALT3 051722	904,624	220,746	1,574,362	144	6,120,844	4,237	227,293	9,052,251
Difference	-4,019,638	35,698	979,289	20	179,397	85	-8,513	-2,833,662
Percent Difference	-82	19	165	16	3	2	-4	-24
Below Normal (18.3%)								
NOACTION 051422	572	598,927	175,692	36	5,587,059	3,475	346,384	6,712,147
ALT3 051722	352	622,679	195,378	91	5,401,148	5,556	375,904	6,601,109
Difference	-220	23,752	19,686	55	-185,912	2,081	29,520	-111,038
Percent Difference	-38	4	11	150	-3	60	9	-2
Dry (22%)								
NOACTION 051422	1,666	539,057	111,750	369	5,107,225	17,010	733,103	6,510,180
ALT3 051722	1,670	550,209	86,978	230	5,120,782	13,714	700,448	6,474,031
Difference	4	11,152	-24,772	-139	13,558	-3,296	-32,655	-36,149
Percent Difference	0	2	-22	-38	0	-19	-4	-1
Critical (14.6%)								
NOACTION 051422	26,006	519,581	129,632	1,160	4,821,716	40,726	841,391	6,380,214
ALT3 051722	16,813	527,368	109,050	665	4,920,140	42,953	787,049	6,404,039
Difference	-9,193	7,787	-20,582	-495	98,423	2,227	-54,342	23,825
Percent Difference	-35	1	-16	-43	2	5	-6	0

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

[4] Mortality values do not include base mortality

Table 1d-1 Mortality of LateFall-Run Chinook Salmon by Life-stage and Source
NOACTION 051422 vs. ALT1A 051722

Long-term Average and Average by Water Year Type Annual Mortality								
	Annual Mortality[4] (# of Fish/year)							
Analysis Period	Pre-Spawn Mortality	Eggs Flow	Eggs - Temperature	Fry - Temperature	Fry - Habitat	Juvenile Temperature	Juvenile Habitat	Total
Long-term								
Full Simulation Period[1]								
NOACTION 051422	0	544,474	54,398	223	1,860,533	7,208	14,439	2,481,275
ALT1A 051722	0	495,938	55,427	174	1,871,383	5,765	14,746	2,443,433
Difference	0	-48,536	1,029	-49	10,851	-1,443	307	-37,841
Percent Difference[3]	0	-9	2	-22	1	-20	2	-2
Water Year Types[2]								
Wet (32.9%)								
NOACTION 051422	0	1,321,658	38,401	189	1,555,997	7	6,533	2,922,786
ALT1A 051722	0	1,172,051	38,770	203	1,577,402	16	5,886	2,794,328
Difference	0	-149,607	368	14	21,405	9	-646	-128,458
Percent Difference	0	-11	1	7	1	116	-10	-4
Above Normal (12.2%)								
NOACTION 051422	0	778,818	44,954	66	1,638,187	11	1,935	2,463,970
ALT1A 051722	0	802,066	46,007	85	1,664,149	11	2,845	2,515,162
Difference	0	23,248	1,053	20	25,962	0	909	51,192
Percent Difference	0	3	2	30	2	0	47	2
Below Normal (18.3%)								
NOACTION 051422	0	43,110	47,597	115	2,056,138	2	9,571	2,156,532
ALT1A 051722	0	42,575	48,016	108	2,068,784	0	11,404	2,170,885
Difference	0	-535	419	-7	12,646	-2	1,833	14,354
Percent Difference	0	-1	1	-6	1	-100	19	1
Dry (22%)								
NOACTION 051422	0	33,139	78,665	155	2,161,854	675	14,644	2,289,131
ALT1A 051722	0	31,663	81,497	107	2,150,193	786	16,382	2,280,626
Difference	0	-1,476	2,832	-48	-11,661	111	1,738	-8,505
Percent Difference	0	-4	4	-31	-1	17	12	0
Critical (14.6%)								
NOACTION 051422	0	33,285	68,787	644	1,997,481	47,015	46,343	2,193,555
ALT1A 051722	0	33,714	69,345	355	2,006,032	37,211	44,339	2,190,996
Difference	0	429	558	-289	8,552	-9,805	-2,003	-2,558
Percent Difference	0	1	1	-45	0	-21	-4	0

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

[4] Mortality values do not include base mortality

Table 1d-2 Mortality of LateFall-Run Chinook Salmon by Life-stage and Source
NOACTION 051422 vs. ALT1B 051722

Long-term Average and Average by Water Year Type Annual Mortality

Analysis Period	Annual Mortality[4] (# of Fish/year) Pre-Spawn Mortality	Eggs Flow	Eggs - Temperature	Fry - Temperature	Fry - Habitat	Juvenile Temperature	Juvenile Habitat	Total
Long-term								
Full Simulation Period[1]								
NOACTION 051422	0	544,474	54,398	223	1,860,533	7,208	14,439	2,481,275
ALT1B 051722	0	501,787	55,792	207	1,854,857	4,245	17,561	2,434,450
Difference	0	-42,686	1,394	-16	-5,676	-2,963	3,122	-46,825
Percent Difference[3]	0	-8	3	-7	0	-41	22	-2
Water Year Types[2]								
Wet (32.9%)								
NOACTION 051422	0	1,321,658	38,401	189	1,555,997	7	6,533	2,922,786
ALT1B 051722	0	1,180,396	28,557	82	1,566,854	18	5,773	2,781,679
Difference	0	-141,262	-9,844	-107	10,857	11	-760	-141,107
Percent Difference	0	-11	-26	-57	1	147	-12	-5
Above Normal (12.2%)								
NOACTION 051422	0	778,818	44,954	66	1,638,187	11	1,935	2,463,970
ALT1B 051722	0	831,876	45,781	90	1,611,232	11	3,759	2,492,749
Difference	0	53,059	827	25	-26,956	0	1,824	28,778
Percent Difference	0	7	2	38	-2	0	94	1
Below Normal (18.3%)								
NOACTION 051422	0	43,110	47,597	115	2,056,138	2	9,571	2,156,532
ALT1B 051722	0	42,832	52,942	116	2,042,536	14	14,652	2,153,092
Difference	0	-278	5,345	1	-13,602	12	5,082	-3,440
Percent Difference	0	-1	11	1	-1	732	53	0
Dry (22%)								
NOACTION 051422	0	33,139	78,665	155	2,161,854	675	14,644	2,289,131
ALT1B 051722	0	31,878	89,001	96	2,155,157	627	26,532	2,303,291
Difference	0	-1,261	10,336	-59	-6,697	-47	11,888	14,160
Percent Difference	0	-4	13	-38	0	-7	81	1
Critical (14.6%)								
NOACTION 051422	0	33,285	68,787	644	1,997,481	47,015	46,343	2,193,555
ALT1B 051722	0	33,418	77,496	846	1,980,233	27,296	43,463	2,162,752
Difference	0	133	8,709	202	-17,247	-19,720	-2,879	-30,803
Percent Difference	0	0	13	31	-1	-42	-6	-1

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

[4] Mortality values do not include base mortality

Table 1d-3 Mortality of LateFall-Run Chinook Salmon by Life-stage and Source
NOACTION 051422 vs. ALT3 051722

Long-term Average and Average by Water Year Type Annual Mortality								
	Annual Mortality[4] (# of Fish/year)							
Analysis Period	Pre-Spawn Mortality	Eggs Flow	Eggs - Temperature	Fry - Temperature	Fry - Habitat	Juvenile Temperature	Juvenile Habitat	Total
Long-term								
Full Simulation Period[1]								
NOACTION 051422	0	544,474	54,398	223	1,860,533	7,208	14,439	2,481,275
ALT3 051722	0	506,870	55,587	121	1,826,658	2,717	20,809	2,412,760
Difference	0	-37,604	1,189	-103	-33,875	-4,491	6,370	-68,514
Percent Difference[3]	0	-7	2	-46	-2	-62	44	-3
Water Year Types[2]								
Wet (32.9%)								
NOACTION 051422	0	1,321,658	38,401	189	1,555,997	7	6,533	2,922,786
ALT3 051722	0	1,194,532	29,879	77	1,567,584	19	4,553	2,796,644
Difference	0	-127,126	-8,522	-112	11,586	12	-1,979	-126,141
Percent Difference	0	-10	-22	-59	1	160	-30	-4
Above Normal (12.2%)								
NOACTION 051422	0	778,818	44,954	66	1,638,187	11	1,935	2,463,970
ALT3 051722	0	832,336	44,818	84	1,571,372	12	8,388	2,457,009
Difference	0	53,518	-136	18	-66,815	1	6,453	-6,961
Percent Difference	0	7	0	28	-4	10	333	0
Below Normal (18.3%)								
NOACTION 051422	0	43,110	47,597	115	2,056,138	2	9,571	2,156,532
ALT3 051722	0	44,708	59,615	141	2,010,239	17	15,215	2,129,936
Difference	0	1,598	12,019	26	-45,899	15	5,645	-26,596
Percent Difference	0	4	25	23	-2	920	59	-1
Dry (22%)								
NOACTION 051422	0	33,139	78,665	155	2,161,854	675	14,644	2,289,131
ALT3 051722	0	31,490	84,225	114	2,081,608	590	28,841	2,226,868
Difference	0	-1,649	5,560	-41	-80,246	-84	14,197	-62,263
Percent Difference	0	-5	7	-26	-4	-12	97	-3
Critical (14.6%)								
NOACTION 051422	0	33,285	68,787	644	1,997,481	47,015	46,343	2,193,555
ALT3 051722	0	33,423	72,614	228	1,967,863	17,157	60,608	2,151,891
Difference	0	137	3,826	-416	-29,618	-29,859	14,266	-41,663
Percent Difference	0	0	6	-65	-1	-64	31	-2

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

[4] Mortality values do not include base mortality

Table 2a-1 Annual Potential Production for Winter-Run Chinook Salmon, NOACTION 051422 vs. ALT1A 051722

Long-term Average and Average by Water Year Type Annual Production

Analysis Period	Annual Potential Production (# of Fish/year)
Long-term	
Full Simulation Period[1]	
NOACTION 051422	1,924,118
ALT1A 051722	1,928,154
Difference	4,036
Percent Difference[3]	0.2
Water Year Types[2]	
Wet (32.9%)	
NOACTION 051422	1,920,944
ALT1A 051722	1,925,210
Difference	4,266
Percent Difference	0.2
Above Normal (12.2%)	
NOACTION 051422	1,730,693
ALT1A 051722	1,749,679
Difference	18,986
Percent Difference	1.1
Below Normal (18.3%)	
NOACTION 051422	1,977,067
ALT1A 051722	1,972,064
Difference	-5,003
Percent Difference	-0.3
Dry (22%)	
NOACTION 051422	1,927,433
ALT1A 051722	1,935,654
Difference	8,221
Percent Difference	0.4
Critical (14.6%)	
NOACTION 051422	1,989,049
ALT1A 051722	1,987,626
Difference	-1,424
Percent Difference	-0.1

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

Table 2a-2 Annual Potential Production for Winter-Run Chinook Salmon, NOACTION 051422 vs. ALT1B 051722

Long-term Average and Average by Water Year Type Annual Production

Analysis Period	Annual Potential Production (# of Fish/year)
Long-term	
Full Simulation Period[1]	
NOACTION 051422	1,924,118
ALT1B 051722	1,931,855
Difference	7,737
Percent Difference[3]	0.4
Water Year Types[2]	
Wet (32.9%)	
NOACTION 051422	1,920,944
ALT1B 051722	1,932,140
Difference	11,195
Percent Difference	0.6
Above Normal (12.2%)	
NOACTION 051422	1,730,693
ALT1B 051722	1,764,662
Difference	33,969
Percent Difference	2.0
Below Normal (18.3%)	
NOACTION 051422	1,977,067
ALT1B 051722	1,971,304
Difference	-5,763
Percent Difference	-0.3
Dry (22%)	
NOACTION 051422	1,927,433
ALT1B 051722	1,938,852
Difference	11,419
Percent Difference	0.6
Critical (14.6%)	
NOACTION 051422	1,989,049
ALT1B 051722	1,982,871
Difference	-6,179
Percent Difference	-0.3

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

Table 2a-3 Annual Potential Production for Winter-Run Chinook Salmon, NOACTION 051422 vs. ALT3 051722

Long-term Average and Average by Water Year Type Annual Production

Analysis Period	Annual Potential Production (# of Fish/year)
Long-term	
Full Simulation Period[1]	
NOACTION 051422	1,924,118
ALT3 051722	1,948,791
Difference	24,673
Percent Difference[3]	1.3
Water Year Types[2]	
Wet (32.9%)	
NOACTION 051422	1,920,944
ALT3 051722	1,942,094
Difference	21,150
Percent Difference	1.1
Above Normal (12.2%)	
NOACTION 051422	1,730,693
ALT3 051722	1,853,345
Difference	122,652
Percent Difference	7.1
Below Normal (18.3%)	
NOACTION 051422	1,977,067
ALT3 051722	1,980,743
Difference	3,677
Percent Difference	0.2
Dry (22%)	
NOACTION 051422	1,927,433
ALT3 051722	1,949,610
Difference	22,177
Percent Difference	1.2
Critical (14.6%)	
NOACTION 051422	1,989,049
ALT3 051722	1,986,321
Difference	-2,728
Percent Difference	-0.1

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

Table 2b-1 Annual Potential Production for Spring-Run Chinook Salmon, NOACTION 051422 vs. ALT1A 051722

Long-term Average and Average by Water Year Type Annual Production

Analysis Period	Annual Potential Production (# of Fish/year)
Long-term	
Full Simulation Period[1]	
NOACTION 051422	447,691
ALT1A 051722	447,484
Difference	-207
Percent Difference[3]	0.0
Water Year Types[2]	
Wet (32.9%)	
NOACTION 051422	446,788
ALT1A 051722	446,913
Difference	126
Percent Difference	0.0
Above Normal (12.2%)	
NOACTION 051422	398,361
ALT1A 051722	398,136
Difference	-225
Percent Difference	-0.1
Below Normal (18.3%)	
NOACTION 051422	451,177
ALT1A 051722	450,164
Difference	-1,013
Percent Difference	-0.2
Dry (22%)	
NOACTION 051422	458,353
ALT1A 051722	458,107
Difference	-245
Percent Difference	-0.1
Critical (14.6%)	
NOACTION 051422	462,262
ALT1A 051722	462,383
Difference	120
Percent Difference	0.0

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

Table 2b-2 Annual Potential Production for Spring-Run Chinook Salmon, NOACTION 051422 vs. ALT1B 051722

Long-term Average and Average by Water Year Type Annual Production

Analysis Period	Annual Potential Production (# of Fish/year)
Long-term	
Full Simulation Period[1]	
NOACTION 051422	447,691
ALT1B 051722	447,779
Difference	88
Percent Difference[3]	0.0
Water Year Types[2]	
Wet (32.9%)	
NOACTION 051422	446,788
ALT1B 051722	446,797
Difference	10
Percent Difference	0.0
Above Normal (12.2%)	
NOACTION 051422	398,361
ALT1B 051722	398,846
Difference	485
Percent Difference	0.1
Below Normal (18.3%)	
NOACTION 051422	451,177
ALT1B 051722	450,045
Difference	-1,131
Percent Difference	-0.3
Dry (22%)	
NOACTION 051422	458,353
ALT1B 051722	458,636
Difference	283
Percent Difference	0.1
Critical (14.6%)	
NOACTION 051422	462,262
ALT1B 051722	463,490
Difference	1,228
Percent Difference	0.3

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

Table 2b-3 Annual Potential Production for Spring-Run Chinook Salmon, NOACTION 051422 vs. ALT3 051722

Long-term Average and Average by Water Year Type Annual Production

Analysis Period	Annual Potential Production (# of Fish/year)
Long-term	
Full Simulation Period[1]	
NOACTION 051422	447,691
ALT3 051722	447,648
Difference	-44
Percent Difference[3]	0.0
Water Year Types[2]	
Wet (32.9%)	
NOACTION 051422	446,788
ALT3 051722	446,640
Difference	-148
Percent Difference	0.0
Above Normal (12.2%)	
NOACTION 051422	398,361
ALT3 051722	402,454
Difference	4,094
Percent Difference	1.0
Below Normal (18.3%)	
NOACTION 051422	451,177
ALT3 051722	450,266
Difference	-911
Percent Difference	-0.2
Dry (22%)	
NOACTION 051422	458,353
ALT3 051722	457,047
Difference	-1,305
Percent Difference	-0.3
Critical (14.6%)	
NOACTION 051422	462,262
ALT3 051722	462,672
Difference	409
Percent Difference	0.1

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

Table 2c-1 Annual Potential Production for Fall-Run Chinook Salmon, NOACTION 051422 vs. ALT1A 051722

Long-term Average and Average by Water Year Type Annual Production

Analysis Period	Annual Potential Production (# of Fish/year)
Long-term	
Full Simulation Period[1]	
NOACTION 051422	18,263,699
ALT1A 051722	18,296,526
Difference	32,827
Percent Difference[3]	0.2
Water Year Types[2]	
Wet (32.9%)	
NOACTION 051422	17,076,953
ALT1A 051722	17,134,575
Difference	57,622
Percent Difference	0.3
Above Normal (12.2%)	
NOACTION 051422	17,214,893
ALT1A 051722	17,393,607
Difference	178,714
Percent Difference	1.0
Below Normal (18.3%)	
NOACTION 051422	18,939,431
ALT1A 051722	18,953,091
Difference	13,660
Percent Difference	0.1
Dry (22%)	
NOACTION 051422	19,163,296
ALT1A 051722	19,164,681
Difference	1,385
Percent Difference	0.0
Critical (14.6%)	
NOACTION 051422	19,439,022
ALT1A 051722	19,389,925
Difference	-49,096
Percent Difference	-0.3

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

Table 2c-2 Annual Potential Production for Fall-Run Chinook Salmon, NOACTION 051422 vs. ALT1B 051722

Long-term Average and Average by Water Year Type Annual Production

Analysis Period	Annual Potential Production (# of Fish/year)
Long-term	
Full Simulation Period[1]	
NOACTION 051422	18,263,699
ALT1B 051722	18,335,056
Difference	71,357
Percent Difference[3]	0.4
Water Year Types[2]	
Wet (32.9%)	
NOACTION 051422	17,076,953
ALT1B 051722	17,135,685
Difference	58,732
Percent Difference	0.3
Above Normal (12.2%)	
NOACTION 051422	17,214,893
ALT1B 051722	17,692,237
Difference	477,344
Percent Difference	2.8
Below Normal (18.3%)	
NOACTION 051422	18,939,431
ALT1B 051722	18,964,856
Difference	25,425
Percent Difference	0.1
Dry (22%)	
NOACTION 051422	19,163,296
ALT1B 051722	19,168,045
Difference	4,749
Percent Difference	0.0
Critical (14.6%)	
NOACTION 051422	19,439,022
ALT1B 051722	19,425,453
Difference	-13,569
Percent Difference	-0.1

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

Table 2c-3 Annual Potential Production for Fall-Run Chinook Salmon, NOACTION 051422 vs. ALT3 051722

Long-term Average and Average by Water Year Type Annual Production

Analysis Period	Annual Potential Production (# of Fish/year)
Long-term	
Full Simulation Period[1]	
NOACTION 051422	18,263,699
ALT3 051722	18,375,634
Difference	111,935
Percent Difference[3]	0.6
Water Year Types[2]	
Wet (32.9%)	
NOACTION 051422	17,076,953
ALT3 051722	17,096,783
Difference	19,830
Percent Difference	0.1
Above Normal (12.2%)	
NOACTION 051422	17,214,893
ALT3 051722	18,127,942
Difference	913,048
Percent Difference	5.3
Below Normal (18.3%)	
NOACTION 051422	18,939,431
ALT3 051722	18,999,674
Difference	60,244
Percent Difference	0.3
Dry (22%)	
NOACTION 051422	19,163,296
ALT3 051722	19,188,603
Difference	25,307
Percent Difference	0.1
Critical (14.6%)	
NOACTION 051422	19,439,022
ALT3 051722	19,418,675
Difference	-20,347
Percent Difference	-0.1

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

Table 2d-1 Annual Potential Production for LateFall-Run Chinook Salmon, NOACTION 051422 vs. ALT1A 051722

Long-term Average and Average by Water Year Type Annual Production

Analysis Period	Annual Potential Production (# of Fish/year)
Long-term	
Full Simulation Period[1]	
NOACTION 051422	2,882,503
ALT1A 051722	2,892,842
Difference	10,340
Percent Difference[3]	0.4
Water Year Types[2]	
Wet (32.9%)	
NOACTION 051422	2,715,611
ALT1A 051722	2,754,329
Difference	38,717
Percent Difference	1.4
Above Normal (12.2%)	
NOACTION 051422	2,913,971
ALT1A 051722	2,887,826
Difference	-26,145
Percent Difference	-0.9
Below Normal (18.3%)	
NOACTION 051422	2,962,424
ALT1A 051722	2,953,078
Difference	-9,346
Percent Difference	-0.3
Dry (22%)	
NOACTION 051422	2,962,271
ALT1A 051722	2,971,241
Difference	8,971
Percent Difference	0.3
Critical (14.6%)	
NOACTION 051422	3,017,477
ALT1A 051722	3,014,950
Difference	-2,527
Percent Difference	-0.1

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

Table 2d-2 Annual Potential Production for LateFall-Run Chinook Salmon, NOACTION 051422 vs. ALT1B 051722

Long-term Average and Average by Water Year Type Annual Production

Analysis Period	Annual Potential Production (# of Fish/year)
Long-term	
Full Simulation Period[1]	
NOACTION 051422	2,882,503
ALT1B 051722	2,901,668
Difference	19,165
Percent Difference[3]	0.7
Water Year Types[2]	
Wet (32.9%)	
NOACTION 051422	2,715,611
ALT1B 051722	2,764,905
Difference	49,294
Percent Difference	1.8
Above Normal (12.2%)	
NOACTION 051422	2,913,971
ALT1B 051722	2,914,567
Difference	596
Percent Difference	0.0
Below Normal (18.3%)	
NOACTION 051422	2,962,424
ALT1B 051722	2,967,707
Difference	5,283
Percent Difference	0.2
Dry (22%)	
NOACTION 051422	2,962,271
ALT1B 051722	2,957,737
Difference	-4,534
Percent Difference	-0.2
Critical (14.6%)	
NOACTION 051422	3,017,477
ALT1B 051722	3,034,134
Difference	16,657
Percent Difference	0.6

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

Table 2d-3 Annual Potential Production for LateFall-Run Chinook Salmon, NOACTION 051422 vs. ALT3 051722

Long-term Average and Average by Water Year Type Annual Production

Analysis Period	Annual Potential Production (# of Fish/year)
Long-term	
Full Simulation Period[1]	
NOACTION 051422	2,882,503
ALT3 051722	2,916,949
Difference	34,447
Percent Difference[3]	1.2
Water Year Types[2]	
Wet (32.9%)	
NOACTION 051422	2,715,611
ALT3 051722	2,760,513
Difference	44,902
Percent Difference	1.7
Above Normal (12.2%)	
NOACTION 051422	2,913,971
ALT3 051722	2,940,053
Difference	26,082
Percent Difference	0.9
Below Normal (18.3%)	
NOACTION 051422	2,962,424
ALT3 051722	2,985,895
Difference	23,472
Percent Difference	0.8
Dry (22%)	
NOACTION 051422	2,962,271
ALT3 051722	3,004,408
Difference	42,137
Percent Difference	1.4
Critical (14.6%)	
NOACTION 051422	3,017,477
ALT3 051722	3,036,159
Difference	18,682
Percent Difference	0.6

[1] Based on the 80-year simulation period

[2] As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999). Water years may not correspond to the biological years in SALMOD.

[3] Relative difference of the annual average

Figure B-a-1. Annual Potential Production for Winter-Run Chinook Salmon

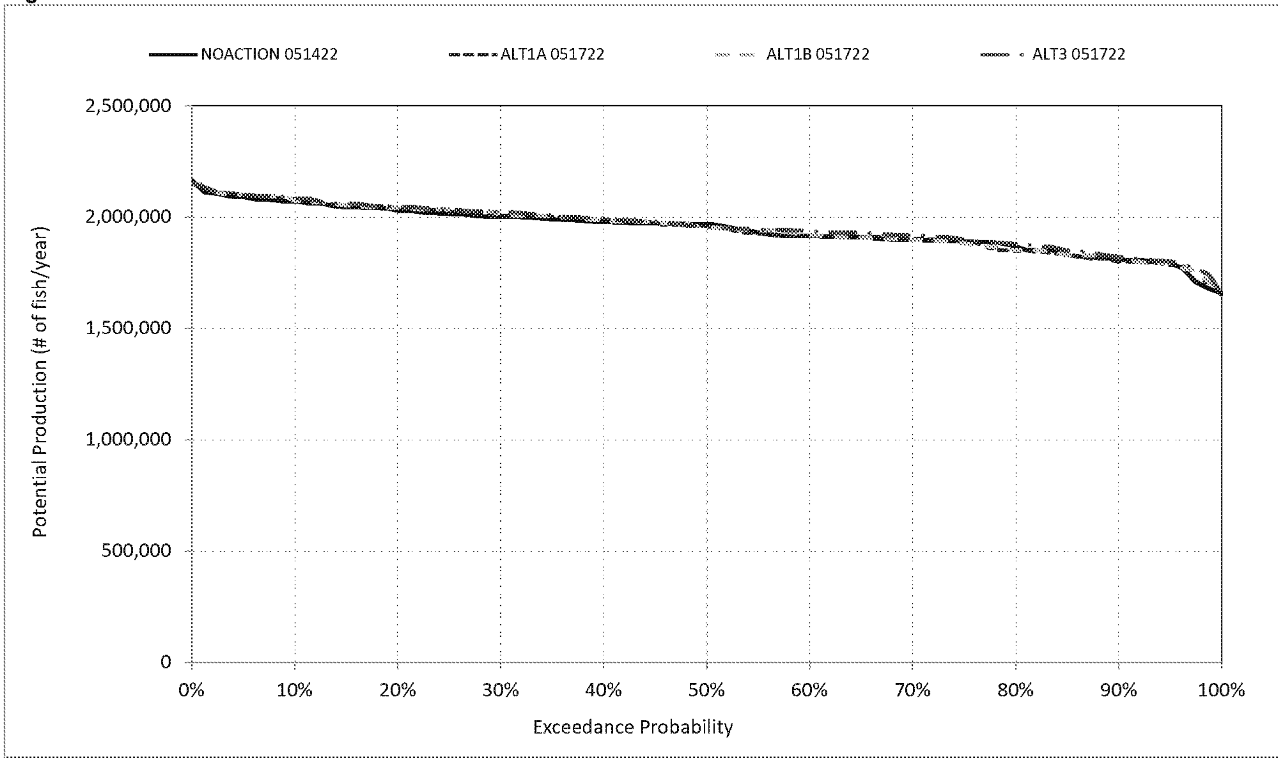


Figure B-a-2. Annual Mortality for Winter-Run Chinook Salmon - Eggs

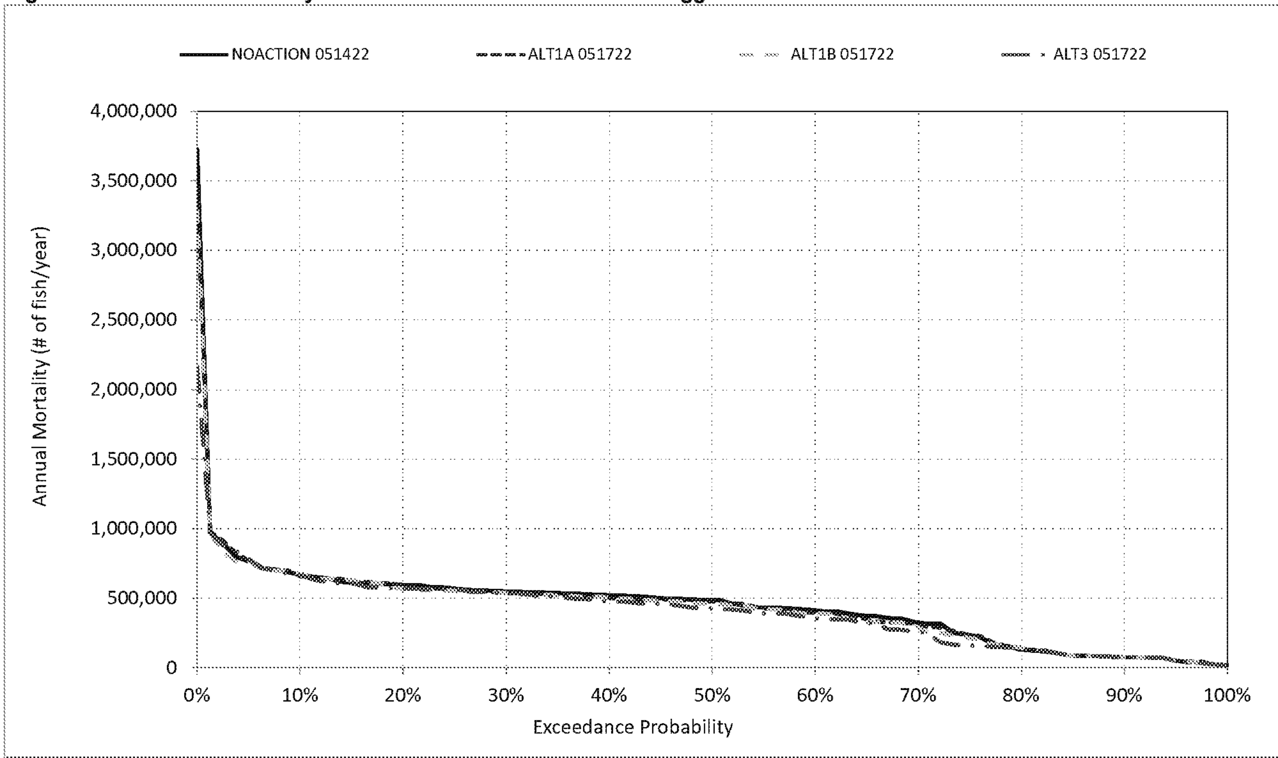


Figure B-a-3. Annual Mortality for Winter-Run Chinook Salmon - Fry

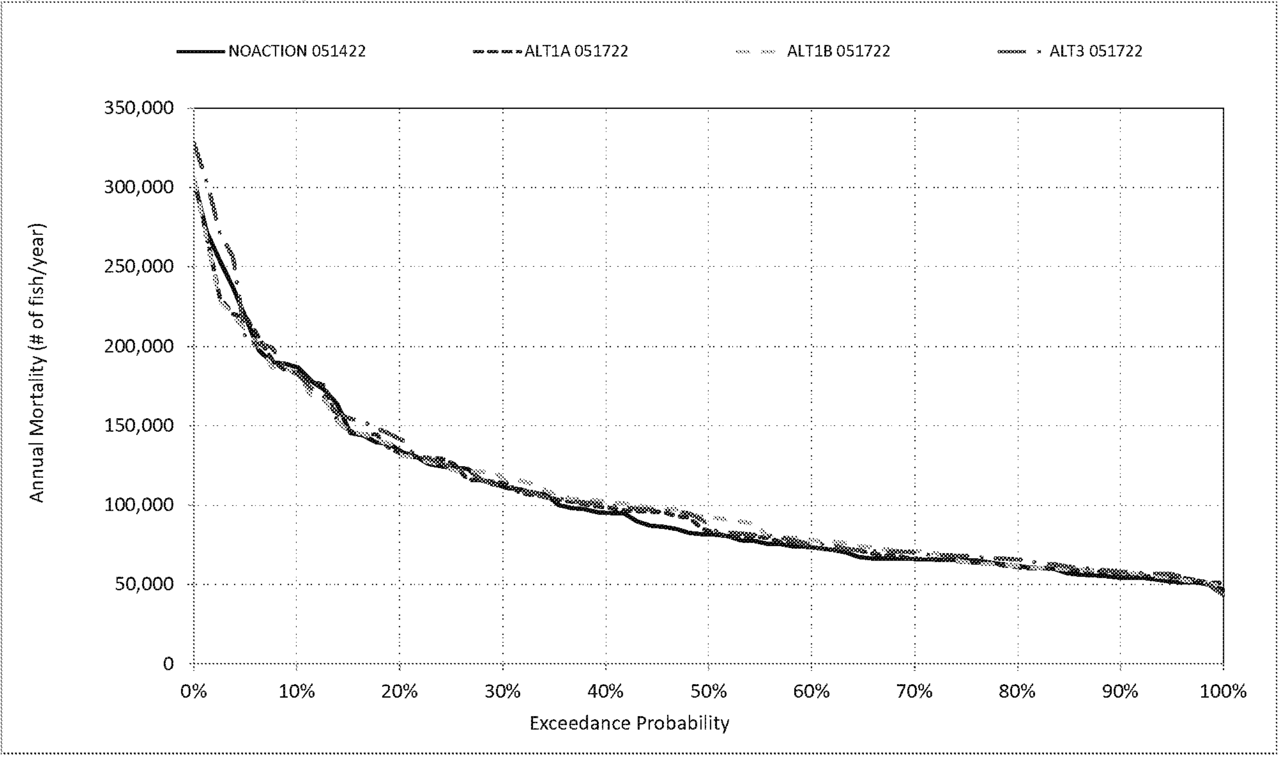


Figure B-a-4. Annual Mortality for Winter-Run Chinook Salmon - Pre-Smolt

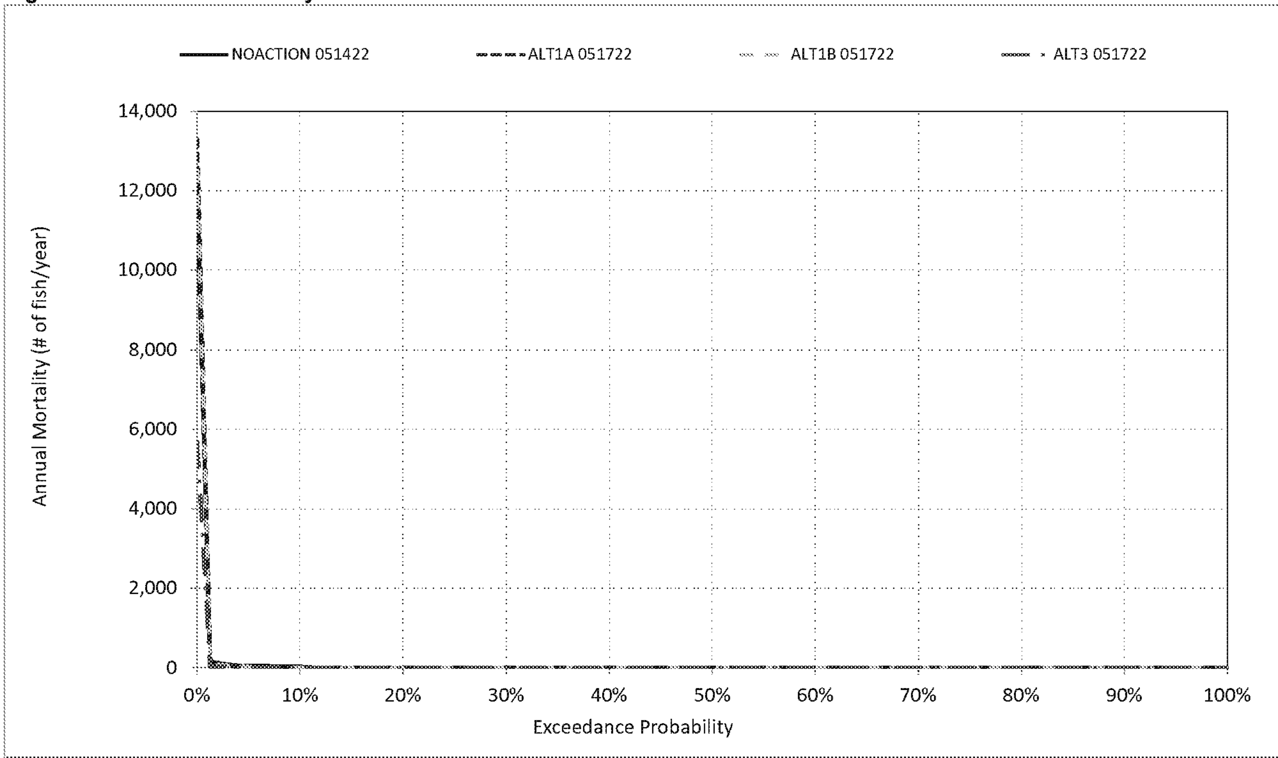


Figure B-a-5. Annual Mortality for Winter-Run Chinook Salmon - Immature Smolt

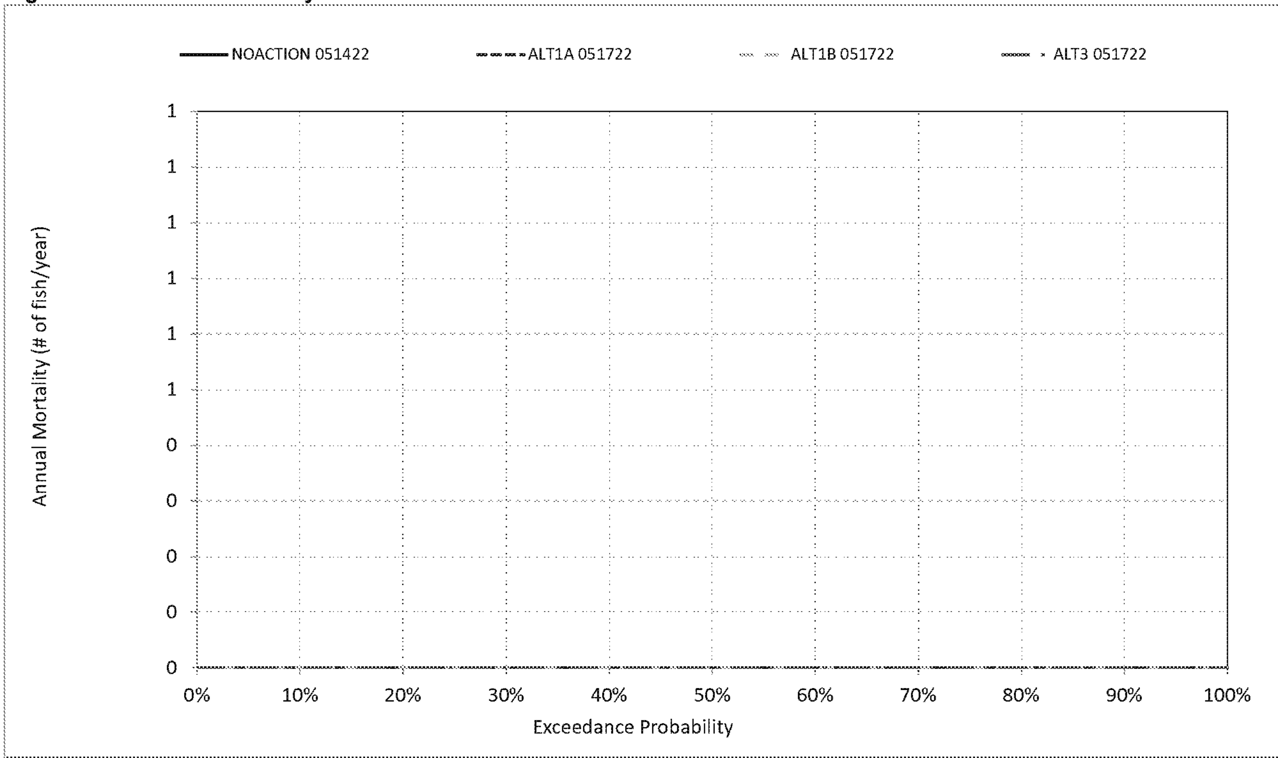


Figure B-a-6. Annual Mortality for Winter-Run Chinook Salmon - Pre- & Immature Smolts

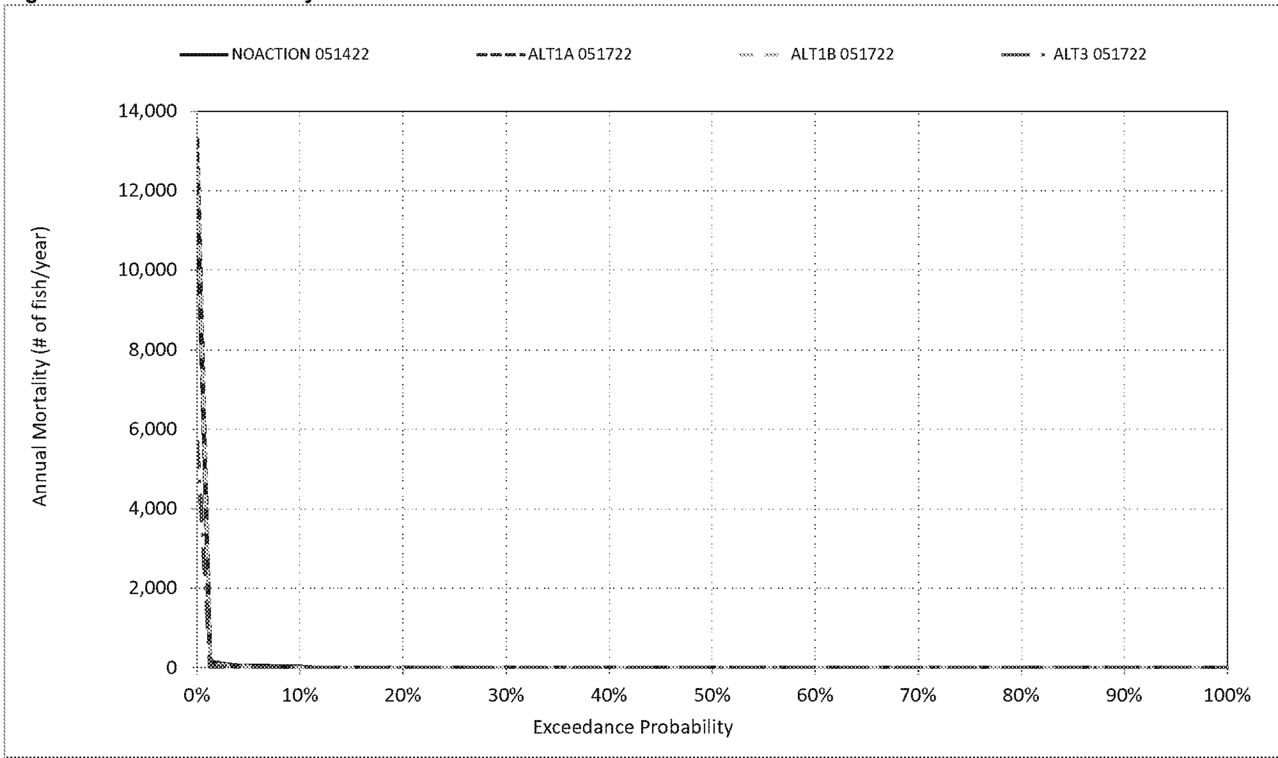


Figure B-a-7. Annual Mortality for Winter-Run Chinook Salmon - All Lifestages

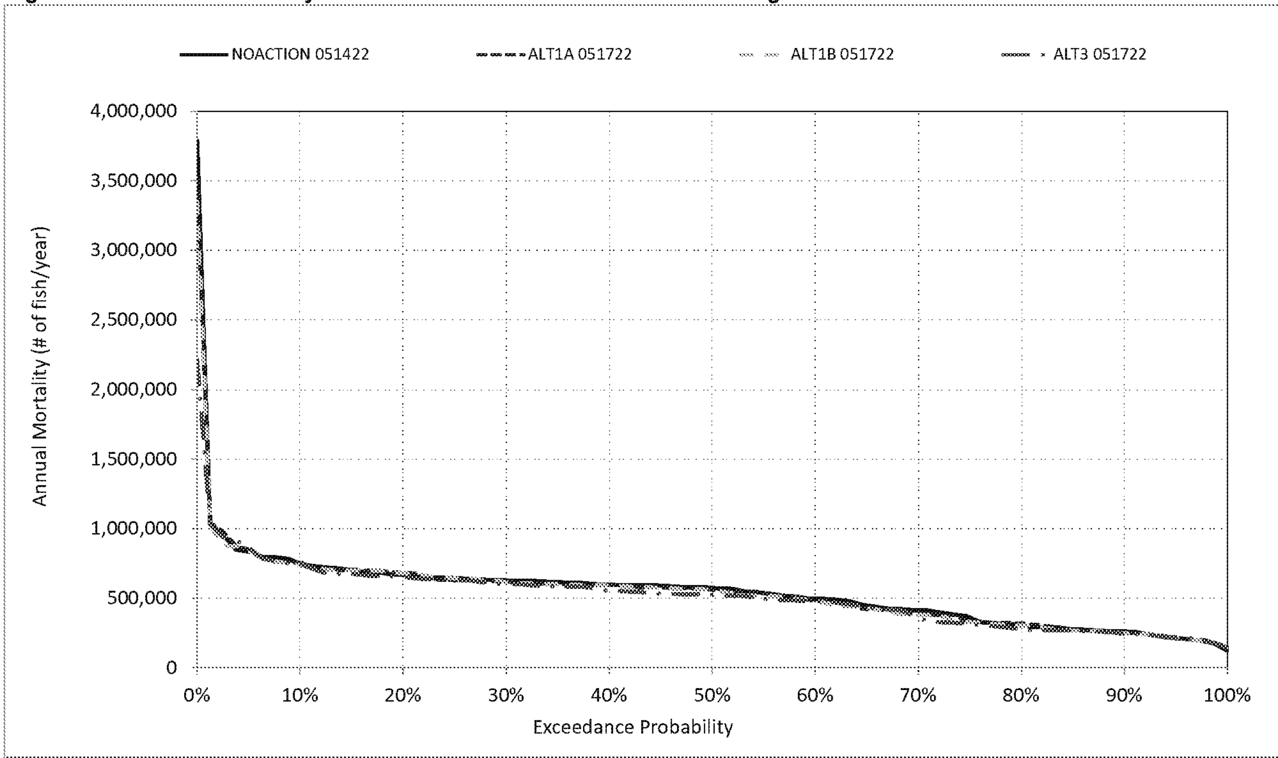


Figure B-a-8. Incubation - Habitat based Annual Mortality for Winter-Run Chinook Salmon

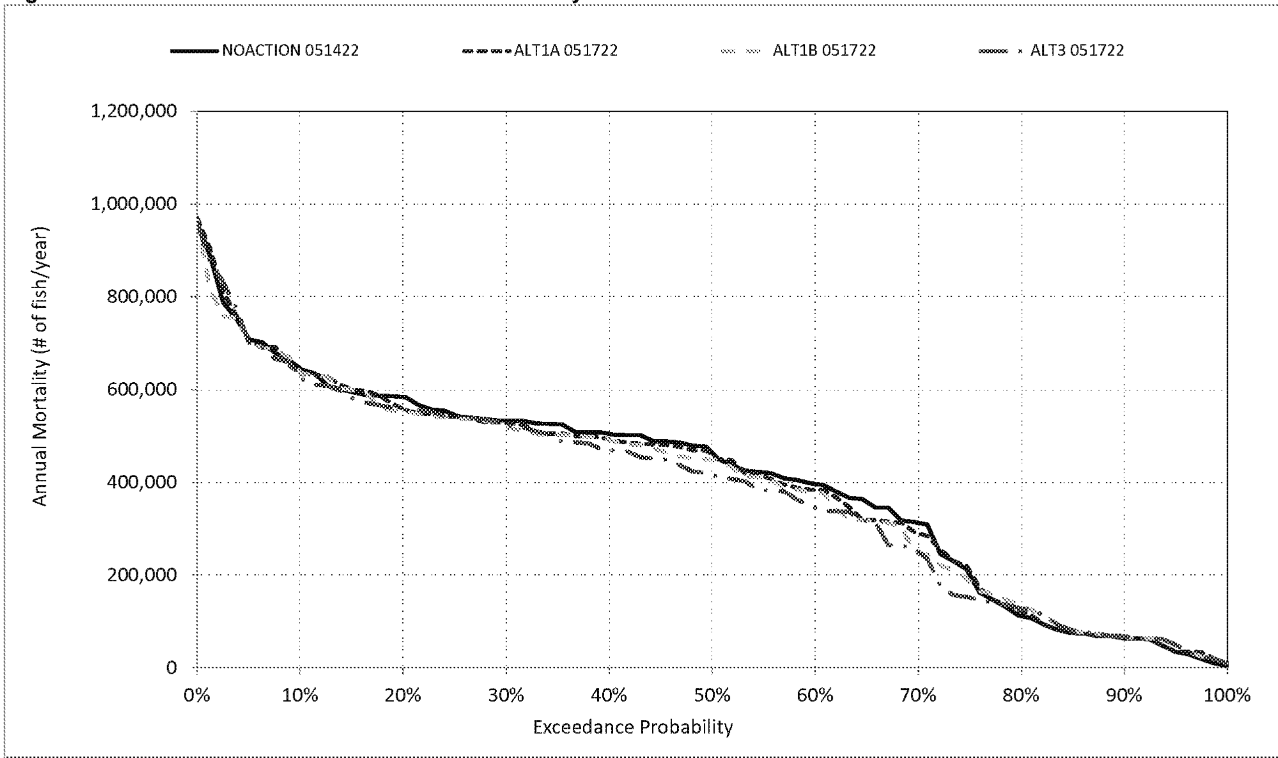


Figure B-a-9. Super-imposition - Habitat based Annual Mortality for Winter-Run Chinook Salmon

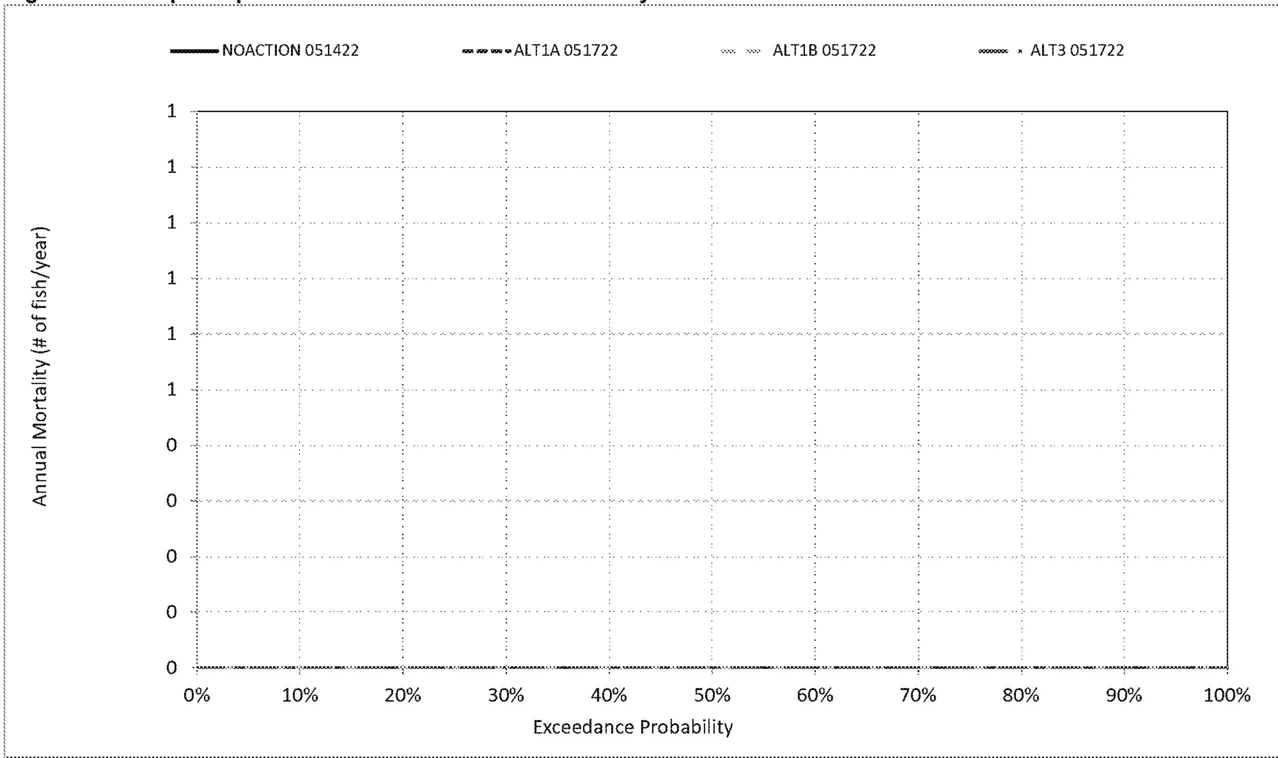


Figure B-a-10. Fry - Habitat based Annual Mortality for Winter-Run Chinook Salmon

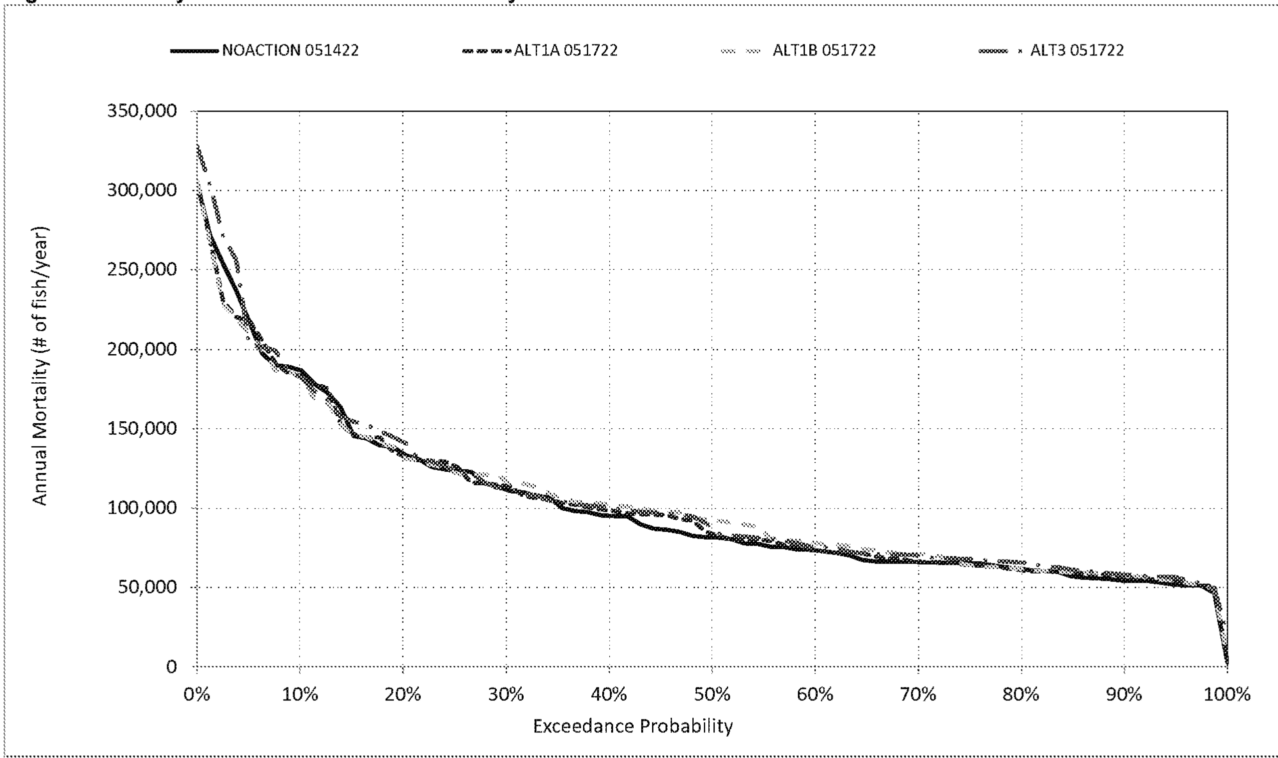


Figure B-a-11. Pre-smolt - Habitat based Annual Mortality for Winter-Run Chinook Salmon

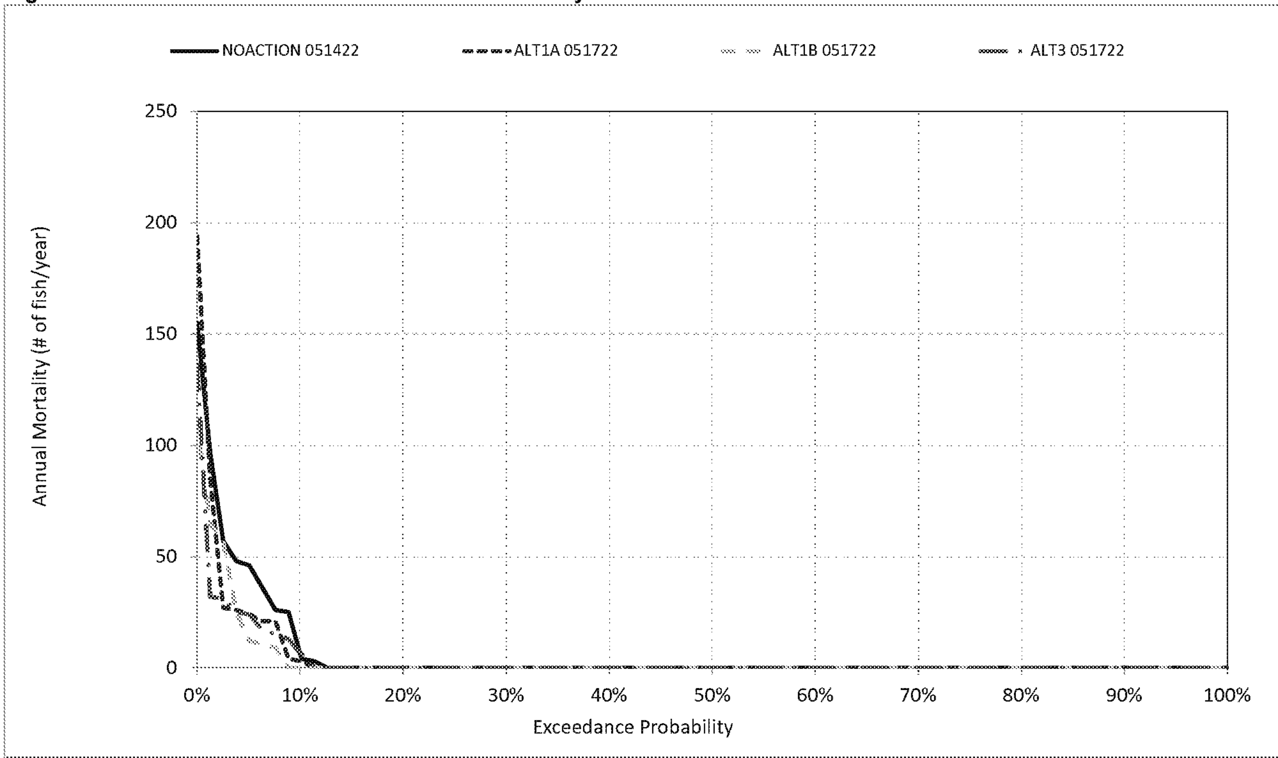


Figure B-a-12. Immature Smolt - Habitat based Annual Mortality for Winter-Run Chinook Salmon

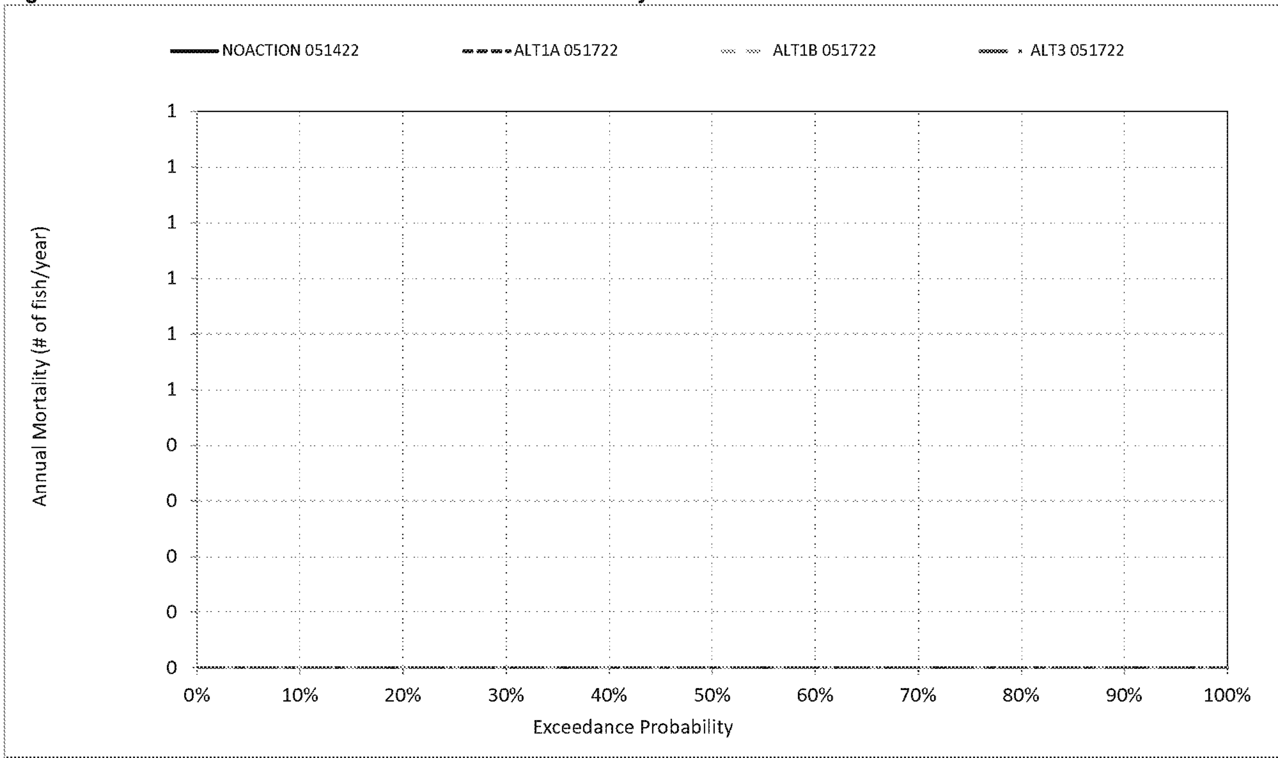


Figure B-a-13. Total Habitat based Annual Mortality for Winter-Run Chinook Salmon

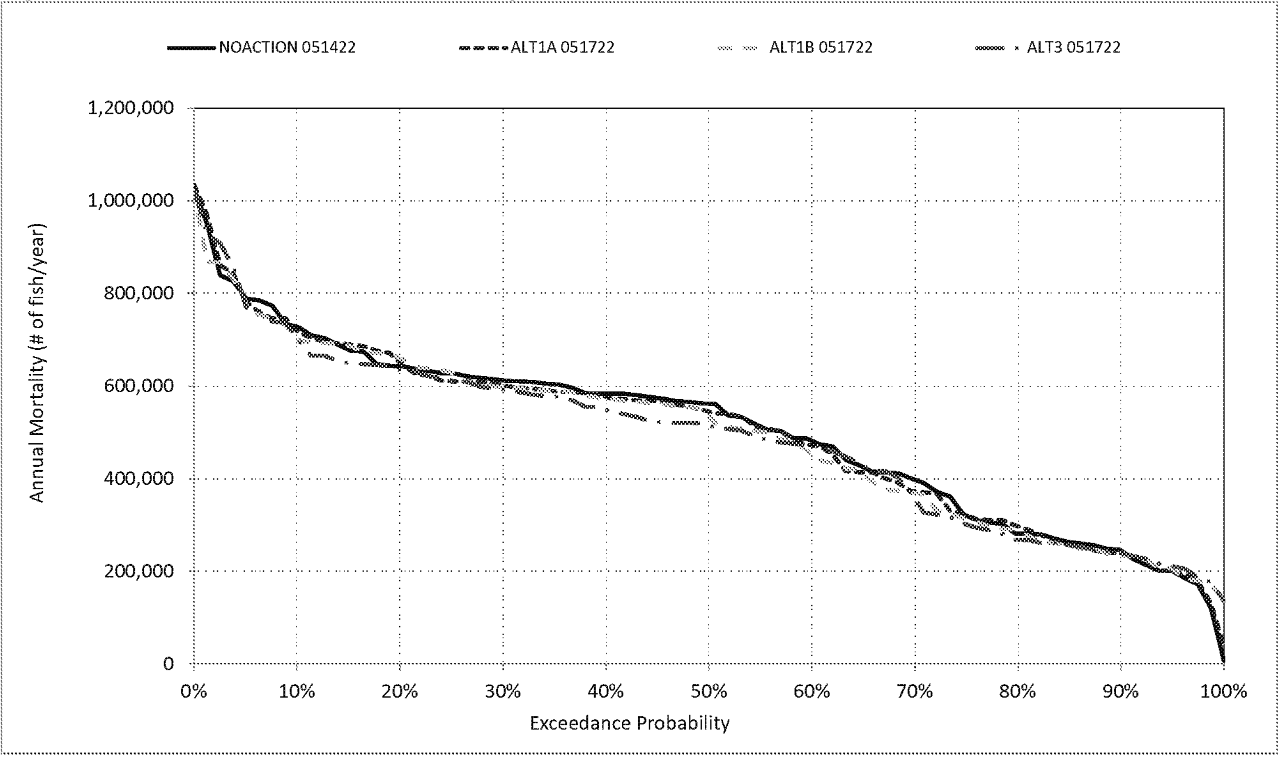


Figure B-a-14. Pre-Spawn Mortality - Temperature based Annual Mortality for Winter-Run Chinook Salmon

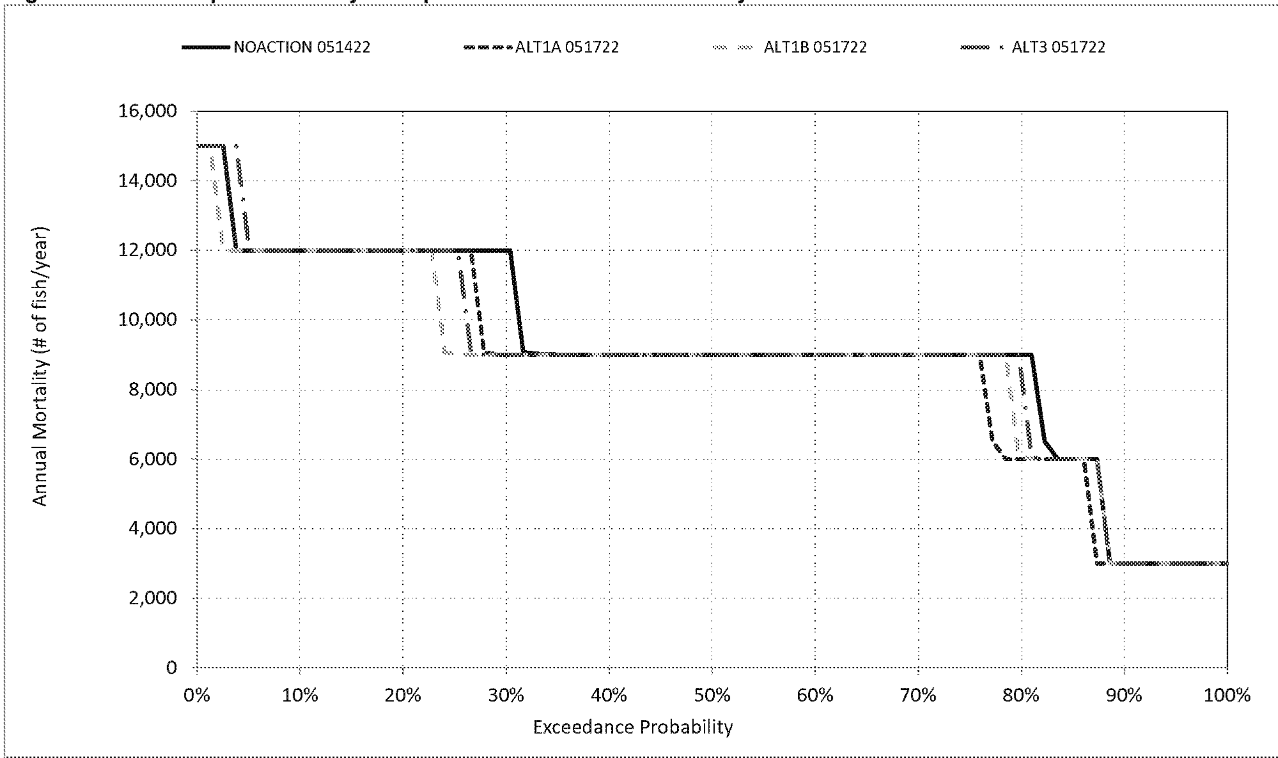


Figure B-a-15. Eggs - Temperature based Annual Mortality for Winter-Run Chinook Salmon

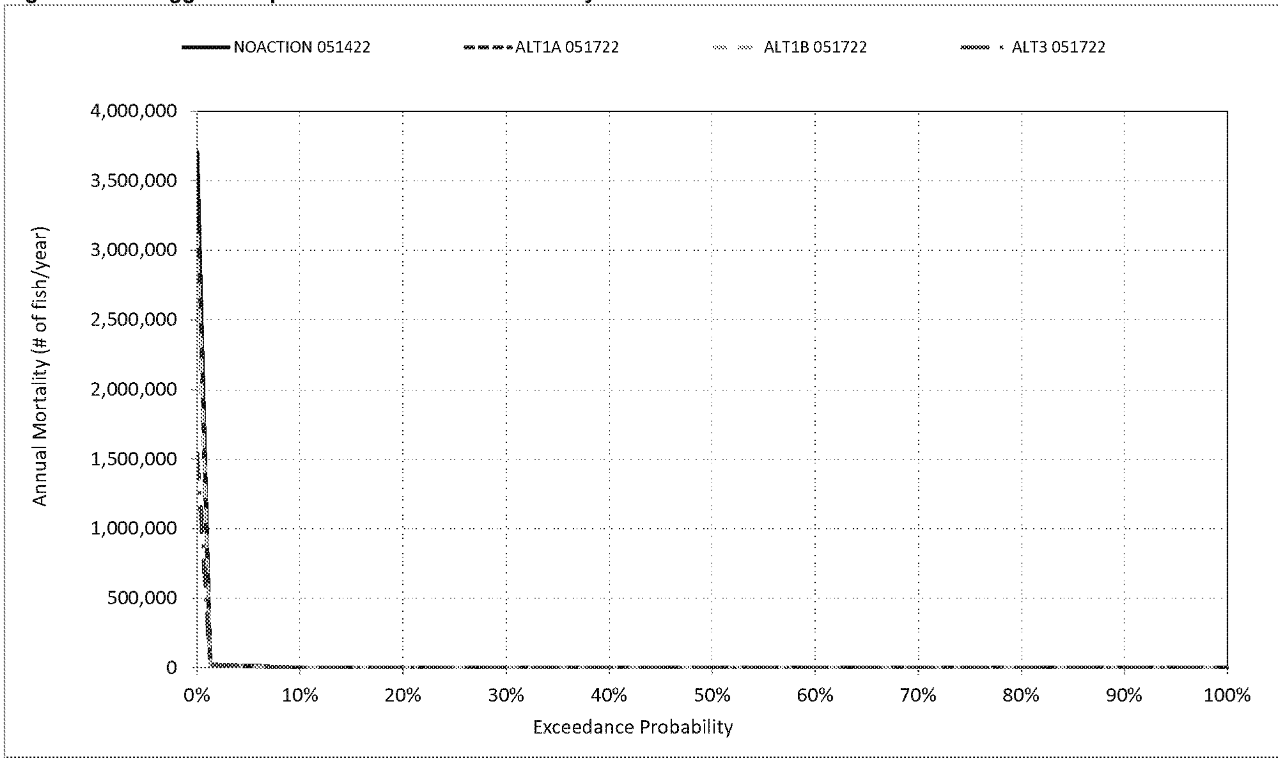


Figure B-a-16. Fry - Temperature based Annual Mortality for Winter-Run Chinook Salmon

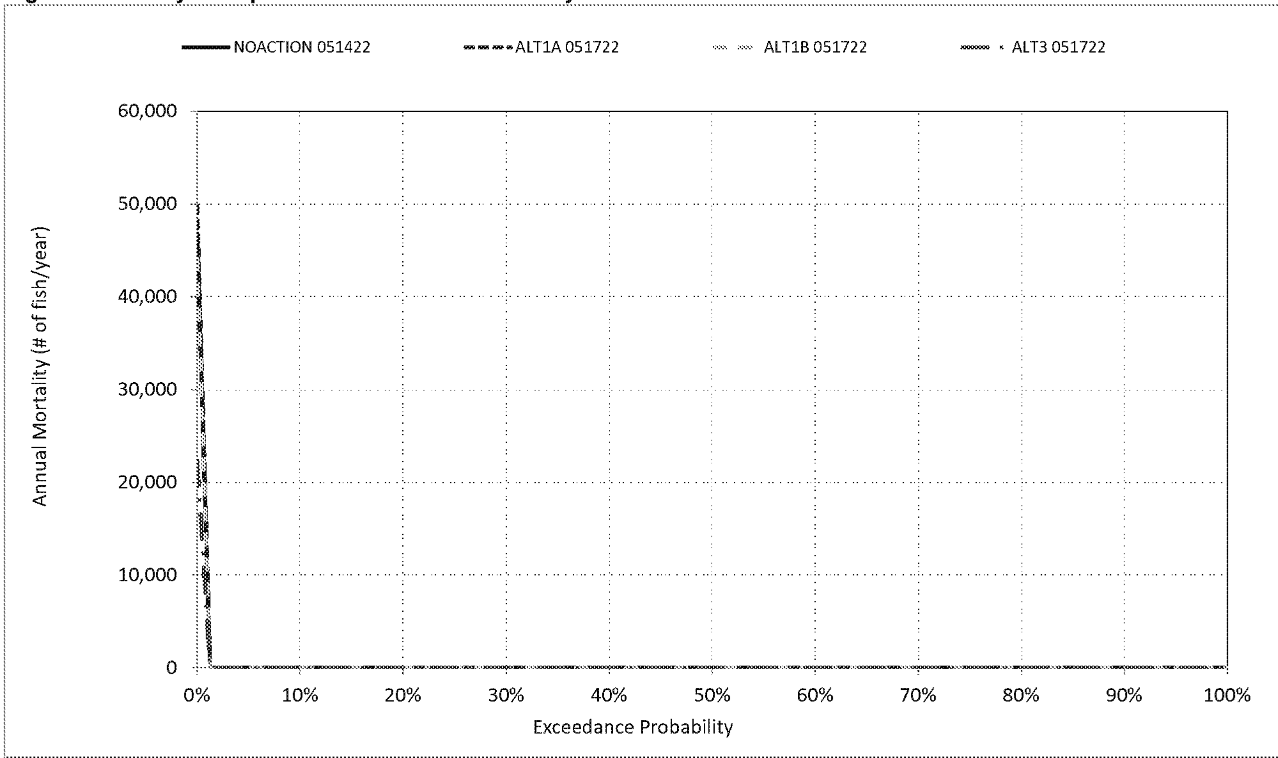


Figure B-a-17. Pre-smolt - Temperature based Annual Mortality for Winter-Run Chinook Salmon

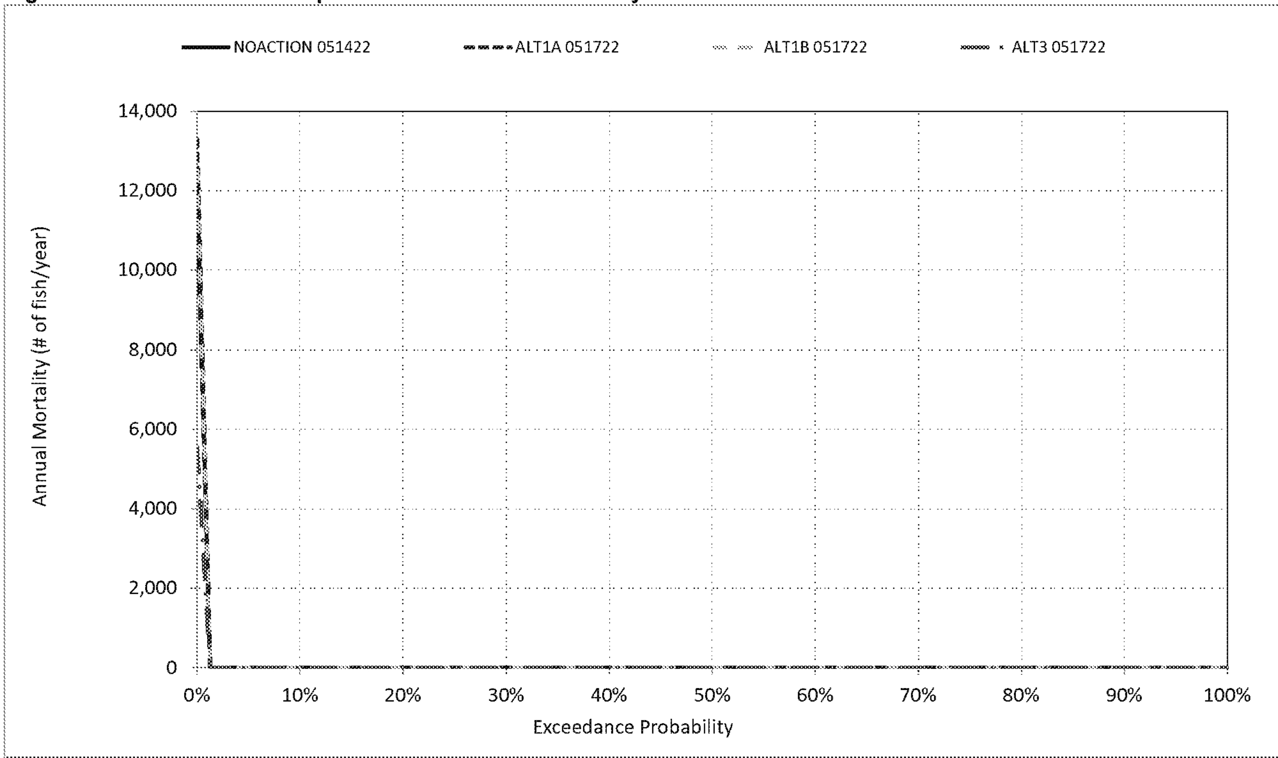


Figure B-a-18. Immature Smolt - Temperature based Annual Mortality for Winter-Run Chinook Salmon

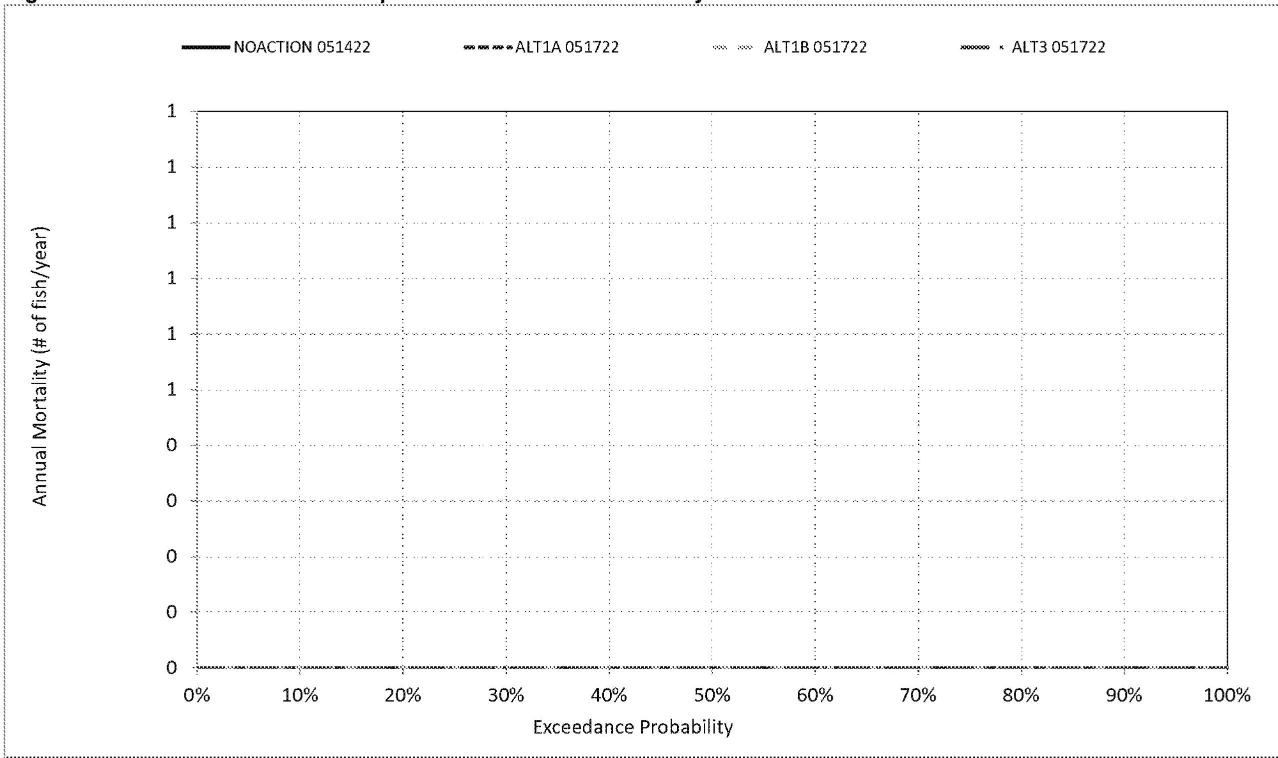


Figure B-a-19. Total Temperature based Annual Mortality for Winter-Run Chinook Salmon

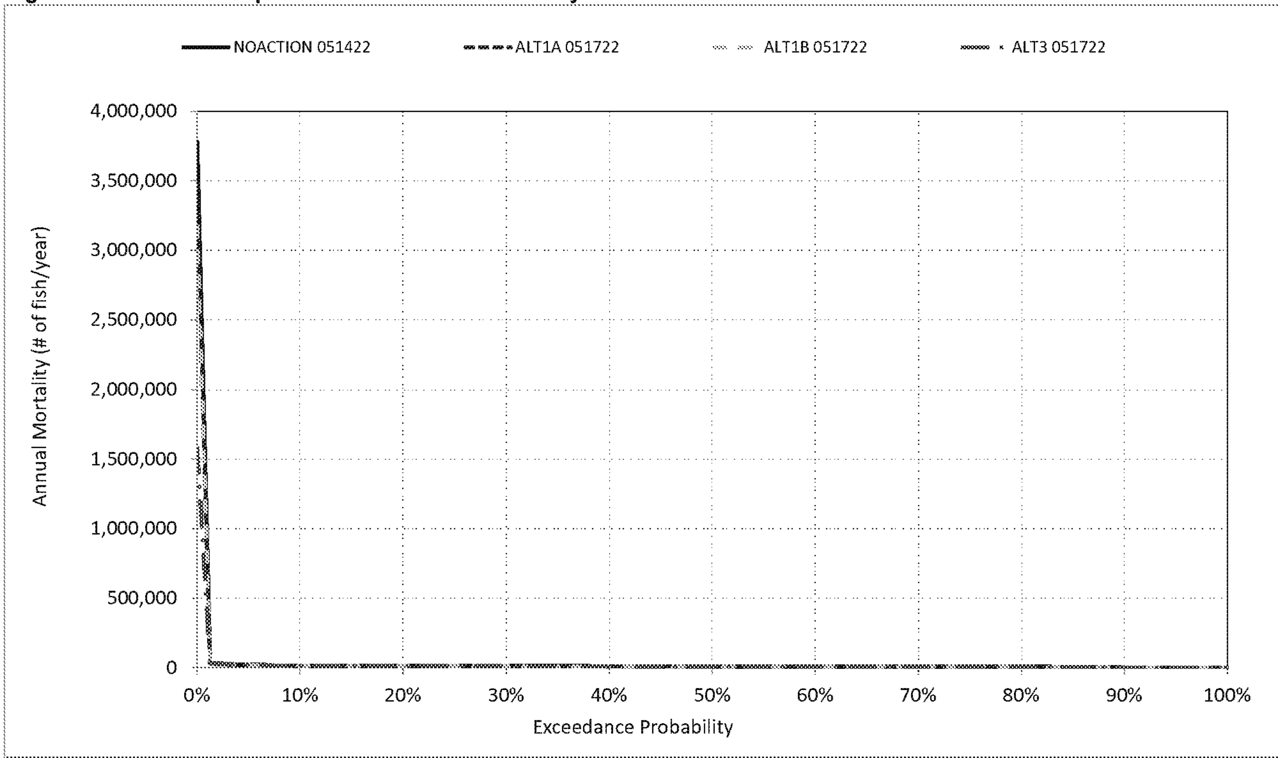


Figure B-b-1. Annual Potential Production for Spring-Run Chinook Salmon

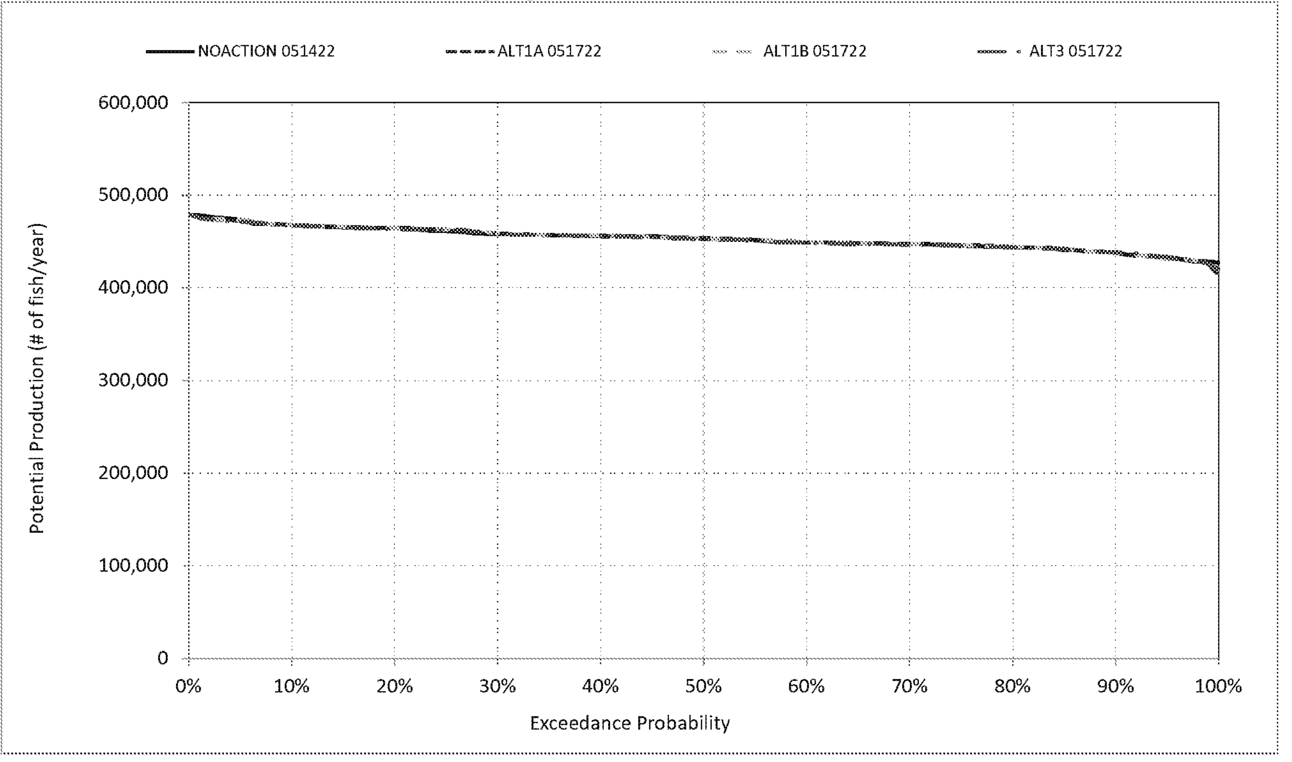


Figure B-b-2. Annual Mortality for Spring-Run Chinook Salmon - Eggs

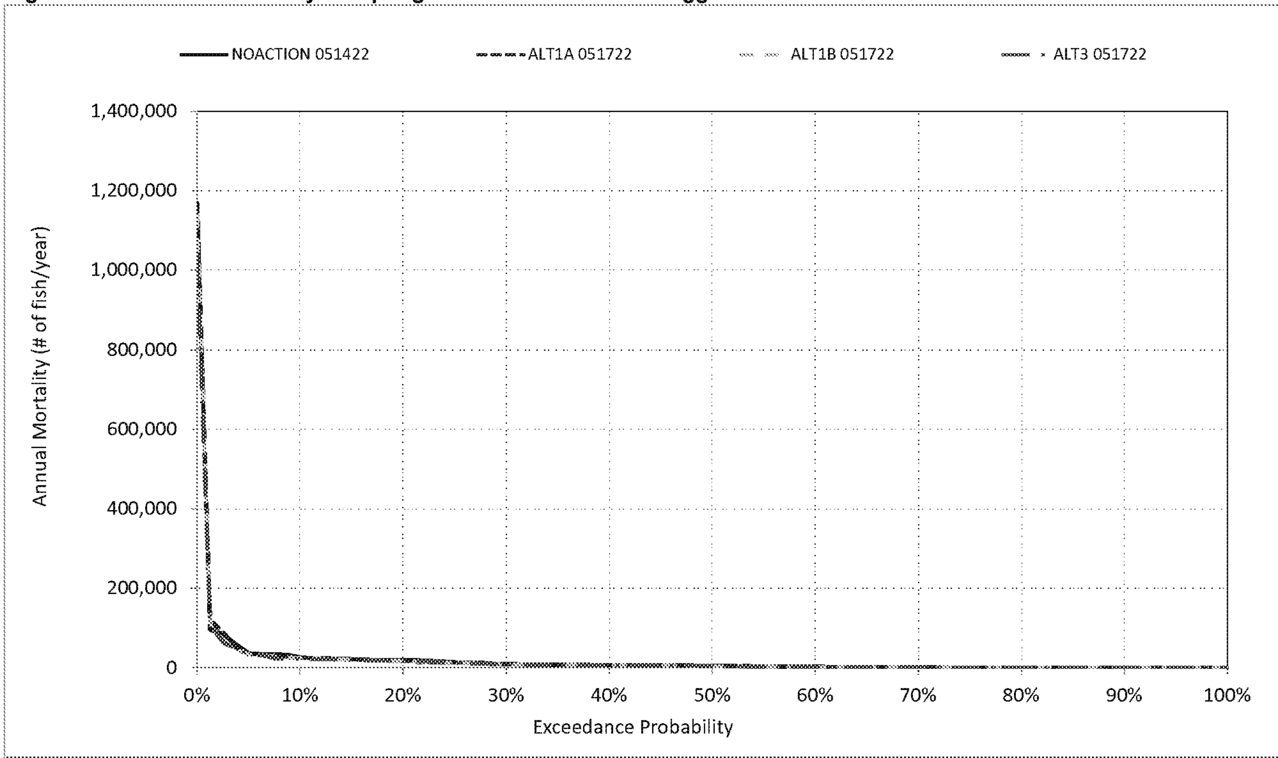


Figure B-b-3. Annual Mortality for Spring-Run Chinook Salmon - Fry

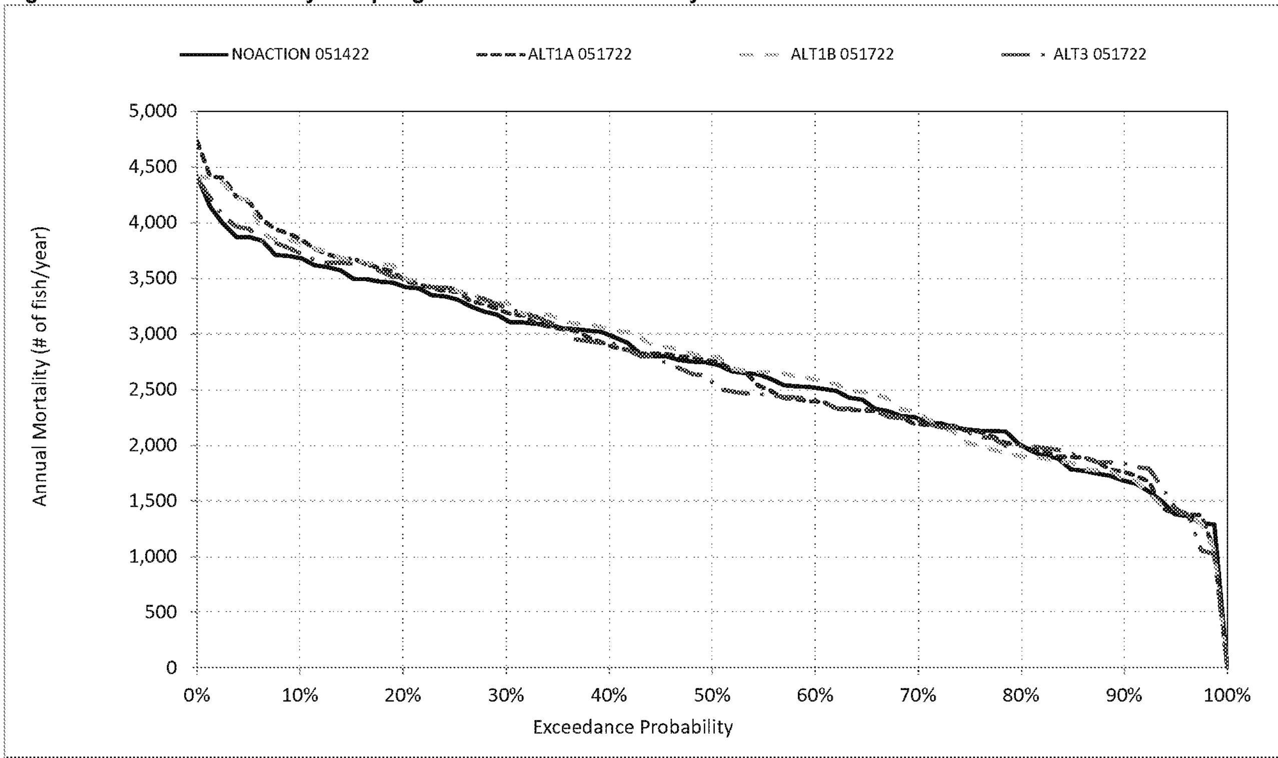


Figure B-b-4. Annual Mortality for Spring-Run Chinook Salmon - Pre-Smolt

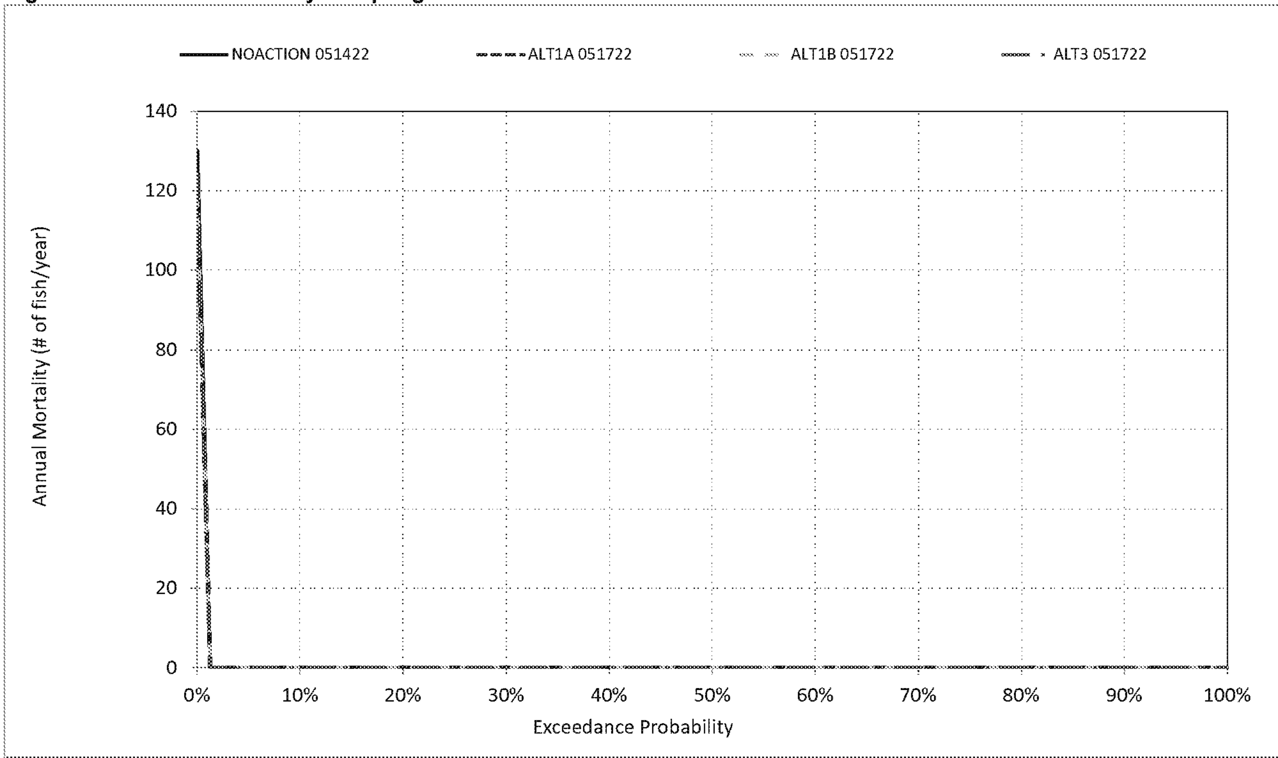


Figure B-b-5. Annual Mortality for Spring-Run Chinook Salmon - Immature Smolt

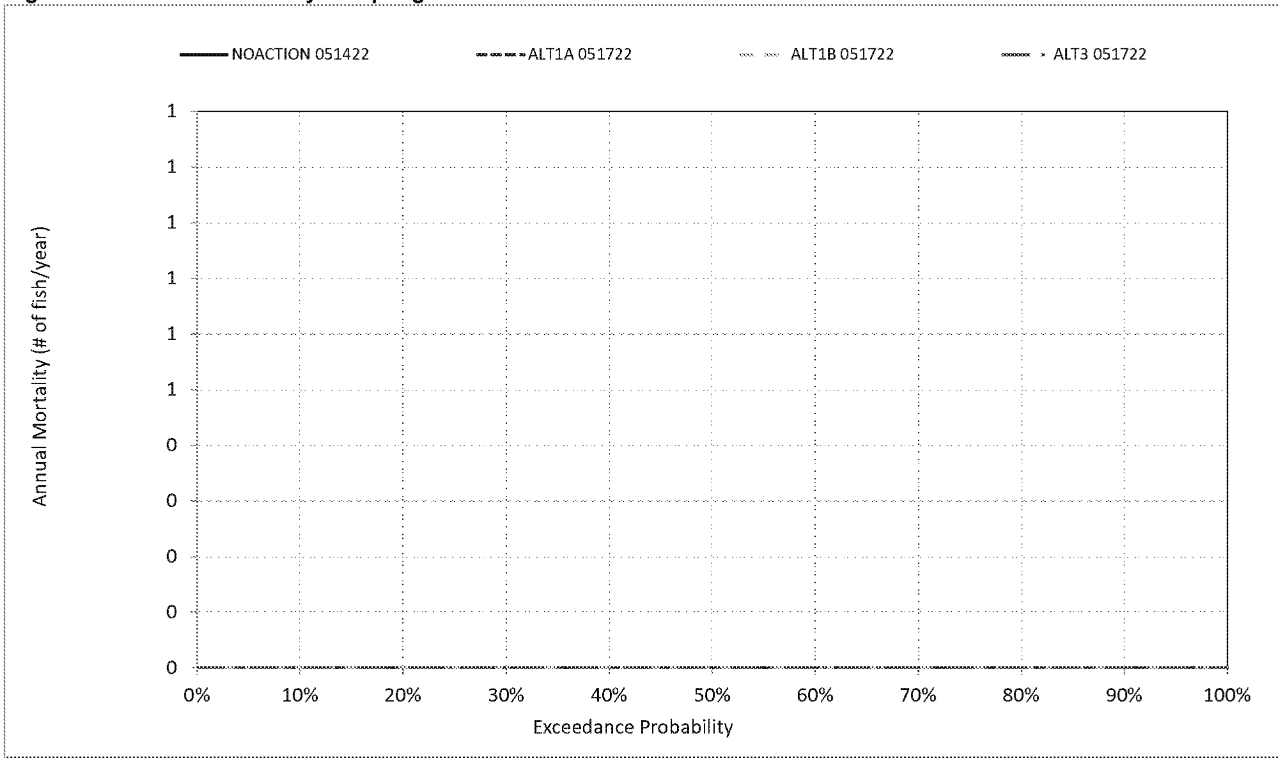


Figure B-b-6. Annual Mortality for Spring-Run Chinook Salmon - Pre- & Immature Smolts

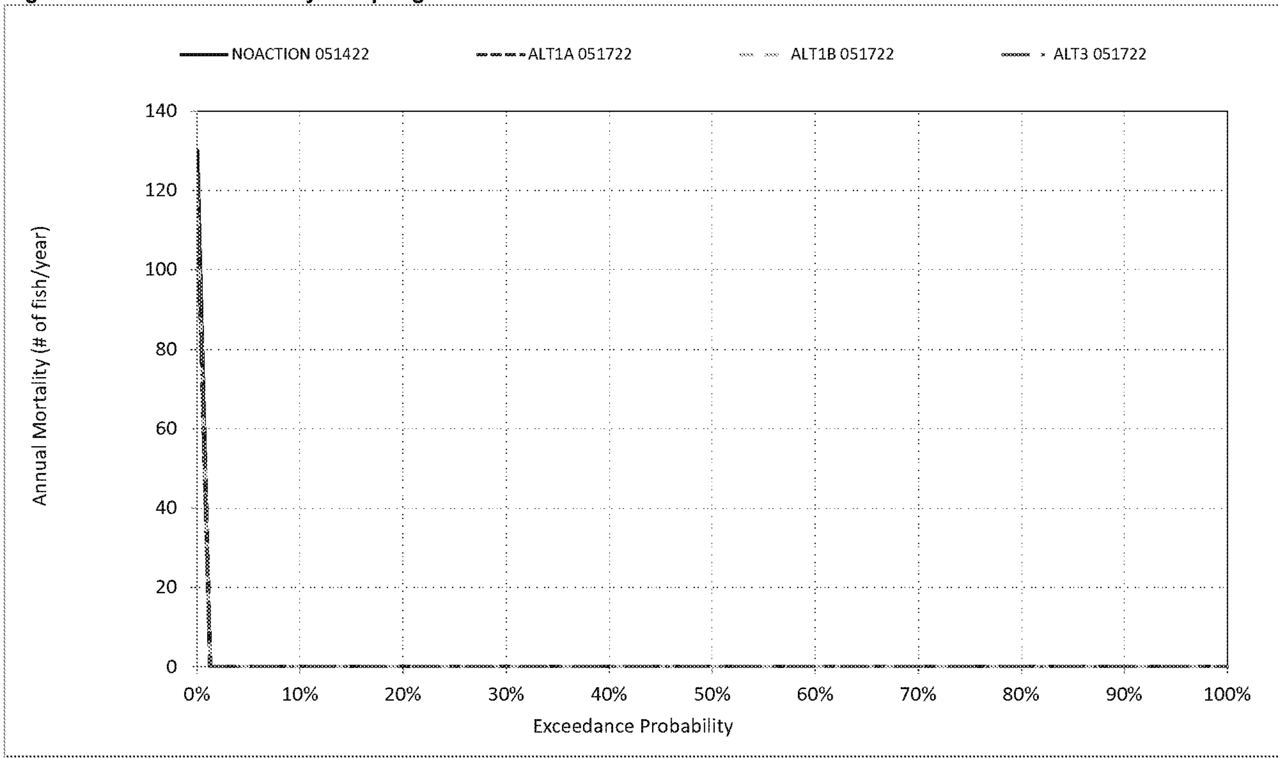


Figure B-b-7. Annual Mortality for Spring-Run Chinook Salmon - All Lifestages

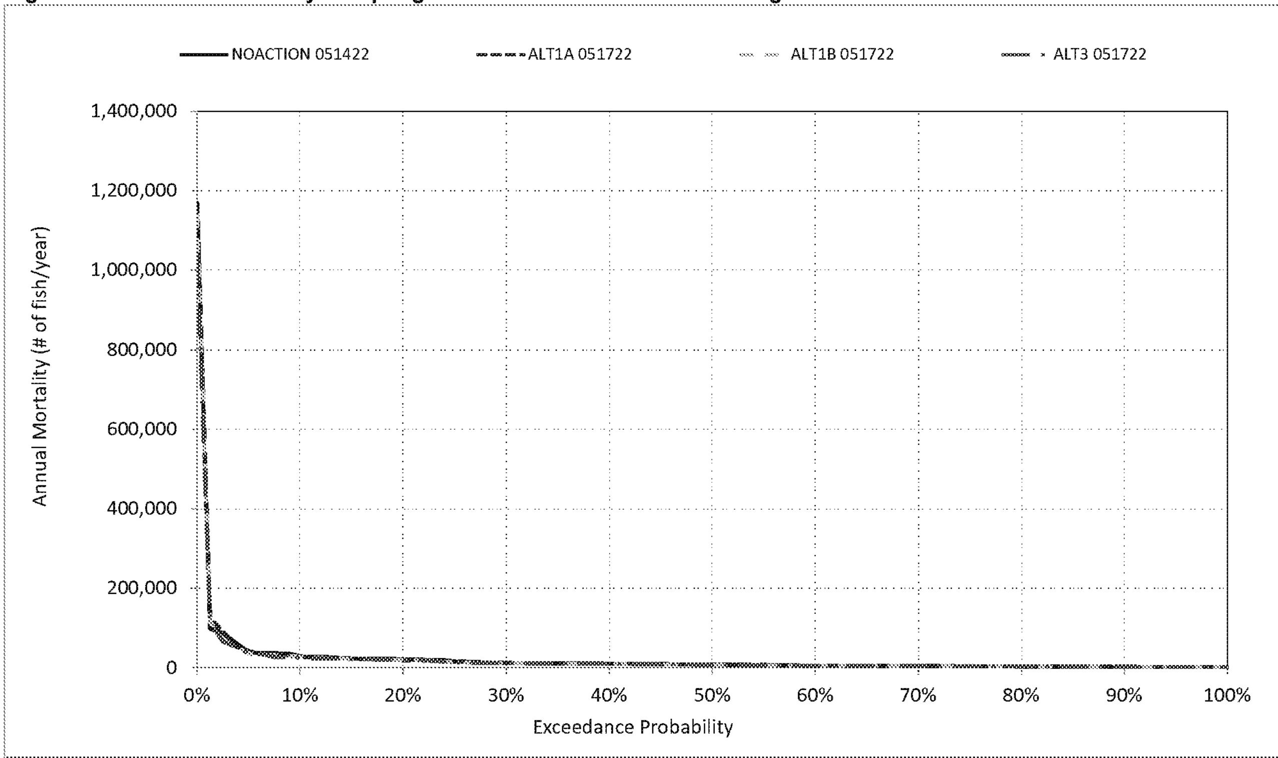


Figure B-b-8. Incubation - Habitat based Annual Mortality for Spring-Run Chinook Salmon

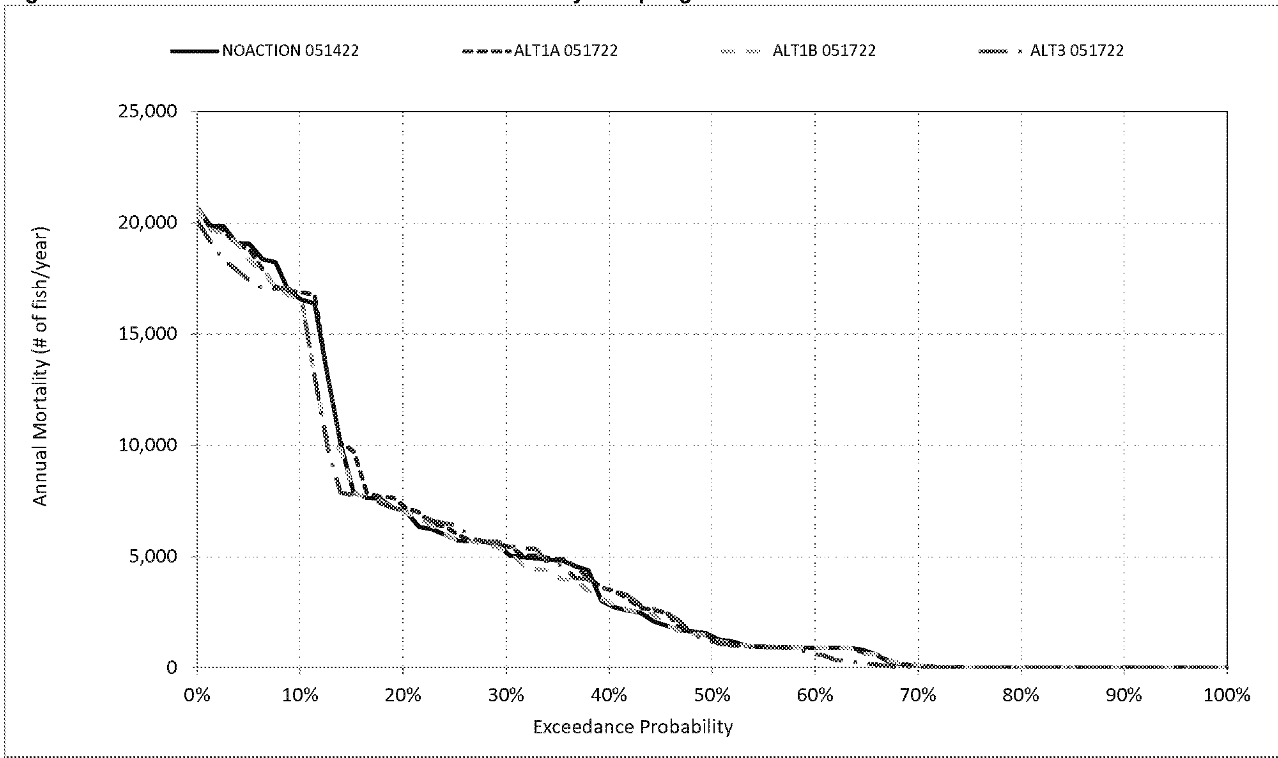


Figure B-b-9. Super-imposition - Habitat based Annual Mortality for Spring-Run Chinook Salmon

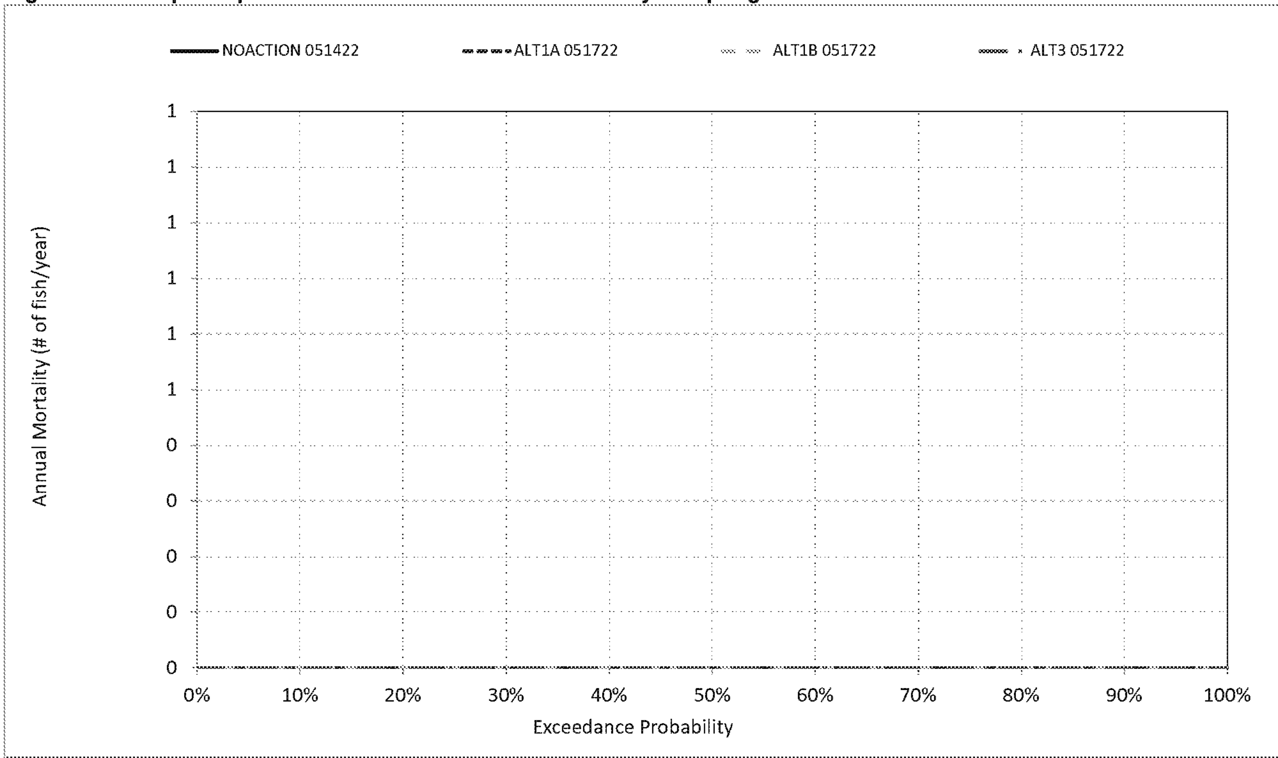


Figure B-b-10. Fry - Habitat based Annual Mortality for Spring-Run Chinook Salmon

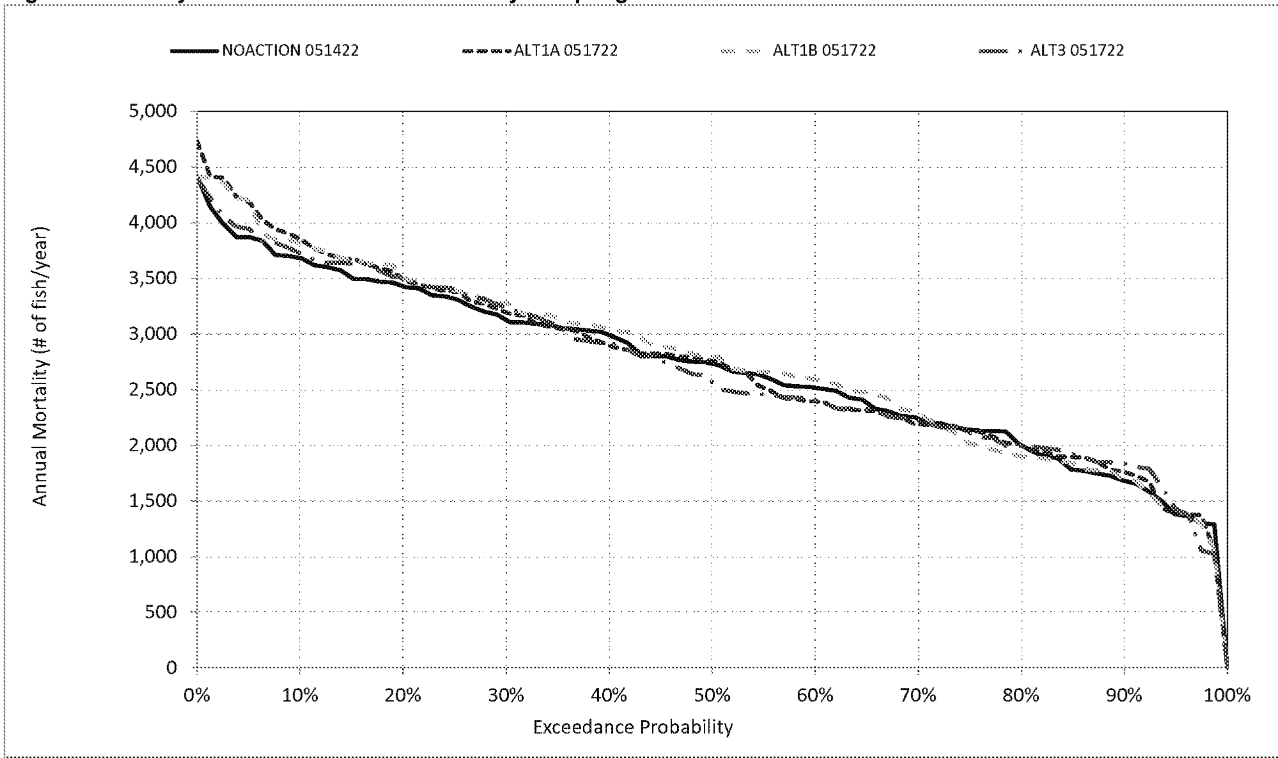


Figure B-b-11. Pre-smolt - Habitat based Annual Mortality for Spring-Run Chinook Salmon

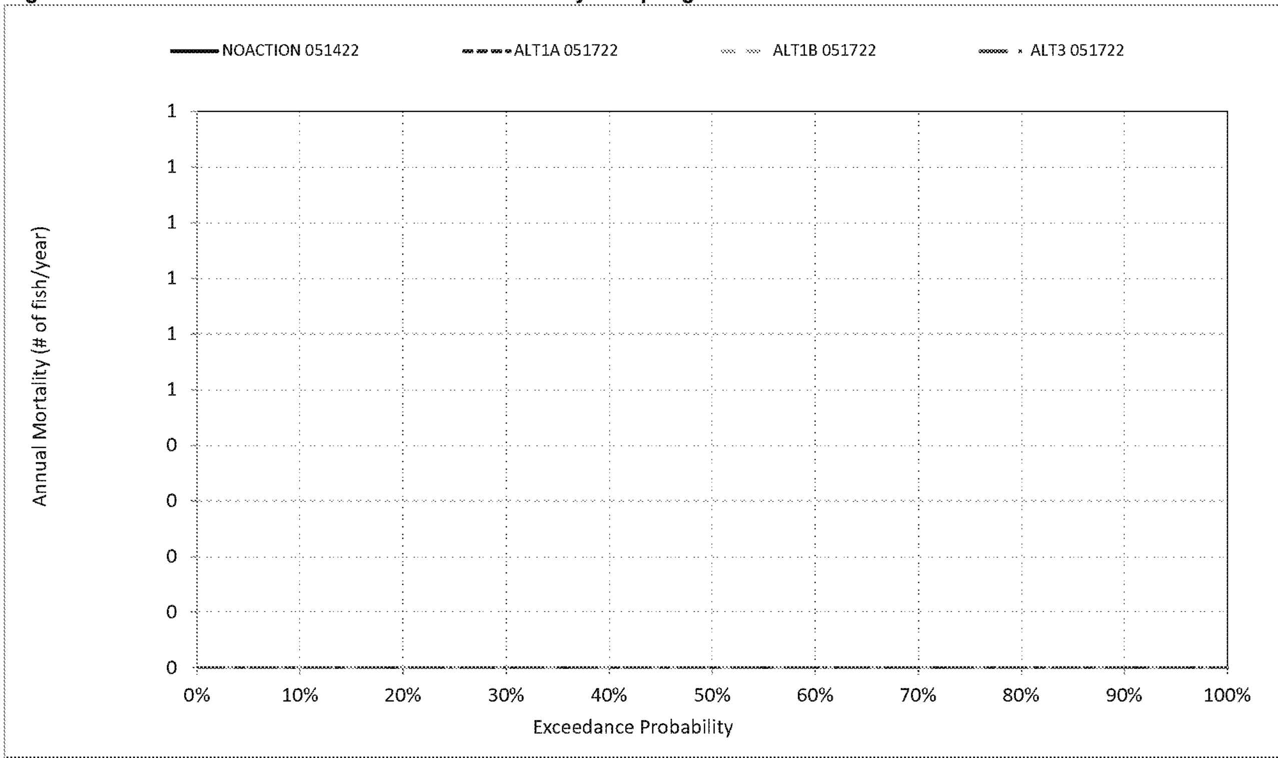


Figure B-b-12. Immature Smolt - Habitat based Annual Mortality for Spring-Run Chinook Salmon

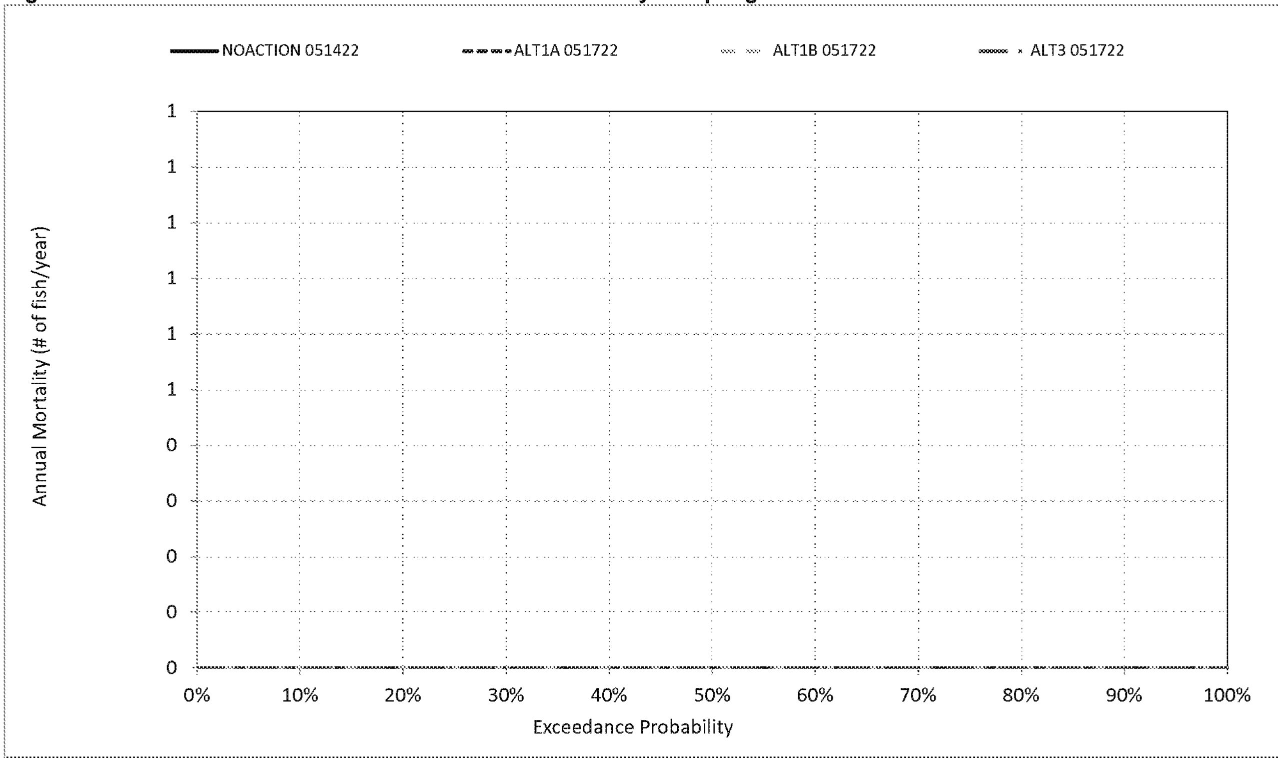


Figure B-b-13. Total Habitat based Annual Mortality for Spring-Run Chinook Salmon

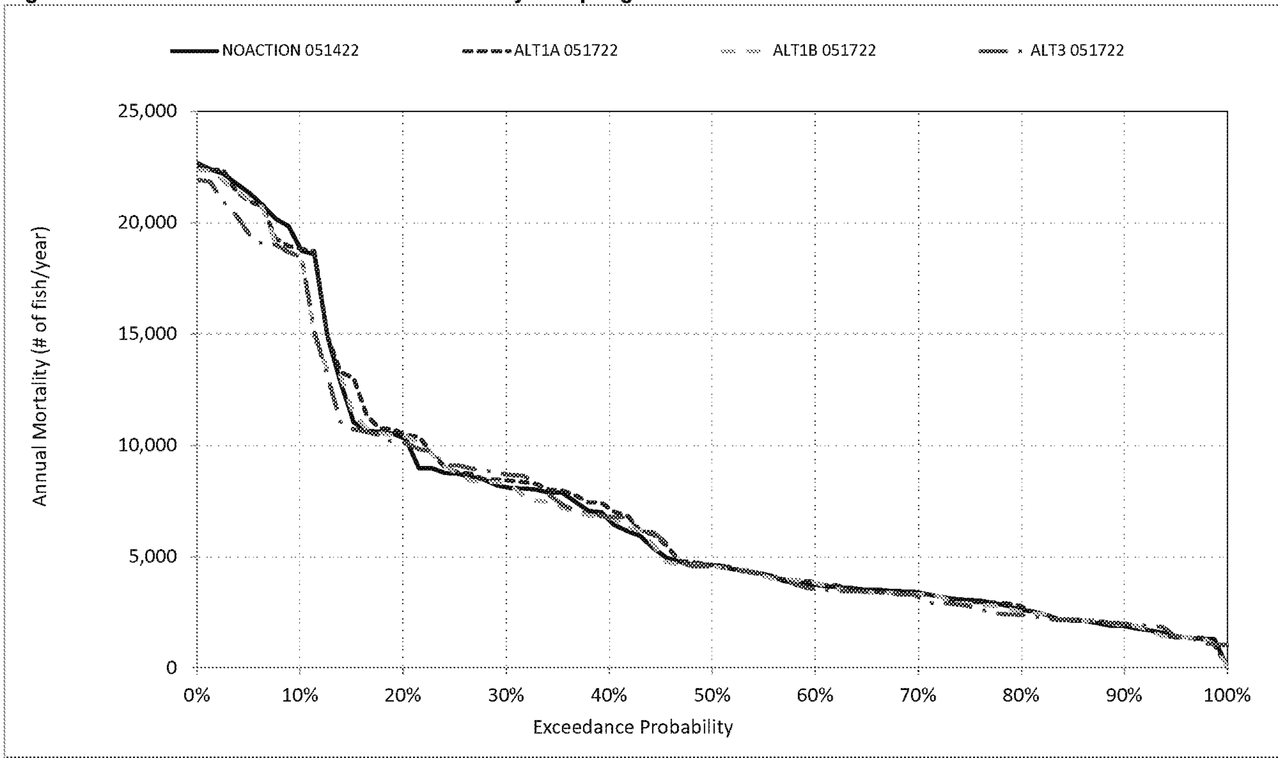


Figure B-b-14. Pre-Spawn Mortality - Temperature based Annual Mortality for Spring-Run Chinook Salmon

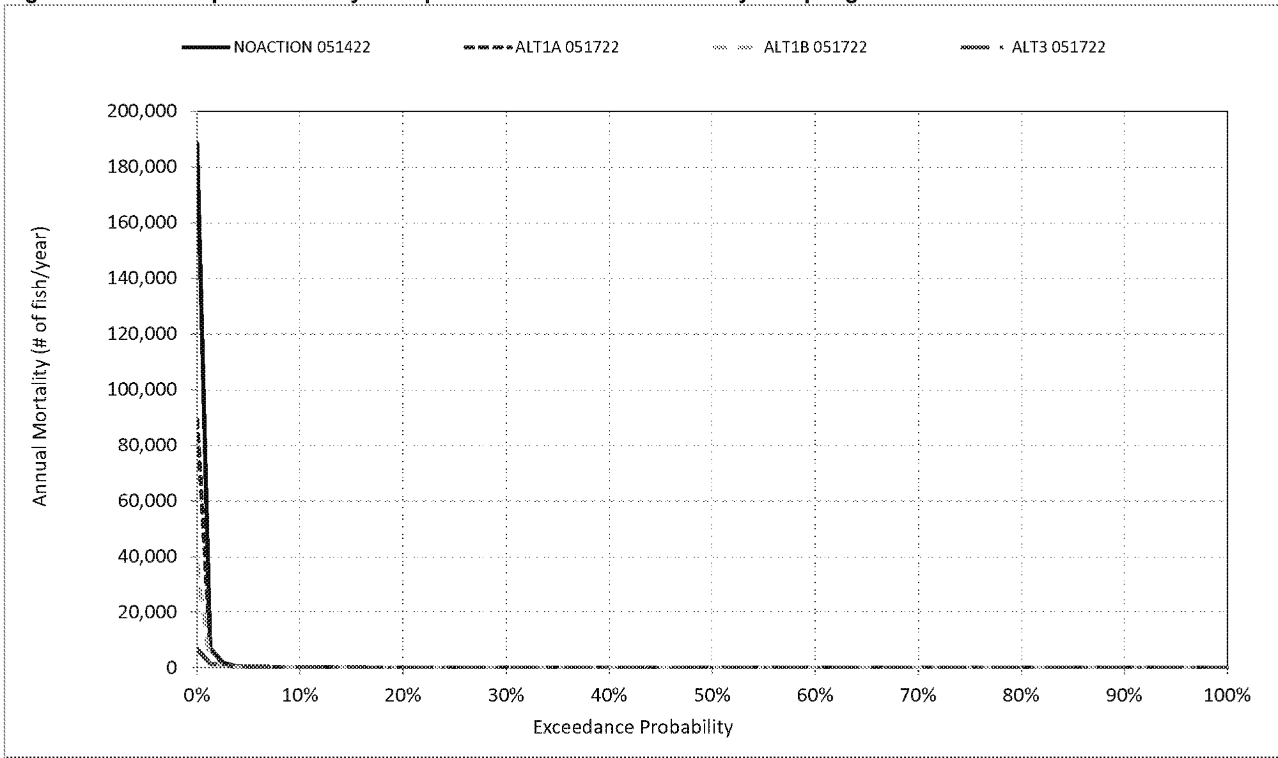


Figure B-b-15. Eggs - Temperature based Annual Mortality for Spring-Run Chinook Salmon

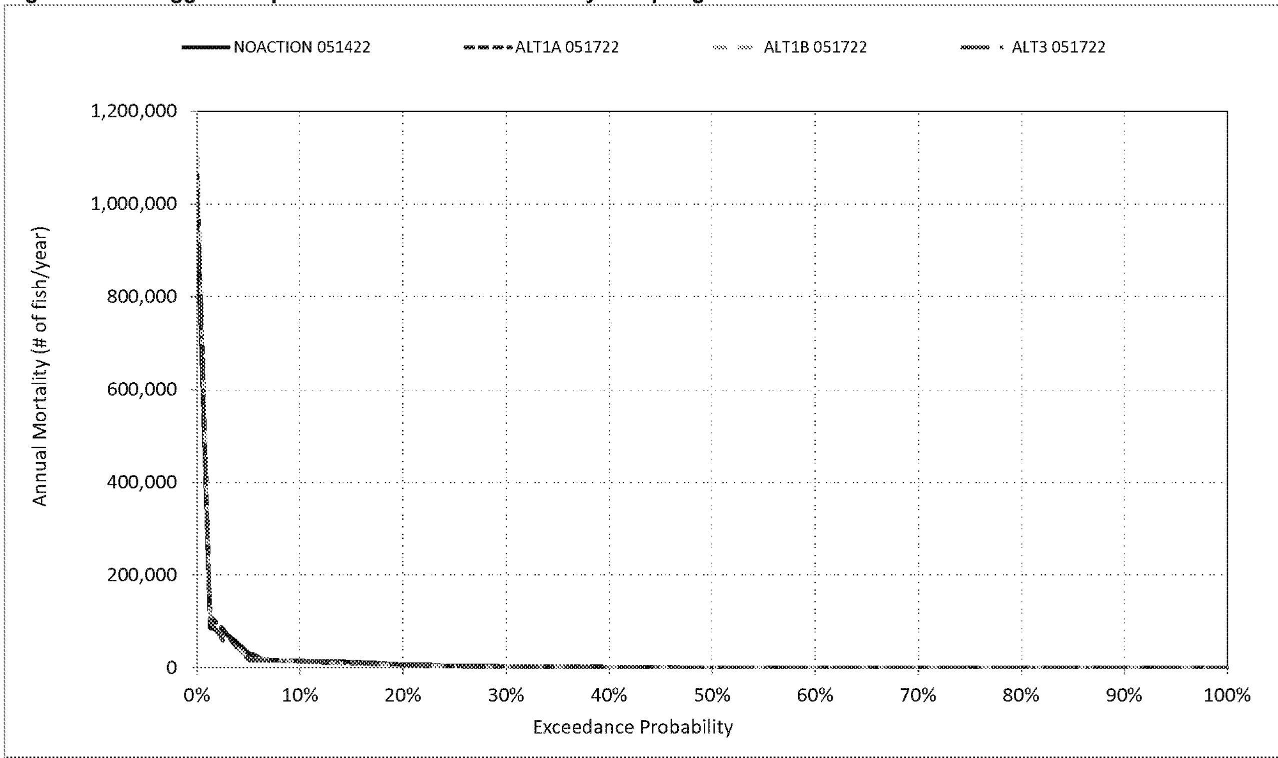


Figure B-b-16. Fry - Temperature based Annual Mortality for Spring-Run Chinook Salmon

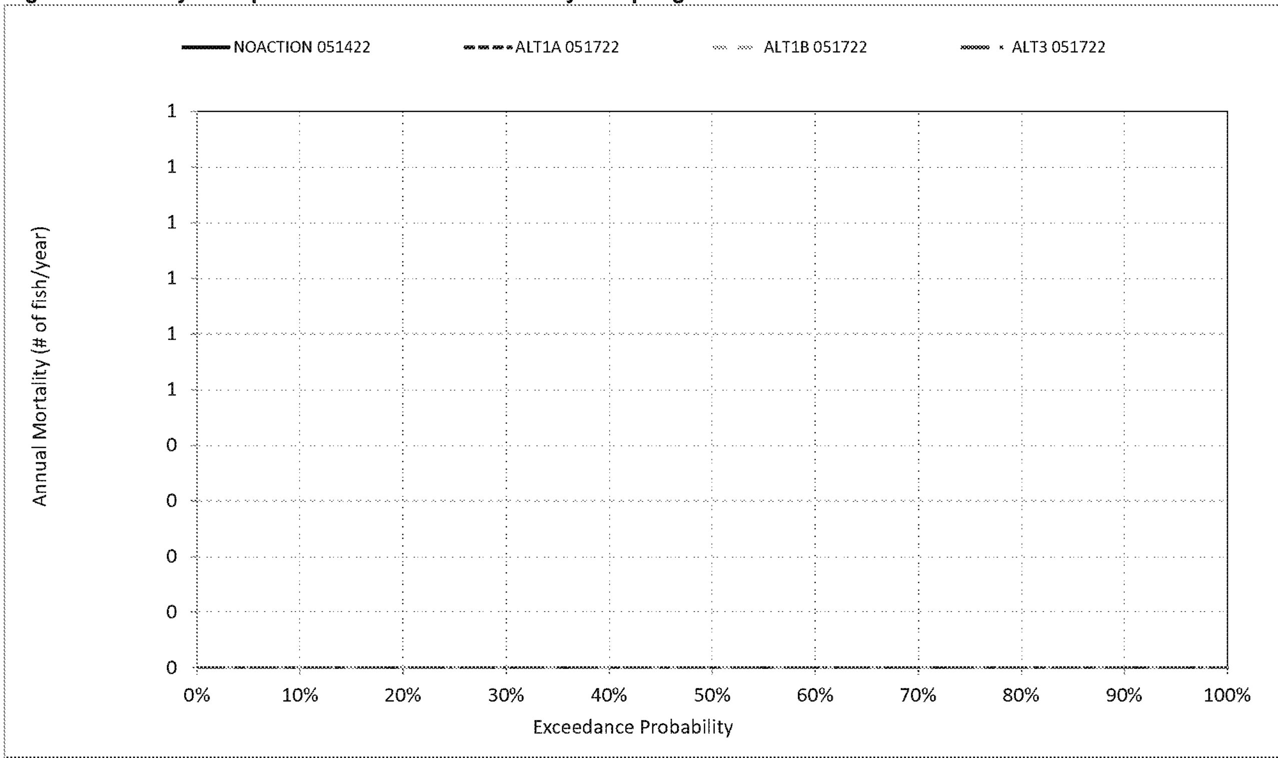


Figure B-b-17. Pre-smolt - Temperature based Annual Mortality for Spring-Run Chinook Salmon

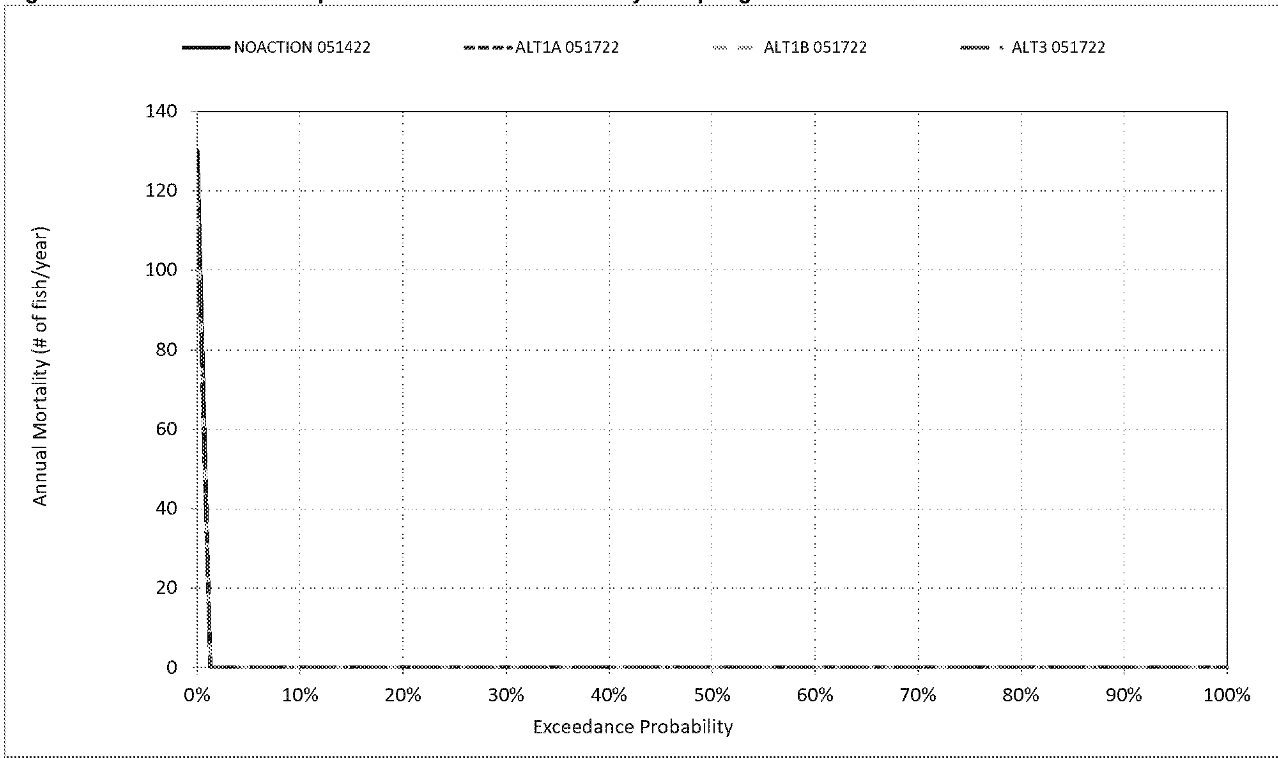


Figure B-b-18. Immature Smolt - Temperature based Annual Mortality for Spring-Run Chinook Salmon

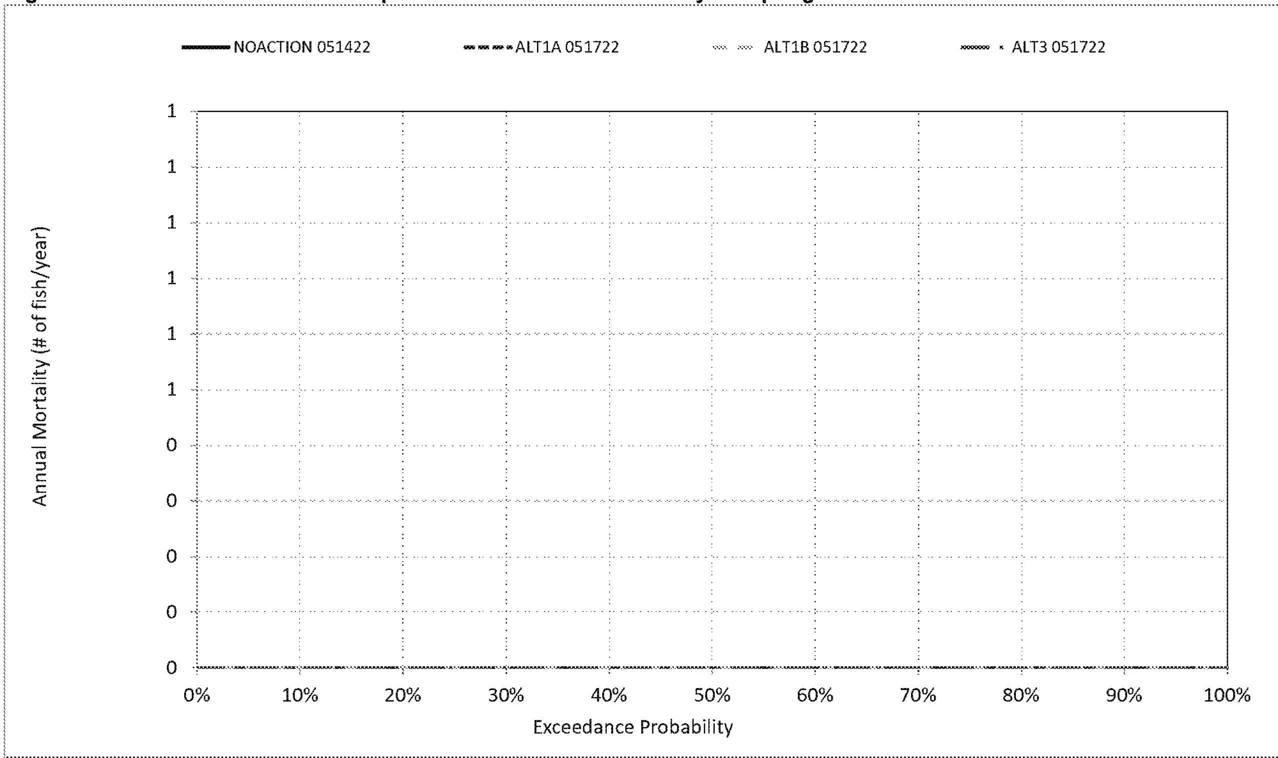


Figure B-b-19. Total Temperature based Annual Mortality for Spring-Run Chinook Salmon

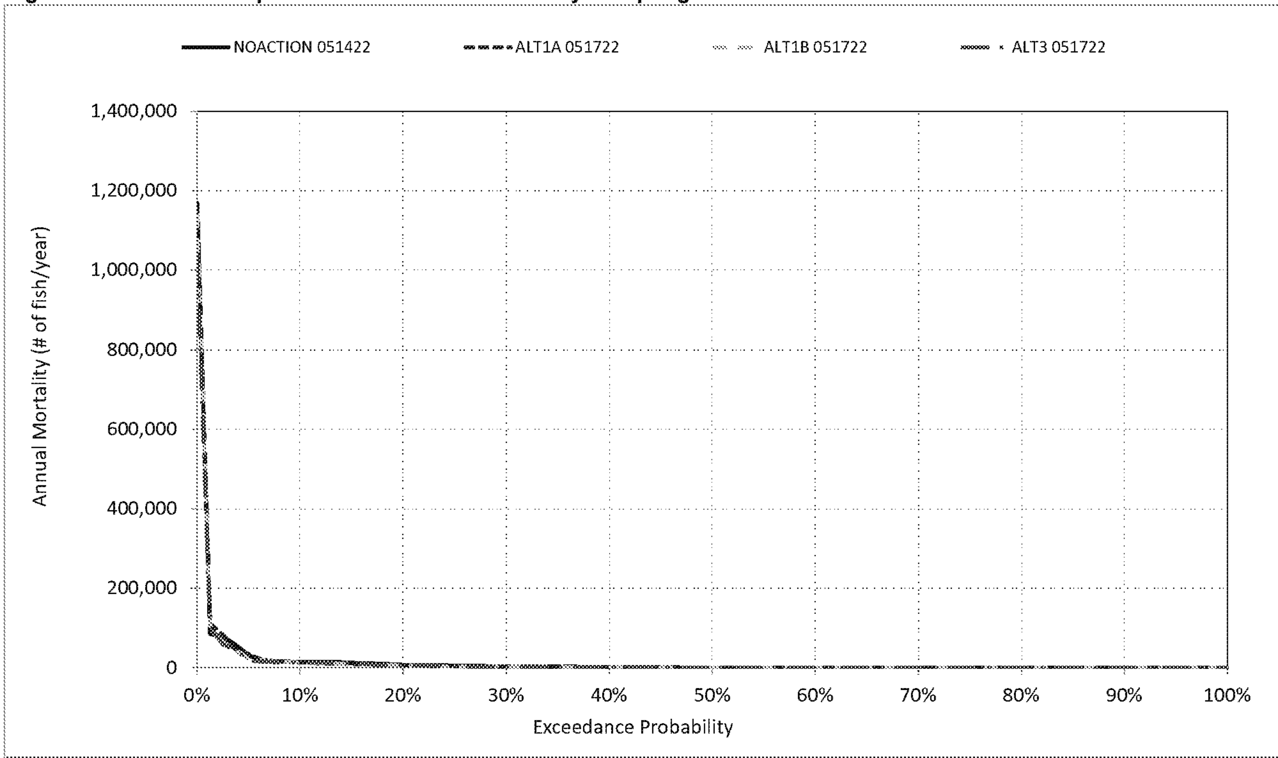


Figure B-c-1. Annual Potential Production for Fall-Run Chinook Salmon

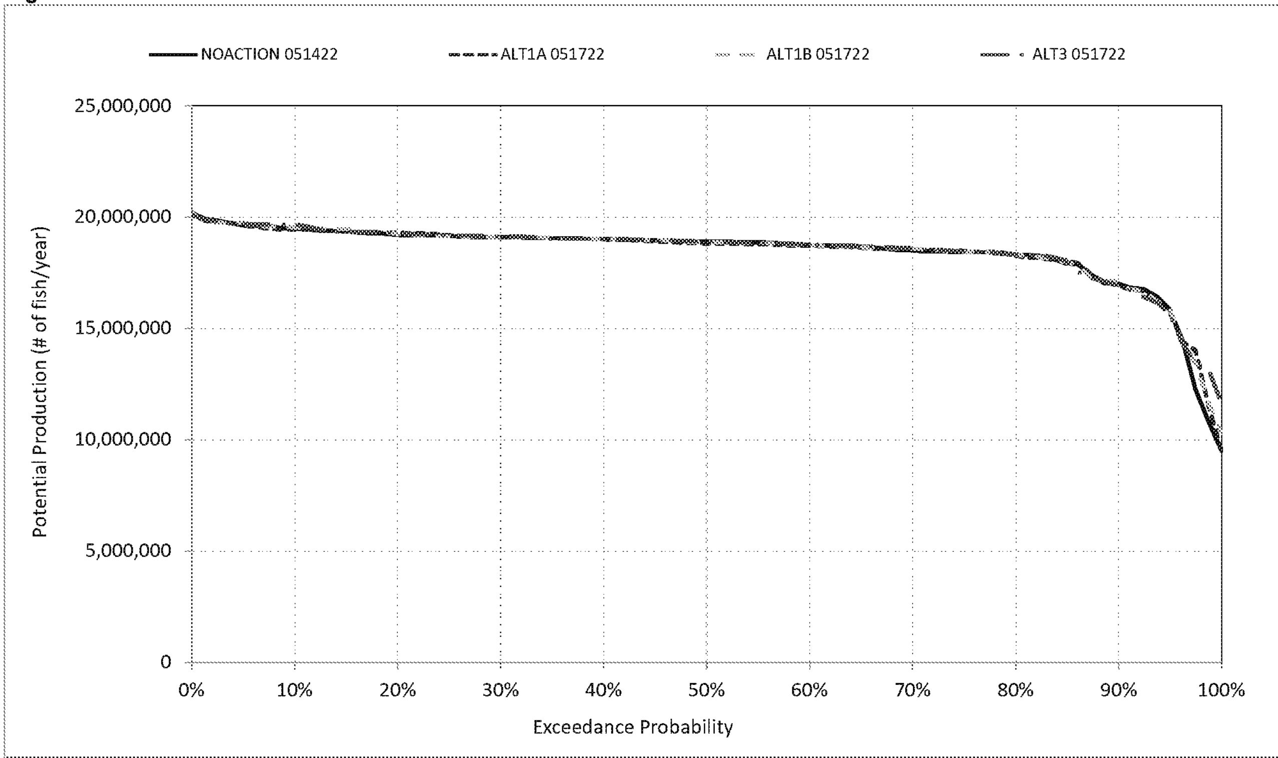


Figure B-c-2. Annual Mortality for Fall-Run Chinook Salmon - Eggs

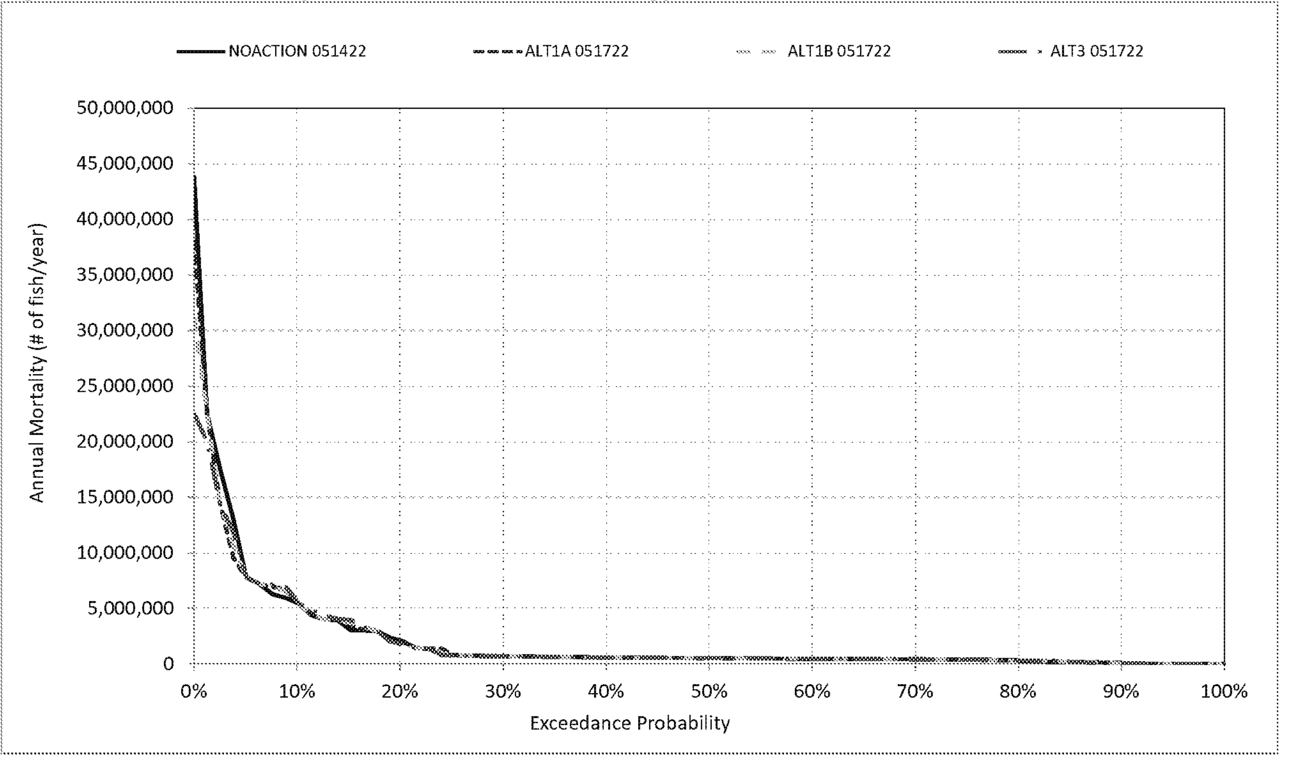


Figure B-c-3. Annual Mortality for Fall-Run Chinook Salmon - Fry

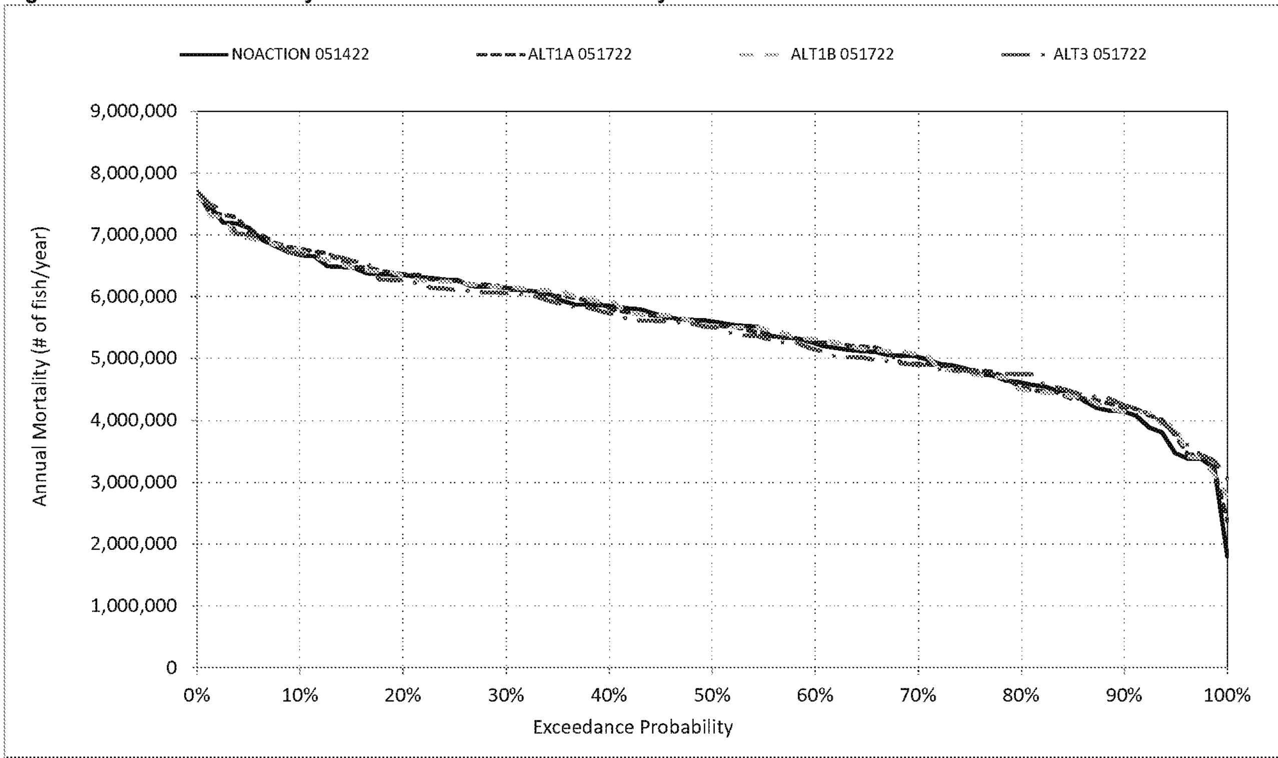


Figure B-c-4. Annual Mortality for Fall-Run Chinook Salmon - Pre-Smolt

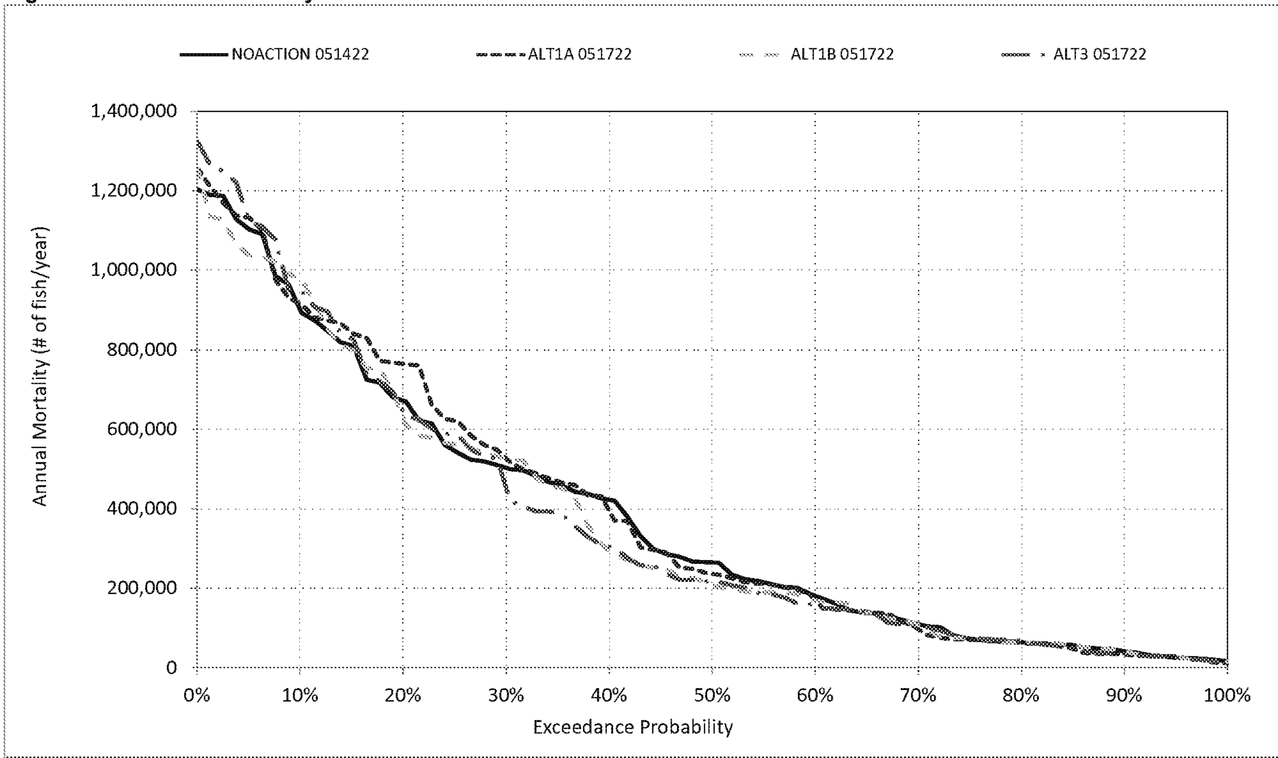


Figure B-c-5. Annual Mortality for Fall-Run Chinook Salmon - Immature Smolt

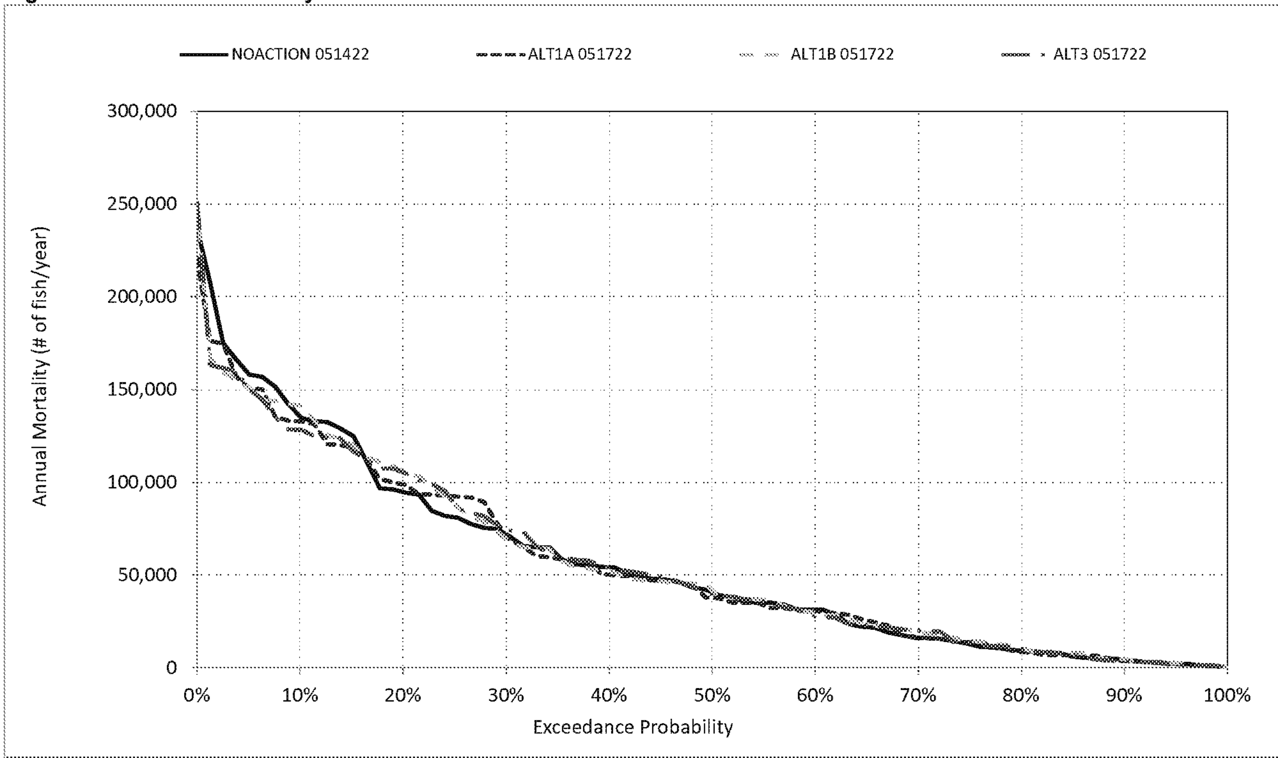


Figure B-c-6. Annual Mortality for Fall-Run Chinook Salmon - Pre- & Immature Smolts

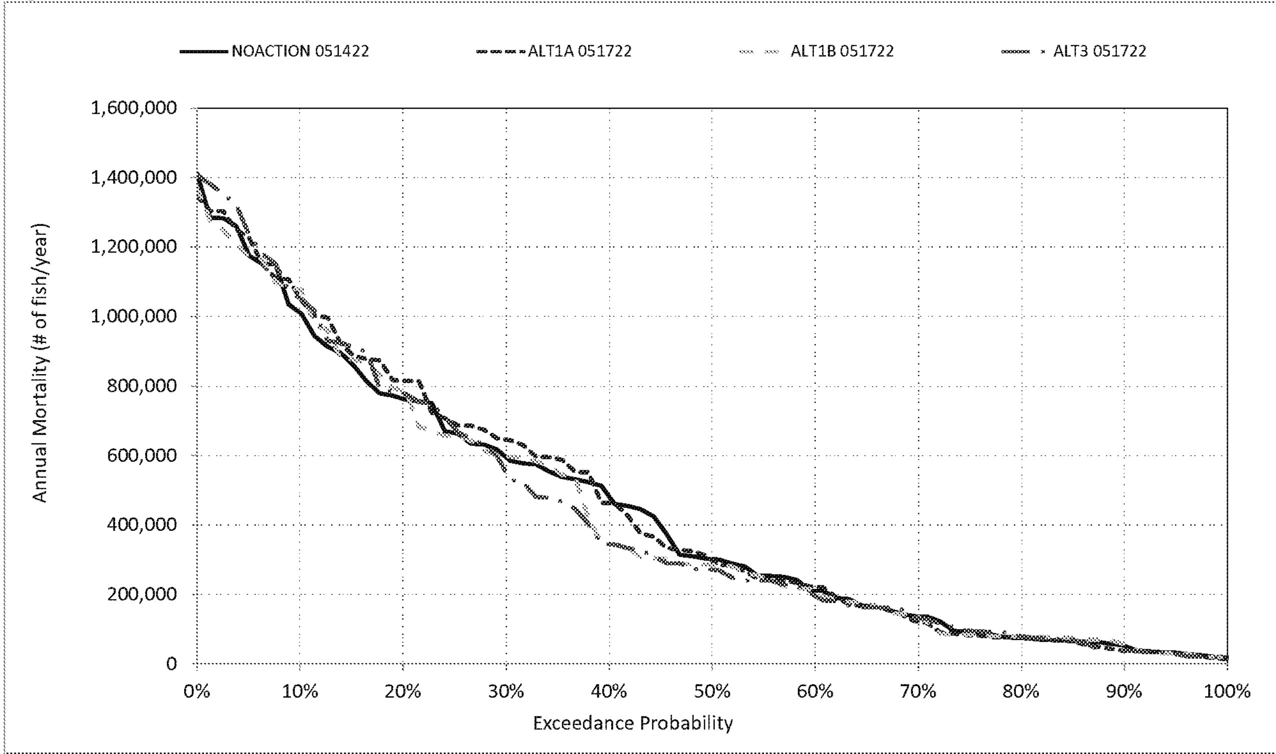


Figure B-c-7. Annual Mortality for Fall-Run Chinook Salmon - All Lifestages

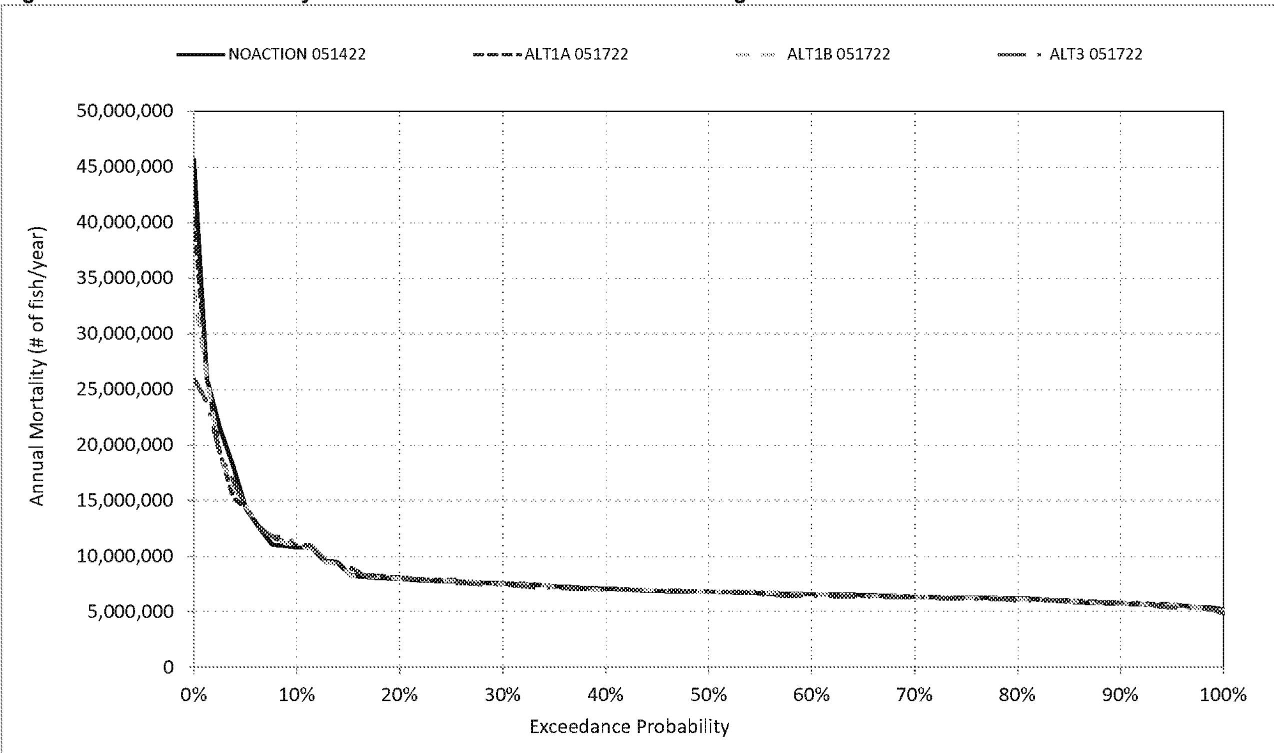


Figure B-c-8. Incubation - Habitat based Annual Mortality for Fall-Run Chinook Salmon

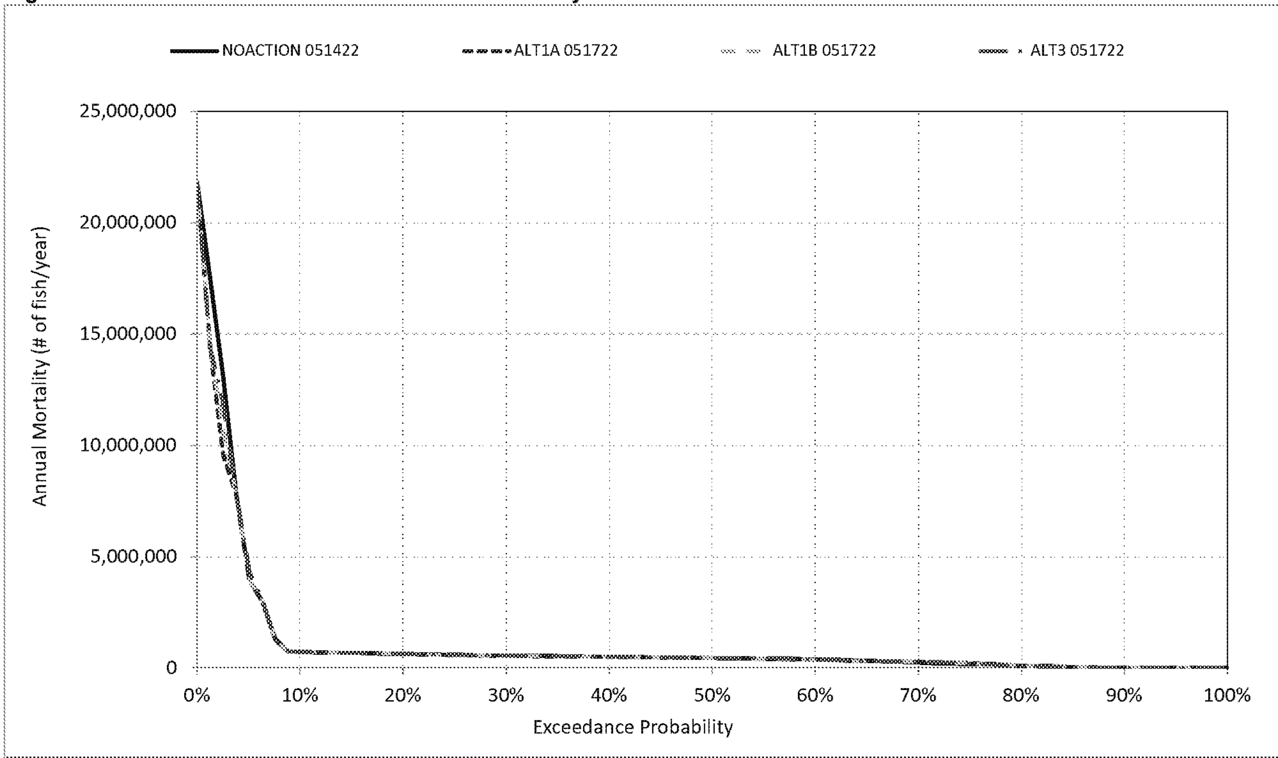


Figure B-c-9. Super-imposition - Habitat based Annual Mortality for Fall-Run Chinook Salmon

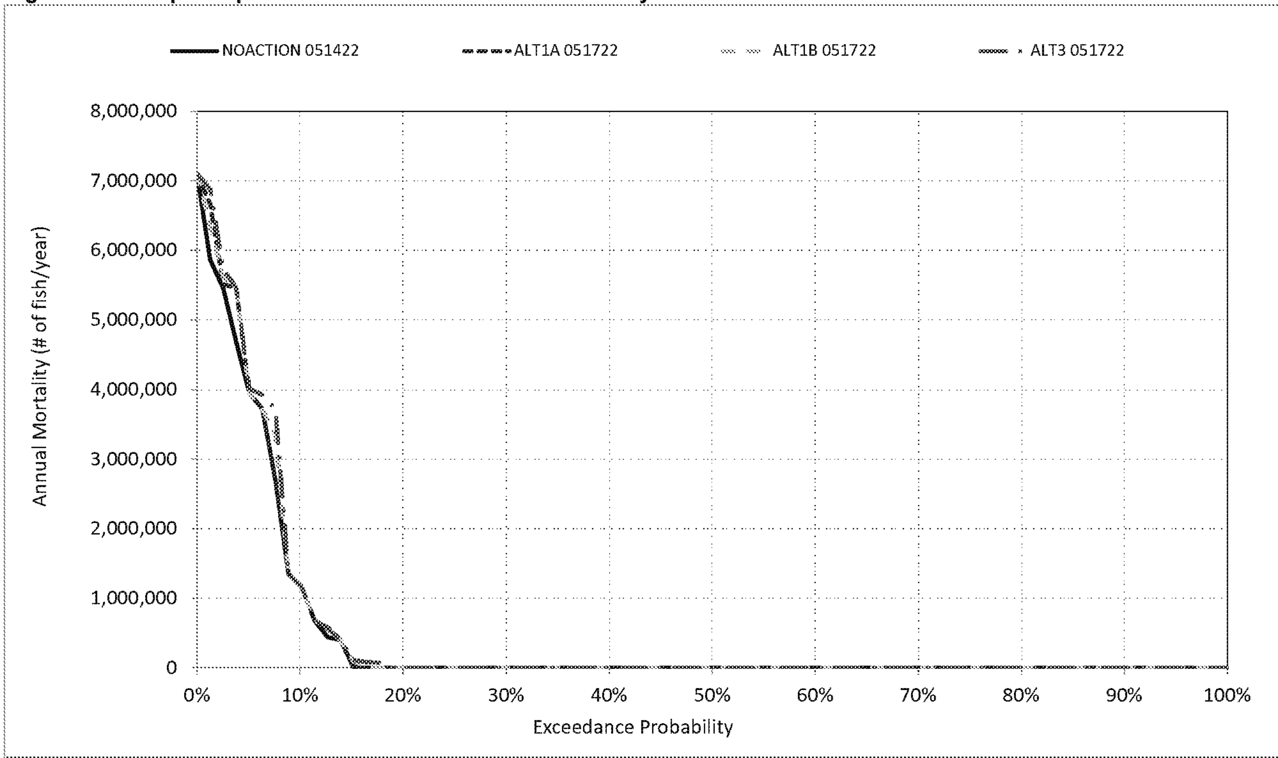


Figure B-c-10. Fry - Habitat based Annual Mortality for Fall-Run Chinook Salmon

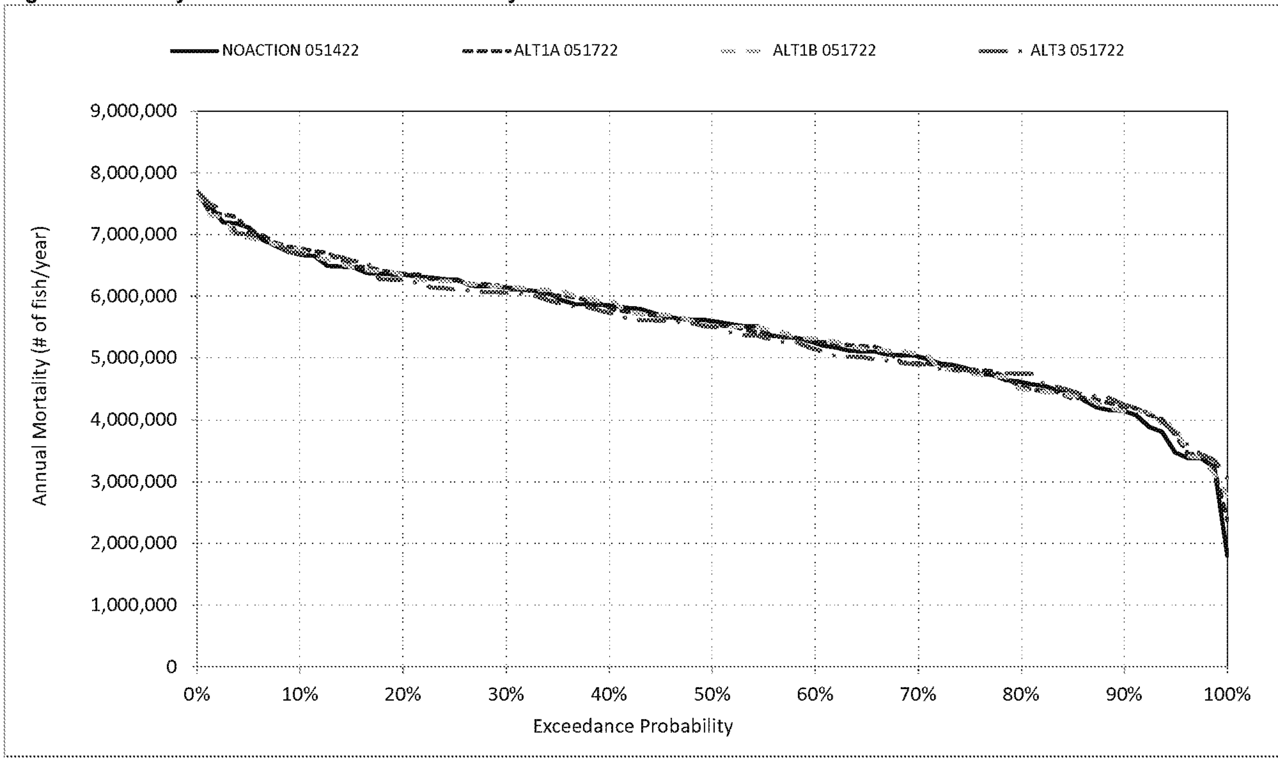


Figure B-c-11. Pre-smolt - Habitat based Annual Mortality for Fall-Run Chinook Salmon

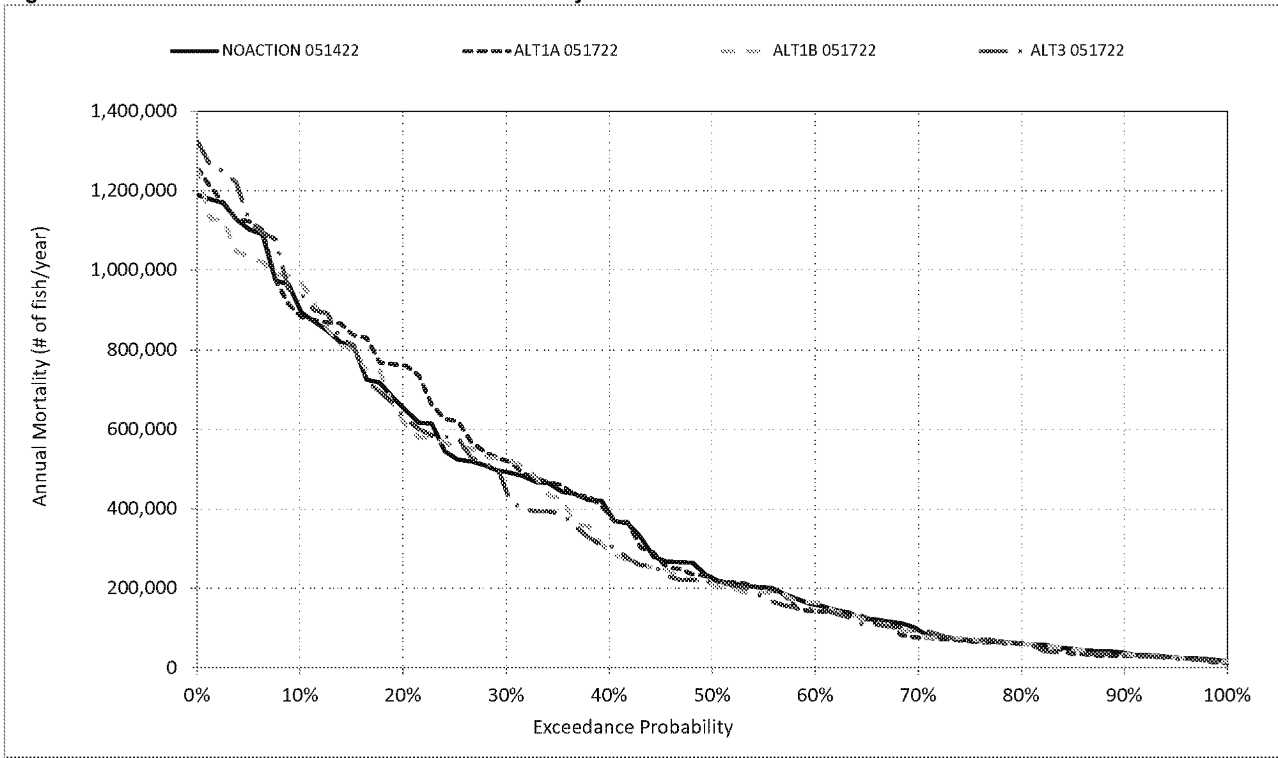


Figure B-c-12. Immature Smolt - Habitat based Annual Mortality for Fall-Run Chinook Salmon

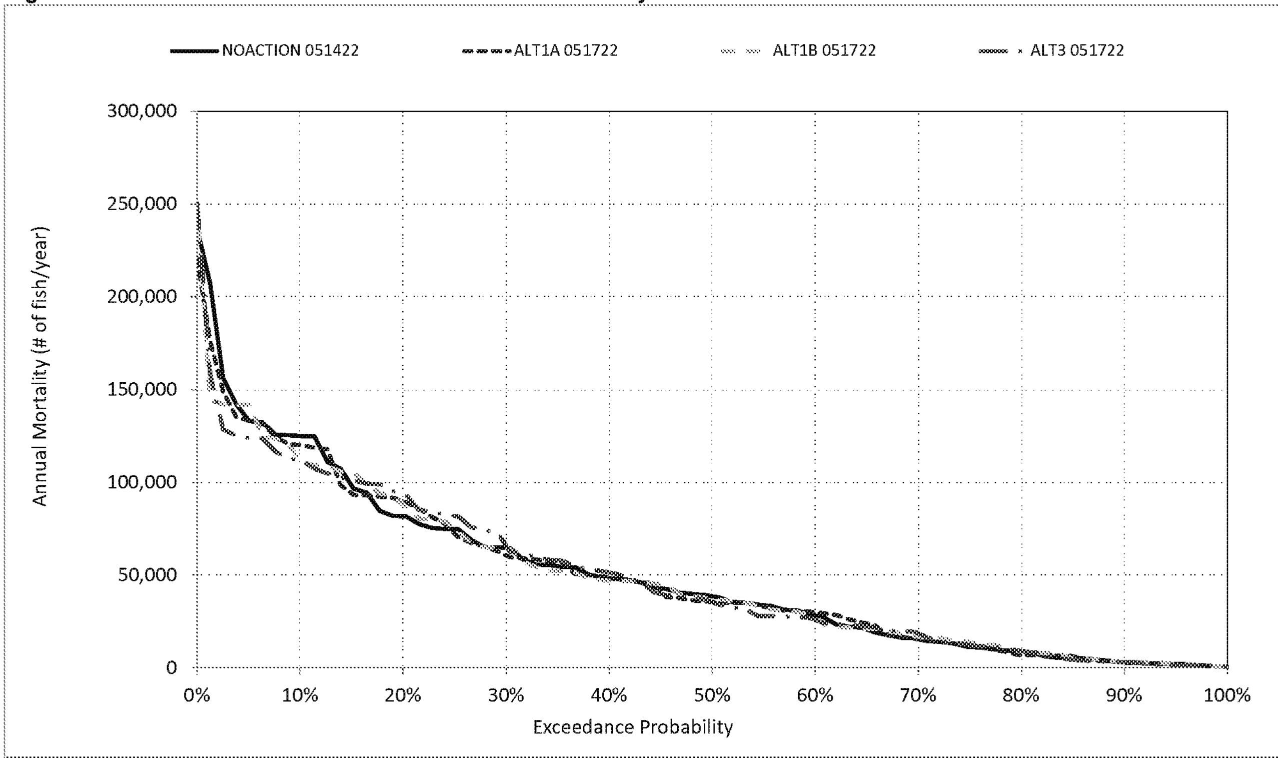


Figure B-c-13. Total Habitat based Annual Mortality for Fall-Run Chinook Salmon

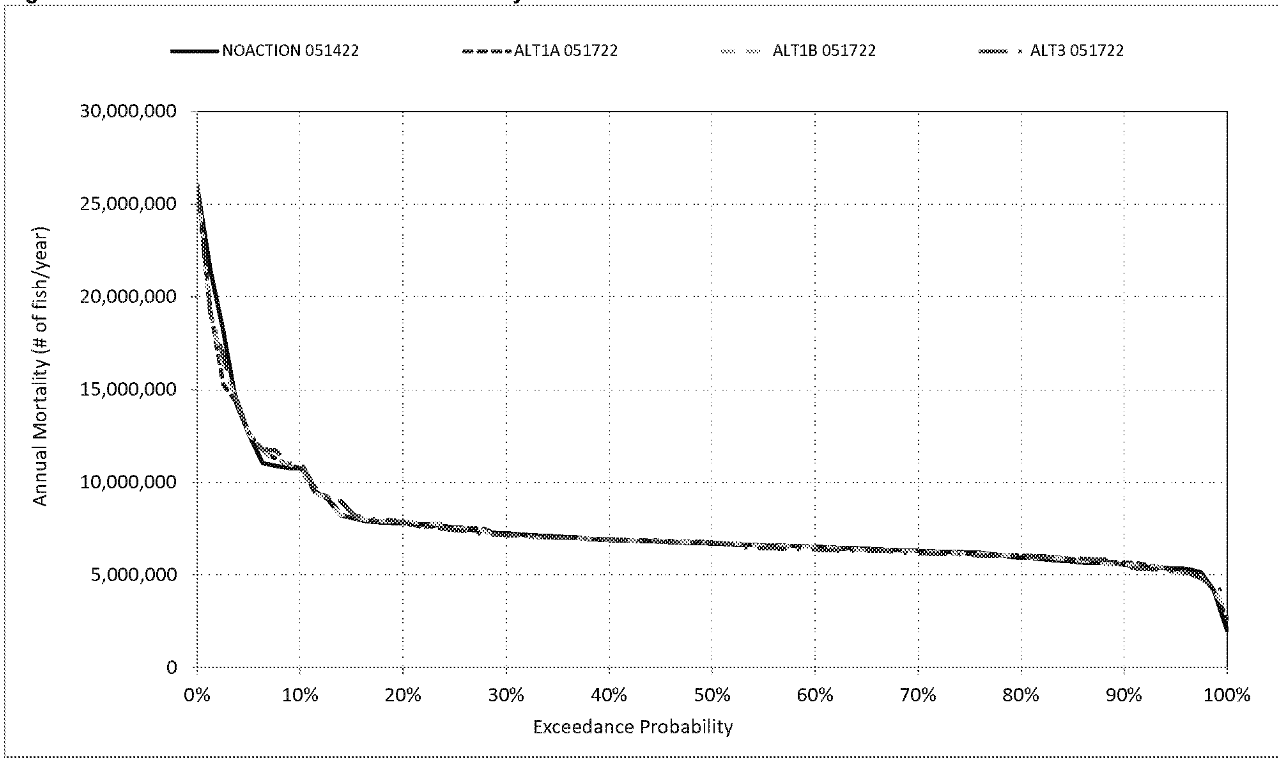


Figure B-c-14. Pre-Spawn Mortality - Temperature based Annual Mortality for Fall-Run Chinook Salmon

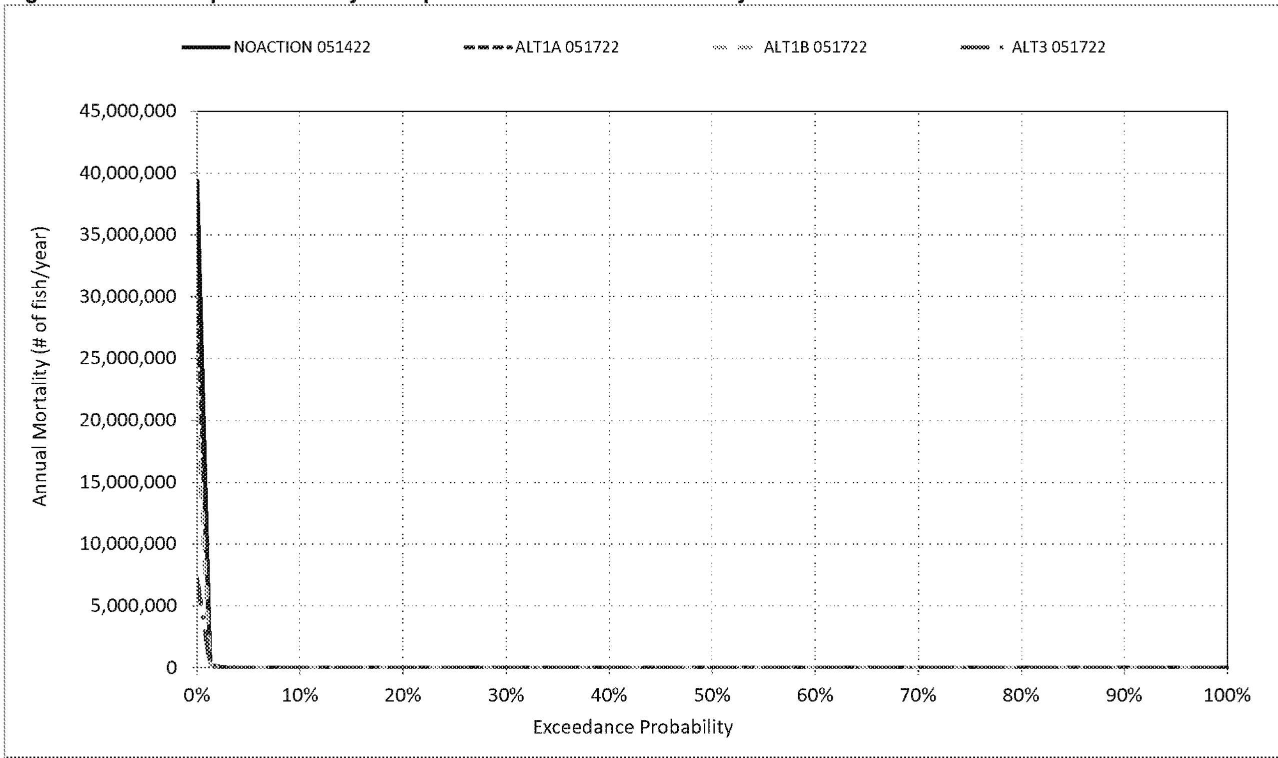


Figure B-c-15. Eggs - Temperature based Annual Mortality for Fall-Run Chinook Salmon

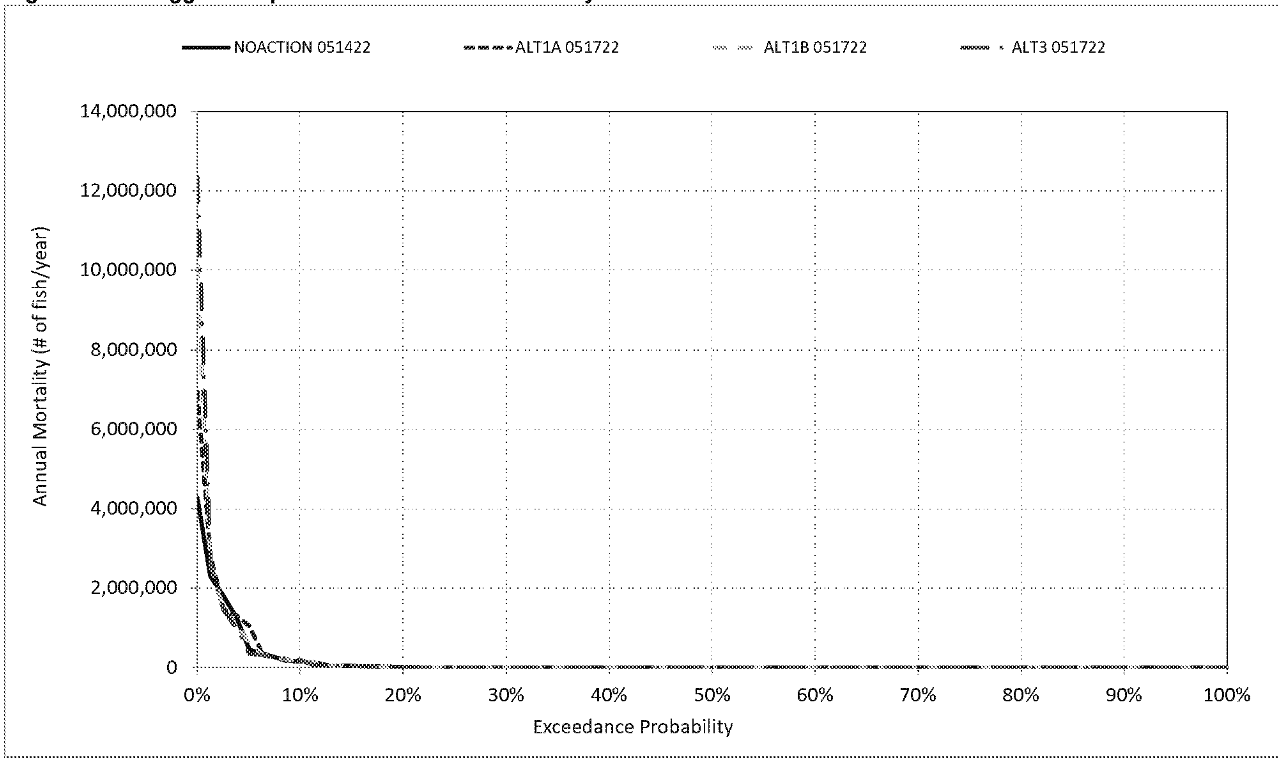


Figure B-c-16. Fry - Temperature based Annual Mortality for Fall-Run Chinook Salmon

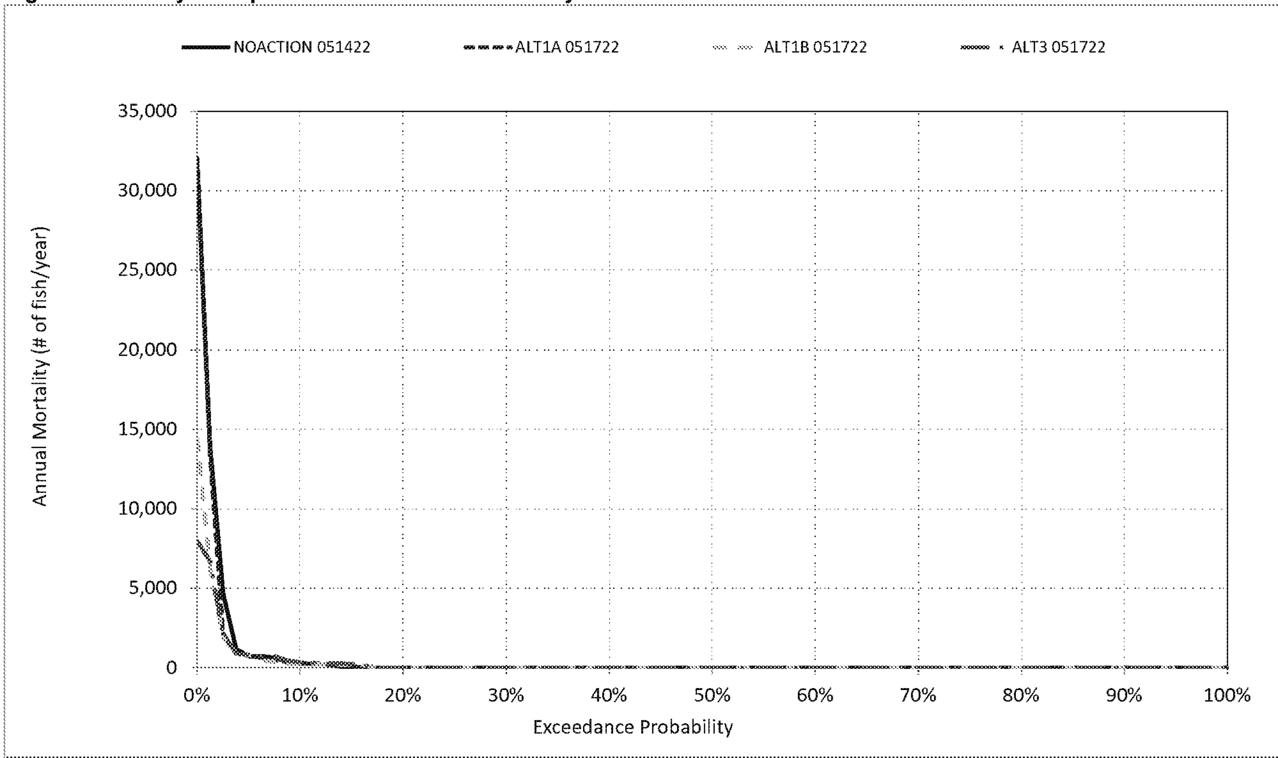


Figure B-c-17. Pre-smolt - Temperature based Annual Mortality for Fall-Run Chinook Salmon

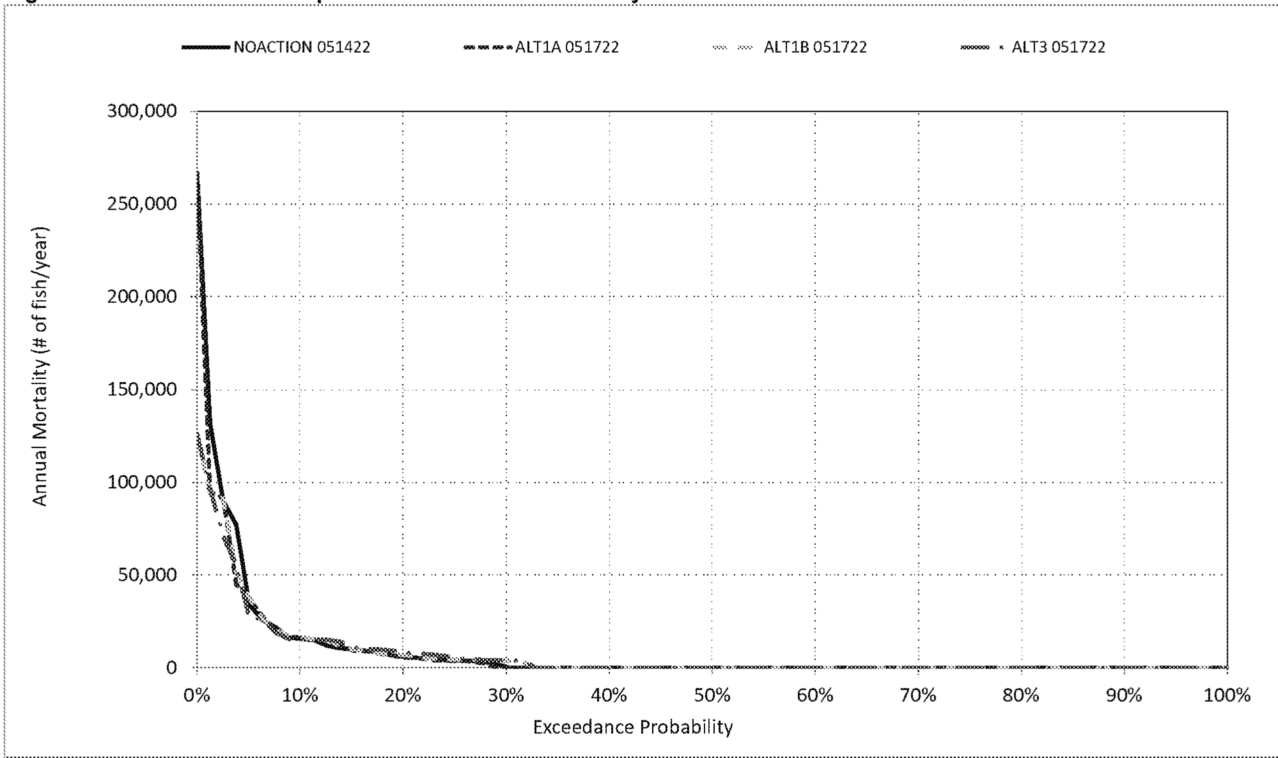


Figure B-c-18. Immature Smolt - Temperature based Annual Mortality for Fall-Run Chinook Salmon

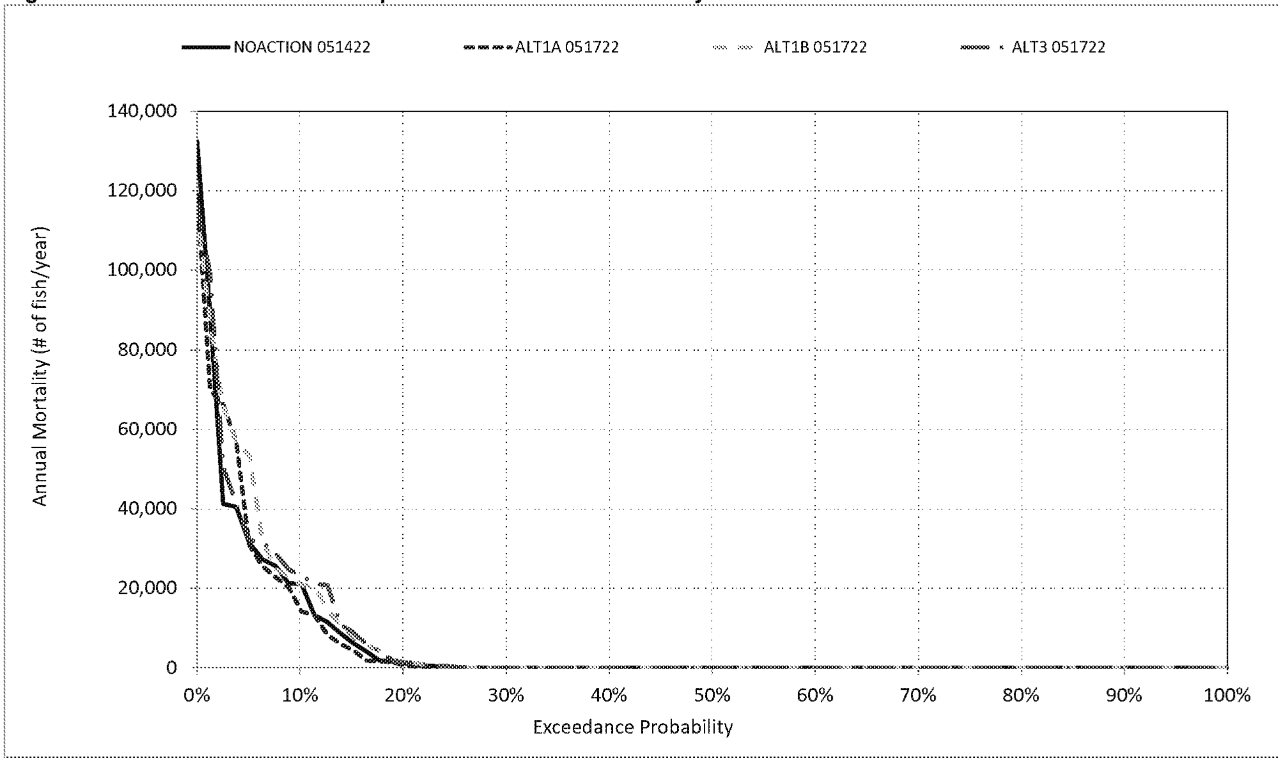


Figure B-c-19. Total Temperature based Annual Mortality for Fall-Run Chinook Salmon

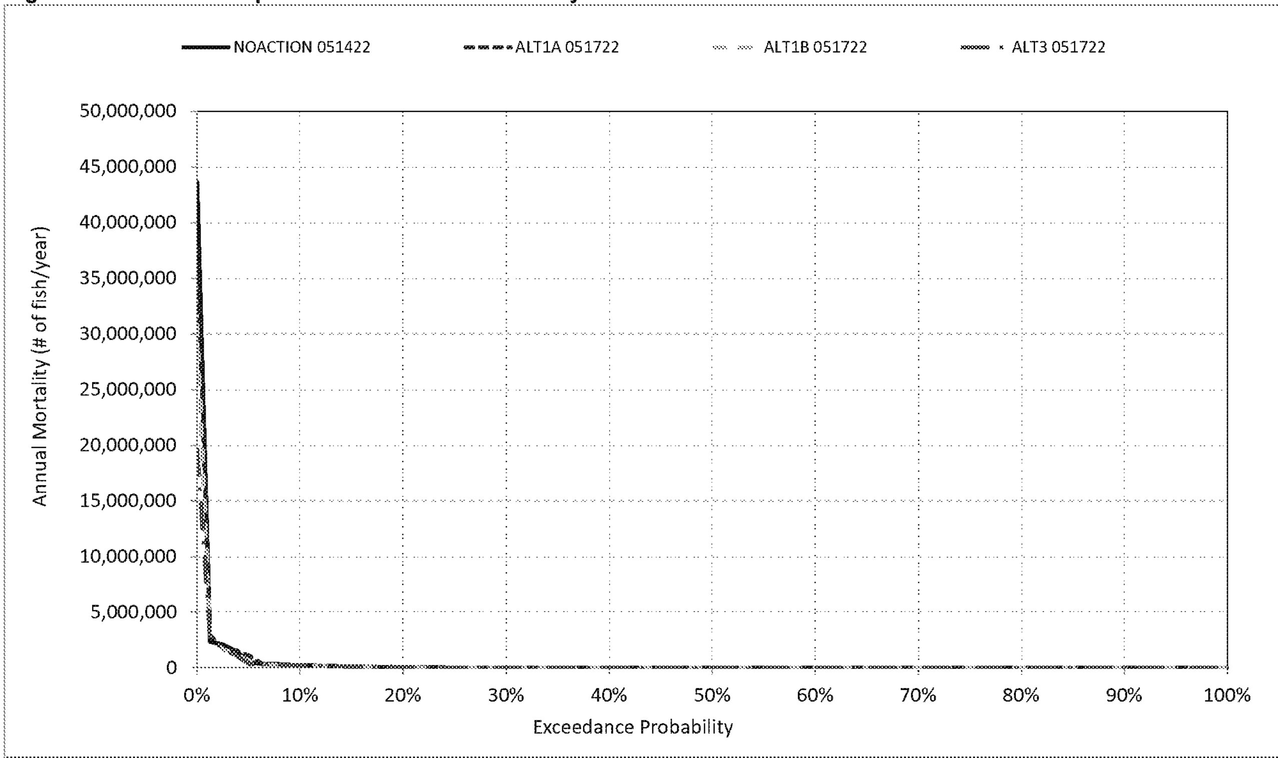


Figure B-d-1. Annual Potential Production for LateFall-Run Chinook Salmon

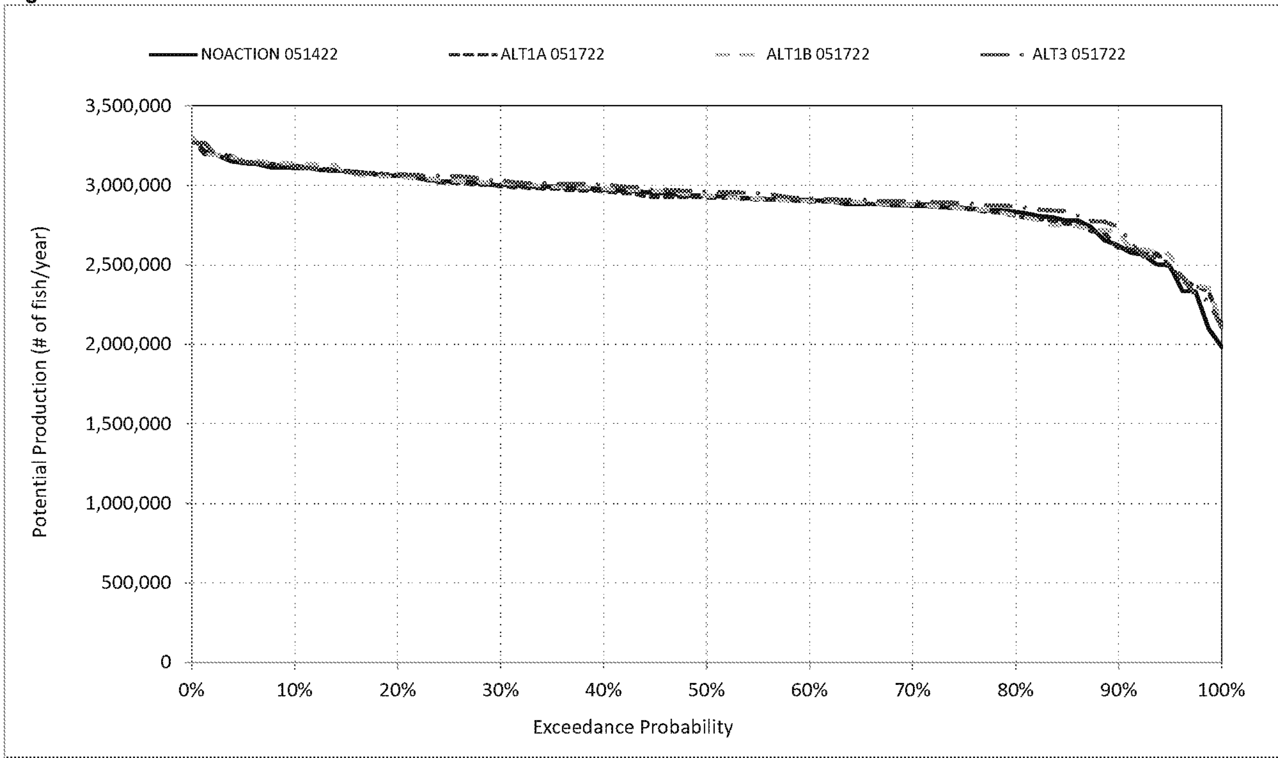


Figure B-d-2. Annual Mortality for LateFall-Run Chinook Salmon - Eggs

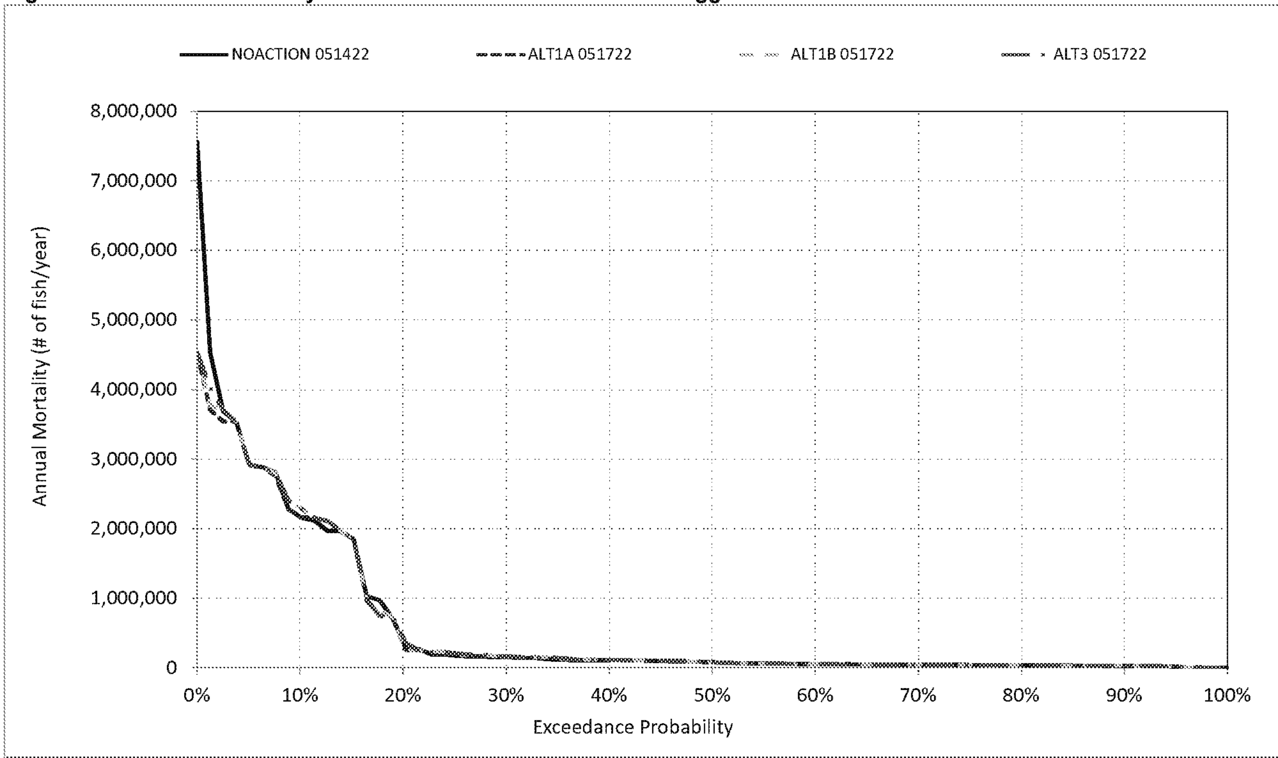


Figure B-d-3. Annual Mortality for LateFall-Run Chinook Salmon - Fry

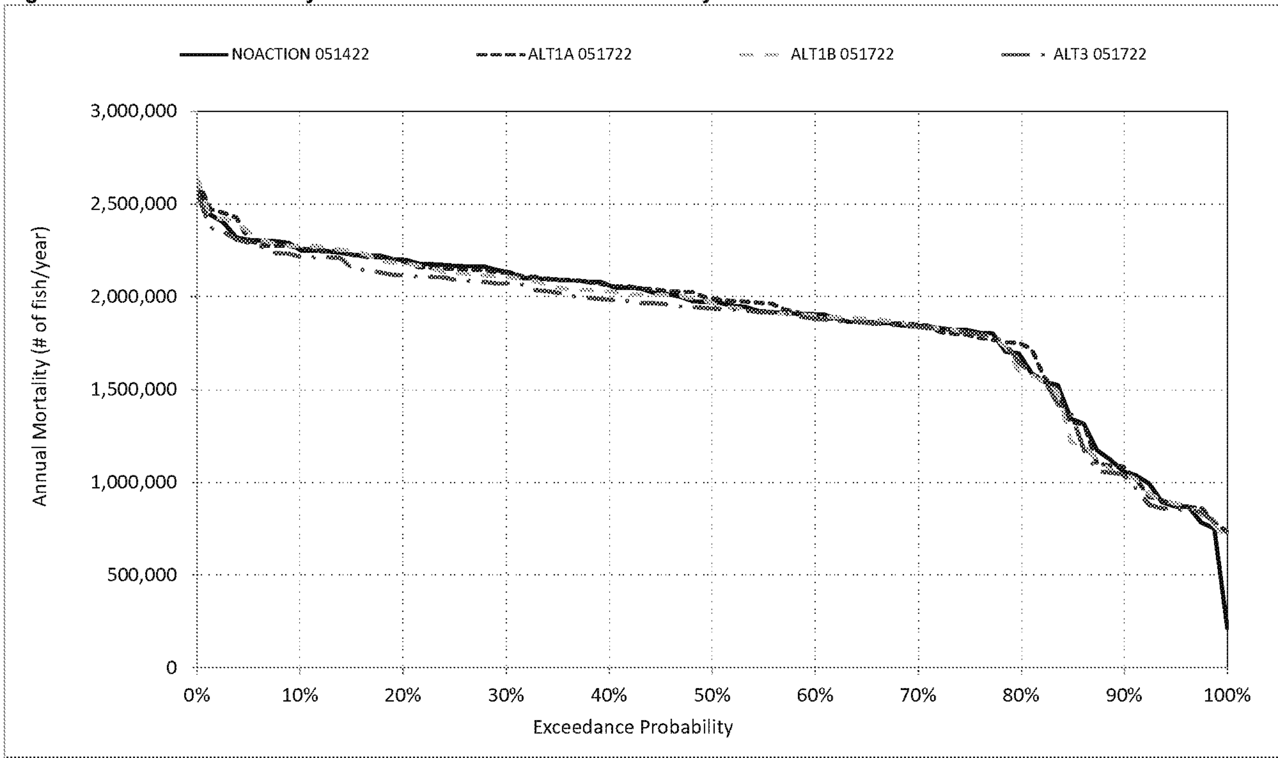


Figure B-d-4. Annual Mortality for LateFall-Run Chinook Salmon - Pre-Smolt

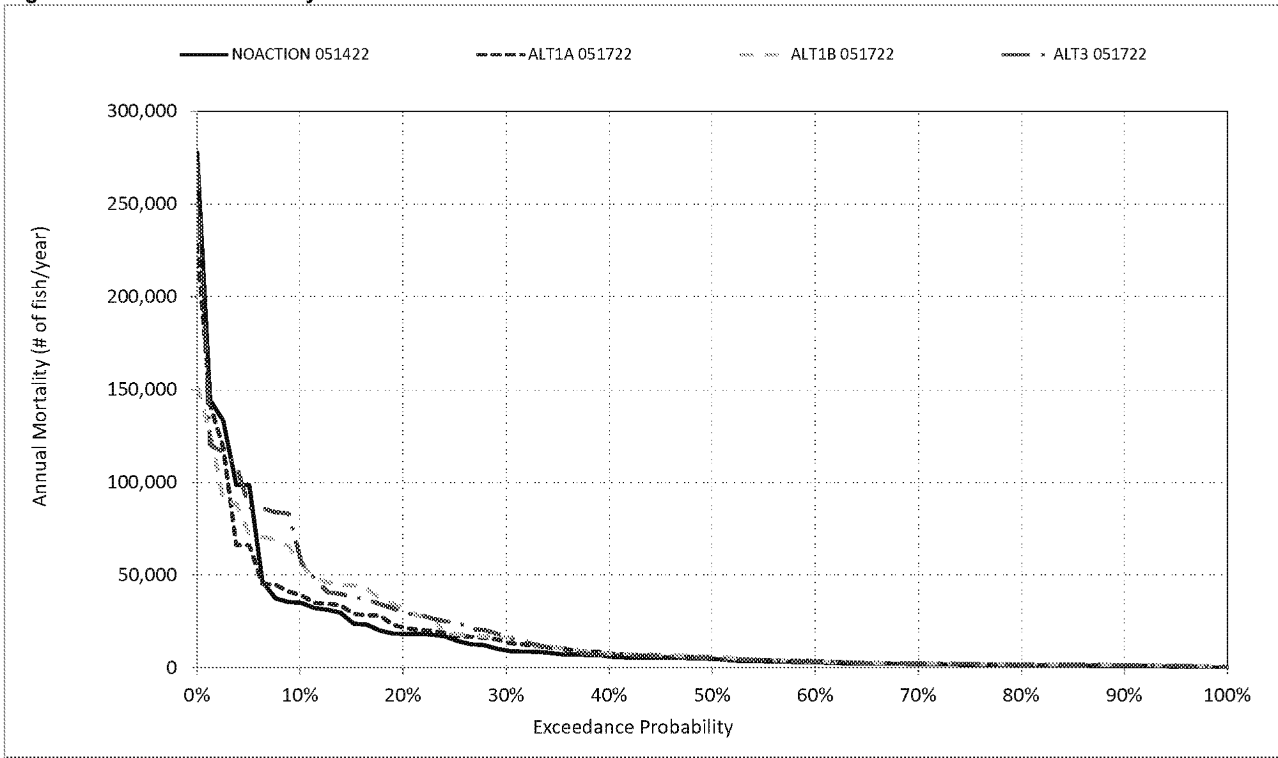


Figure B-d-5. Annual Mortality for LateFall-Run Chinook Salmon - Immature Smolt

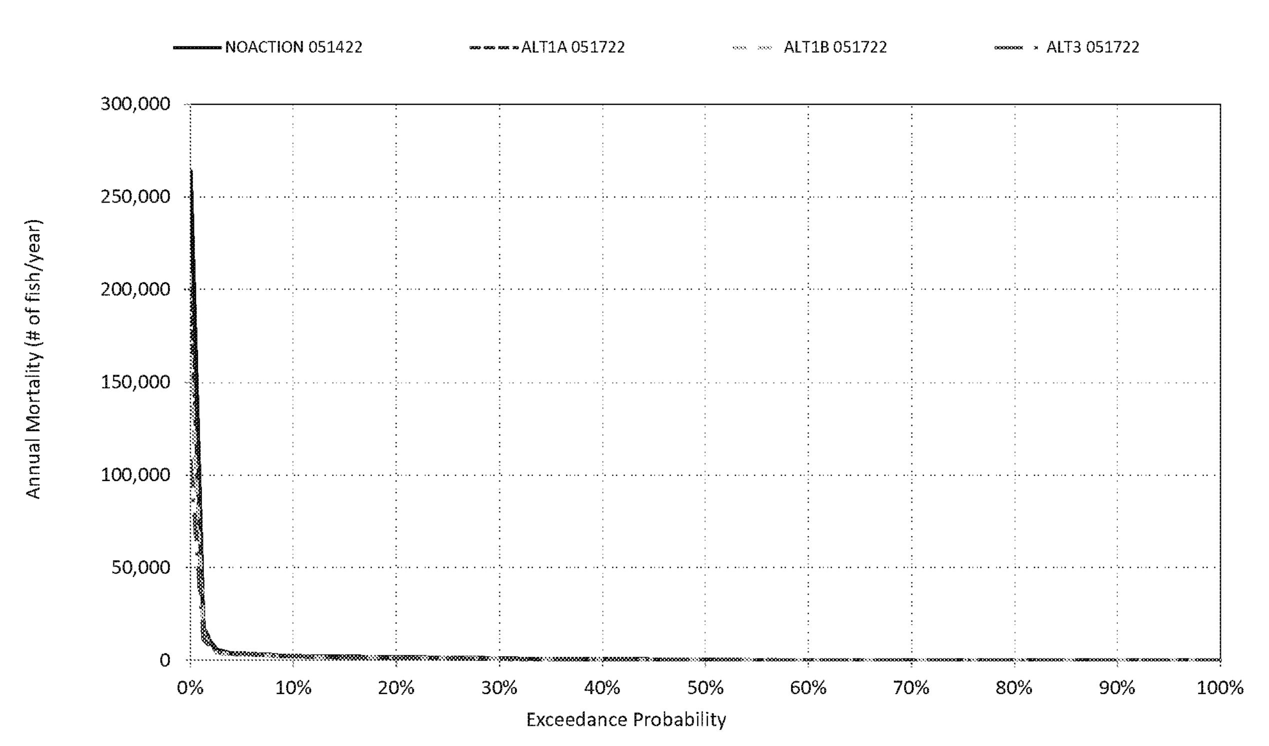


Figure B-d-6. Annual Mortality for LateFall-Run Chinook Salmon - Pre- & Immature Smolts

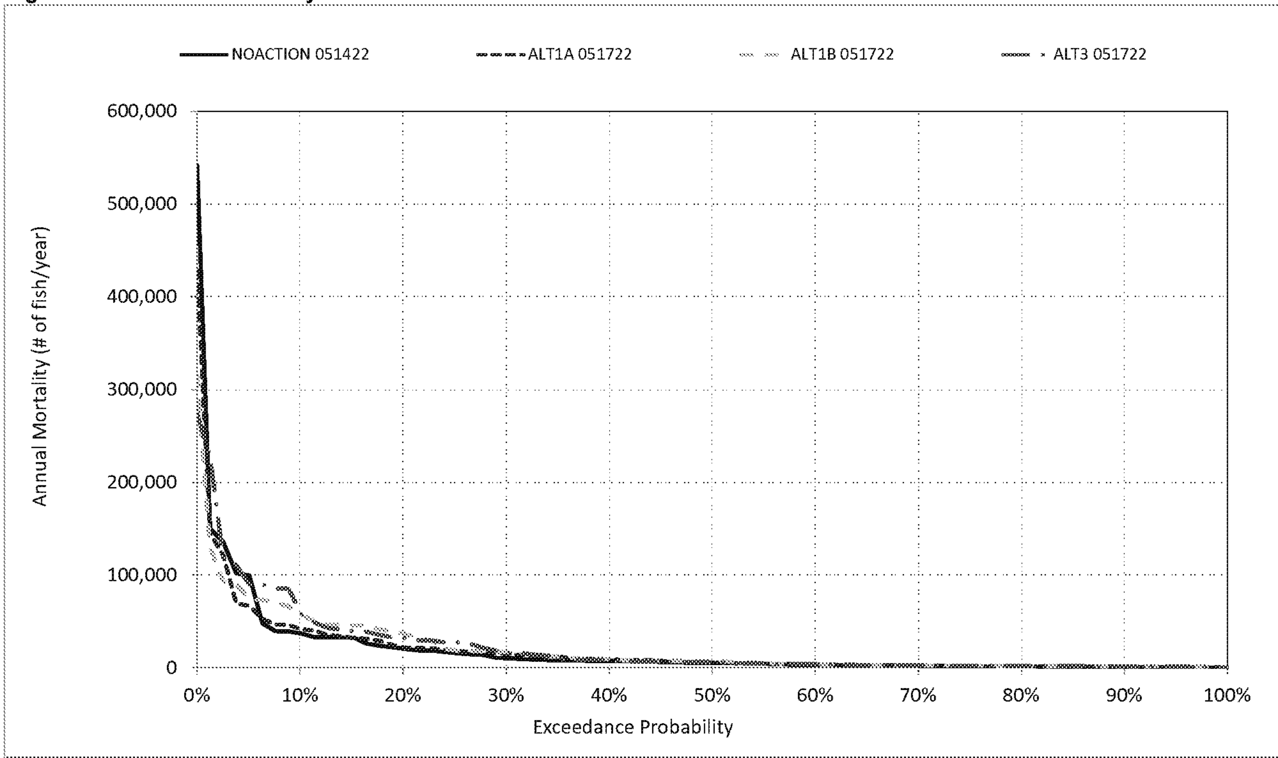


Figure B-d-7. Annual Mortality for LateFall-Run Chinook Salmon - All Lifestages

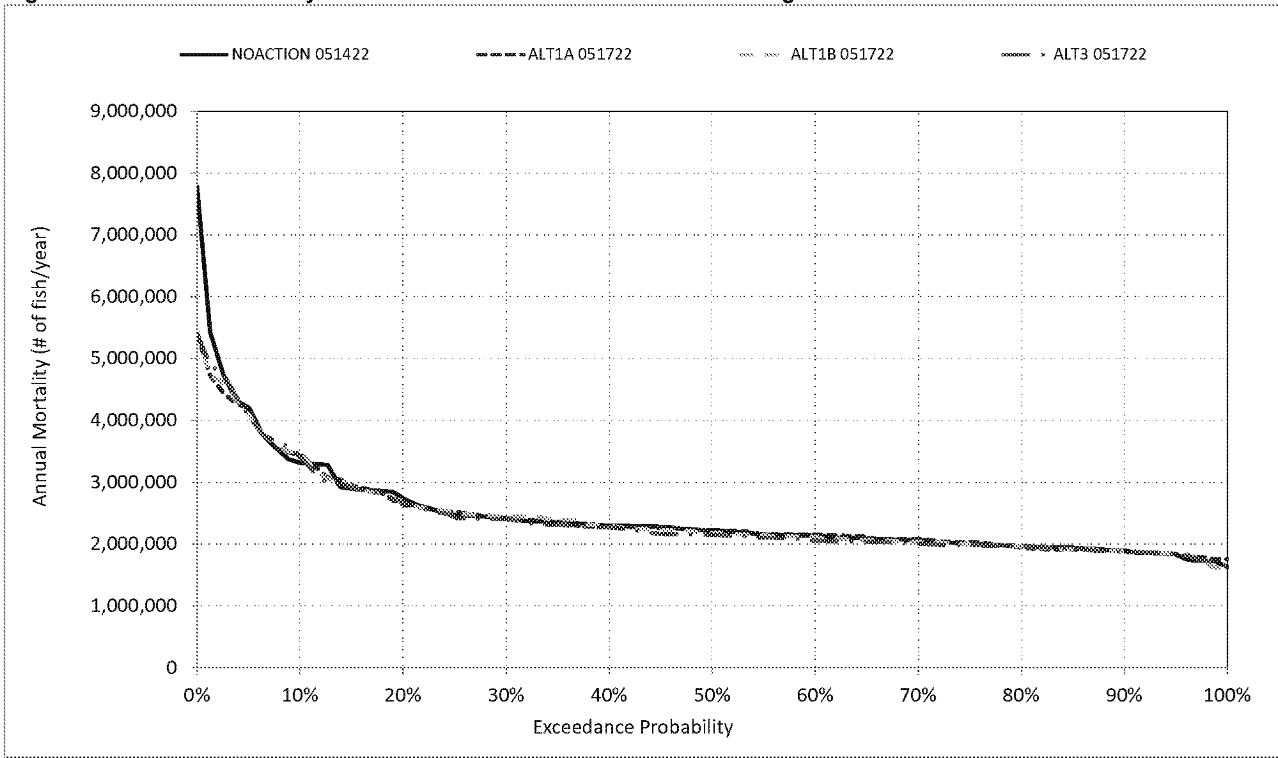


Figure B-d-8. Incubation - Habitat based Annual Mortality for LateFall-Run Chinook Salmon

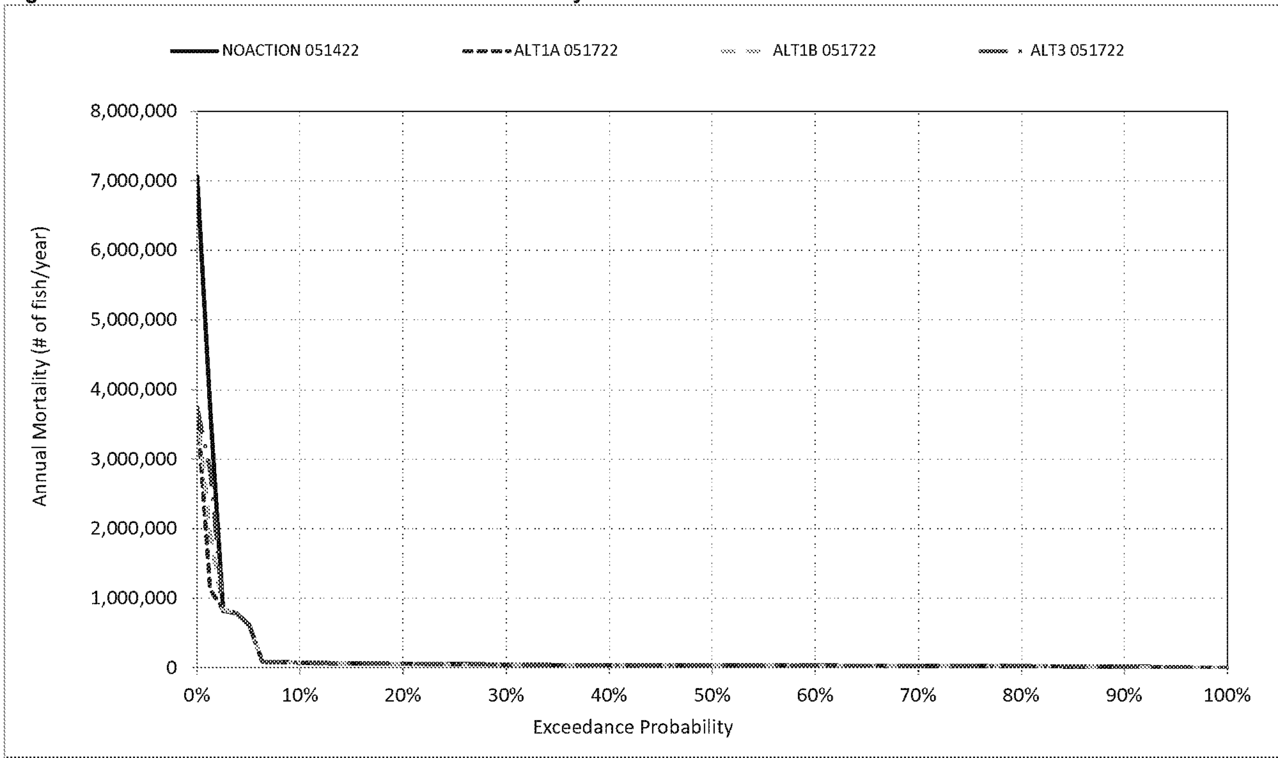


Figure B-d-9. Super-imposition - Habitat based Annual Mortality for LateFall-Run Chinook Salmon

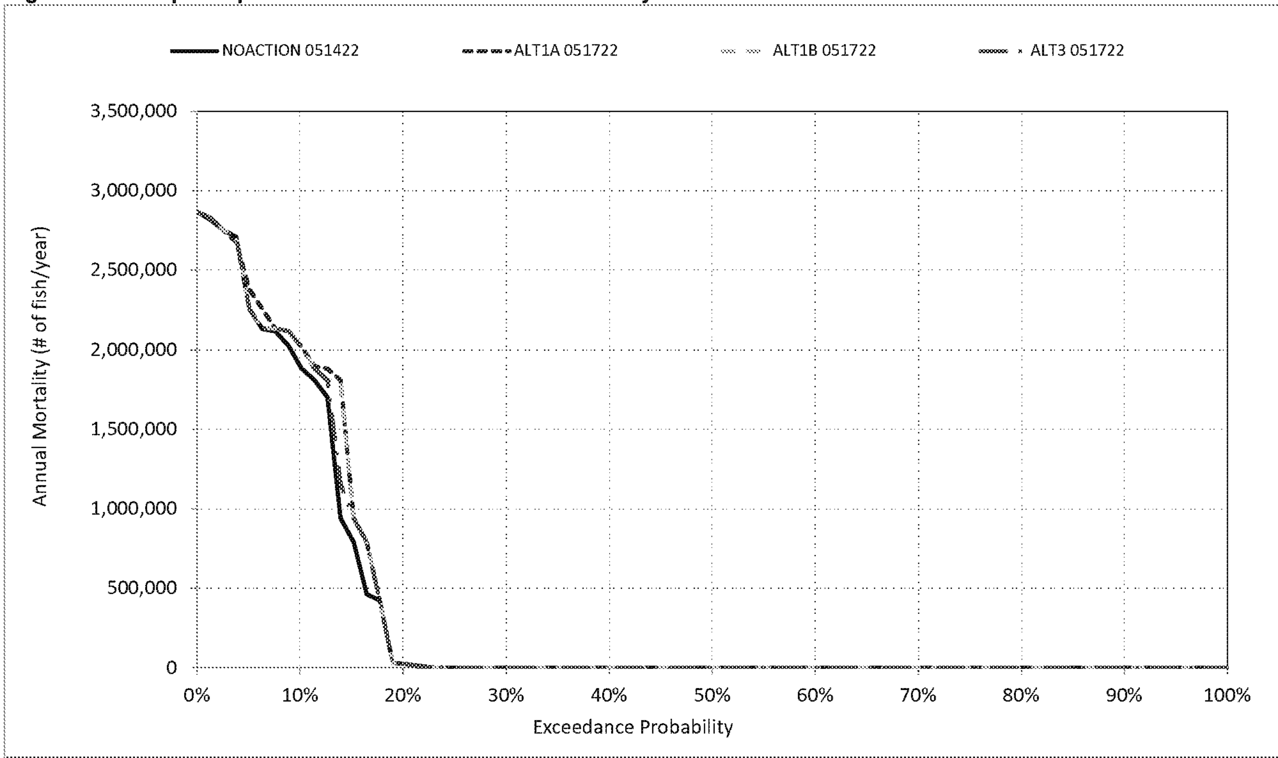


Figure B-d-10. Fry - Habitat based Annual Mortality for LateFall-Run Chinook Salmon

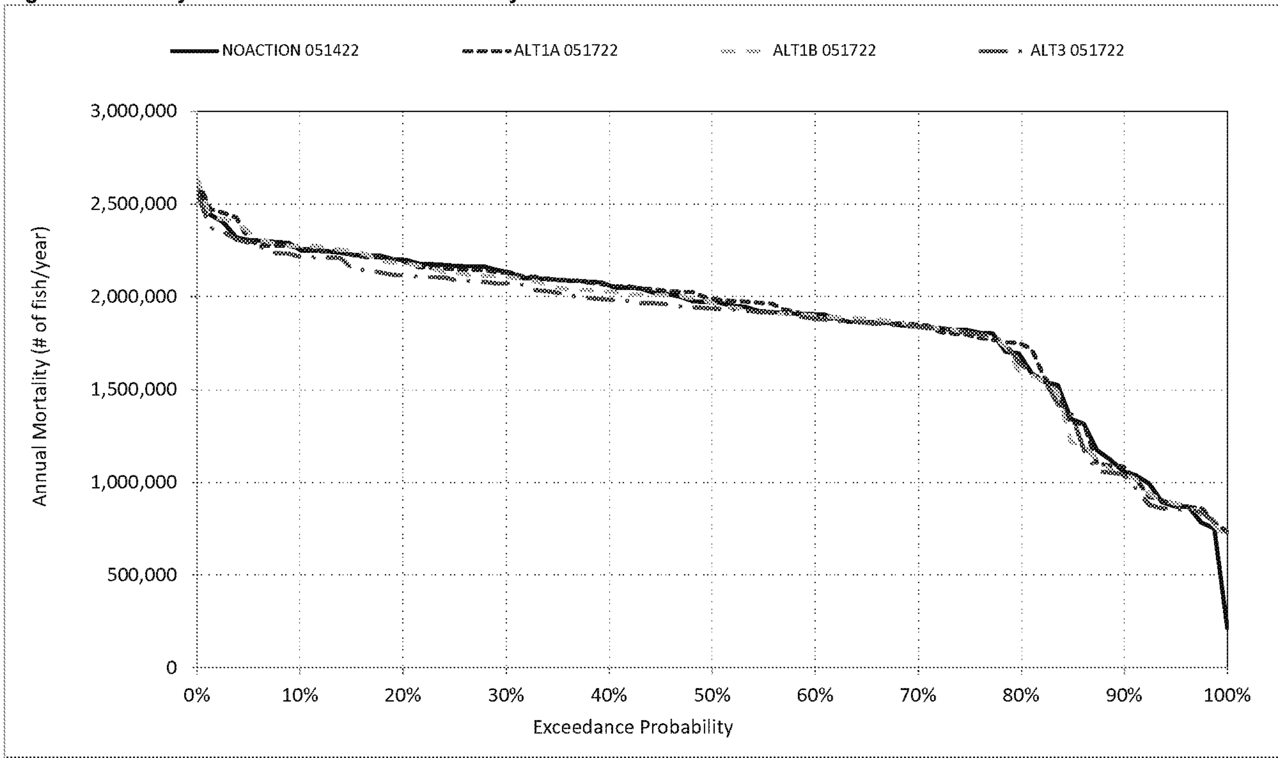


Figure B-d-11. Pre-smolt - Habitat based Annual Mortality for LateFall-Run Chinook Salmon

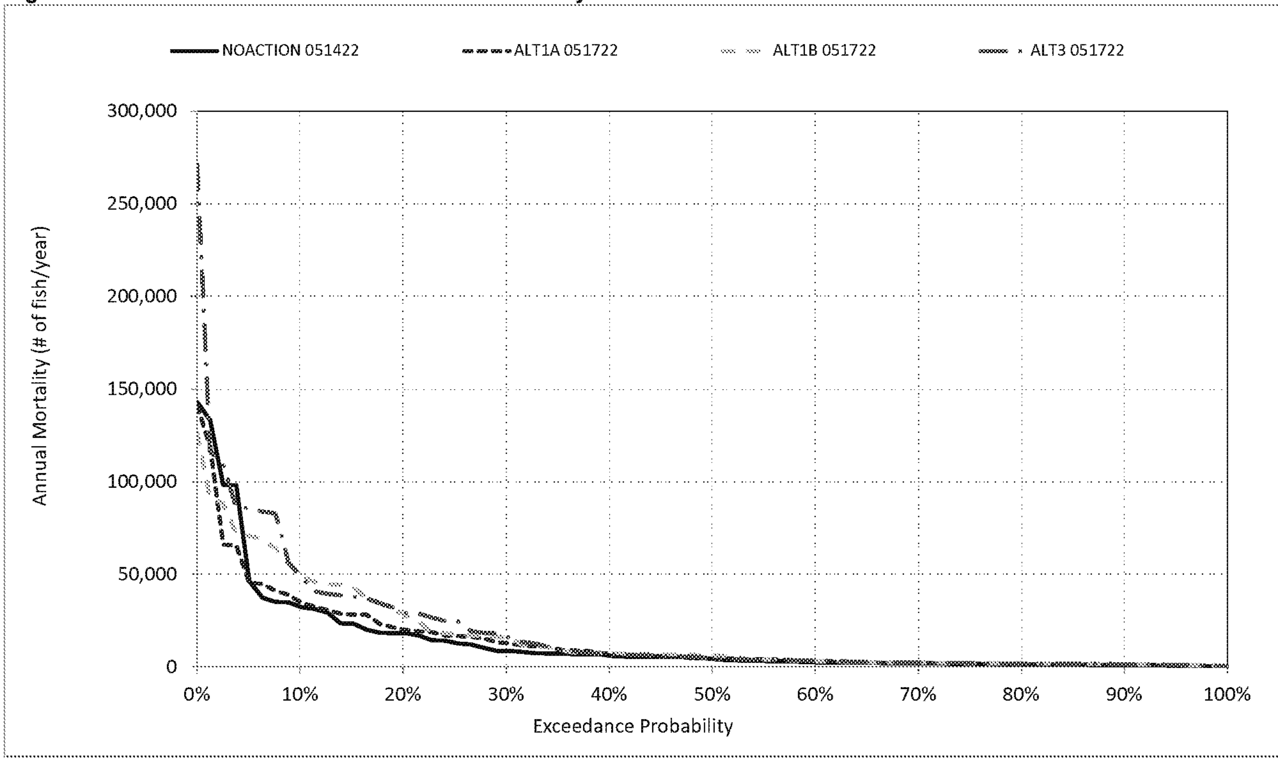


Figure B-d-12. Immature Smolt - Habitat based Annual Mortality for LateFall-Run Chinook Salmon

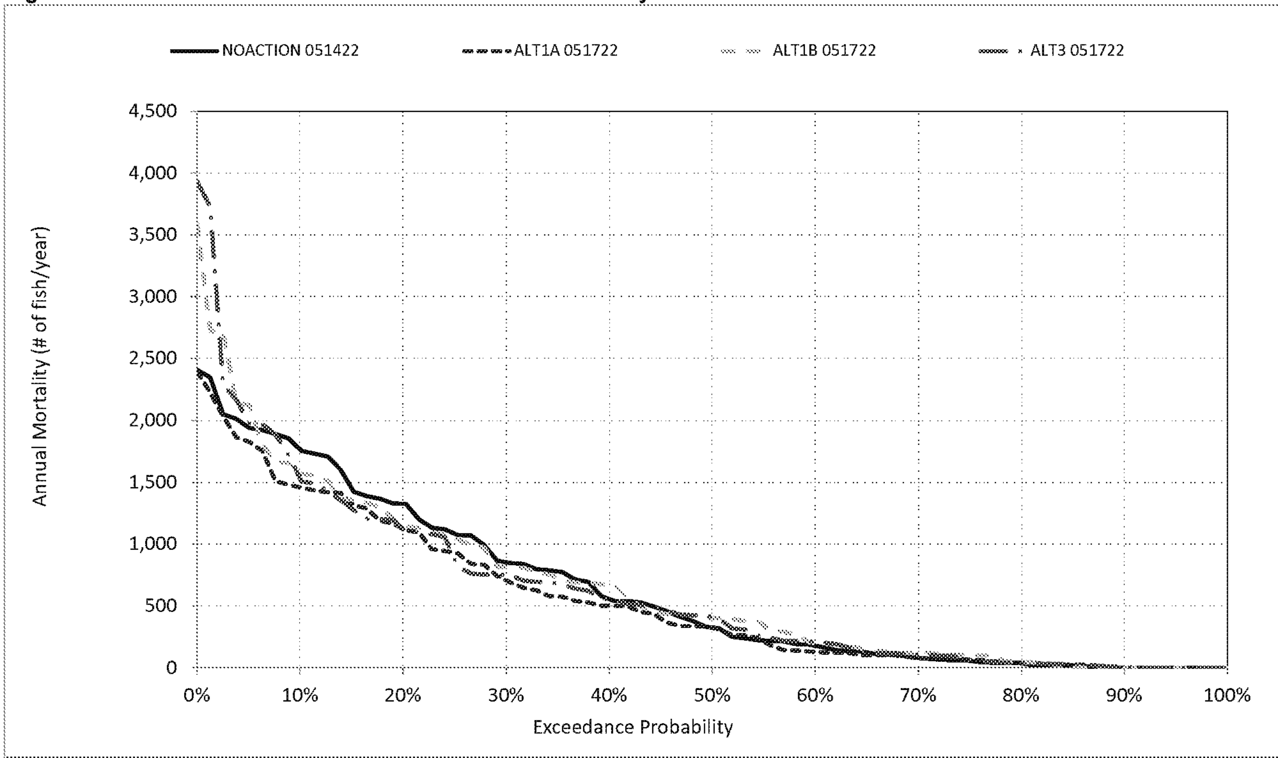


Figure B-d-13. Total Habitat based Annual Mortality for LateFall-Run Chinook Salmon

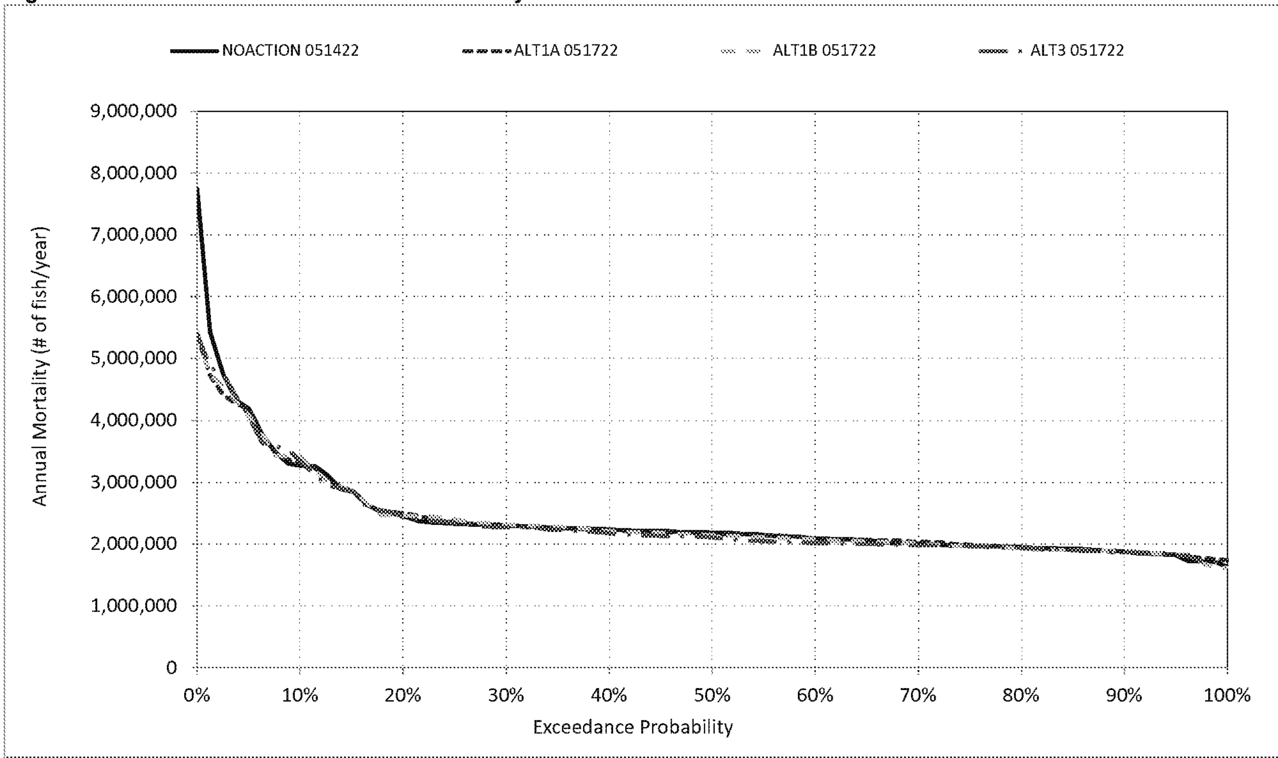


Figure B-d-14. Pre-Spawn Mortality - Temperature based Annual Mortality for LateFall-Run Chinook Salmon

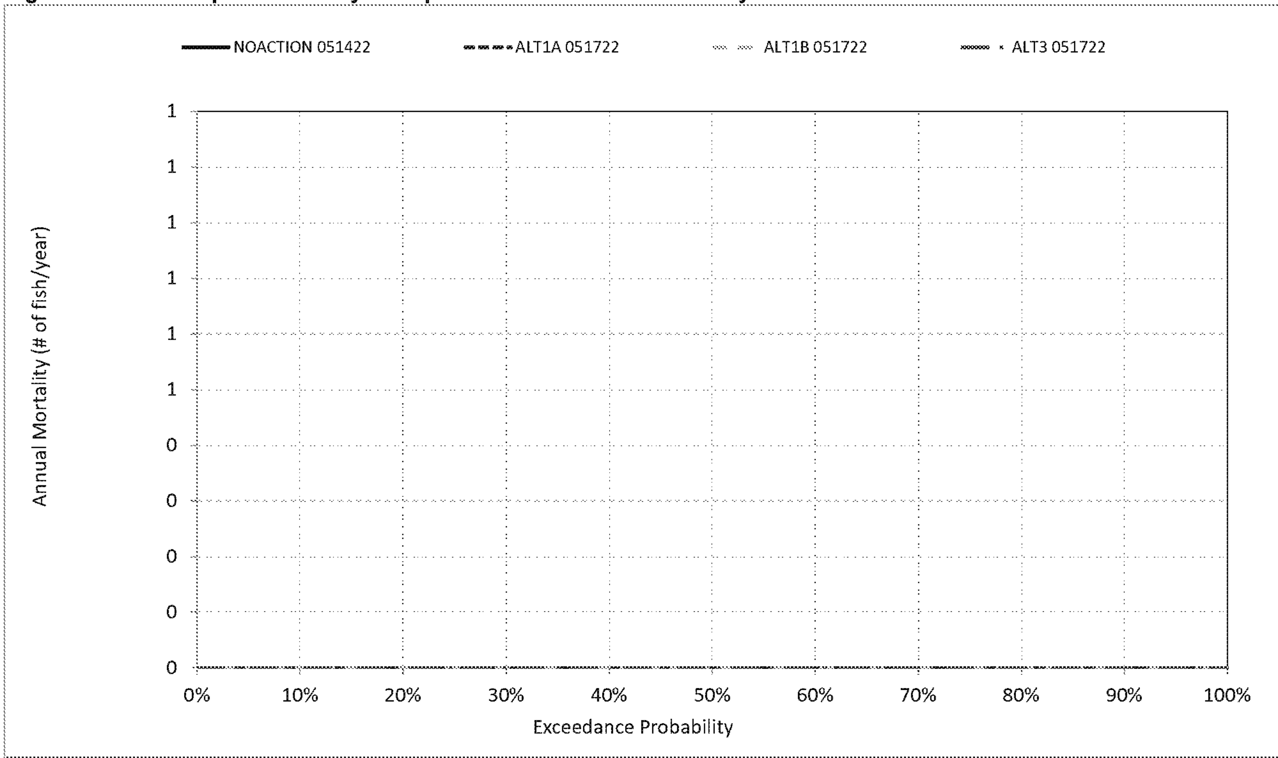


Figure B-d-15. Eggs - Temperature based Annual Mortality for LateFall-Run Chinook Salmon

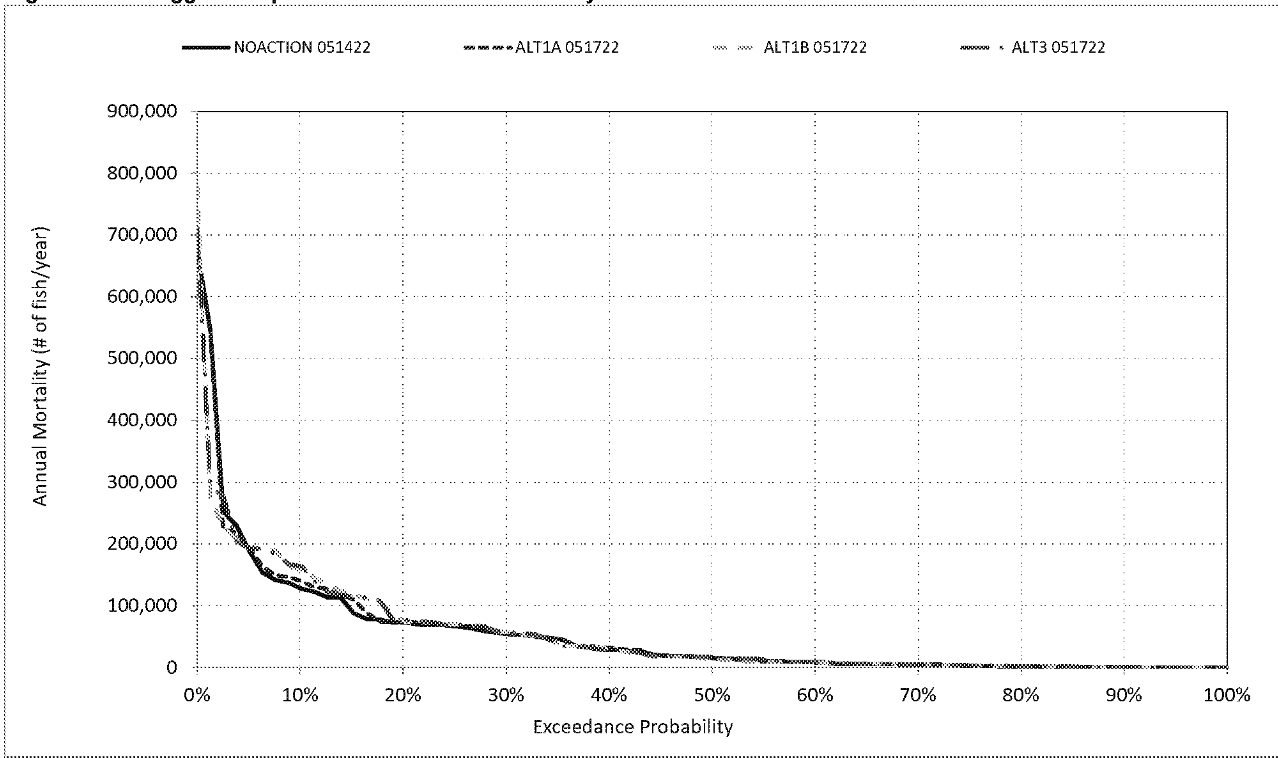


Figure B-d-16. Fry - Temperature based Annual Mortality for LateFall-Run Chinook Salmon

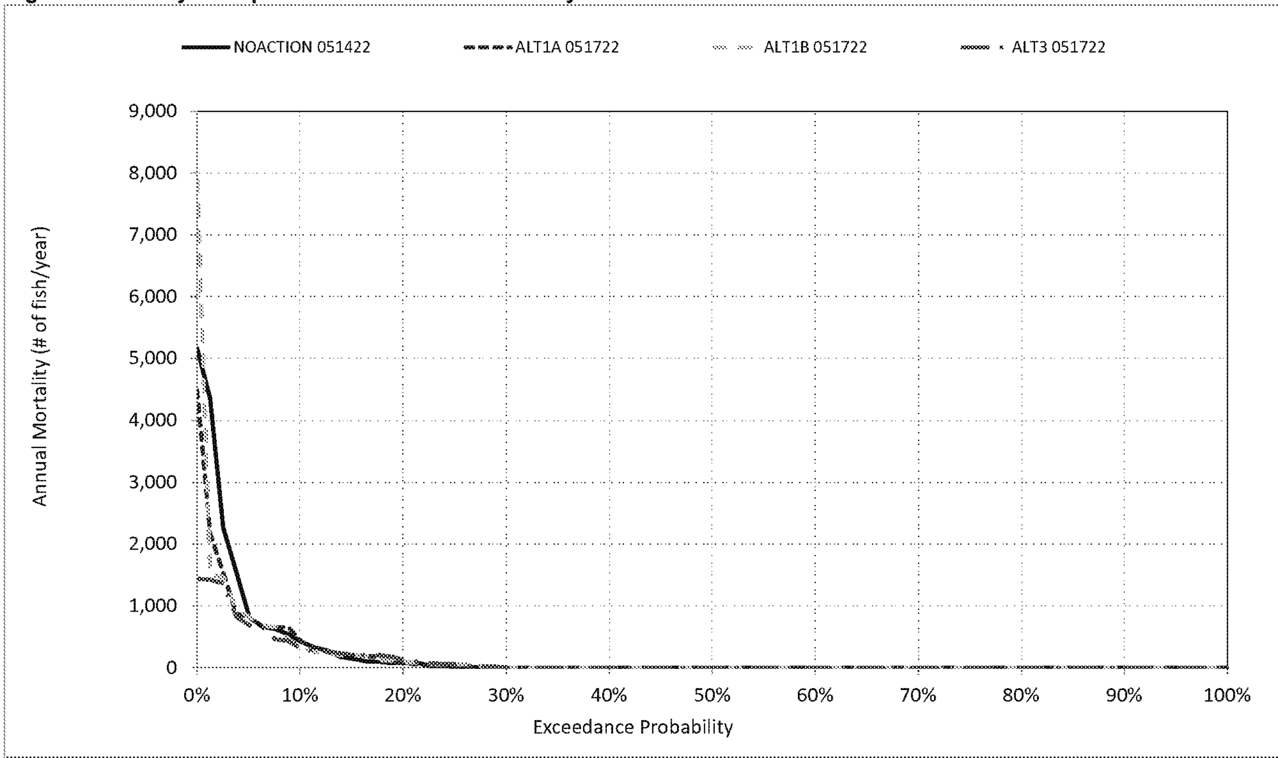


Figure B-d-17. Pre-smolt - Temperature based Annual Mortality for LateFall-Run Chinook Salmon

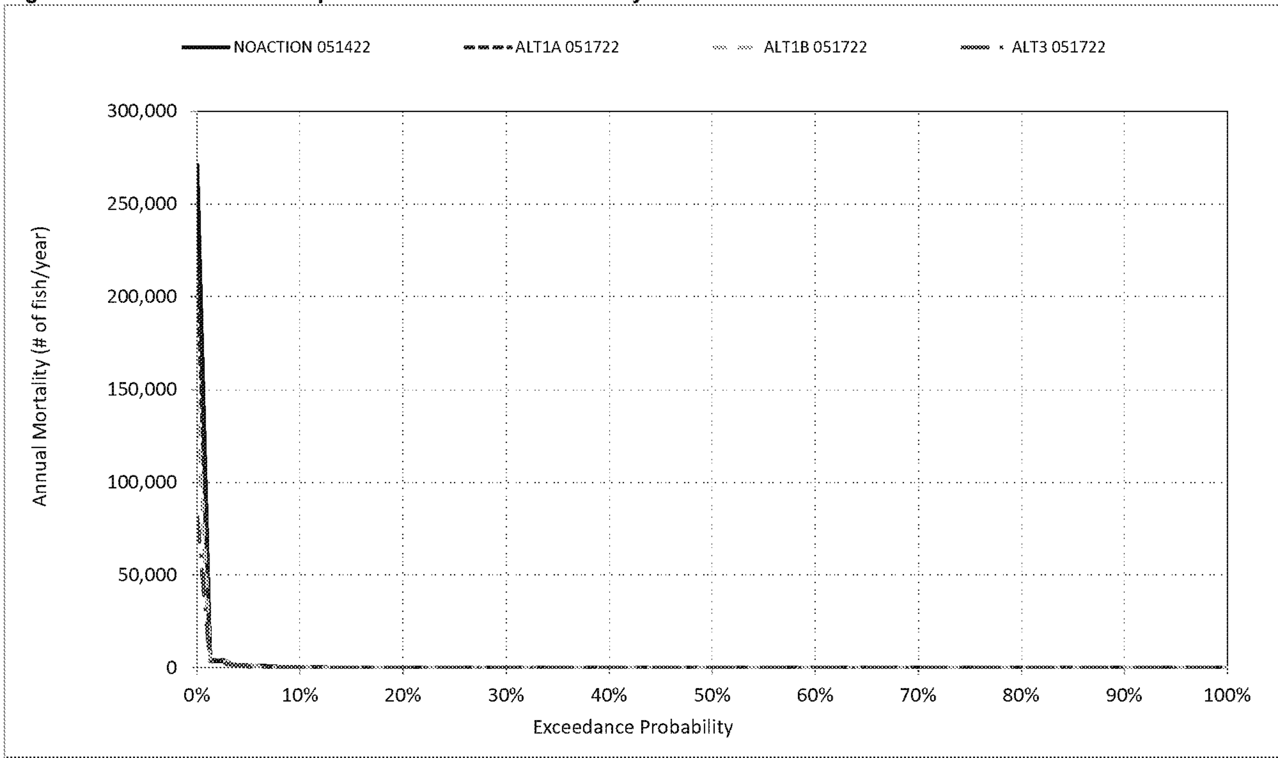


Figure B-d-18. Immature Smolt - Temperature based Annual Mortality for LateFall-Run Chinook Salmon

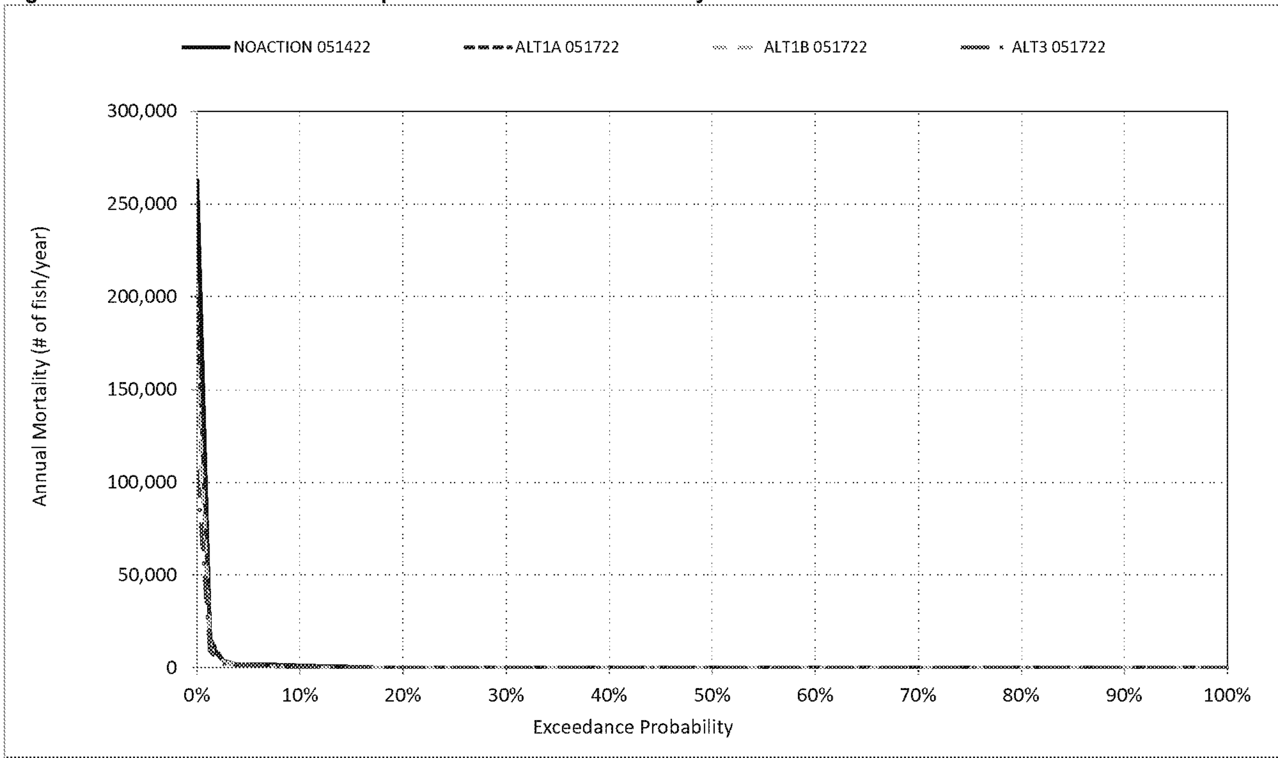


Figure B-d-19. Total Temperature based Annual Mortality for LateFall-Run Chinook Salmon

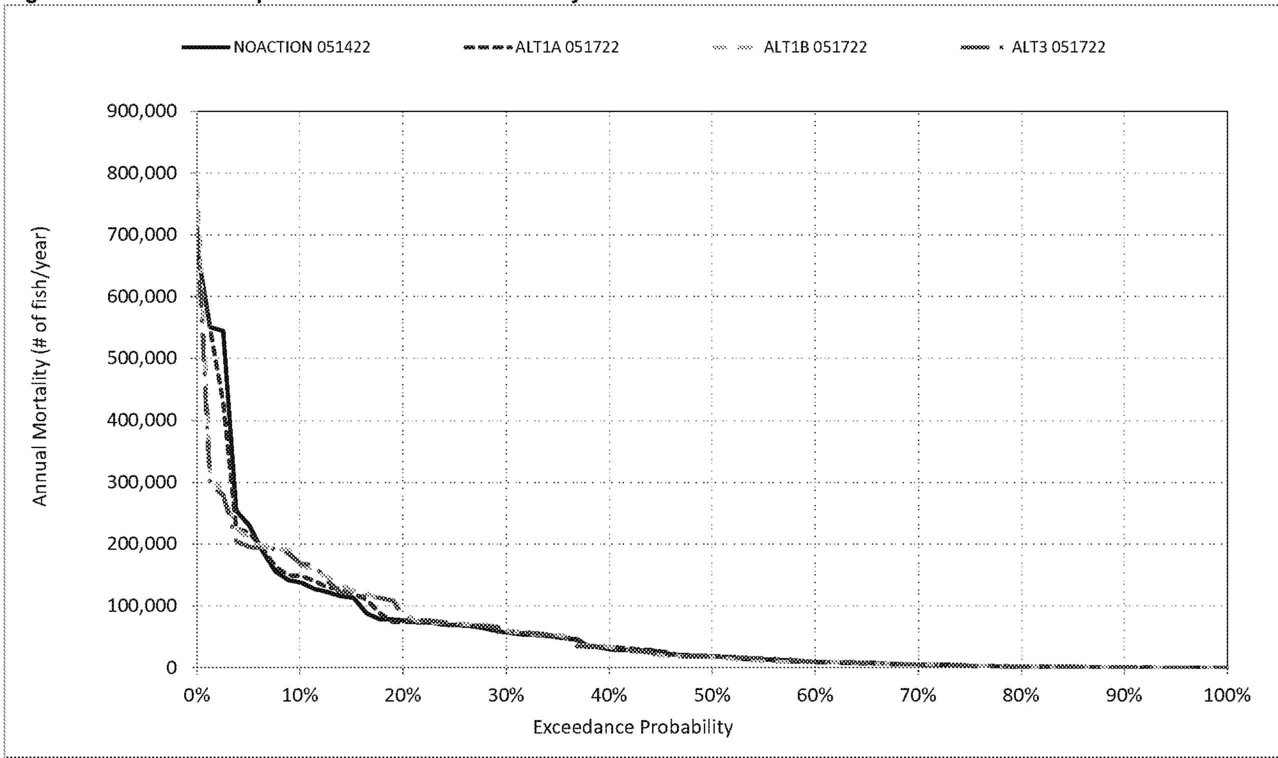


Figure 1a-1. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Anderson Model), May

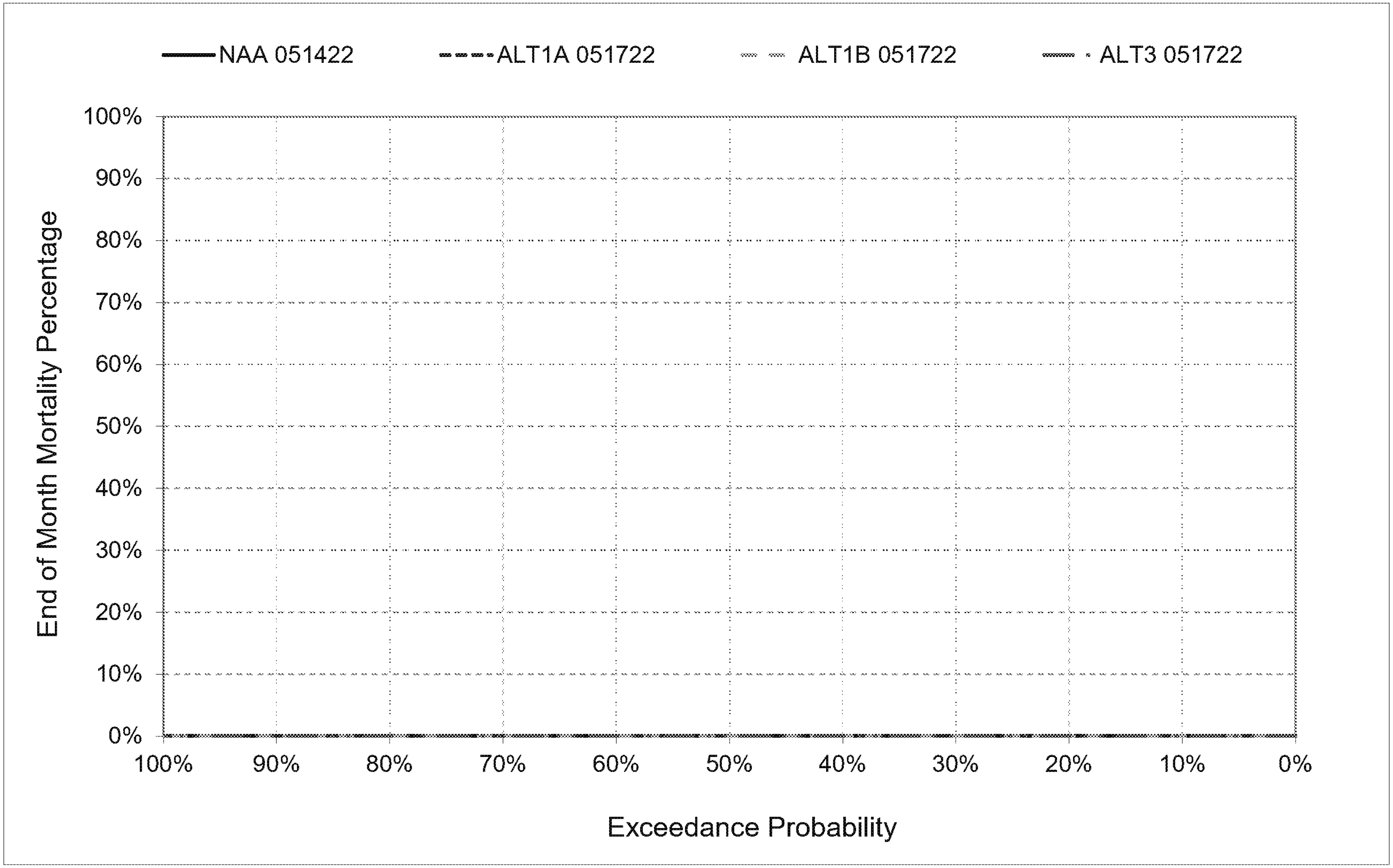


Figure 1a-2. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Anderson Model), June

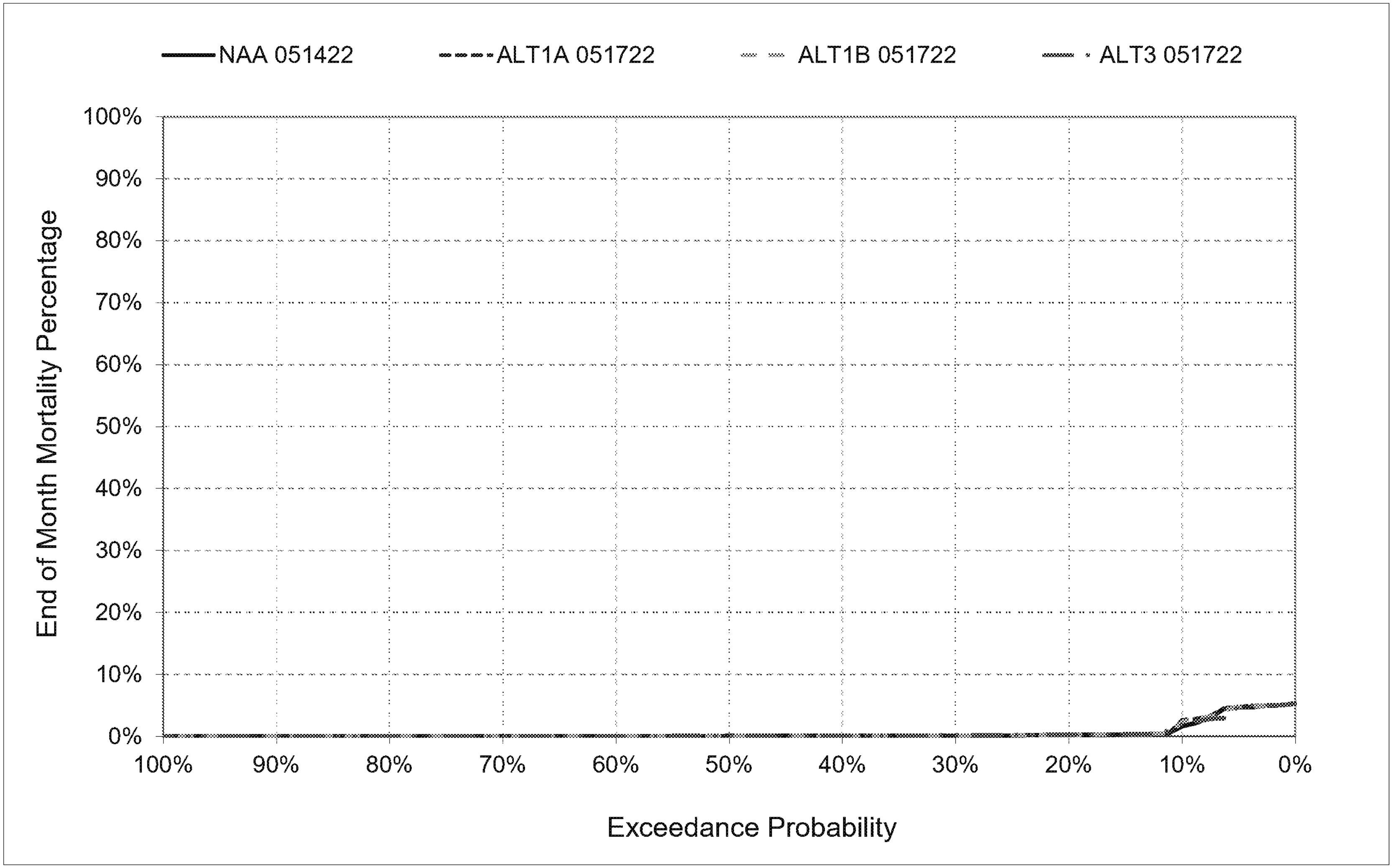


Figure 1a-3. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Anderson Model), July

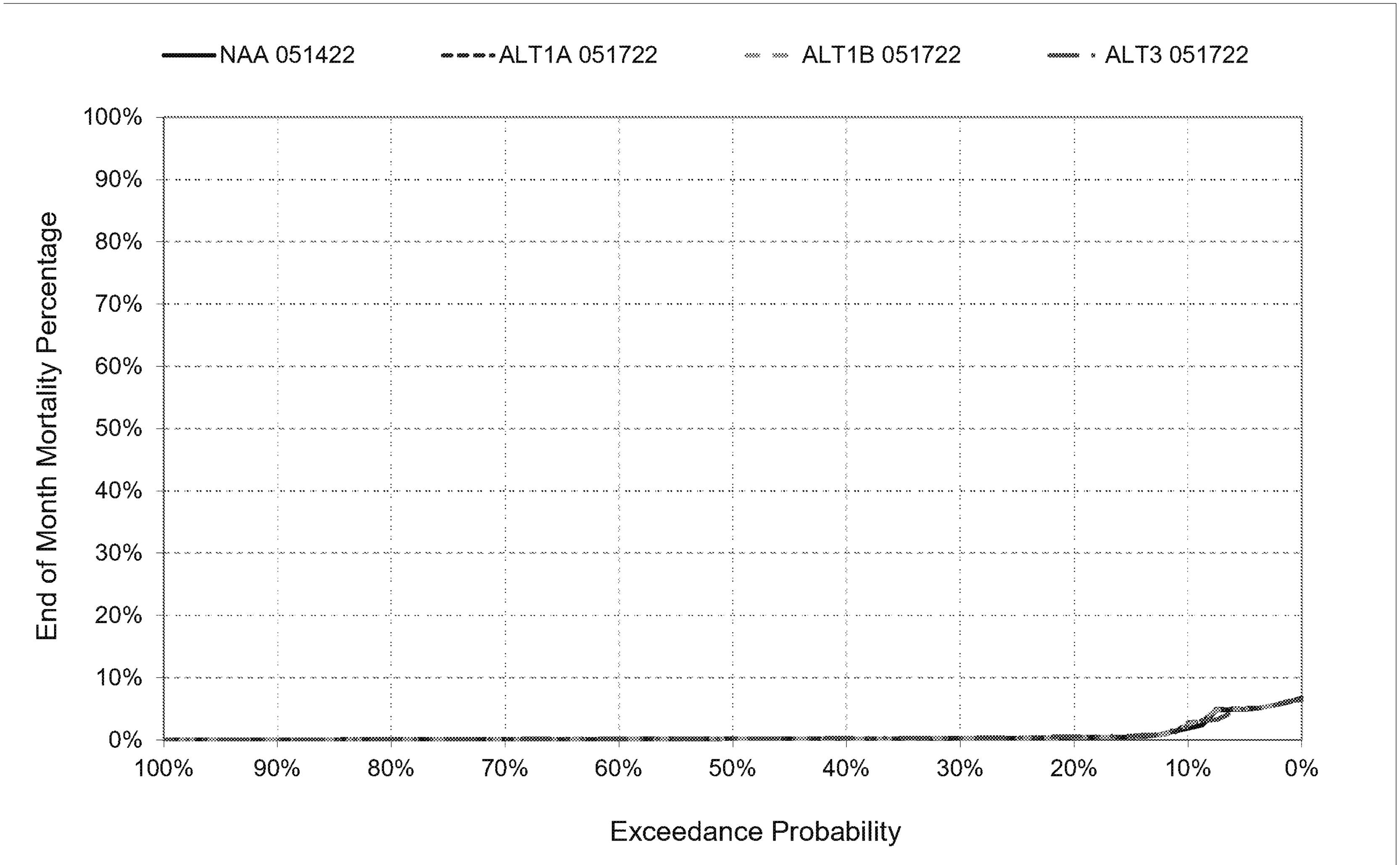


Figure 1a-4. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Anderson Model), August

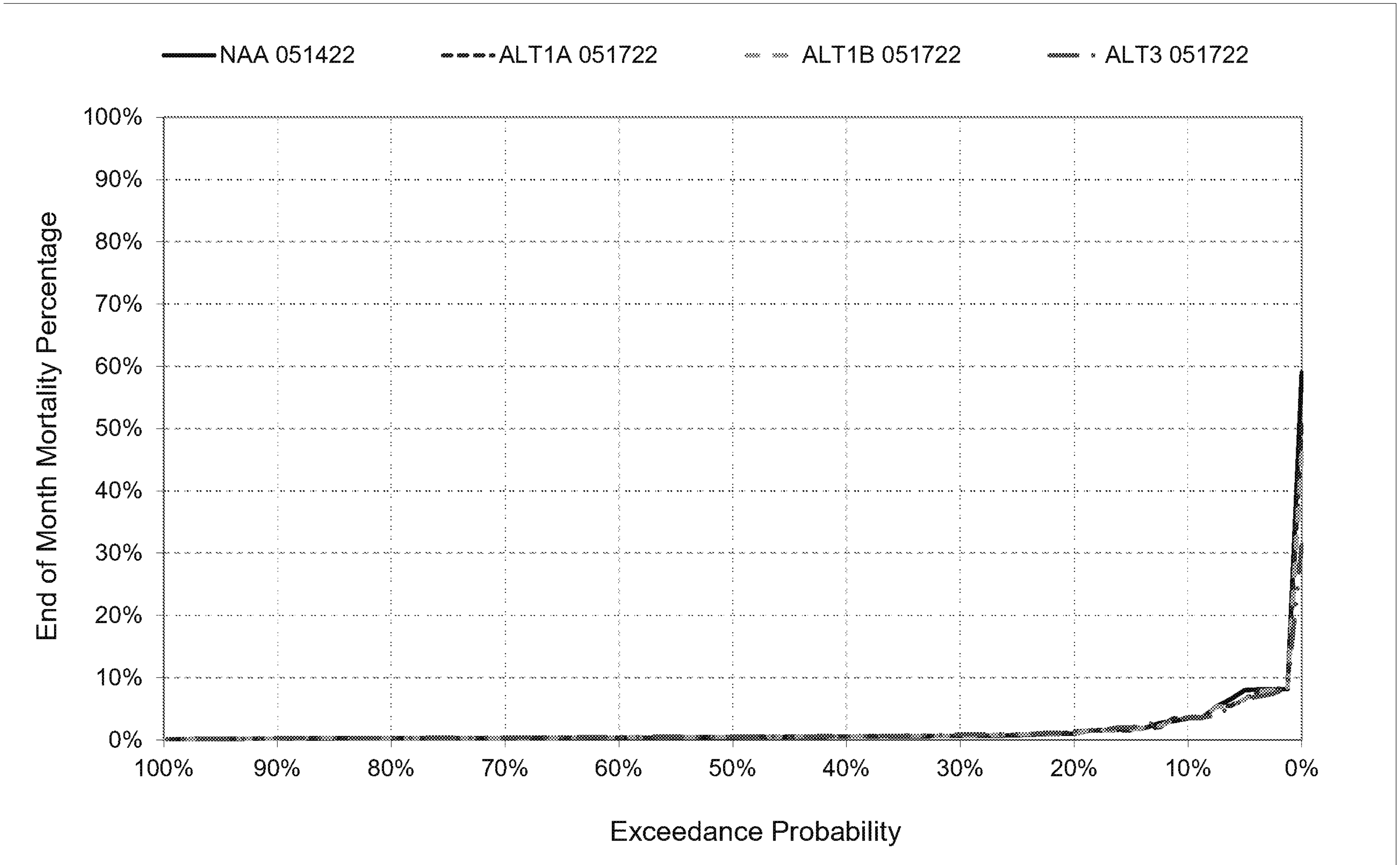


Figure 1a-5. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Anderson Model), September

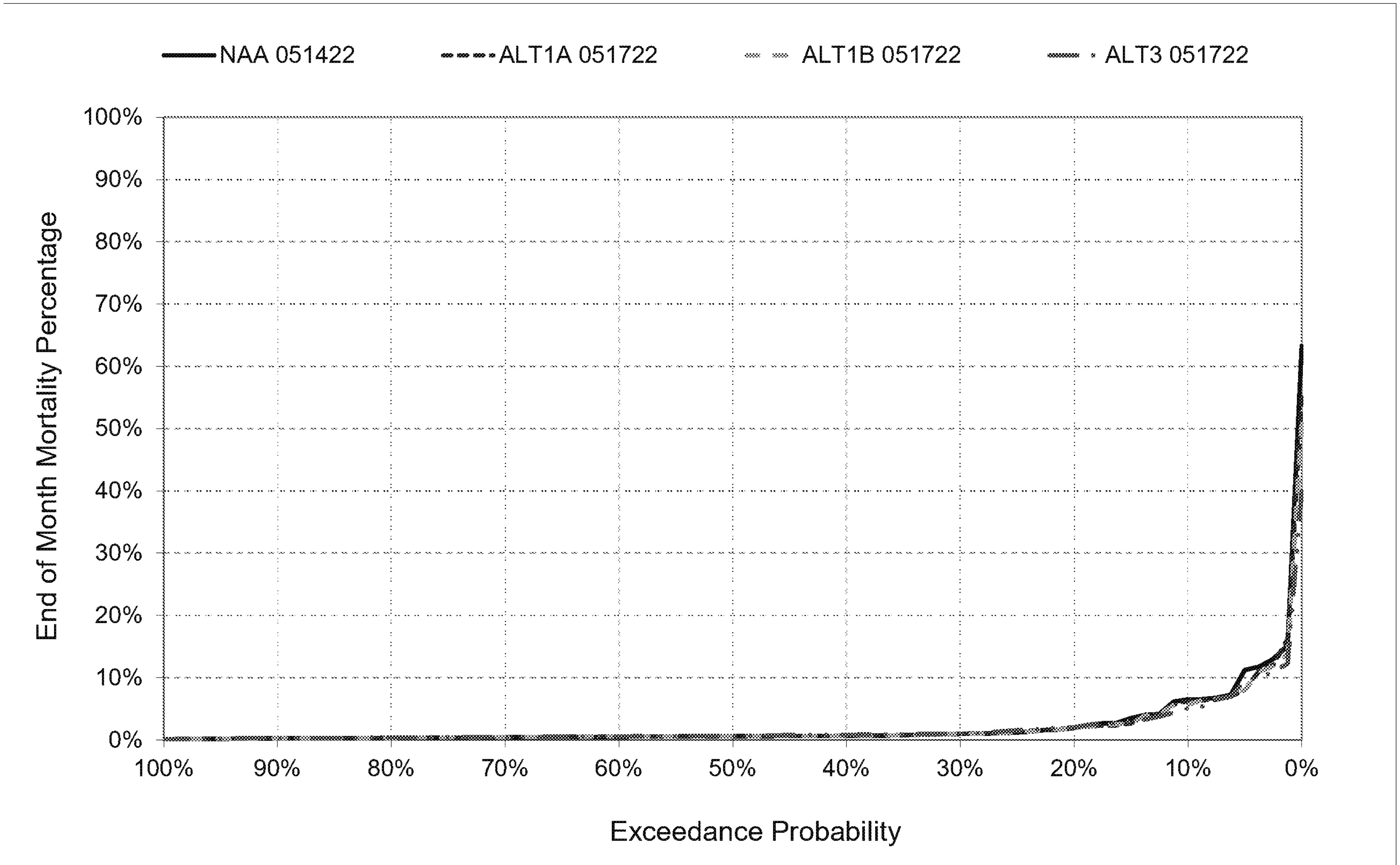


Figure 1a-6. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Anderson Model), October

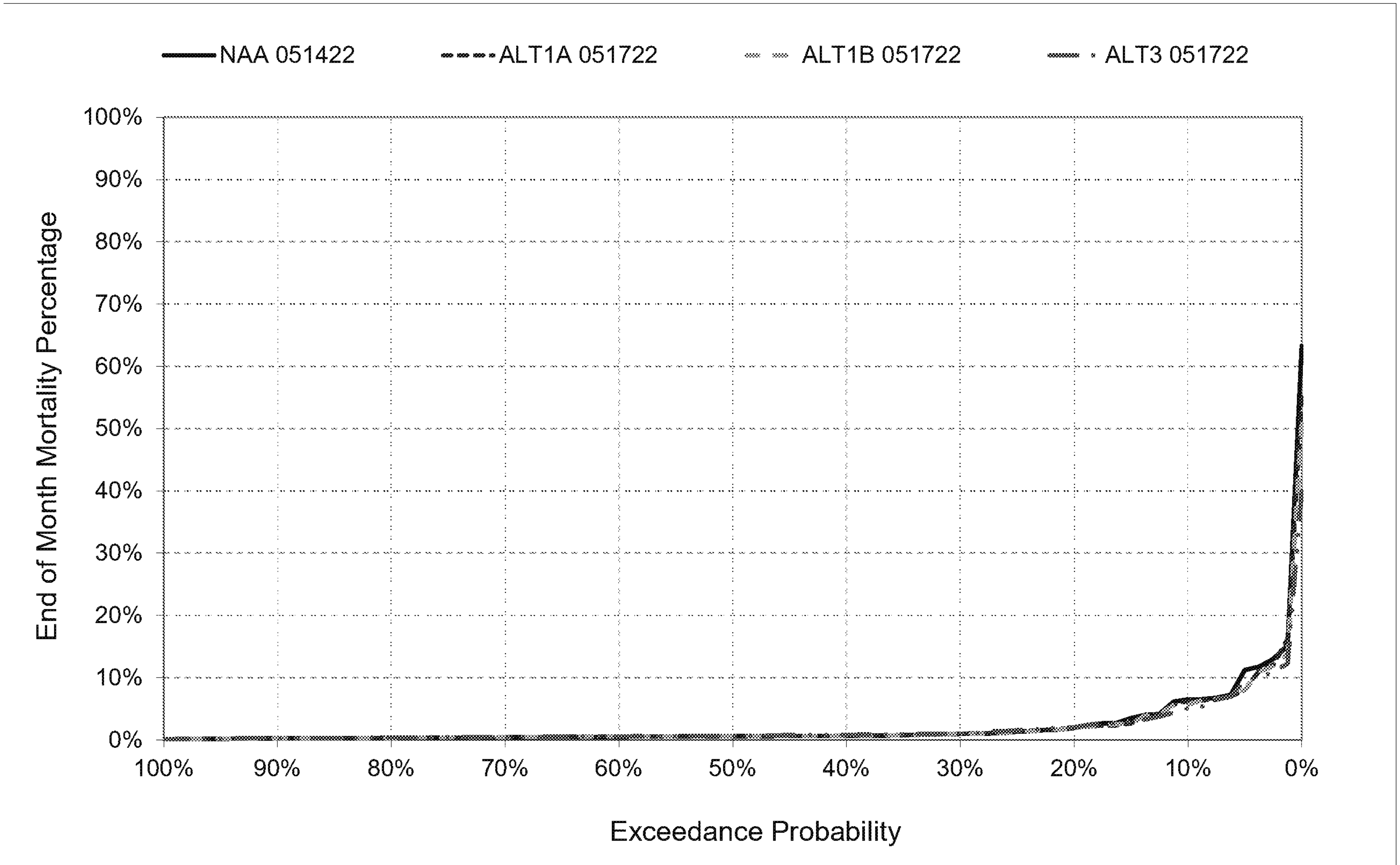


Figure 1b-1. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Anderson Model), May

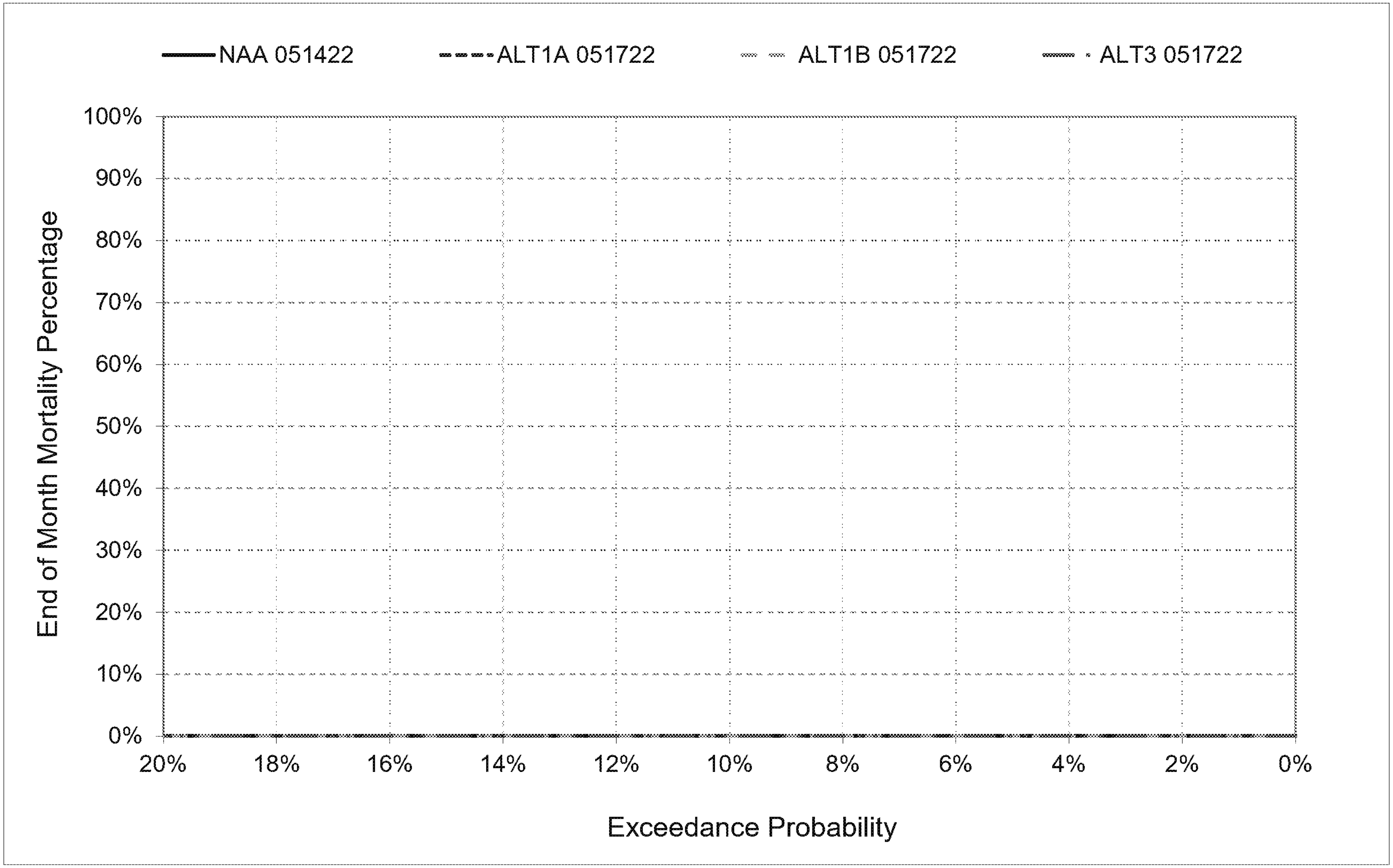


Figure 1b-2. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Anderson Model), June

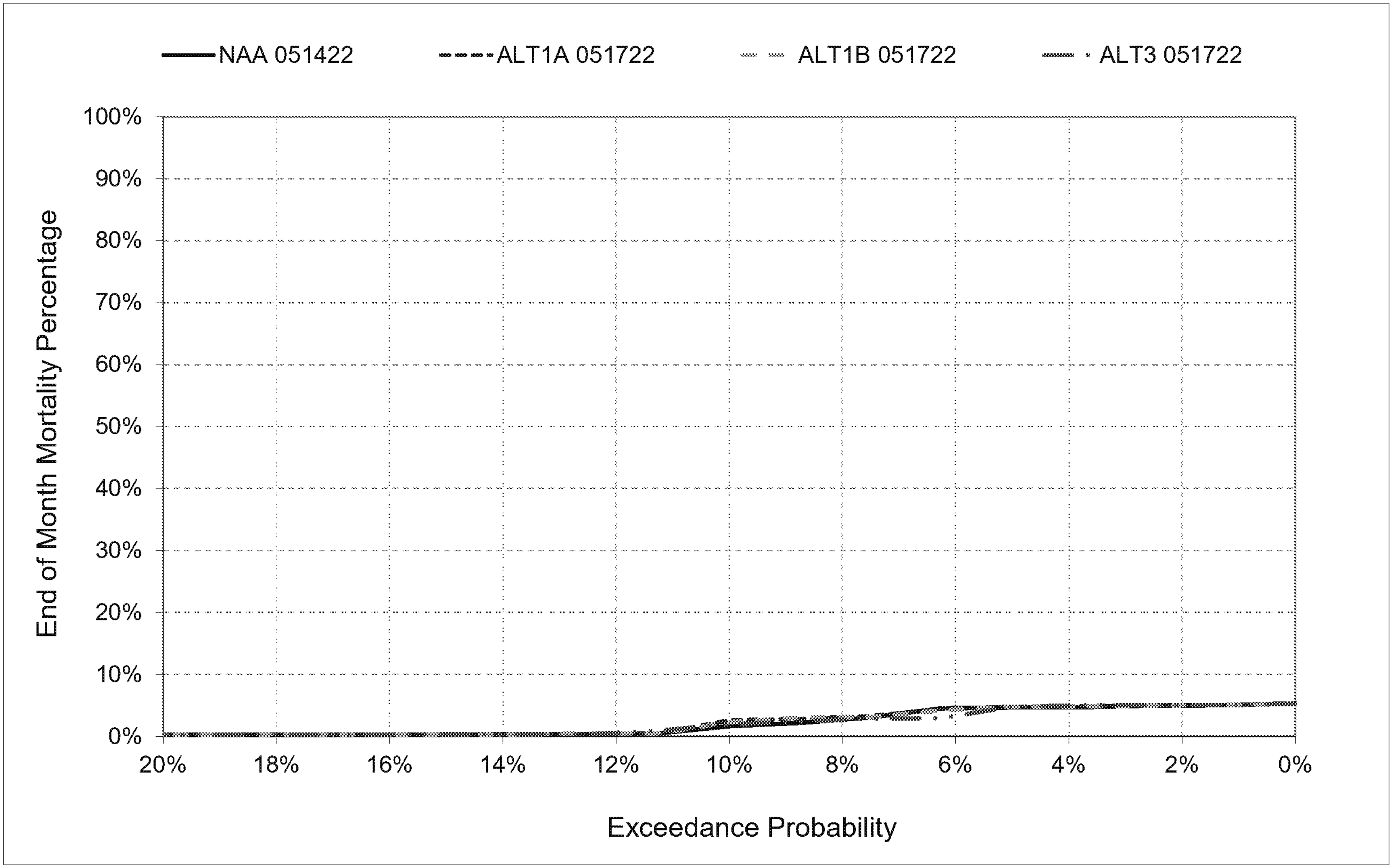


Figure 1b-3. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Anderson Model), July

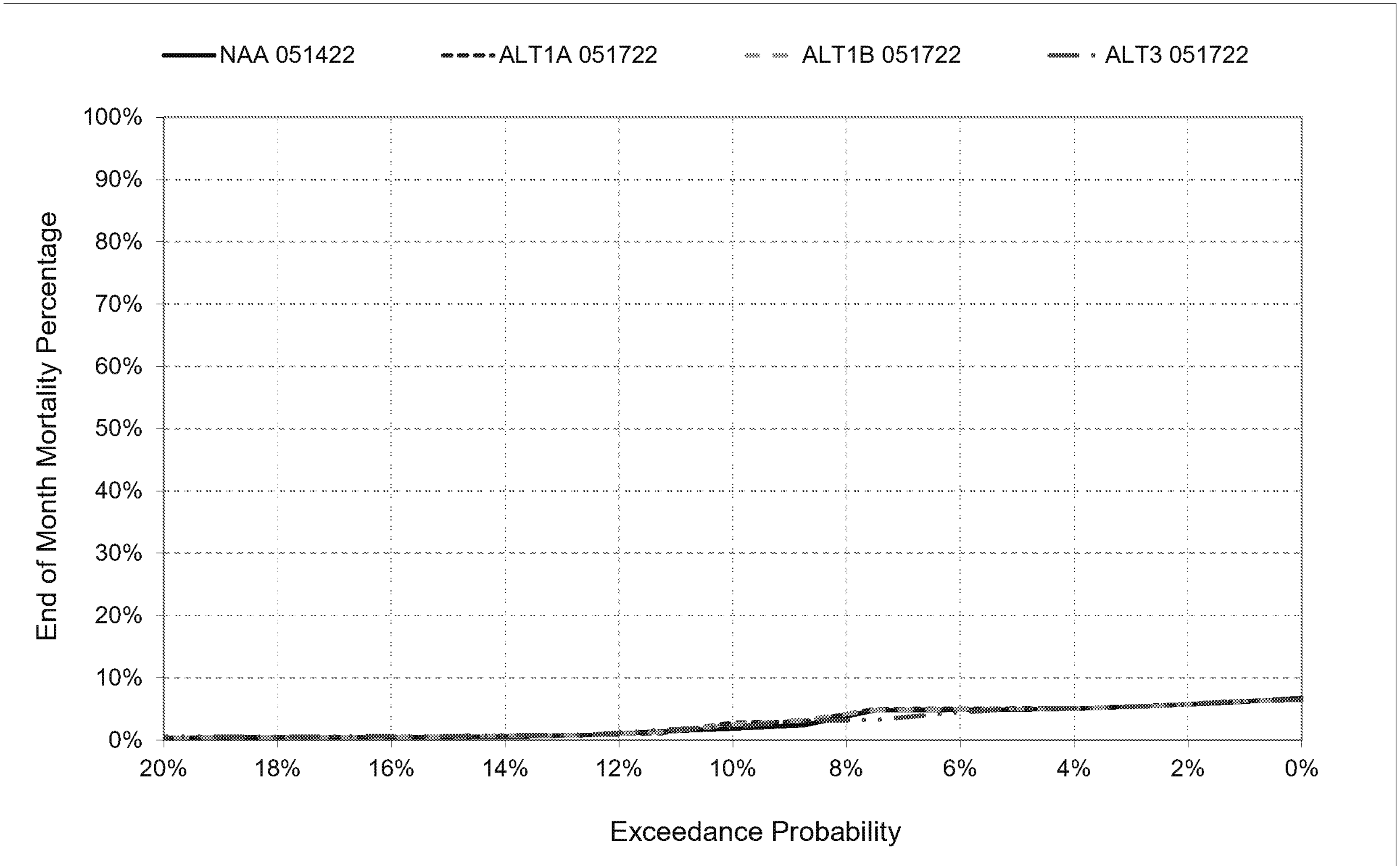


Figure 1b-4. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Anderson Model), August

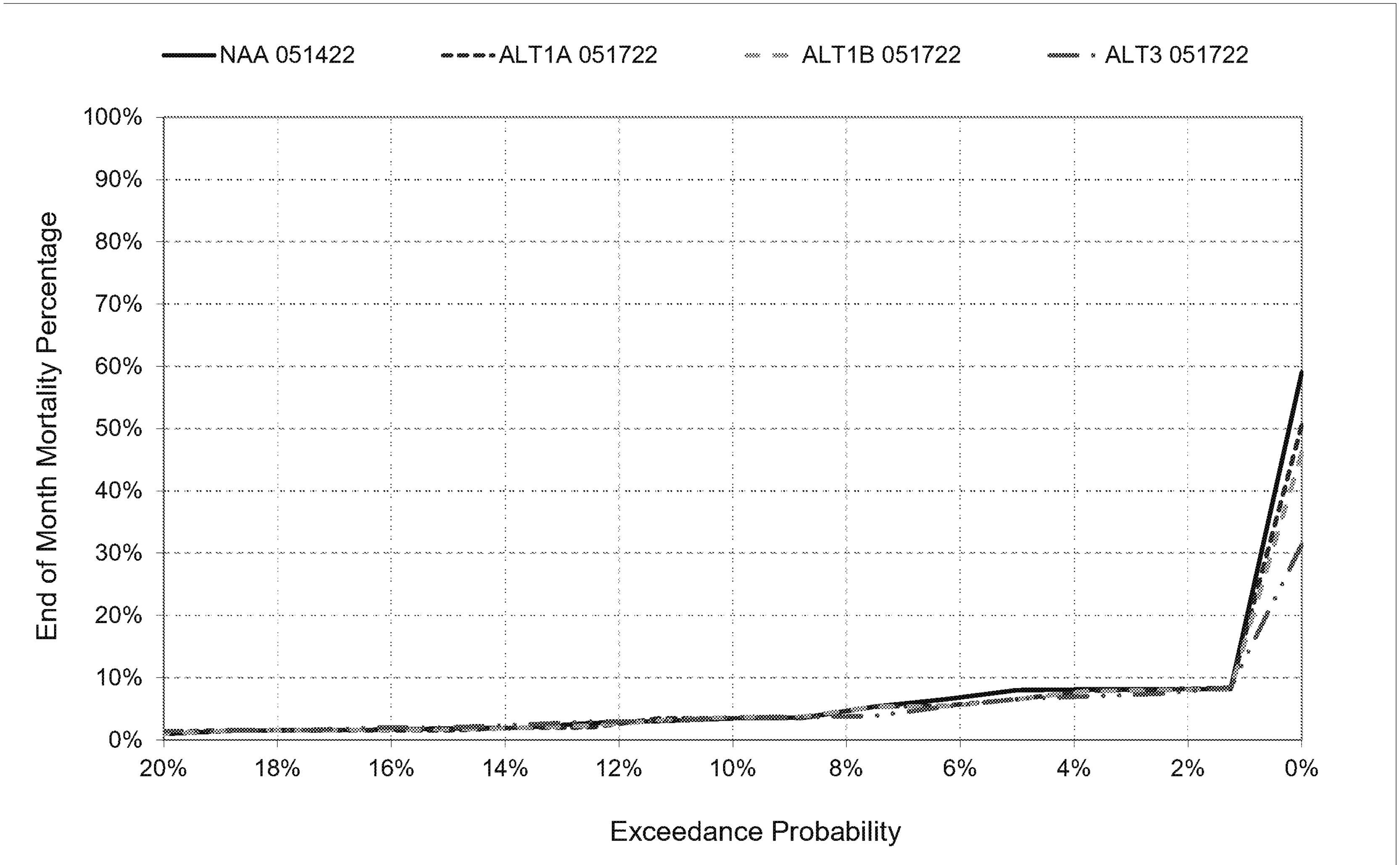


Figure 1b5. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Anderson Model), September

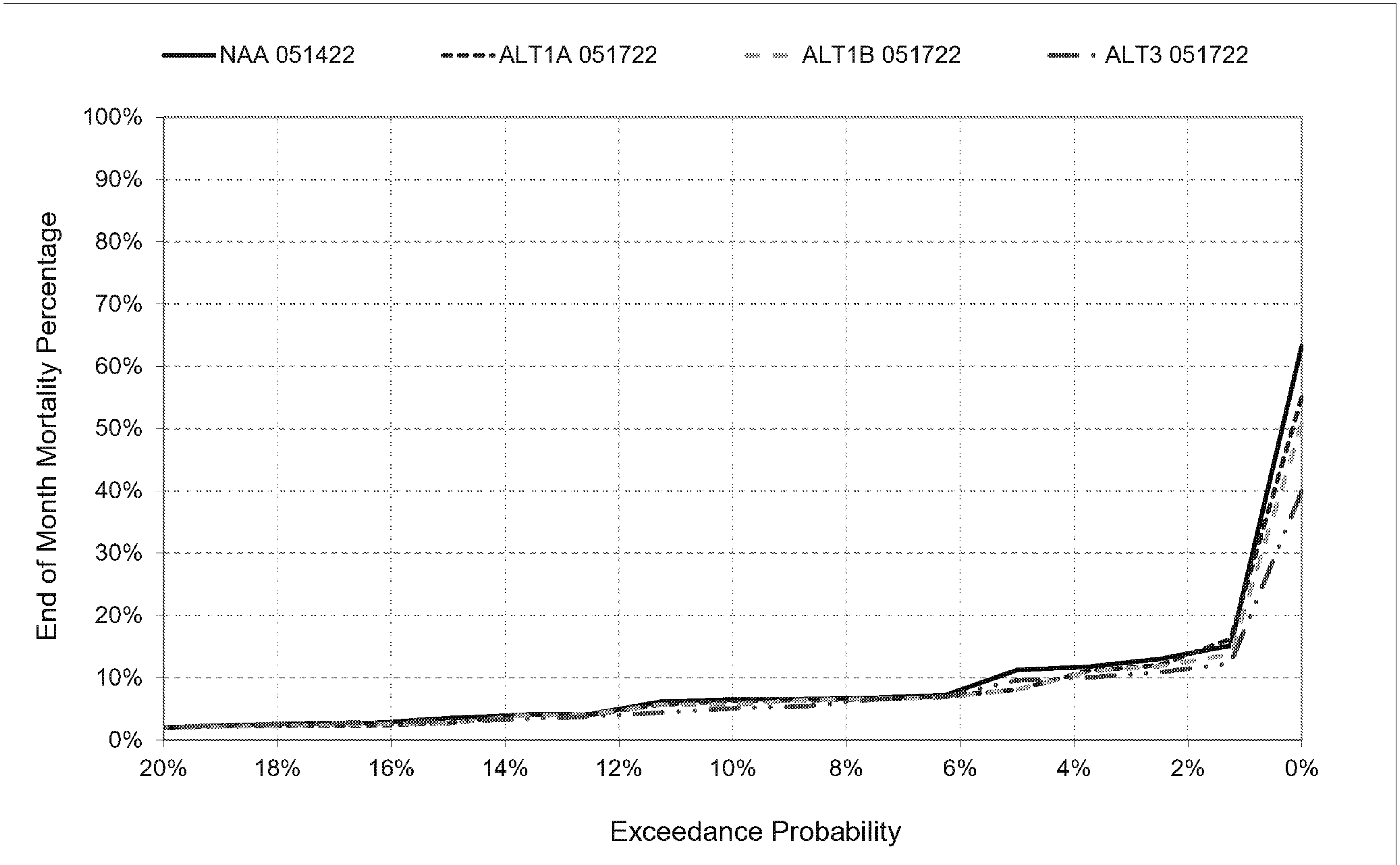


Figure 1b-6. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Anderson Model), October

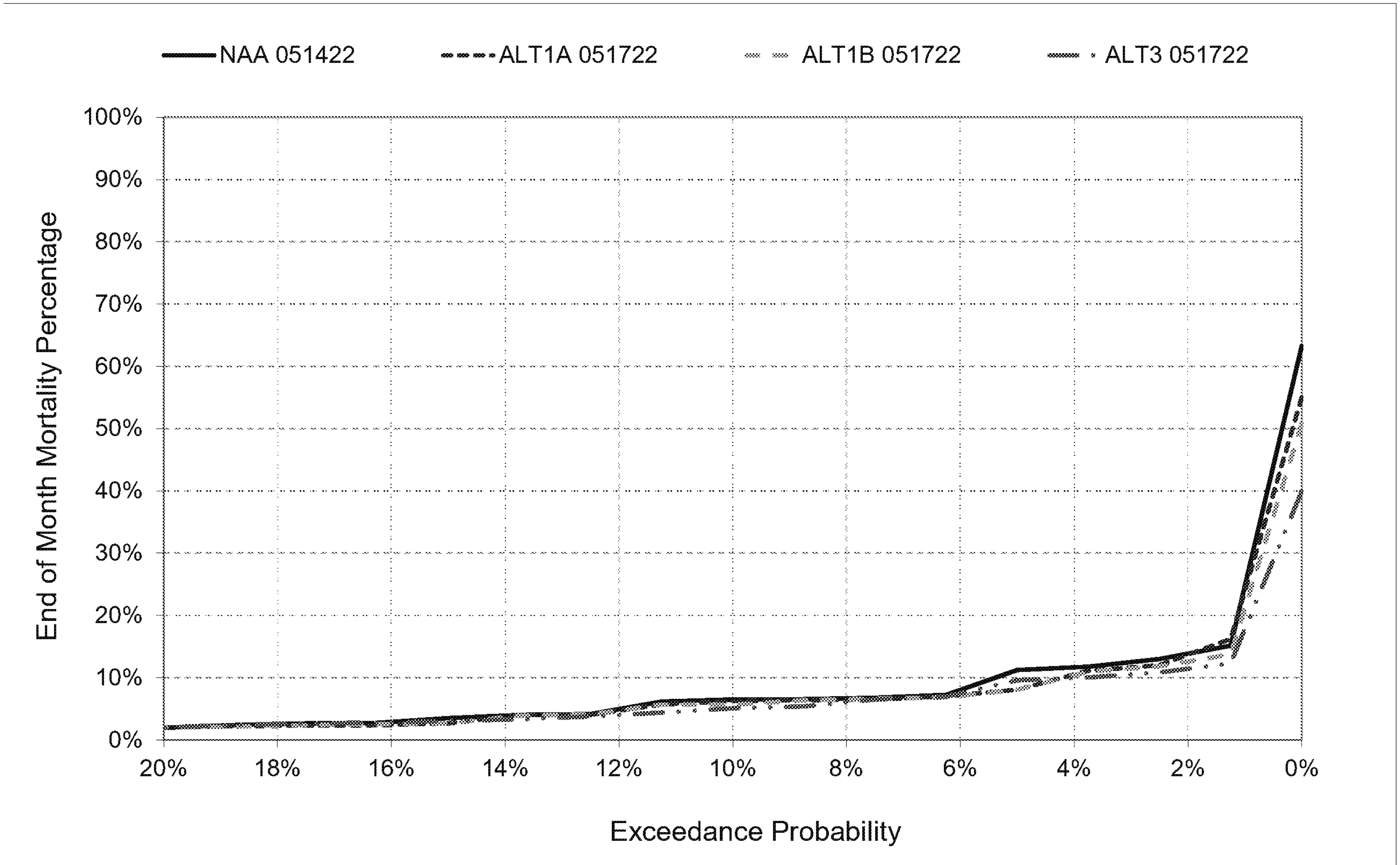


Figure 2a-1. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Martin Model), May

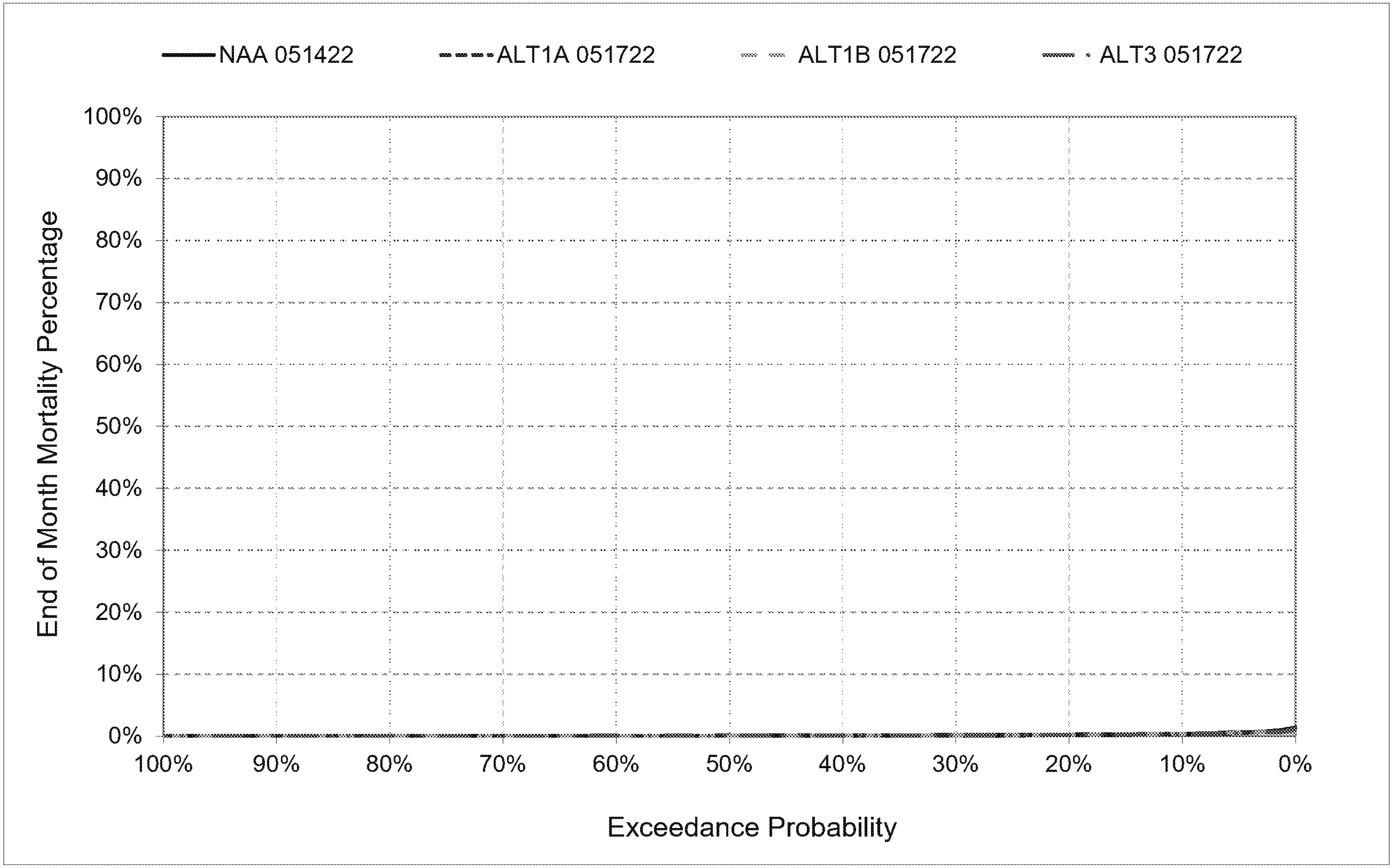


Figure 2a-2. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Martin Model), June

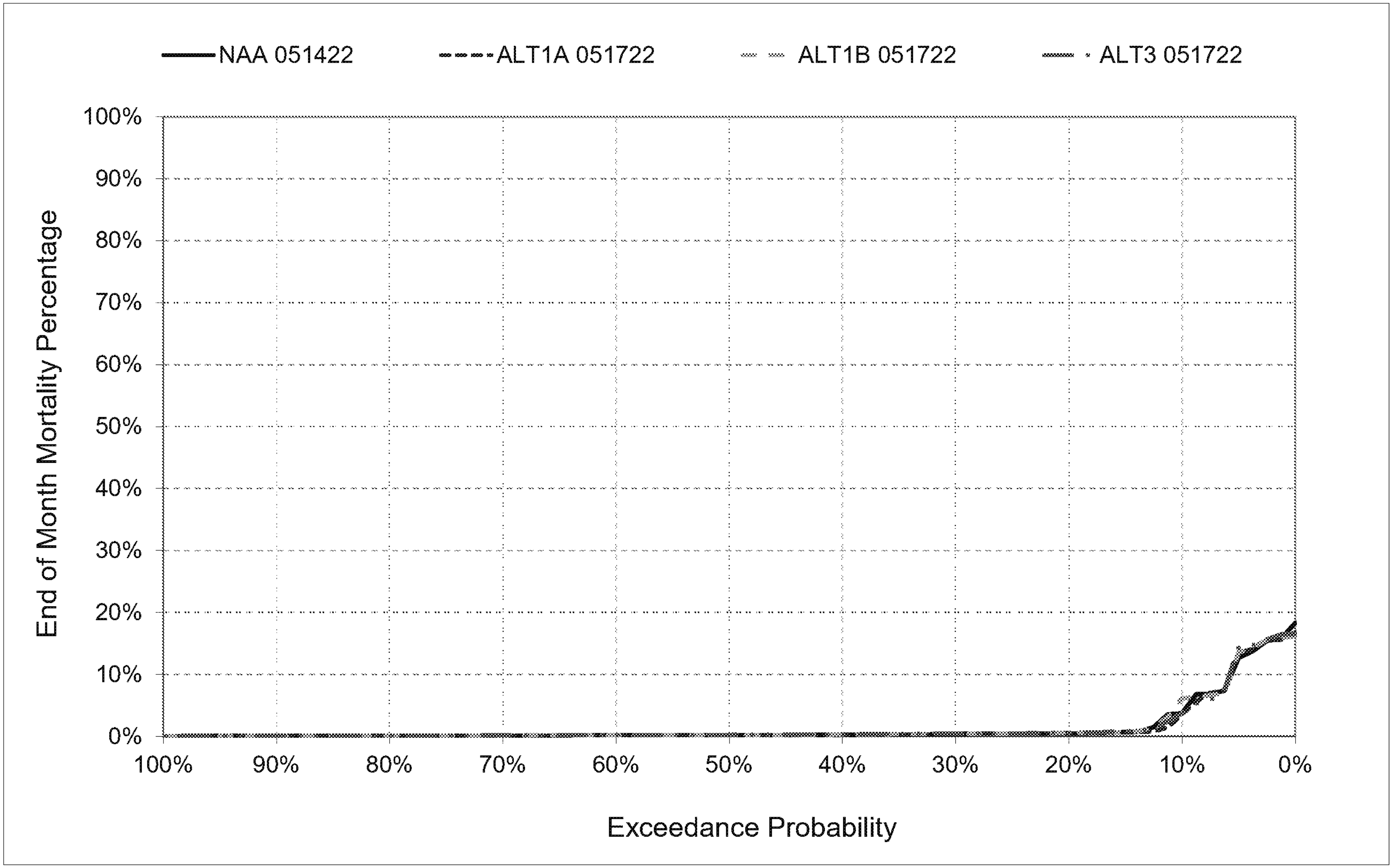


Figure 2a-3. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Martin Model), July

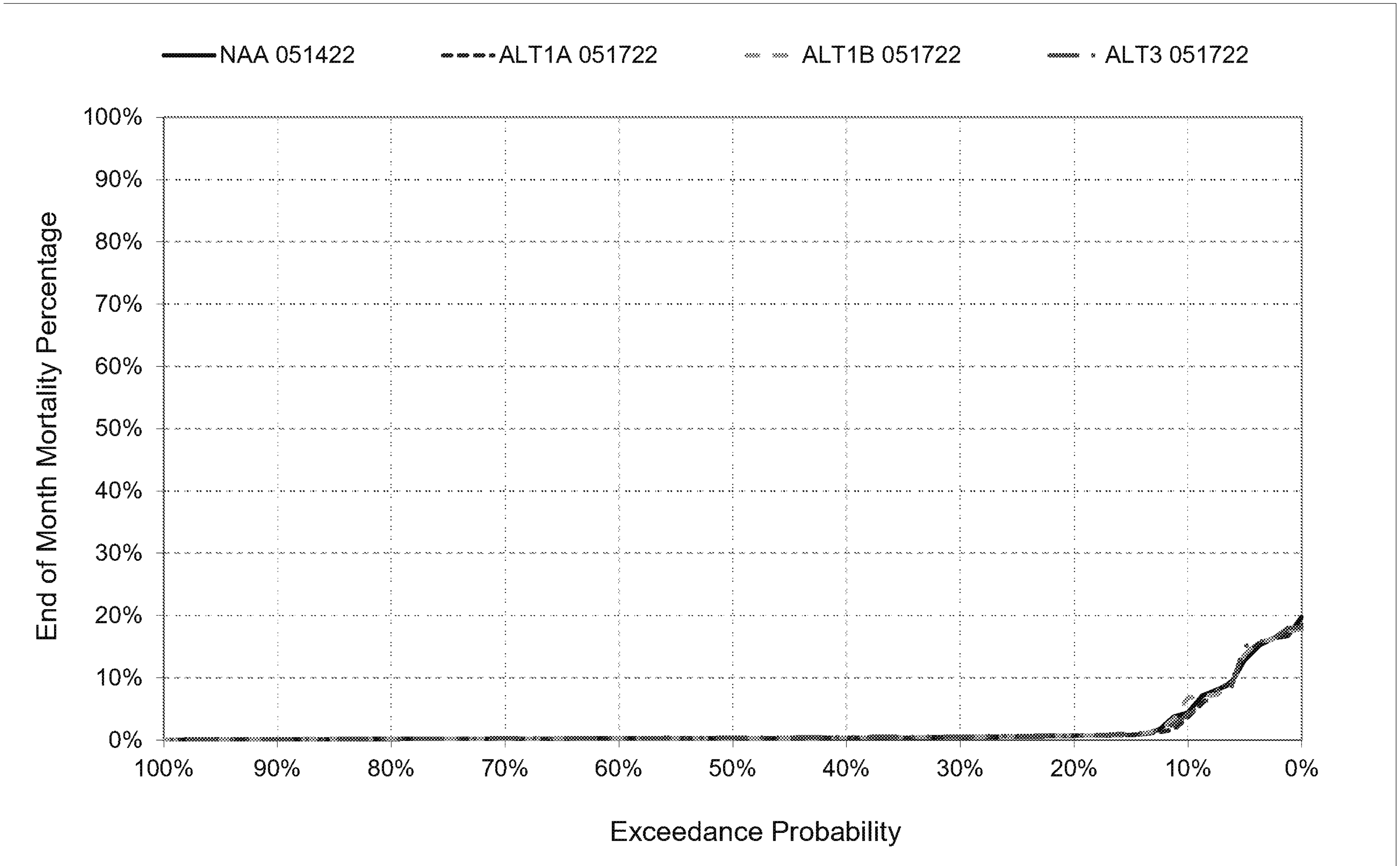


Figure 2a-4. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Martin Model), August

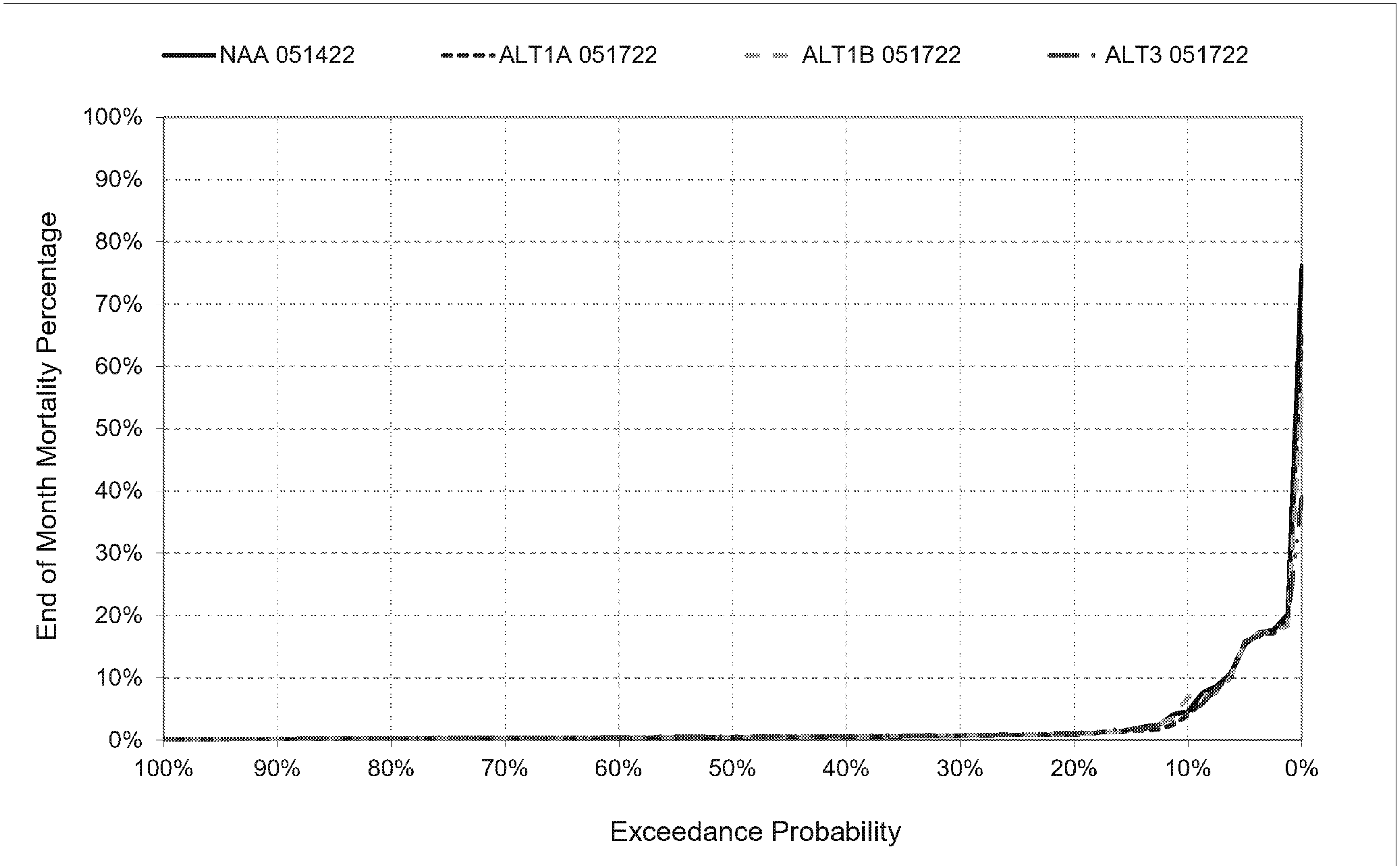


Figure 2a-5. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Martin Model), September

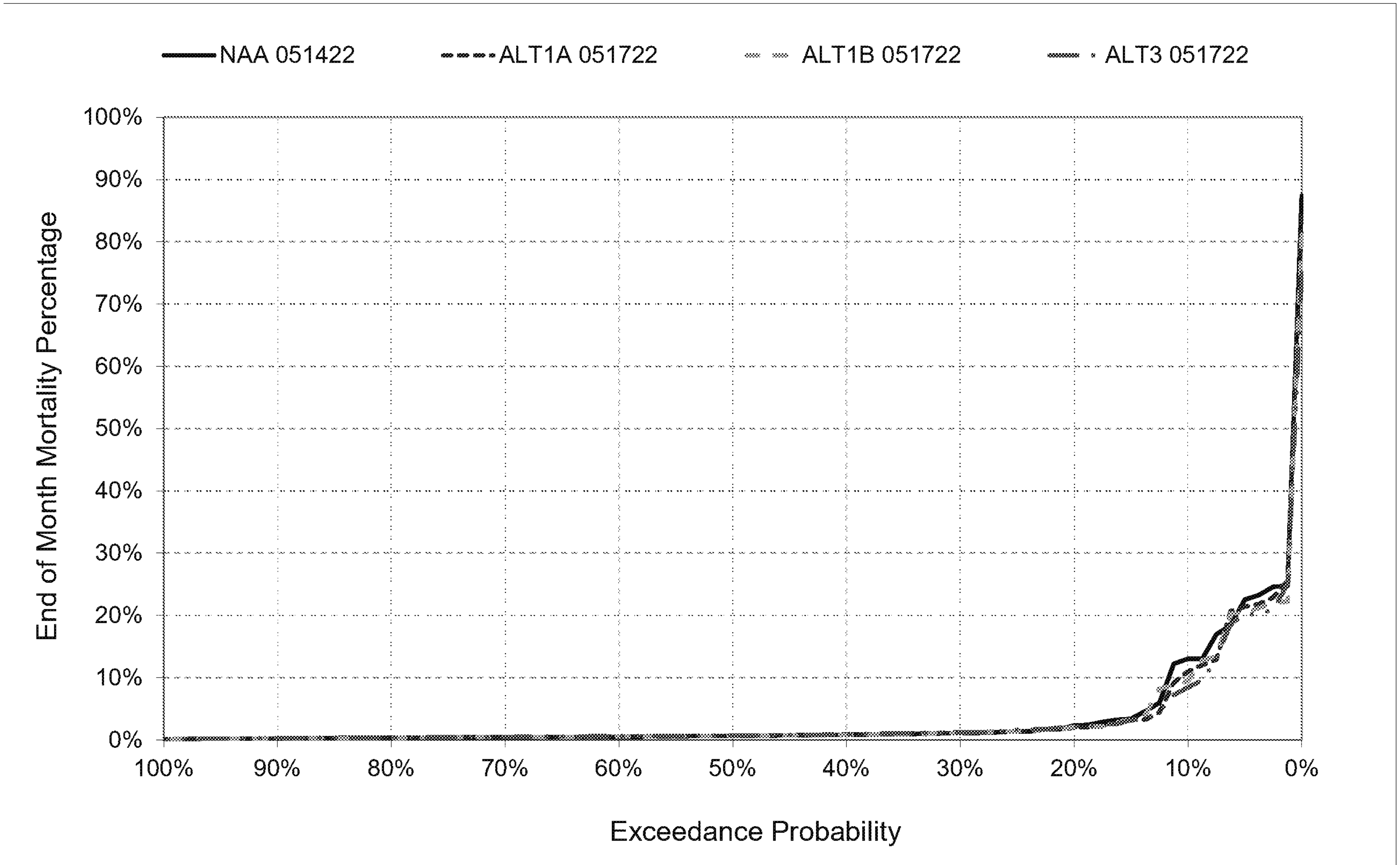


Figure 2a-6. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Martin Model), October

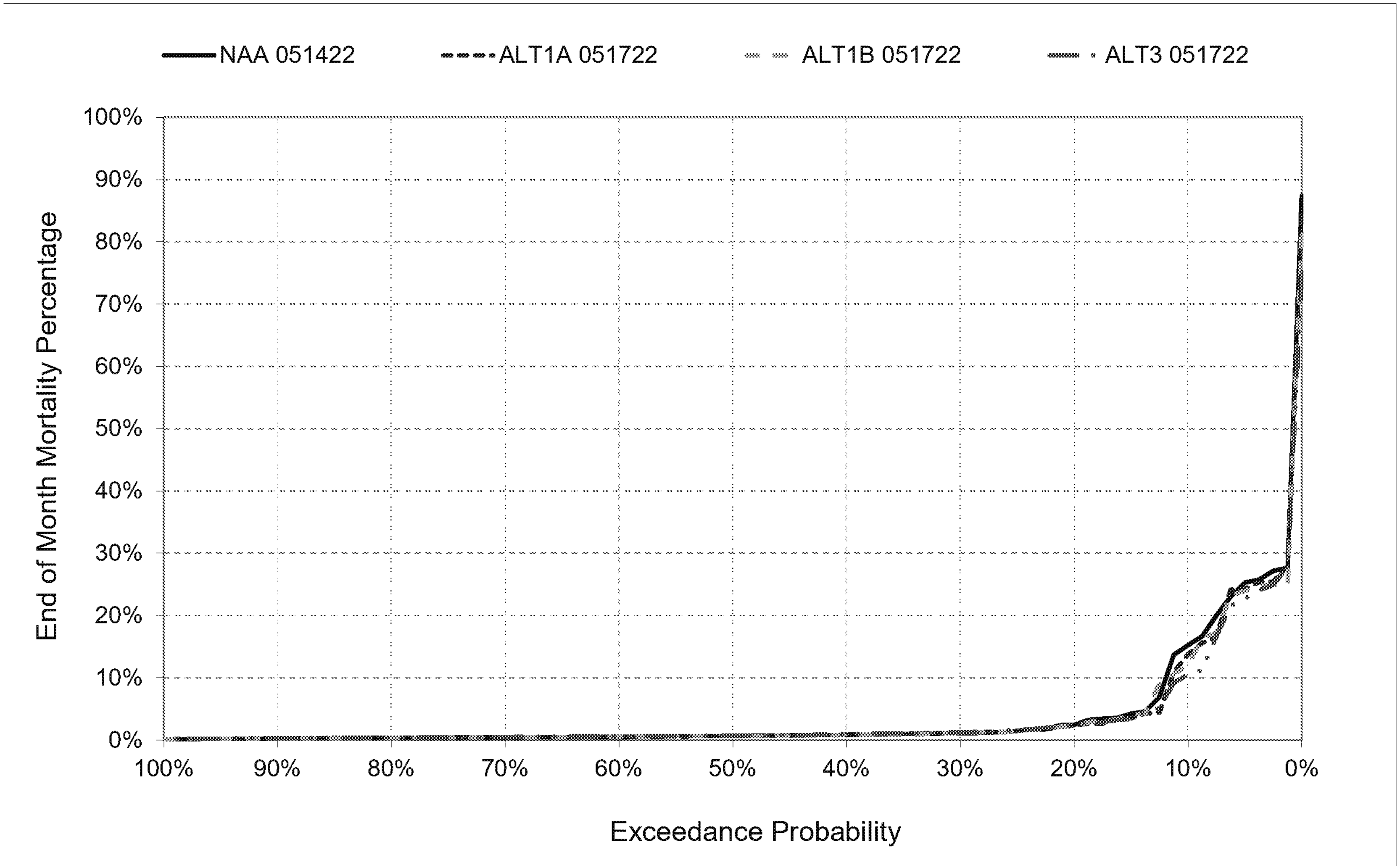


Figure 2b-1. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Martin Model), May

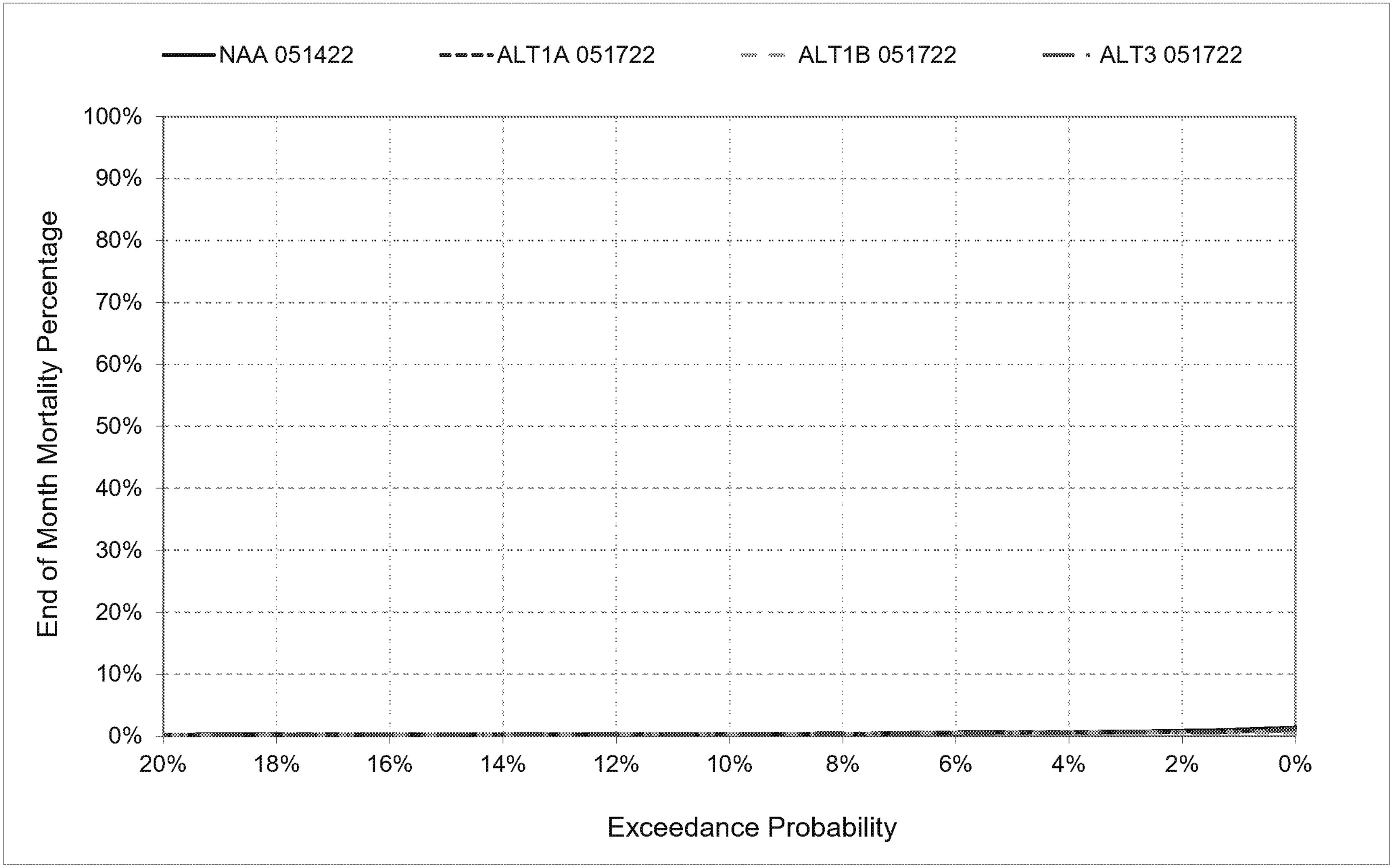


Figure 2b-2. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Martin Model), June

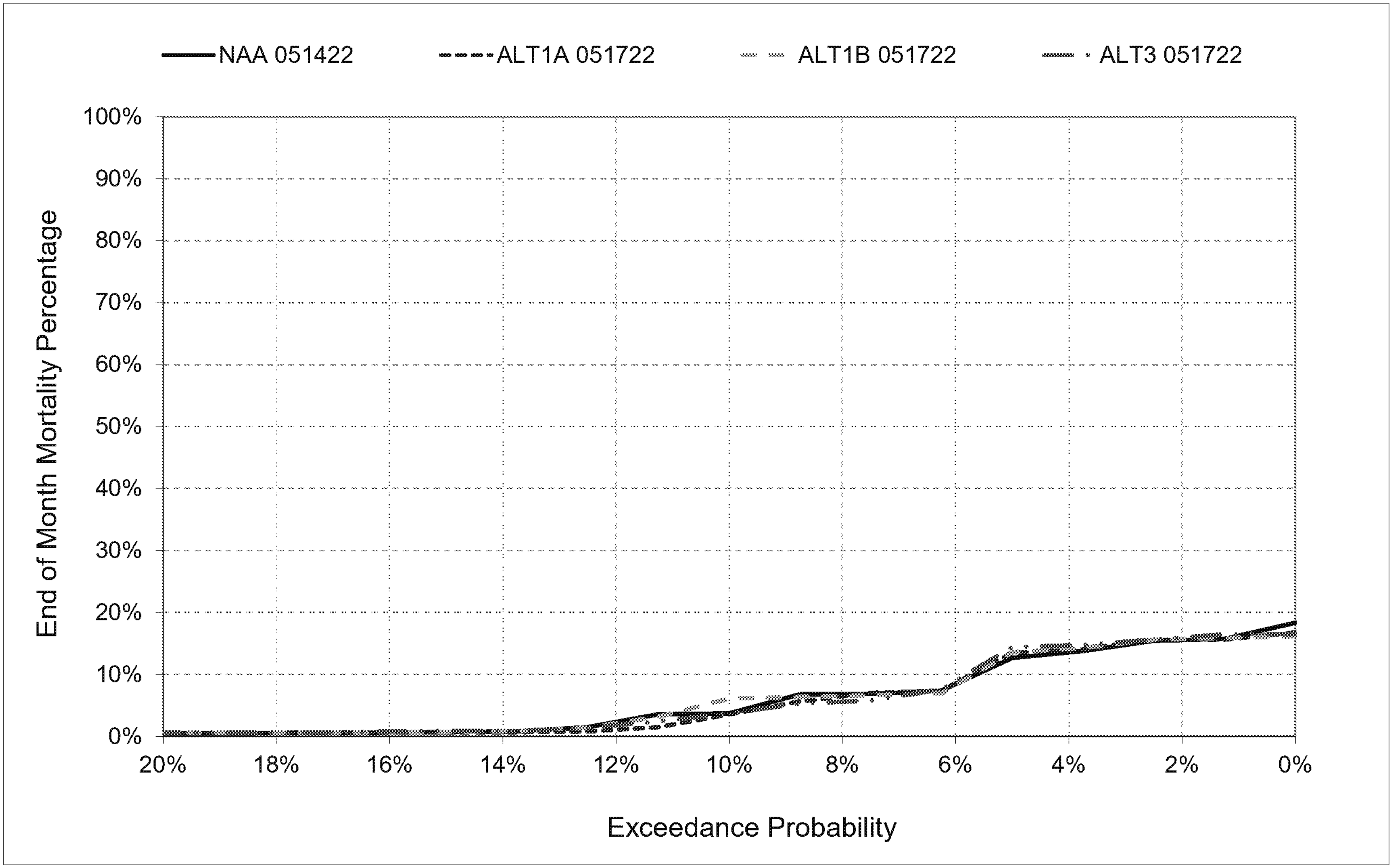


Figure 2b-3. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Martin Model), July

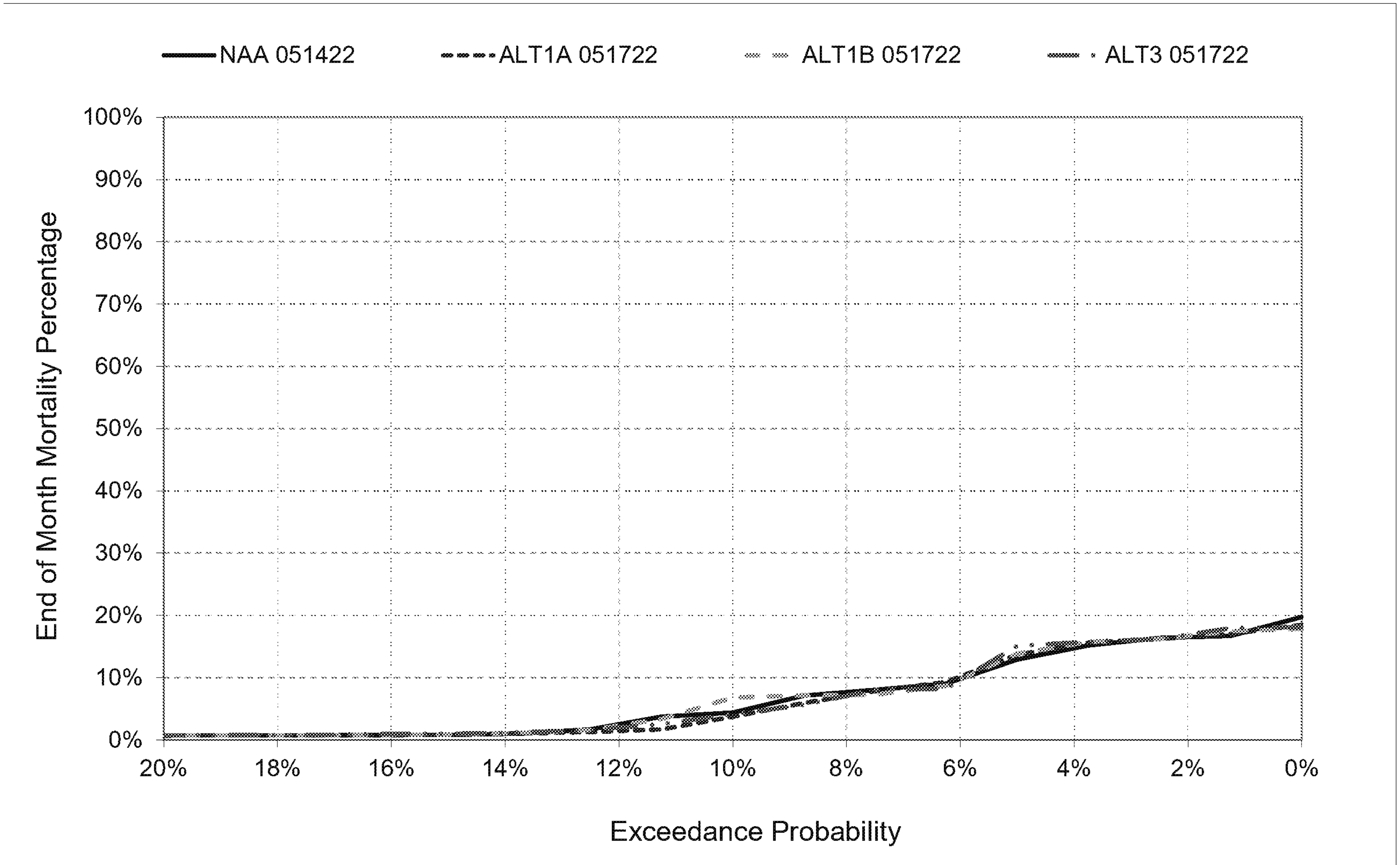


Figure 2b-4. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Martin Model), August

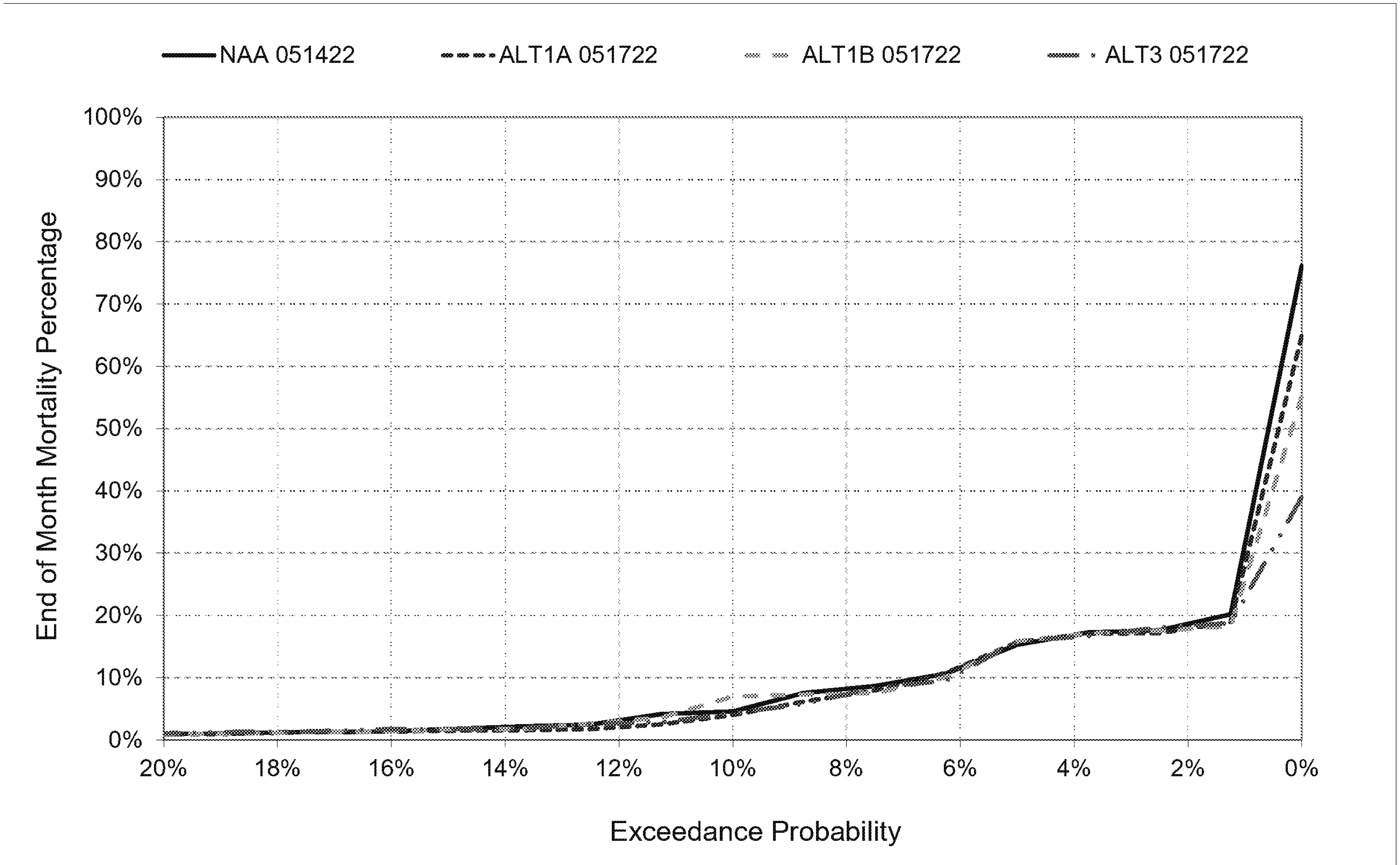


Figure 2b-5. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Martin Model), September

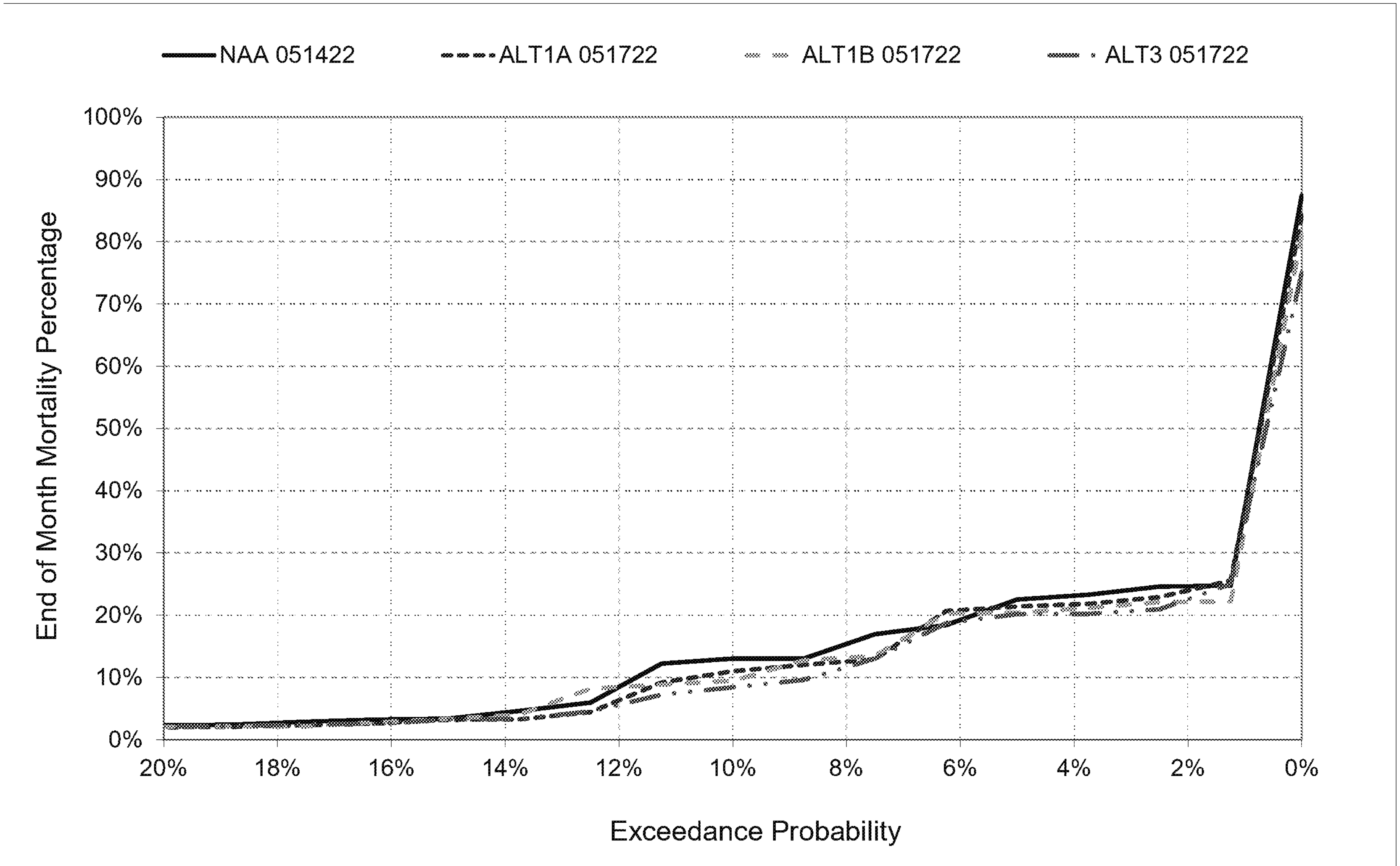
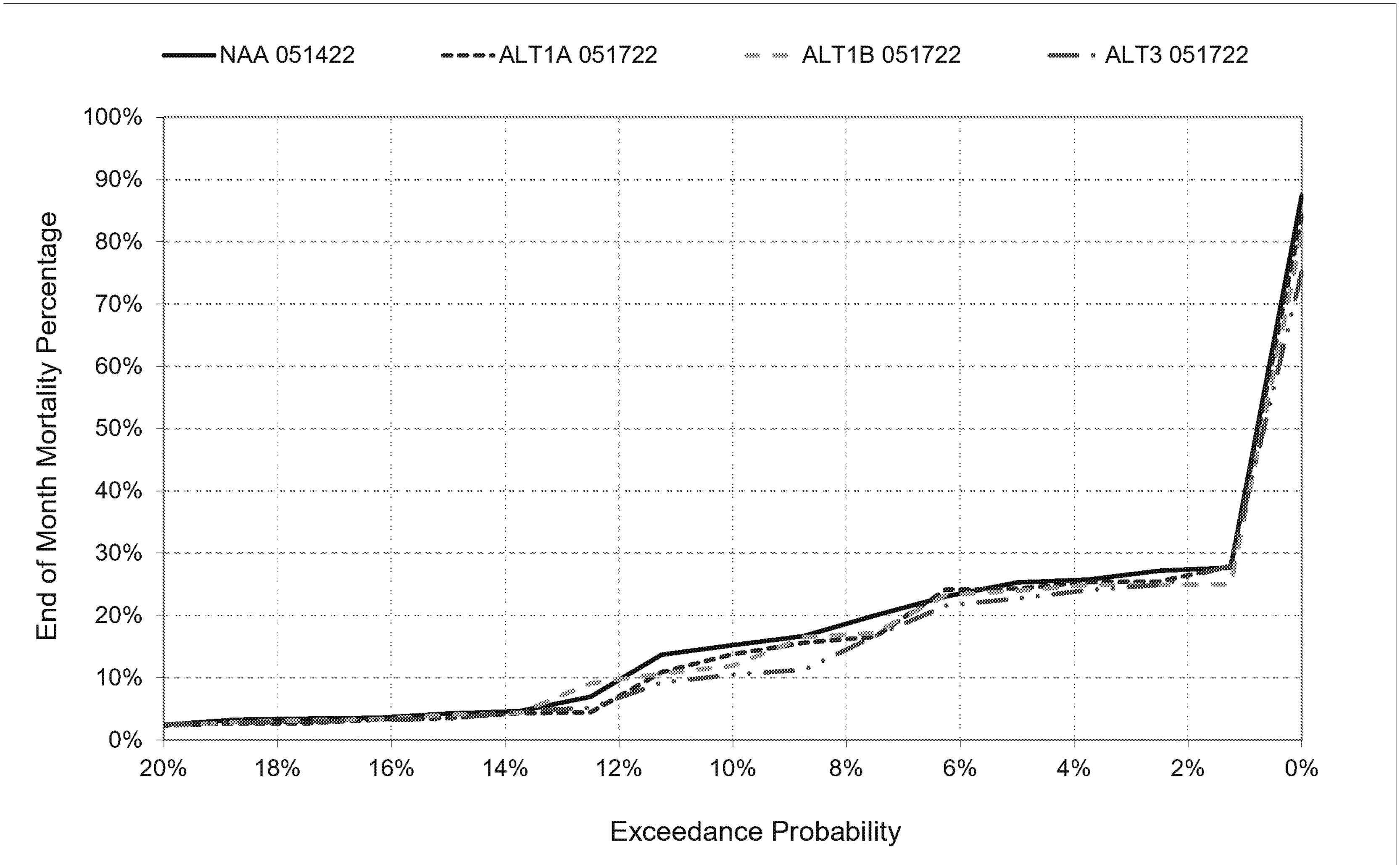


Figure 2b-6. Exceedance of Temperature-Based Egg Mortality for Winter Run Chinook Salmon (Martin Model), October



JACOBS

Memorandum

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Project Name Sites Reservoir Project

Subject Model Results to Support the 2022 Final EIR/EIS: No Action Alternative, Alternative 1A, Alternative 1B, and Alternative 3

Attention Ali Forsythe/Sites Project Authority; Monique Briard/ICF; Erin Heydinger/HDR; Mike Hendrick /ICF; Laurie Warner Herson/Phenix; Nicole Williams/ICF; Anne Huber/ICF

From Robert Leaf/JACOBS; Steve Micko/JACOBS; Reed Thayer/JACOBS; Samaneh Saadat/JACOBS

Date June 10, 2022

1. Introduction

The Sites Reservoir Project team has developed model simulations to support quantitative analysis of Sites long-term operations as part of developing a Final Environmental Document, for completion in 2022.

The results of these model simulations are provided for informational and review purposes. If there are any questions regarding the results of these simulations, please contact the modeling team.

2. Modeled Scenarios

Model results are provided for the alternatives tabulated below.

Model Name	Label Name (as seen in spreadsheet)	Description
No Action Alternative 051422	NAA 051422	Baseline simulation (Reclamation 2021 Benchmark)
Alternative 1A 051722	ALT 1A 051722	1.5 MAF Reservoir
Alternative 1B 051722	ALT 1B 051722	1.5 MAF Reservoir with 101 TAF of Reclamation Investment
Alternative 3 051722	ALT 3 051722	1.5 MAF Reservoir with 360 TAF of Reclamation Investment

The Anderson and Martin models were used to simulate temperature-based mortality of early life stage winter run Chinook salmon. For detailed documentation, please review papers associated with the models (in the reference section).

The SALMOD model was used to simulate annual production potential for juvenile fall, late-fall, winter, and spring runs of Chinook salmon in the Sacramento River from Keswick Dam to the Red Bluff Diversion Dam.

3. Model Simulations for Modeled Scenarios

3.1 Anderson and Martin Models

A pdf report NODOS_FEIRS_2022_EggMortality_NAA_051422_ALT1A_051722_ALT1B_051722_ALT3_051722.pdf, is provided. To better demonstrate differences between modeled alternatives, an additional set of exceedance plots, with the x-axis range to 20% to 0%, are provided.

3.2 SALMOD Models

Two pdf reports, NODOS_FEIRS2022_SALMOD_Ann_Assessment_Plots_20220610.pdf and NODOS_FEIRS2022_SALMOD_Ann_Mortality_Production Summary_All_Runs_20220610.pdf, are provided.

4. References

Anderson, James. (2018). Using river temperature to optimize fish incubation metabolism and survival: a case for mechanistic models. 10.1101/257154.

Martin, B. T., A. Pike, S. N. John, N. Hamda, J. Roberts, S. T. Lindley, and E. M. Danner. 2017. Phenomenological vs. biophysical models of thermal stress in aquatic eggs. Ecology Letters

From: Williams, Nicole [Nicole.Williams@icf.com]
Sent: 5/26/2022 7:53:40 PM
To: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Briard, Monique [Monique.Briard@icf.com]
Subject: RE: Graphics

Hello Laurie – we haven't had the need to create new figures for the Final EIR/EIS. We did use the slanted/sloped I/O Tower and put it into a figure template, but the native file was generated by AECOM. Therefore, I believe the July 2021 files previously provided are the most up to date.

Cheers, Nicole

NICOLE L. WILLIAMS
Senior Environmental Planner
ICF
o 916.231.9614
icf.com

From: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Sent: Thursday, May 26, 2022 5:11 PM
To: Williams, Nicole <Nicole.Williams@icf.com>; Briard, Monique <Monique.Briard@icf.com>
Subject: Graphics

Hi Nicole,

Henry and the engineers are looking for native files for figures from the RDEIR/SDEIS so they can use them to create figures for the upcoming meeting with prospective construction contractors. We previously asked and received native files in July of 2021 for use in the Feasibility Report. Are the July versions the most recent? If so, we shouldn't need anything else from you. If not, let me know when your team would be able to send them to us and I will create a folder where they can be uploaded.

Thank you –

Laurie

Laurie Warner Herson
Principal/Owner
Phenix
Environmental Planning

916.201.3935
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Supplier Clearinghouse Women Business Enterprise (#16000323)

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Public Benefit Contracts – Refined Concepts for Common Terms as proposed by the Prop 1 Project Applicants June 10, 2022

The Prop 1 applicants have been discussing areas of possible common public benefit contract terms to be applied consistently across all Prop 1 storage projects. Concepts for discussion with CDFW are shown here in bold/italics within the applicable sections of the public benefit contract outline provided by CDFW via May 18, 2021 email to all Prop 1 applicants.

1. Recitals.
2. Definitions (consistent with § 6001 where appropriate).

(Note to Reviewers: There may terms that need to be defined consistently across all projects beyond those identified in the Regulations, Section 6001. For example, it may be useful to have consistent definitions for beneficiary pays, Project Operator, Project Operations Plan, etc)

3. Authority (Cal. Water Code § 79755(a)(3); Cal. Code of Regs., Title 23 (§ 6014(a)(2)).
4. Term.
5. Description of public benefit(s) (§ 6014(a)(2)(A)(2)).
    i. Identification of ecosystem improvements (§ 6001(a)(28)).

"Ecosystem improvements" means a public benefit that includes changing the timing of water diversions, improvement in flow conditions, temperature, or other public benefits that contribute to the restoration of aquatic ecosystems and native fish and wildlife, including those ecosystems and fish and wildlife in the Delta, per Water Code section 79753(a)(1). Ecosystems include both aquatic and terrestrial habitats and natural communities."

Concept for discussion:

- ***The project is obligated to contribute to ecosystem improvement through physical actions (changing the timing of water diversions, improvement in flow conditions, temperature, or other public benefits). Many other factors, beyond the control or influence of the project, will determine the effectiveness of the contribution in restoring aquatic ecosystems and native fish and wildlife. While the project must deliver measurable physical actions, it is not reasonable to expect those physical actions to have any specific biological outcome or measurable effect on populations of native fish and wildlife. For example, a project may be responsible for the delivery of Incremental Level 4 Refuge water but cannot be ultimately responsible for ensuring an increase in use of the refuge/wetland area by waterfowl with ensuing improvements in waterfowl populations.***

ii. Description of physical and biological benefit provided. (i.e., quantity, duration, timing etc., of ecosystem benefit, consistent with CDFW finding from application process).

Concept for discussion:

- ***Similar to above, the description of physical and biological benefit provided would consist of a description of the physical actions and expected biological benefit from the Project relative to baseline conditions, but would not include an obligation for the Project to provide specific biological outcomes or effect on populations of native fish and wildlife. In the same Incremental Level 4 Refuge water example, as an example for this section, the description would likely include a description of quantity or water (acre-feet), timing of deliveries (months of the year), and expected biological benefit relative to baseline conditions, but not a projection of ultimate biological outcomes or effects on populations of waterfowl.***

6. Quantification and finding of net public benefit.

"The net public and non-public physical benefits shall be calculated using the physical, chemical, or biological change in each benefit resource condition that is created by or caused by the proposed project, less any negative impacts of similar physical units, location, and timing, created or caused by the proposed project as compared to the without-project conditions at the same reference point (i.e., 2030 future conditions, 2070 future conditions)." (§ 6004(a)).

"The project applicant has entered into a contract pursuant to Water Code section 79755(a)(3) with CDFW, State Water Board, and the Department [of Water Resources], which administer public benefits of the project after the individual agency makes a finding that the public benefits of the project meet all of the requirements of Water Code sections 79750 et seq." (§ 6013(c)(2)).

7. Implementation of public benefit (e.g., operation agreements, conveyance agreements, and/or discussion of processes needed for benefit to occur).

Concepts for Discussion:

- ***The delivery of public benefits should not have a greater or lesser certainty than the delivery of non-public benefits. The certainty and priority of delivery of public benefits should be "on par" with the non-public benefits. Individual projects may voluntarily choose to provide a greater certainty for their specific Project, but this would be on a project-specific basis.***
- ***The delivery of public benefits has a number of risks that are beyond the control of the Project and there should be provisions to address the risks. These include such things as physical risks (i.e., delivery facility failures), regulatory risks (i.e., future BiOps, water right permit changes, ITPs make realizing or delivering the benefits infeasible), acts of god, and political risks (i.e., war, legislation changes).***

Reporting.

i. Between CDFW and the project (§6014(a)(2)(A)(3)).
ii. To CWC (§6014(a)(2)(A)(4)).

Concepts for Discussion:

- ***Reporting requirements for public benefits should be coordinated and consistent with the reporting requirements of non-public benefits.***

8. Adaptive Management Plan (§ 6014(a)(2)(A)(1)).
    i. Public benefit monitoring metrics.
    ii. Monitoring locations, frequency, and timing.
    iii. Metric evaluation methodology and associated threshold or trigger levels based on best available science that initiate adaptive management actions.
    iv. Decision making process including the administering agency role and the adaptive management actions that would be taken when a trigger is reached.
    v. Funding sources and financial commitments to implement the adaptive management plan.
    vi. Other items deemed necessary on a case-by-case basis by CDFW.

Concepts for Discussion:

- ***The adaptive management obligation of the project should be limited to modifying the physical actions provided by the project to improve biological outcomes. These modifications should be undertaken in consultation with CDFW and other project partners, in consideration of comprehensive monitoring of aquatic ecosystems and native fish and wildlife conducted by CDFW and/or utilizing existing monitoring to the extent possible.***
- ***Adaptive management obligations shall be limited to entities that have decision-making authority over actions, such as pulse flow releases from Lake Oroville. Pulse flow releases will be managed by CDFW and DWR, and so any adaptive management actions related to pulse flows should be undertaken by CDFW and DWR, and not the project proponent.***
- ***The adaptive management actions should not infringe on the ability or inhibit the ability of the Project to deliver non-public benefits or have any adverse impact on other project partners (e.g., SWP or CVP).***

9. Assurances regarding how the project will be operated, maintained, repaired, replaced and rehabilitated to achieve public benefit over the life of the contract (§6014(a)(2)(A)(5)).

Concept for Discussion:

- ***The term of the agreement should be specified.***
- ***Any assurances that funding sources will be provided to cover identified OM&R costs required to deliver public benefits.***

10. Right of entry (§ 6014(a)(2)(A)(6)).
11. Failure to comply with contract agreement (§ 6014(a)(2)(A)(7)).
12. Effect of contract agreement (§ 6014(a)(2)).
13. Breach of contract.
14. General terms and conditions.
15. Force majeure.
16. Process for amending or modifying contract.

Concept for Discussion for items 11 through 17:

- ***The State should have similar rights and obligations in these areas to the non-public beneficiaries.***

Additional Concepts for Discussion:

- ***There needs to be a common understanding with CDFW about what happens during non-routine and emergency conditions. Here's a couple of examples to discuss:***

a. ***Governor declared local, regional, or statewide emergency conditions***
b. ***During times Project facilities are inoperable or have limited operating capacity due to circumstances beyond the Project operator's control***

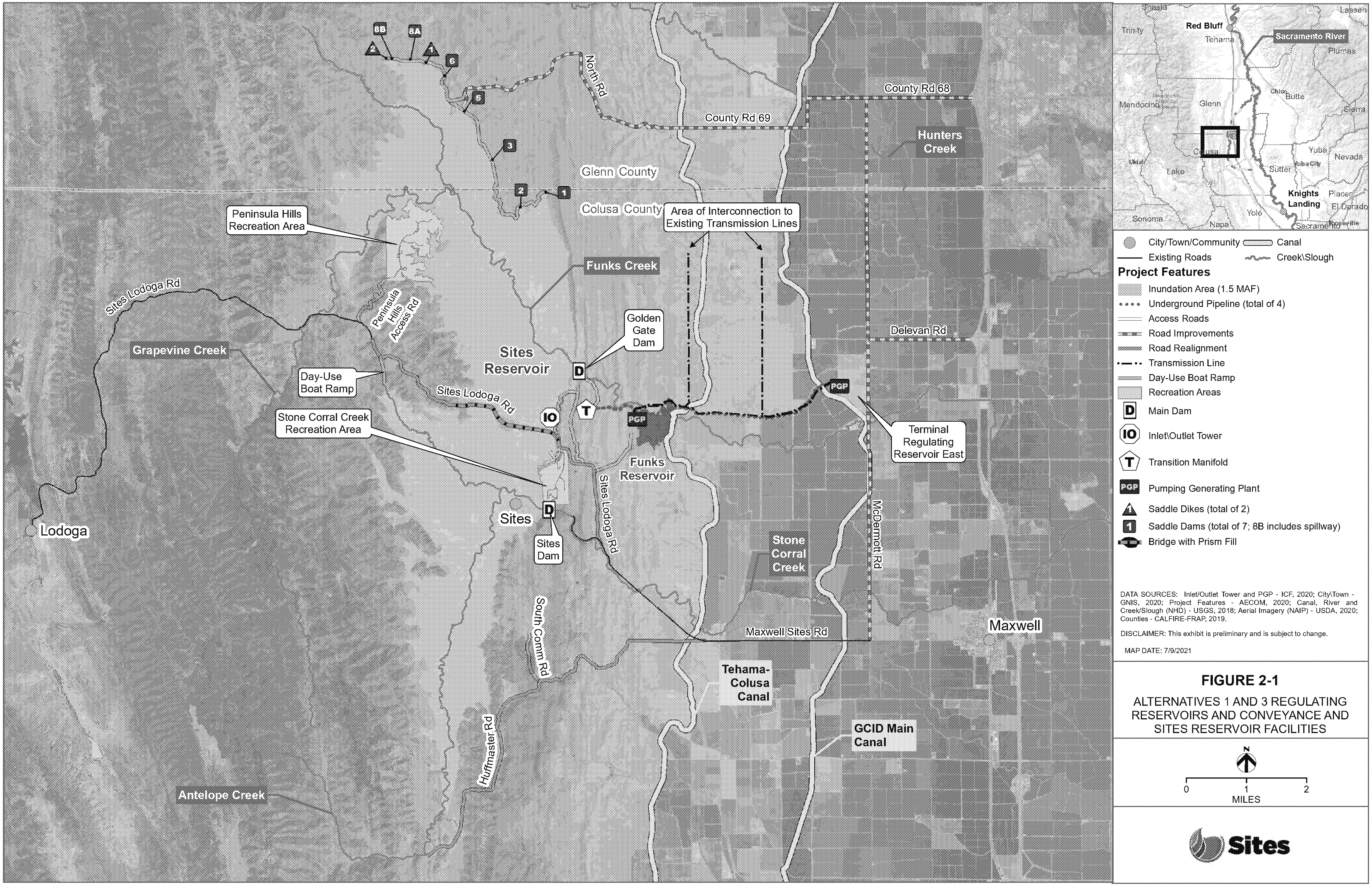

FIGURE 2-1

ALTERNATIVES 1 AND 3 REGULATING RESERVOIRS AND CONVEYANCE AND SITES RESERVOIR FACILITIES

PATH: \\PDCCITRDSGIS1\PROJECTS_1\SITES_PA\00528_20\FIGURES\DOC\EREIS\1_DEIR\01_ADEIR\CHAPTER2\FIG2-1_ALT1_3_REGRESERVOIRS_CONV.MXD - USER: 24991 - DATE: 7/9/2021

Preliminary Evaluation of the Planning Aid Memorandum Technical Memorandum

To:	~~Alicia Forsythe, Sites Project Authority~~Shane Hunt, Bureau of Reclamation
CC:	John Spranza, Sites Integration Laurie Warner-Herson, Sites Integration Alicia Forsythe, Sites Project Authority
Date:	May 10, 2022
~~**From:**~~	~~ICF~~
~~**Quality Review:**~~	~~Mike Hendrick (ICF)~~
~~**Authority Agent Review:**~~	~~N/A~~
Subject:	Preliminary Evaluation of the Planning Aid Memorandum

Commented [DMD1]: Revise as needed.

1.0 Purpose

This memorandum presents a preliminary evaluation of the August 5, 2021, Planning Aid Memorandum (PAM) provided by the U.S. Fish and Wildlife Service (USFWS) to the Bureau of Reclamation (Reclamation) for the Sites Reservoir Project (Project). The purpose of the PAM was to provide Reclamation with the USFWS's comments and recommendations regarding the Project's potential effects on biological resources for consideration in project planning and preparation of a public revised draft environmental document. The PAM was prepared under the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*). The Fish and Wildlife Coordination Act requires federal agencies proposing water resource development projects or involved in issuance of related permits or licenses to consult with the USFWS and provide equal consideration to the conservation, rehabilitation, and enhancement of fish and wildlife resources with other project purposes.

The PAM summarized early coordination between USFWS and Reclamation regarding potential effects of the proposed Project ~~(Project)~~. It provided a high-level description of the Project and USFWS's views of potential effects of the inundation of upland habitat (i.e., upland effects), increased diversions of Sacramento River water (i.e., in-river effects), and cumulative impacts associated with implementation of other projects. The PAM also summarized information and early analysis of effects provided to the USFWS by Reclamation and identified areas and concerns where the USFWS indicated that more information or analysis was needed.

The key concerns identified in the PAM are categorized as upland effects (Section 2.0), in-river effects (Section 3.0), and cumulative impacts (Section 4.0). Responses summarizing how each key concern was addressed are provided herein. The Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS) released in November 2021 contained much of the information to address these key concerns (Sites Project Authority and Bureau of Reclamation 2021). The PAM was developed based on the USFWS's review of the first administrative draft of the

Commented [DMD2]: It may be helpful to explain that there were significant changes in the publicly released RDEIR/SDEIS compared to the admin draft upon which the PAM was based.

RDEIR/SDEIS and there were several substantive changes that occurred between the administrative draft and the publicly released RDEIR/SDEIS, which are explained below. In addition, Ssubsequent analysis that has been developed to date in preparation of responses to public comments on the RDEIR/SDEIS and for the development of related permitting processes was also used to address the key concerns.

It is important to note that the analysis of the comments on the RDEIR/SDEIS, the response to those comments, and the preparation of the Final EIR/EIS are ongoing. The Authority has recently changed the Project's diversion criteria and has worked with Reclamation since the issuance of the RDEIR/SDEIS to enhance the Project's anadromous species benefits, especially as reflected in the modeling framework. In addition, the Authority has moved from Alternative 1 as its Preferred Project for the purposes of the California Environmental Quality Act compliance to Alternative 3. Revised modeling is underway to reflect these adjustments and once modeling is completed, the Authority and Reclamation look forward to discussing the results and revisions to subsequent species analysis with the USFWS, National Marine Fisheries Service [NMFS], and the California Department of Fish and Wildlife [CDFW]. Therefore, the information and responses in this memorandum may change as these enhanced species protections and species benefits are incorporated into the Project.

2.0 Upland Effects

Key Concern: Provide greater specificity regarding potential mitigation lands or banks for each of the habitat types for which mitigation is proposed.

Response: Given the size of the Project, the Sites Project Authority (Authority) will rely on several mitigation strategies including a mix of mitigation banks and other mitigation mechanisms. The Project's Mitigation and Monitoring Plan (Plan) is under development and will be provided to the USFWS as part of the Project's Biological Assessment (anticipated summer 2022) and Final EIR/EIS (anticipated early 2023). The Plan includes a comprehensive mitigation planning strategy, implementation approach and general criteria for species and habitats based on anticipated Project impacts on regulated biological resources. As access is currently limited to less than 1% of the Project Area, a final analysis of impacts will be conducted once land access is obtained and following the final refinements of Project design and completion of on-the-ground, protocol-level biological field surveys.

Following completion of Project construction, temporary impacts will be mitigated through restoration and revegetation of areas disturbed by construction in accordance with an approved habitat restoration plan. Permanent impacts will be mitigated on site and at agency-approved (USFWS, NMFS, and/or CDFW) offsite locations. Onsite compensatory mitigation may include restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or preservation of aquatic or terrestrial biological resources that occur within the proposed Project area. Offsite compensatory mitigation for the proposed Project may include the purchase of agency-approved mitigation/conservation bank credits, the establishment of third party-responsible "turn-key" mitigation/conservation bank projects, preservation of biological resources through conservation easements with private landowners, payments to in-lieu fee programs, or the establishment of permittee-responsible offsite mitigation sites. The methods for assessing resources in the project footprint, best management practices to be applied, tools available for mitigating effects of the Project are discusses in chapters 9 – *Vegetation and Wetland Resources*, and 10 – *Wildlife Resources* of the RDEIR/SDEIS.

The Authority has conferred with USFWS about species habitat models and used this information to estimate mitigation obligations. The Authority expects to continue to work with USFWS and Reclamation

Commented [DMD3]: it doesn't look like this response provides much more detail than what was included in the admin draft RDEIR/SDEIS that Steve reviewed. I think what he's looking for is more specificity. For example, a list of known, available mitigation banks and what habitat types or spp credits are available and how many. Of course this wouldn't mean that all of those credits would be available when Sites is ultimately ready to make purchases, but I think the service wants a feel for what is on the market now. If you are unable to provide this information in the PAM response, maybe that's ok, but it could be an important thing to include in the Mitigation and Monitoring Plan that we reference here. If we think we'd be able to provide that kind of info in the MMP within the BA, then maybe we should state that.

Commented [SJ4]: Reclamation Comment: Note that the mitigation plan will need to discuss more than conceptual, some specifications and general criteria

Commented [SJ5R4]: The plan is in the process of being revised and will incorporate this comment

Commented [DMD6]: Something is missing

Commented [SJ7]: Reclamation Comment. Add assurance for MP to be shared with service prior to completion of report

Commented [SJ8R7]: Added text to address.

as the Project moves forward and better information becomes available to define mitigation requirements.

Key Concern: Provide a better description of how increases in Incremental Level 4 refuge water will be provided and the expected benefit to migratory birds.

Commented [SJ9]: Reclamation Comment: Review the comment for coordination with the service

Commented [SJ10R9]: Added coordination text to first paragraph of response to address

Response: Providing Incremental Level 4 refuge water is an environmental benefit of the Project recognized by the California Water Commission in its authorization of State funding from the Water Storage Investment Program (WSIP). The Authority envisions that CDFW will take an active role in managing the ecosystem water and the Authority would work with CDFW to schedule and adjust releases of ecosystem water to address real-time conditions and needs. The Authority also recognizes that Incremental Level 4 refuge water would be made available to federal refuges north and south of the Sacramento–San Joaquin Delta (Delta) and as such, expects that it would provide Incremental Level 4 water to appropriate destinations based on guidance from, and coordination with the CDFW, USFWS, and Reclamation. The Authority understands that Reclamation and CDFW have an existing methodology to allocate Incremental Level 4 refuge water to the National Wildlife Refuges, State Wildlife Areas, and privately managed wetlands included in Central Valley Project Improvement Act Refuge Water Supply Program. The Authority anticipates that CDFW and Reclamation would allocate the Incremental Level 4 refuge water that results from the Project in the same way they allocate all Incremental Level 4 refuge water.

Commented [DMD11]: this is one of our NEPA purposes, shouldn't this be "... that L4 refuge water would be made available ..." or is there some other distinction we're making here?

Commented [EB12R11]: Revised as suggested

Table 1 below is from the Authority's *Water Storage Investment Program: Sites Reservoir Project Continuing Eligibility and Feasibility Determination* report (Authority 2021). It identifies the Project's Incremental Level 4 refuge water supply benefits in terms of water supply increases to National Wildlife Refuges, State Wildlife Areas, and privately managed wetlands projected in 2030 and 2070 as estimated based on WSIP Unit Water Values. Incremental Level 4 represents the additional increment of water required for optimal wetland habitat development on the National Wildlife Refuges, State Wildlife Areas, and privately managed wetlands included in Central Valley Project Improvement Act Refuge Water Supply Program. The benefits to migratory birds of Incremental Level 4 refuge water supply were identified as part of the original foundational documents of the Central Valley Project Improvement Act and differ for each individual National Wildlife Refuge, State Wildlife Area, and privately managed wetland.

Table 1. Sites Reservoir Project Incremental Level 4 Refuge Water Supply Increases (2030 and 2070) (TAF/year)

Period	North-of-the-Delta	South-of-the-Delta [b]	Total
2030 Results			
Long-Term Average [a]	5	11	17
Wet	0	0	0
Above Normal	9	5	14
Below Normal	9	13	22
Dry	8	27	34
Critical	6	17	23
2070 Results			
Long-Term Average [a]	5	10	15
Wet	0	0	0
Above Normal	9	1	10
Below Normal	7	8	16
Dry	7	10	17
Critical	6	21	27

Source: CALSIM II.
Notes:
(a) Average weighted based on water-year frequency rates
(b) Includes both San Joaquin and Tulare Lake Refuge deliveries and based on San Joaquin Valley 60-20-20 Index Year Class.
TAF = thousand acre-feet

Key Concern: More thorough analysis is needed of geomorphic effects of flow reduction in the higher flow range on habitat (cut bank formation, cottonwood seed dispersion/regeneration processes, wood transport) and the sensitive species that use it (e.g., bank swallows, yellow-billed cuckoo).

Commented [SJ13]: Reclamation Comment: May have ROC implications and need to crosscheck this topic

Commented [EB14R13]: Noted

Response: The SRH-Meander model results presented in the RDEIR/SDEIS (Chapter 7 – *Fluvial Geomorphology*) suggested that the tendency for meander is not significant among the Project alternatives and the No Action Alternative (NAA). The river meandering, bank erosion, and deposition modeling concluded that there were no significant differences in the channel alignments between existing conditions and the modeled alternatives. Thus, operational impacts on the geomorphic regime (including natural river geomorphic processes such as sediment transport and bank erosion) and existing river geomorphic characteristics (e.g., sinuosity, channel gradient, substrate composition, channel width and depth, and riparian vegetation) of the greater Sacramento River system are expected to be minimal, and consequently, impacts on sensitive species would be negligible or minimal as well. The Authority will review these results with USFWS and Reclamation to determine whether additional analysis is warranted, or additional considerations will be added to the monitoring and adaptive management plans or the Project description.

Key Concern: Additional review may be needed of the resource protection measures identified for habitats (e.g., riparian, upland, stream, and wetland) that could support special-status species including the listed valley elderberry longhorn beetle, red-legged frog, and several rare plants, which are potentially present within the impact area.

Commented [DMD15]: I think this comment is about the minimization and avoidance measures for certain spp/habitats. There may be buffers or other conservation measures in there that are not consistent with what the Service typically requires. We could ask them about this. It would be easier for implementation if our NEPA/CEQA commitments are consistent w/ what the BO will require

Commented [EB16R15]: Added language to address

Response: As stated above, verification of species' presence and habitat suitability has been limited by lack of access to lands that would be affected by the Project. Potential wildlife resources in the study area were evaluated by reviewing existing information and identifying potentially suitable habitat with geographic information system modeling. Sources of information and modeling techniques are summarized in Chapter 10, *Wildlife Resources*, of the RDEIR/SDEIS. The Authority will continue to work with Reclamation, USFWS, NMFS, CDFW, and other regulatory agencies to review these results and discuss the resource protection measures, including avoidance and minimization measures. These efforts have been ongoing for some time for aquatic species with more limited discussion on terrestrial species. The Authority with Reclamation would like to engage in more detailed discussion of these concerns with regard to terrestrial species.

3.0 In-River Effects

Key Concern: Provide a better demonstration of temperature benefit expected from opportunities to increase storage in Shasta Reservoir.

Response: In coordination with Reclamation, text was developed to expand the discussion of fisheries benefits related to increased operational flexibility associated with Shasta Reservoir. This text was developed after issuance of the PAM and was included in Chapter 2, *Project Description and Alternatives*, of the RDEIR/SDEIS. Additional water supply from Sites Reservoir would provide opportunities for improved management of salmonid habitat, particularly in the Sacramento River above Red Bluff Diversion Dam. By exchanging Sites Reservoir water for Central Valley Project (CVP) water, Reclamation has an additional tool to maintain and improve habitat for salmonid spawning, incubation, rearing, and migration. By delivering water to CVP contractors from Sites Reservoir, Reclamation may maintain supply in Shasta Reservoir. Maintenance of supply can then be allocated in real-time management scenarios to uses that protect and enhance anadromous fish benefits, including protecting and enhancing the cold-water pool, which is essential for temperature control in the salmonid spawning reaches below Keswick Dam during Dry and Critically Dry Water Years. Increased storage may provide benefits beyond temperature such as providing a resource for maintaining fall flows to sustain spawning redds that persist in the wetted margins of the Sacramento River. In years when storm events are weak and naturally-occurring pulse flows are minimal, this maintenance of supply could be used to manufacture a spring pulse flow to assist juvenile salmonids in completing their migration from the upper Sacramento River to the Delta and ultimately the Pacific Ocean. The Authority is working with Reclamation to assess and enhance fisheries benefits associated with Reclamation's participation for the multiple objectives related to increased Shasta Reservoir storage.

The Project would also provide an additional capability to address expected changes in precipitation and runoff patterns anticipated to result from climate change (see Chapter 28 of the RDEIR/SDEIS). While long-term averages in precipitation are not expected to change, more precipitation is expected to fall as rain, resulting in a decreased snowpack and changes in runoff patterns. These changes will likely present challenges for future water management, including that for environmental benefits. The ability of the Project to capture and store water that cannot be captured and stored by Reclamation and to exchange water with Shasta Reservoir creates flexibility to provide environmental benefits to anadromous fish in the upper Sacramento River under climate change scenarios.

Key Concern: In general, whenever water diversions occur, there will be an associated loss of food organisms and sediment, incidental mortality of fish at the intake screen(s), and lower survival due to lower flows and related mechanisms (predation exposure, less inundated edge cover, less food production, less suspended sediment). Specific concerns expressed are as follows:

A. Flow criteria at Wilkins Slough (8,000 cfs [cubic feet per second] in April and May; 5,000 cfs in other months) is likely inadequate to protect downstream migrating salmon. Suggest consideration of Michel et al. (2021).

Commented [DMD17]: This response includes exchanges, if we remove exchanges from the EIR/S's PD or S7 consult, then we may need to revisit/update this response.

Commented [MJ18R17]: Understood and noted. It will be edited as needed.

Commented [DMD19]: Same

Commented [MSC20R19]: How does this relate to the key concern of temperature? Or to other benefits of increased storage?

Is there an analysis of frequency of these exchanges and improved storage by WY type?
What results are expected to demonstrate this flexibility?
Is this related to all 3 objectives or just temperature benefits?
What seasons would these exchanges need to occur within to provide benefits?

Commented [MJ21R19]: Allocating Sites Reservoir water to CVP would allow for maintenance of cold-water supply in Shasta reservoir to be released, providing temperature benefits to salmonids.
Analysis of frequency of exchanges is pending.
Potential benefits of exchanges could be obtained in any season (eg. generating pulse flows when not naturally occurring) with maximum temperature benefits expected in Fall of critically dry years.

Commented [SJ22R19]: I have asked operations for this information and have been told that Reclamation has this information from Jacobs trend reporting spreadsheet which includes information on exchanges

B. Need more thorough analysis of effects of habitat reduction on survival. Weighted usable area (WUA) curves do not disclose all effects associated with reduced flow.

C. Need more complete analysis of effects of flow reductions on sturgeon migration.

Response:

A. Wilkins Slough: In response to the concerns expressed in the PAM and the comments on the RDEIR/SDEIS from CDFW and others, the Authority increased the minimum bypass flow requirement at Wilkins Slough during October to June to 10,700 cfs (303 m^3/s), which is consistent with the step function identified to in Michel et al. (2021) for increased Chinook salmon survival in the Sacramento River. In summary, Michel et al. (2021) looked at the challenge of implementing functional flows to optimize ecosystem improvements given the limited resources. The minimum bypass flow at Wilkins Slough during September remains at 5,000 cfs. The Project will not be diverting water from June 15 to the end of August. Revisions have been made to the Project diversion criteria. These revisions are reflected in Table 2.

Table 2. Comparison of RDEIR/SDEIS and Revised Diversion Criteria

Location (Listed from North to South)	RDEIR/SDEIS with Mitigation Included	Revised and Expected in the Final EIR/EIS with Mitigation Included
Bend Bridge Pulse Protection	Protection of all qualified precipitation-generated pulse events (i.e., peaks in river flow rather than scheduled operational events) from October to May based on the detection of fish presence and migration during the beginning of the flow event. For each event where fish presence and migration is detected, diversions from the Sacramento River would cease for 7 days.	Similar except the following: (1) a qualified precipitation-generated pulse event is determined based on forecasted flows and (2) pulse protection may cease earlier than 7 days if flows at Bend Bridge exceed 29,000 cfs and Project diversions subtracted from Bend Bridge flows continue to be at least 25,000 cfs
Minimum Bypass Flows in the Sacramento River at the RBPP	3,250 cfs minimum bypass flow at all times; rate of diversion controlled by fish screen design	No change
Minimum Bypass Flows in the Sacramento River at the Hamilton City Pump Station	4,000 cfs minimum bypass flow at all times; rate of diversion controlled by fish screen design	No change
Minimum Bypass Flows in the Sacramento River at Wilkins Slough	10,700 cfs in March through May; 5,000 cfs all other times	10,700 cfs October through June; 5,000 cfs September (not diverting from June 15 to end of August)
Fremont Weir Notch Protections	No more than 1% reduction in flow over weir when spill over the weir are less than 600 cfs. No more than a 10% reduction in flow over weir when spills over the weir are between 600 cfs and 6,000 cfs. No restriction when flows over the weir are greater than 6,000 cfs	No longer included. Revised minimum bypass flows in the Sacramento River at Wilkins Slough and Bend Bridge Pulse Protection provide protections for Fremont Weir Notch
Freeport, Net Delta Outflow Index, X2, and Delta Water Quality	Operations consistent with all applicable laws, regulations, biological opinions and incidental take permits, and court orders in place at the time that diversion occurs	No change

Note: This table mimics Table 2-5 in the RDEIR/SDEIS.

The Authority is working with Reclamation to revise the modeling and determination of effects of the Project's revised operations criteria on fisheries resources. The Authority is also in ongoing conversations with Reclamation, CDFW, NMFS, and USFWS to develop language to describe how these operational requirements will be implemented and develop the associated fish monitoring program.

A. Upstream habitat: The Authority agrees diverting flow can have effects on habitat volume and available food that are likely more limiting, and not apparent in WUA calculations. The WUA is derived from the CALSIM runs and as such the WUA's are based on monthly averages that may not accurately reflect real time operations. The analysis in Chapter 11, *Aquatic Biological Resources*, of the RDEIR/SDEIS considers factors such as temperature, flow, and the effects of flow reductions on side channel and floodplain habitats to support its impact determination of less than significant with mitigation for salmonids.

The Authority ~~and its consulting team will be revising~~will revise the CALSIM analysis with the revised diversion criteria and enhanced anadromous fish benefits to reassess the effects on WUA in the Final EIR/EIS. During 2022, the Authority will work with Reclamation, USFWS, NMFS, and CDFW to review the revised modeling and related analyses to assess the adequacy of the analysis and work toward consensus on impact determinations and any measures needed to reduce impacts to less than significant levels (CEQA) and no adverse effects (NEPA).

B. Sturgeon: Shaffter (1997) reported spawning on white sturgeon in the Sacramento River at flows of about 6,500 to 6,640 cfs (184 to 188 m^3/s) after observing pulse of about 1,400 cfs (40 m^3/s) over base flow conditions. This reference appears to be the source for the concern. The Authority's decision to adopt a higher minimum bypass flow at Wilkins Slough and the Project's pulse flow protection measure would ensure the Project diversion do not cause flows to decline below those likely to influence sturgeon migration and spawning.

Key Concern: The relationship between pulses and fish movement is not a precise relationship. Longer and more frequent flows may be necessary to protect downstream-migrating juvenile salmon.

Response: The Project's pulse protection measure is intended to account for the importance of pulses in stimulating and providing for the redistribution of juvenile fish from their spawning grounds to downstream rearing areas and seaward migration (Poytress 2014, Steel 2020, Michel 2021, Hassrick 2022). The Authority recognizes that the precise relationship between flow pulses and fish movement is not known at this time. As such, the Authority intends to incorporate the pulse protection criteria, and strategies for evaluating the effectiveness of the criteria, into its adaptive management plan to address this uncertainty and continue to refine the criteria as the science and understanding of fish movement is better understood.

Key Concern: Need to address pulses as a mechanism to initiate/attract adult salmon and sturgeon up stream.

Response: As presented in the RDEIR/SDEIS, the Project is not expected to impede the upstream migration of adult salmon or sturgeon. The proposed pulse flow criteria ensure pulses are protected and propagate downstream. In addition, the revised minimum bypass flow requirement at Wilkins Slough ensures that Project operations do not diminish flows below levels which may interrupt or delay the upstream migration of sturgeon.

Key Concern: Provide a better explanation of effects and benefits of fall pulse flows into Yolo Bypass for plankton production and discussion of consequences of reduced flow into the bypass due to reduction in flows attributable to diversions at TCCA and GCID diversions.

Response: An analysis of the expected timing and benefit of the Yolo Bypass flow measure to stimulate food production and convey forage species to the north Delta for the benefit of delta smelt (*Hypomesus transpacificus*) and other planktivorous fish is presented in Chapter 11 - *Aquatic Biological Resources*, of the RDEIR/SDEIS. The benefit of this measure has been acknowledged by CDFW in the review of the Project during the California Water Commission's WSIP approval process. An analysis of the consequences of reduced flow into the Yolo Bypass due to reduction in flows attributable to diversions at TCCA and GCID diversions is provided in the section, *Impact FISH-2: Operations Effects on Winter-Run Chinook Salmon, Floodplain Inundation and Access,* in Chapter 11 - *Aquatic Biological Resources*, of the RDEIR/SDEIS, as well as in Appendix 11M. The analysis concludes that Sites diversions result in minor reductions in Yolo Bypass acreages inundated during the winter and spring, but that when the net effect

Commented [DMD23]: Please also add the NEPA effects terms

Commented [MJ24]: Poytress 2014 missing from reference list, please check if the one I added (pulled from EIR/EIS Chap 11) is right.

Commented [MSC25]: These 3 citations are not mechanistic models – more correlations based on modeling.

Steel et al. 2020 provides a mechanistic model of survival on the Sac River -- >

Steel et al. 2020
Applying the mean free-path length model to juvenile Chinook salmon migrating in the Sacramento River, California
Environmental Biology of Fishes
103: 1603-1617

Commented [MJ26R25]: @Hassrick, JasonPlease review comment and respond accordingly. I can only access the abstract, not full paper. Conclusion seems to be: same survival rate but longer travel time between low and high flow conditions. No problem adding reference once full paper reviewed to check relevance.

Commented [MJ27R25]: Reviewed suggested article and added reference.

Commented [MJ28R25]: MG: We note Steel et al. 2020 is applicable to the Sacramento River from Knights Landing and the Delta; its greatest value, perhaps, is in providing a potential mechanistic explanation for the flow-survival thresholds found by Michel et al. (2021), which will then provide additional context to explain patterns noted by commenters.

Commented [AF29]: We never address this part in our response.

Commented [MJ30R29]: Echoes some individual public comments. Sophie Unger is drafting some language to address this. Should be ready sometime today (May 10).

Commented [MJ31R29]: Second part now addressed thanks to Sophie's addition.

of all differences between the NAA and Alternatives 1, 2, and 3 are examined, the differences are small and the effect on fish populations is expected to be minor.

Key Concern: Address expected increase in loss of fish at South Delta export facilities associated with July through September increases in Delta exports.

Response: The effect of moving Sites Reservoir water across the Delta to the Delta export facilities on the location of X2, flows in Old and Middle River, and expected loss at the export facilities are addressed in Chapter 11 - *Aquatic Biological Resources*, and Appendix 5B3, *Delta Operations*, of the RDEIR/SDEIS. The results of these analyses suggest there would be little difference in south Delta loss between the NAA and Alternatives 1, 2, and 3, primarily due to absence of juvenile ESA-listed fish in the Delta between July and September.

Key Concern: More thorough analysis may be needed of the effects of exchanges on spawning and rearing habitat in the American and Feather Rivers.

Response: The effects of Project operations on temperatures in the American and Feather Rivers are discussed in Chapter 11, *Aquatic Biological Resources*; Appendix 11B, *Upstream Fisheries Impact Assessment Quantitative Methods*; and Appendix 11D, *Fisheries Water Temperature Assessment*, of the RDEIR/SDEIS. The results indicate impacts from changes in temperatures are less than significant. The effects of Project operations on availability of spawning and rearing habitat in the American and Feather Rivers are also analyzed in Chapter 11 and Appendix 11K, *Weighted Usable Area Analysis*, of the RDEIR/SDEIS. The analysis suggests no significant differences between Alternatives 1, 2, and 3 and the NAA with respect to WUA. An analysis of the potential redd dewatering in the American and Feather Rivers was also conducted and discussed in Chapter 11. The results of that analysis suggested no significant differences among the alternatives and the NAA.

These analyses will be revised to reflect the revised diversion criteria and enhanced anadromous fish benefits in revised CALSIM and other model runs. Once the updated modeling is completed, the Authority will be available to present and discuss those results with Reclamation, USFWS, NMFS, CDFW and the other regulatory agencies.

4.0 Cumulative Impacts with Other Projects

Key Concern: Reclamation should consider the benefits of these other projects, how they would interact with the Project, and explain the sequence of construction/completion relative to the Project.

Response: The Authority understands the interest in exploring how the Project may operate in conjunction with other projects such as the revised Delta Conveyance Project and the Shasta Raise Project. However, these projects are presently not sufficiently developed to assess how they would be constructed and operated, and any analysis of cumulative effects would be speculative. The Authority thinks adding speculative results to the cumulative effects analysis could be misleading; therefore, it does not plan to pursue such an analysis. For additional details, refer to Chapter 31, *Cumulative Impacts*, in the RDEIR/SDEIS. Chapter 31 states "The cumulative analysis is primarily qualitative. The cumulative analysis qualitatively addresses projects listed in Table 31-1, such as Delta Conveyance Project. For many of the projects in Table 31-1 it would be speculative to define multiple parameters and assumptions within a numerical modeling effort."

5.0 References

Hassrick, J.L., A.J. Ammann, R.W. Perry, S.N. John, and M.E. Daniels, 2022. Factors affecting spatiotemporal variation in survival of endangered winter-run Chinook salmon out-migrating from the Sacramento River. N. Am. J. of Fish. Man. https://doi.org/10.1002/NAFM.10748

Michel, C.J., J. Notch, F. Cordoleani, A. Ammann, E. Danner. 2021. Nonlinear survival of imperiled fish informs managed flows in a highly modified river. *Freshwater Ecology.* Available: https://doi.org/10.1002/ecs2.3498

Poytress, W. R., J. J. Gruber, F. D. Carrillo, and S. D. Voss. 2014. *Compendium Report of Red Bluff Diversion Dam Rotary Screw Trap Juvenile Anadromous Fish Production Indices for Years 2002–2012*. Prepared for California Department of Fish and Wildlife Ecosystem Restoration Program and the U.S. Bureau of Reclamation. July. U.S. Fish and Wildlife Service, Red Bluff, CA.

Schaffter, R. G. 1997. White Sturgeon spawning migrations and location of spawning habitat in the Sacramento River, California. Calif Fish Game 83(1):1-20.

Sites Project Authority. December 2021. Water Storage Investment Program: Sites Reservoir Project Continuing Eligibility and Feasibility Determination. Available: https://cwc.ca.gov/-/media/CWC-Website/Files/Documents/2021/12_December/December2021_Item_10_SitesFeasibility_Final.pdf

Sites Project Authority and Bureau of Reclamation. 2021. Sites Reservoir Project Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS). November. Available: https://sitesproject.org/revised-draft-environmental-impact-report-supplemental-draft-environmental-impact-statement/

Steel, A.E., Anderson, J.J., Mulvey, B., & Smith, D.L. (2020). Applying the mean free-path length model to juvenile Chinook salmon migrating in the Sacramento River, California. Environmental Biology of Fishes, 103, 1603-1617. https://doi.org/10.1007/s10641-020-01046-8

Sites Project Authority
Notice of Availability of the Sites Reservoir Project Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS)

Location: Colusa, Glenn, Tehama, and Yolo Counties, California

Purpose of the Notice: The Sites Project Authority and the U.S. Bureau of Reclamation (Reclamation) are circulating for public review and comment a joint Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS). In August 2017, the Authority and Reclamation jointly issued a Draft Environmental Impact Report/Environmental Impact Statement (2017 Draft EIR/EIS) for the Project. The RDEIR/SDEIS includes a complete revision of the 2017 Draft EIR/EIS to reflect changes to the Project. The RDEIR/SDEIS has been prepared in compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) and is being recirculated for public review and comment in accordance with Section 15088.5 of the State CEQA Guidelines.

The Project's purpose is to to provide direct and real benefits to instream flows, the Sacramento–San Joaquin Delta ecosystem, and water supply reliability. Water that would be stored and released from Sites Reservoir would be used for local, State, and federal water use needs. These include municipal, industrial, and agricultural uses as well as to provide benefits to anadromous fish species in the Sacramento River watershed, wildlife refuges and habitats, and to help supply food for delta smelt in the Yolo Bypass.

Lead Agency: The Sites Project Authority is the lead agency under CEQA; the Bureau of Reclamation is the lead agency under NEPA.

Description of the Project: The Project consists of the construction and operation of an offstream surface water reservoir. The Project would use existing infrastructure to divert unappropriated flow from the Sacramento River at Red Bluff and Hamilton City and convey the water to a new offstream reservoir west of the community of Maxwell, California. New and existing facilities would move water into and out of the reservoir, with ultimate release back to the Sacramento River system via existing canals and a new pipeline located near Dunnigan, California. The Project would require modifications to the Glenn-Colusa Irrigation District system and the Tehama-Colusa Canal to move water into and out of the reservoir. Water conveyance between Sites Reservoir and the canals and Dunnigan pipeline would be facilitated by an existing and one new regulating reservoir and two new associated pumping/generating plants. New electrical substations would connect the pumping/generating facilities and their associated electrical switchyards to an existing overhead power line. Three new recreation areas would also be constructed around the new Sites Reservoir. New roads would be constructed to provide access to Project facilities and recreation areas, and some existing roads would be relocated or improved. Construction of Sites Reservoir would necessitate construction of a bridge or bypass road to connect Maxwell with the community of Lodoga. The RDEIR/SDEIS evaluates four alternatives, including the No Project/No Action Alternative.

Significant Environmental Effects: Based on analysis in the RDEIR/SDEIS, all action alternatives would result in significant and unavoidable impacts/adverse or substantially adverse effects on the following resource categories: surface water quality, vegetation and wetland resources, wildlife resources, geology and soils, agricultural and forestry resources, air quality, cultural resources, tribal cultural resources (CEQA only), visual resources, environmental justice and socioeconomics (NEPA only). The Project is not located on or near a property included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

P.O. Box 517
Maxwell, CA 95955
530.438.2309

Availability of the RDEIR/SDEIS: Copies are available for public review at the following locations:

1. Sites Project Authority, 122 Old Highway 99 West, Maxwell, CA 95955
2. Bureau of Reclamation, California-Great Basin Regional Office Library, 2800 Cottage Way, Sacramento, CA 95825
3. Maxwell Branch Library, 34 Oak Street Maxwell, CA 95955
4. Sacramento Public Library, Central Branch, 828 I Street, Sacramento, CA 95814
5. Colusa County Free Library, Main Branch, 738 Market Street, Colusa, CA 95932
6. Glenn County Public Library, Willows Branch, 201 N. Lassen Street, Willows, CA 95988
7. Tehama County Library, Red Bluff Branch, 645 Madison Street, Red Bluff, CA 96080
8. Yolo Branch Library, 37750 Sacramento Street, Yolo, CA 95697
9. Mary L. Stephens – Davis Branch Library, 315 E. 14th Street, Davis, CA 95616

The RDEIR/SDEIS is also accessible from the following websites:
https://sitesproject.org/environmental-review
https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=29024
Please contact the Authority at 530-438-2309 if you need additional assistance in reviewing the RDEIR/SDEIS.

Public Review Period: The RDEIR/SDEIS will be available for a 60-day public review from November 12, 2021 to January 11, 2022. Please submit written comments on the RDEIR/SDEIS by 5p.m. PST January 11, 2022 via email at EIR-EIS-Comments@SitesProject.org or via U.S. Mail to either: Sites Project Authority, P.O. Box 517, Maxwell, CA 95955; or, U.S. Bureau of Reclamation, 2800 Cottage Way, W-2830, Sacramento, CA 95825

Public Meetings: Two virtual public meetings will be held to receive comments from individuals and organizations on the RDEIR/SDEIS. Information on accessing the virtual public meetings is available at https://sitesproject.org/environmental-review.

- *Virtual Meeting:* Wednesday, December 15, 2021, 6:00 p.m. to 8:00 p.m. PST
- *Virtual Meeting:* Thursday, December 16, 2021, 9:00 a.m. to 11:00 a.m. PST

For individuals requesting reasonable accommodations, please contact the Sites Project Authority at 530-438-2309 or Boardclerk@SitesProject.org.

SUPPLEMENTARY INFORMATION: The RDEIR/SDEIS describes the environmental setting and evaluates the potential direct, indirect, and cumulative impacts that could result from implementation of each alternative. The RDEIR/SDEIS includes feasible mitigation measures to avoid, minimize, rectify, reduce, or compensate for significant adverse impacts. The proposed alternatives meet all or the majority of the purpose, need, and objectives of the Project and were developed to avoid or substantially reduce one or more of the Project's significant impacts. Information about the differences between the alternatives from the 2017 Draft EIR/EIS and the three action alternatives in the RDEIR/SDEIS can be found in Appendix 2B of the RDEIR/SDEIS, *Additional Alternatives Screening and Evaluation*.

FOR FURTHER INFORMATION: Please contact Alicia Forsythe, Sites Project Authority, at 530-438-2309.

Dated: 11/9/21

Signed: Jerry Brown

Jerry Brown, Executive Director

automated collection techniques or other forms of information technology.

Dated: November 5, 2021.

Kimberly D. Bose,

Secretary.

[FR Doc. 2021–24658 Filed 11–10–21; 8:45 am]

BILLING CODE 6717–01–P

ENVIRONMENTAL PROTECTION AGENCY

[ER–FRL–9059–3]

Environmental Impact Statements; Notice of Availability

Responsible Agency: Office of Federal Activities, General Information 202–564–5632 or *https://www.epa.gov/nepa.*

Weekly receipt of Environmental Impact Statements (EIS)

Filed November 1, 2021 10 a.m. EST Through November 5, 2021 10 a.m. EST

Pursuant to 40 CFR 1506.9.

Notice

Section 309(a) of the Clean Air Act requires that EPA make public its comments on EISs issued by other Federal agencies. EPA's comment letters on EISs are available at: *https://cdxnodengn.epa.gov/cdx-enepa-public/action/eis/search.*

EIS No. 20210168, Final Supplement, USACE, CA, American River Common Features Water Resources Development Act of 2016, American River Contract 2, Review Period Ends: 12/13/2021, Contact: Nathaniel J. Martin 916–317–4021.

EIS No. 20210169, Draft Supplement, NRC, WI, License Renewal of Nuclear Plants Supplement 23 Second Renewal Regarding Subsequent License Renewal for Point Beach Nuclear Plant Units 1 and 2, Comment Period Ends: 01/03/2022, Contact: Phyllis Clark 301–415–6447.

EIS No. 20210170, Draft, FERC, UT, Delta Lateral Project, Comment Period Ends: 12/27/2021, Contact: Office of Externals Affairs 866–208–3372.

EIS No. 20210171, Fourth Draft Supplemental, USACE, CA, Folsom Dam Raise Modifications Project Draft Supplemental Environmental Impact Statement/Environmental Impact Report, Comment Period Ends: 12/27/2021, Contact: Kimberly Watts 916–557–7770.

EIS No. 20210172, Draft Supplement, BR, CA, Sites Reservoir Project Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement, Comment Period Ends: 01/11/2022, Contact: Vanessa King 916–978–5077.

Amended Notice

EIS No. 20210149, Draft Supplement, FHWA, MD, I–495 & I–270 Managed Lanes Study Supplemental Draft Environmental Impact Statement and Updated Draft Section 4(f) Evaluation, Comment Period Ends: 11/30/2021, Contact: Jeanette Mar 410–779–7152. Revision to FR Notice Published 10/01/2021; Extending the Comment Period from 11/15/2021 to 11/30/2021.

Dated: November 5, 2021.

Cindy S. Barger,

Director, NEPA Compliance Division, Office of Federal Activities.

[FR Doc. 2021–24666 Filed 11–10–21; 8:45 am]

BILLING CODE 6560–50–P

ENVIRONMENTAL PROTECTION AGENCY

[EPA–HQ–ORD–2015–0765; FRL–9220–02–ORD]

Board of Scientific Counselors (BOSC) Executive Committee Meeting—November 2021

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of public meeting.

SUMMARY: The Environmental Protection Agency (EPA), Office of Research and Development (ORD), gives notice of a series of additional PFAS related virtual deliberation meetings of the Board of Scientific Counselors (BOSC) Executive Committee (EC) Committee as a follow-up to meetings held September 29–30, 2021. More information can be found on the BOSC website at: *https://www.epa.gov/bosc/bosc-executive-committee-meeting-september-october-2021.* Due to unforeseen administrative circumstances this notice was not published 15 days prior to the meeting.

DATES: The deliberation meeting will be held over two days via videoconference:

a. Tuesday, November 23, 2021, from 11 a.m. to 2 p.m. (EDT); and

b. Wednesday, December 8, 2021, from 11 a.m. to 2 p.m. (EDT).

Attendees must register by November 22, 2021.

Meeting times are subject to change. This series of meetings is open to the public. Comments must be received by November 22, 2021, to be considered by the subcommittee. Requests for the draft agenda or making a presentation at the meeting will be accepted until November 22, 2021.

ADDRESSES: Instructions on how to connect to the videoconference will be provided upon registration at: *https://epa-bosc-e-c-mtg.eventbrite.com.*

Submit your comments to Docket ID No. EPA–HQ–ORD–2015–0765 by one of the following methods:

• *www.regulations.gov:* Follow the online instructions for submitting comments.

• *Note:* comments submitted to the *www.regulations.gov* website are anonymous unless identifying information is included in the body of the comment.

• *Email:* Send comments by electronic mail (email) to: *ORD.Docket@epa.gov,* Attention Docket ID No. EPA–HQ–ORD–2015–0765.

• *Note:* comments submitted via email are not anonymous. The sender's email will be included in the body of the comment and placed in the public docket which is made available on the internet.

Instructions: All comments received, including any personal information provided, will be included in the public docket without change and may be made available online at *www.regulations.gov.* Information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute will not be included in the public docket and should not be submitted through *www.regulations.gov* or email. For additional information about the EPA's public docket visit the EPA Docket Center homepage at *http://www.epa.gov/dockets/.*

Public Docket: Publicly available docket materials may be accessed *Online* at *www.regulations.gov.*

Copyrighted materials in the docket are only available via hard copy. The telephone number for the ORD Docket Center is (202) 566–1752.

FOR FURTHER INFORMATION CONTACT: The Designated Federal Officer (DFO), Tom Tracy, via phone/voicemail at: 919–541–4334; or via email at: *tracy.tom@epa.gov.*

Any member of the public interested in receiving a draft agenda, attending the meeting, or making a presentation at the meeting should contact Tom Tracy no later than November 22, 2021.

SUPPLEMENTARY INFORMATION: The Board of Scientific Counselors (BOSC) is a federal advisory committee that provides advice and recommendations to EPA's Office of Research and Development on technical and management issues of its research programs. The meeting agenda and materials will be posted to *https://www.epa.gov/bosc.*

Proposed agenda items for the meeting include, but are not limited to, deliberation on EPA's charge questions on PFAS.

BUREAU OF RECLAMATION

Sites NEWS RELEASE

For Release: Nov. 12, 2021

Contact: Mary Lee Knecht, Bureau of Reclamation, 916-978-5100, mknecht@usbr.gov
Sara Katz, Sites Project Authority, 619-813-9551, skatz@katzandassociates.com

Reclamation and Sites Project Authority roll out environmental documents and announce public meetings for new water storage project

SACRAMENTO, Calif. – As part of a continuing effort to increase resiliency and operational flexibility throughout California, the Bureau of Reclamation and Sites Project Authority today released the Sites Reservoir revised/supplemental draft environmental documents, beginning a 60-day public comment period for the proposed project. Also known as the North of Delta Offstream Storage project, Reclamation and the Sites Project Authority have been investigating building a 1.3-to-1.5-million-acre-foot reservoir in rural Colusa and Glenn counties in Northern California.

Sites Reservoir is a proposed multi-benefit, off-stream water storage facility. The project will be designed to capture and store storm water and flood flows from the Sacramento River, after all other water rights and regulatory requirements are met. Water will be banked for release primarily in drier years, such as 2021.

"We are pleased to partner with Sites Project Authority on this unique off-stream storage project to create much needed water storage in California," **said Reclamation Regional Director Ernest Conant**. "The multi-beneficial Sites Reservoir would provide operational flexibility and more reliable water delivery to benefit California farms, communities, and the environment."

Two virtual public meetings have been scheduled to review the proposed alternatives and accept public comments:

- Wednesday, Dec. 15, 6-8 p.m., Zoom webinar, https://sitesproject.org/environmental-review/
- Thursday, Dec. 16, 9-11 a.m., Zoom webinar, https://sitesproject.org/environmental-review/

The public review and comment period will extend to Jan. 11, 2022. The Sites Reservoir Project Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement is available at https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=29024 or https://sitesproject.org/resources/environmental-review/. Written comments must be received by close of business Tuesday, Jan. 11, 2022, and may be received at the virtual meetings, emailed to EIR-EIS-Comments@SitesProject.org; mailed to Sites Project Authority, P.O. Box 517, Maxwell, CA 95955, or Bureau of Reclamation, 2800 Cottage Way, W-2830, Sacramento, CA 95825.

"We've been working diligently and thoughtfully during the past year to develop and refine a proposed water storage project that meets the needs of people and farms, while providing maximum benefit to the environment," said **Fritz Durst, chair of the Sites Project Authority**. "And there is no time like the present, in a year when we are experiencing relentless drought, for us to advance a reservoir project that will make us more resilient in the face of harsh, dry conditions."

A significant portion of Sites Reservoir's annual water supplies will be dedicated to environmental uses, such as improving conditions for Delta smelt; helping preserve cold-water pool in Shasta Reservoir later into the summer months to support salmon development, spawning, and rearing; and improving Pacific Flyway habitat for migratory birds and other native species.

For questions about the Sites Reservoir project or meetings, contact Alicia Forsythe, Sites Project Authority, at 916-880-0676, aforsythe@sitesproject.org, or Vanessa King, Reclamation, at 916-978-5077, vking@usbr.gov.

Learn more about the project at https://www.usbr.gov/mp/nodos/ and https://sitesproject.org/.

# # #

Sites

BUREAU OF RECLAMATION

NOTICE OF AVAILABILITY AND PUBLIC MEETINGS FOR THE SITES RESERVOIR PROJECT

REVISED DRAFT ENVIRONMENTAL IMPACT REPORT/ SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

State Lead Agency Pursuant to the California Environmental Quality Act (CEQA):
Sites Project Authority

Federal Lead Agency Pursuant to the National Environmental Policy Act (NEPA):
U.S. Department of the Interior, Bureau of Reclamation

Location: Tehama, Glenn, Colusa, and Yolo Counties, California

The Sites Project Authority (Authority) and the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) have prepared a joint Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS) to evaluate the potential environmental impacts of the construction and operation of the Sites Reservoir Project (Project). In August 2017, the Authority and Reclamation jointly issued a Draft Environmental Impact Report/ Environmental Impact Statement (2017 Draft EIR/EIS) for the Project. The RDEIR/ SDEIS includes a complete revision of the 2017 Draft EIR/EIS to reflect changes to the Project that have occurred since the issuance of the 2017 Draft EIR/EIS.

The Project would involve the construction and operation of an offstream surface water reservoir to provide direct and real benefits to instream flows, the Sacramento–San Joaquin Delta ecosystem, and water supply reliability. The Project would use existing infrastructure to divert unregulated and unappropriated flow from the Sacramento River at Red Bluff and Hamilton City and convey the water to a new offstream reservoir west of the community of Maxwell, California. New and existing facilities would move water into and out of the reservoir, with ultimate release back to the Sacramento River system via existing canals and a new pipeline located near Dunnigan, California. Water released from Sites Reservoir would be used to benefit local, State, and federal water use needs, including municipal, industrial, and agricultural public water agencies, anadromous fish species in the Sacramento River watershed, wildlife refuges and habitats, and the Yolo Bypass to help supply food for delta smelt. Construction of Sites Reservoir would necessitate construction of a bridge or bypass road to connect Maxwell with the community of Lodoga. Additional components also include the development of new recreation facilities at the reservoir. In addition to the no project/no action alternative, the RDEIR/SDEIS evaluates three action alternatives. Based on analysis in the RDEIR/ SDEIS, all action alternatives would result in some significant and unavoidable impacts/adverse or substantially adverse effects.

Public Review Period: The RDEIR/SDEIS will be available for a 60-day public review from Nov. 12, 2021 to Jan. 11, 2022.

Availability of the RDEIR/SDEIS: Copies are available for public review at the following locations:

1. Sites Project Authority, 122 Old Highway 99 West, Maxwell, CA 95955
2. Bureau of Reclamation, California-Great Basin Regional Office Library, 2800 Cottage Way, Sacramento, CA 95825
3. Maxwell Branch Library, 34 Oak Street Maxwell, CA 95955
4. Sacramento Public Library, Central Branch, 828 I Street, Sacramento, CA 95814
5. Colusa County Free Library, Main Branch, 738 Market Street, Colusa, CA 95932
6. Glenn County Public Library, Willows Branch, 201 N. Lassen Street, Willows, CA 95988
7. Tehama County Library, Red Bluff Branch, 645 Madison Street, Red Bluff, CA 96080
8. Yolo Branch Library, 37750 Sacramento Street, Yolo, CA 95697
9. Mary L. Stephens – Davis Branch Library, 315 E. 14th Street, Davis, CA 95616

The RDEIR/SDEIS is also accessible from the following websites:
https://sitesproject.org/environmental-review
https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=29024

Please contact the Authority at 530-438-2309 if you need additional assistance to review the RDEIR/SDEIS.

Comments: Please submit comments on the RDEIR/SDEIS to the Authority or Reclamation via email at **EIR-EIS-Comments@SitesProject.org** or via U.S. Mail, Sites Project Authority, P.O. Box 517, Maxwell, CA 95955, or U.S. Bureau of Reclamation, 2800 Cottage Way, W-2830, Sacramento, CA 95825 by 5:00 p.m. PST on Jan. 11, 2022.

Meetings: Two virtual public meetings will be held to receive comments from individuals and organizations on the RDEIR/SDEIS. Information on accessing the virtual public meetings is available at **https://sitesproject.org/environmental-review**.

Wednesday, Dec. 15, 2021, 6:00 p.m. to 8:00 p.m. PST
Thursday, Dec. 16, 2021, 9:00 a.m. to 11:00 a.m. PST

Further Information: Please contact Alicia Forsythe, Sites Project Authority, at 530-438-2309 or Vanessa King, Bureau of Reclamation, at 916-978-5077.

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To comply with the California Environmental Quality Act and the National Environmental Policy Act, the Sites Project Authority and U.S. Bureau of Reclamation have prepared a Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS) to analyze the potential environmental impacts of construction and operation of the Sites Reservoir Project.

Starting TODAY, we welcome your comments on the RDEIR/SDEIS during the extended 60-day public review and comment period from Nov. 12, 2021, to Jan. 11, 2022. The RDEIR/SDEIS is available for public review at sitesproject.org/environmental-review.

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Environmental Review - Sites Reservoir

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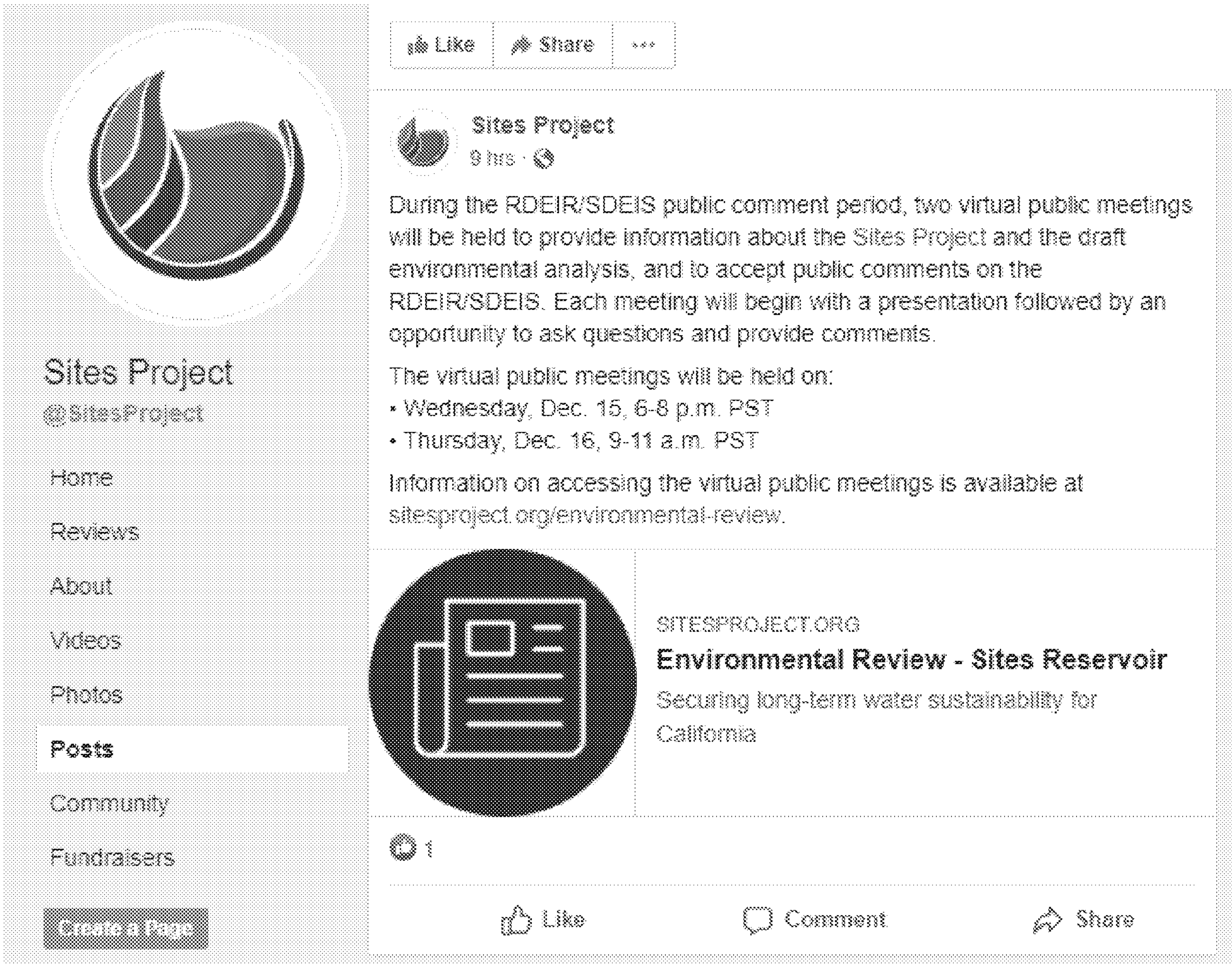

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REMINDER: During the RDEIR/SDEIS public comment period, two virtual public meetings will be held to provide information about the Sites Project and the draft environmental analysis, and to accept public comments on the RDEIR/SDEIS. Each meeting will begin with a presentation followed by an opportunity to ask questions and provide comments.

The virtual public meetings will be held on:

• Wednesday, Dec. 15, 6-8 p.m. PST

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The public review and comment period for the Sites Reservoir Project Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS) has been extended to Jan. 28, 2022. The RDEIR/SDEIS is available at sitesproject.org/environmental-review

Comments on the RDEIR/SDEIS may be submitted to the Sites Project Authority or Bureau of Reclamation by 5 p.m. PST on Friday, Jan. 28, 2022 as follows:
• Email to EIR-EIS-Comments@SitesProject.org
• Mail to Sites Project Authority, P.O. Box 517, Maxwell, CA 95955, or Bureau of Reclamation, 2800 Cottage Way, W-2830, Sacramento, CA 95825

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Reclamation and @SitesProject roll out enviro docs and announce public meetings for proposed #CA water storage.

For more information: go.usa.gov/xeBbE

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Sites Reservoir Project

RDEIR/SDEIS Fact Sheet

Summary

In accordance with the California Environmental Quality Act and the National Environmental Policy Act, the Sites Project Authority (Authority) and U.S. Bureau of Reclamation (Reclamation) have prepared a Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS) to analyze the potential environmental impacts of construction and operation of the Sites Reservoir Project (Project), a proposed offstream reservoir located in Colusa and Glenn counties. The Project would capture excess water from major storms and store it for drier periods to increase the reliability of water supplies for California communities, farms, and the environment.

Following the release of the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) in 2017, the Authority, a joint powers authority comprised of water agencies, municipalities, and irrigation districts from throughout California, undertook a value planning process to identify and evaluate additional alternatives that could make the Project more affordable while also addressing comments received on the 2017 Draft EIR/EIS. The result of these efforts is reflected in the joint RDEIR/SDEIS.

The Authority and Reclamation are requesting comments on the RDEIR/SDEIS during an extended 60-day public review and comment period from Nov. 12, 2021, to Jan. 11, 2022. Visit sitesproject.org/environmental-review to review the RDEIR/SDEIS.

Environmental Review Process & Timeline

RDEIR/SDEIS	RDEIR/SDEIS Public Review and Comment Period	Final EIR/EIS	Notice of Determination/ Record of Decision
Released November 2021	Comment Period: Nov. 12, 2021 – Jan. 11, 2022 Virtual Public Meetings: Dec. 15 and 16, 2021	Fall 2022	Late 2022/Early 2023
Presents the analysis of potential environmental impacts for each identified alternative	Opportunity for public review and comment on the analysis presented in the RDEIR/SDEIS	Includes updates to the RDEIR/SDEIS and responses to all substantive comments received during the RDEIR/SDEIS comment period	Completion of the environmental review process; provides the formal decision on the Project

Project Alternatives

Three new alternatives were identified, which include reservoir sizes from 1.3 to 1.5 million acre-feet and focus on using existing facilities to the extent practical for diversions to and releases from the reservoir. The RDEIR/SDEIS evaluates the potential environmental effects of these three new alternatives, as well as a No Project/No Action Alternative. The Authority and Reclamation could decide to approve one of the identified alternatives, or a version that incorporates elements from multiple alternatives.

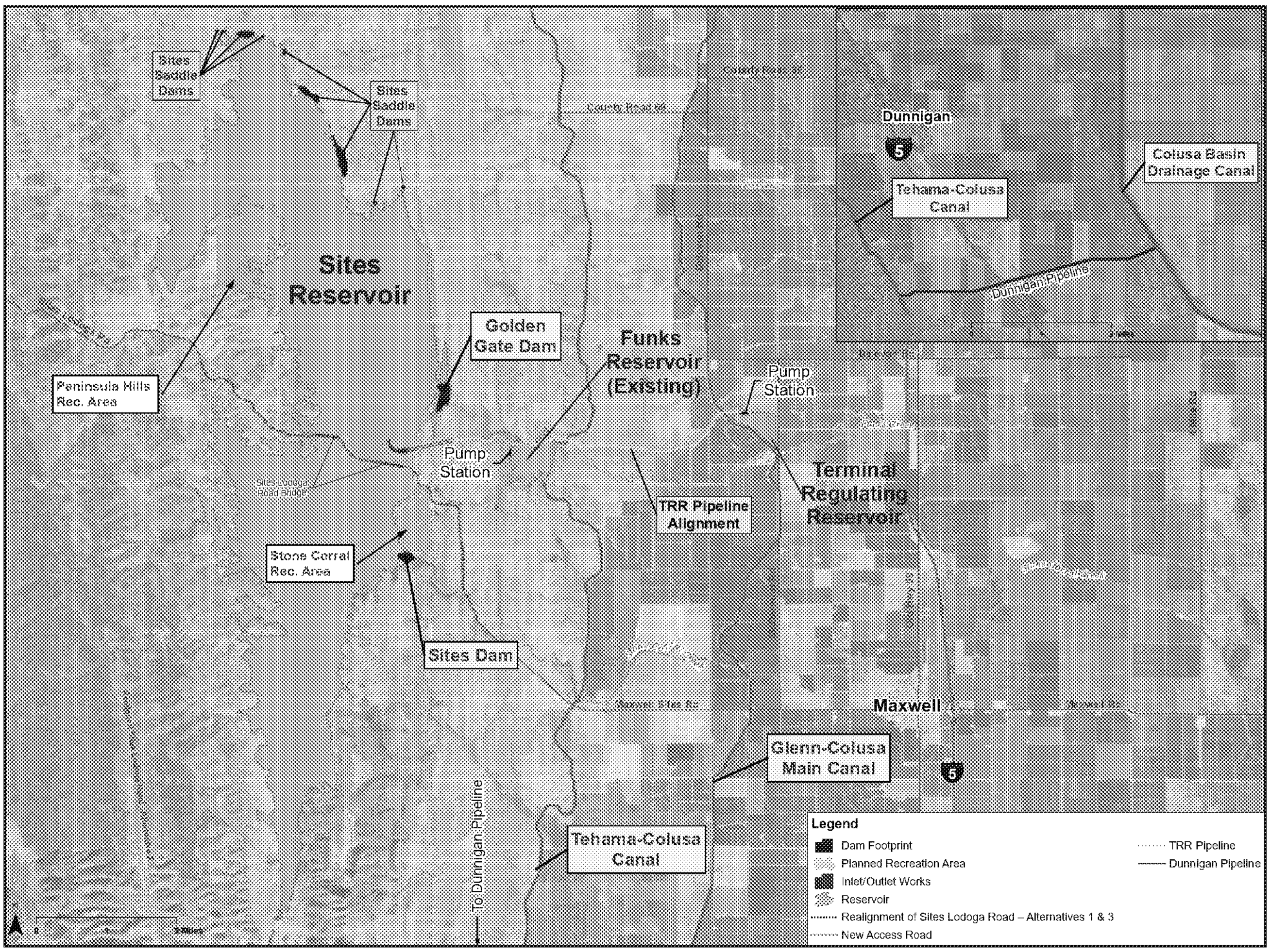
How to Submit Comments on the RDEIR/SDEIS

Public input is an essential part of the environmental review process. The Authority and Reclamation welcome comments on the adequacy and accuracy of the analysis presented in the RDEIR/SDEIS. All comments on the RDEIR/SDEIS must be postmarked or received by 5 p.m. Pacific Standard Time (PST) on **Jan. 11, 2022**, to be considered in the development of the Final EIR/EIS.

- **Email written comments to:**
  EIR-EIS-Comments@SitesProject.org
- **Mail written comments to:**
  Sites Project Authority, P.O. Box 517, Maxwell, CA 95955
  Bureau of Reclamation, 2800 Cottage Way, W-2830, Sacramento, CA 95825
- **Provide verbal comments during the virtual public meetings:**
  - Wednesday, Dec. 15, 2021, 6–8 p.m. PST
  - Thursday, Dec. 16, 2021, 9–11 a.m. PST

Visit sitesproject.org/environmental-review for information on accessing the virtual public meetings.

Project Location & Facilities



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U.S. Department of the Interior
Bureau of Reclamation
California-Great Basin

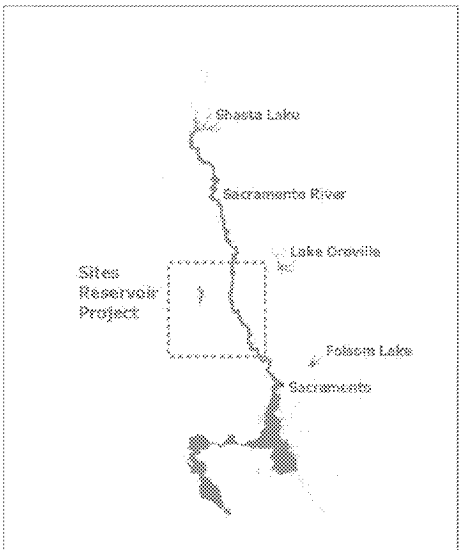
Sites Reservoir

Overview

The North-of-Delta Offstream Storage Investigation, often referred to as Sites Reservoir, is a joint investigation between Reclamation and Sites Project Authority authorized by Congress in 2003. Sites Reservoir would add a new, offstream storage facility in northern California, 10 miles west of the town of Maxwell in rural Glenn and Colusa counties. The reservoir would capture and store stormwater flows from the Sacramento River for later release by beneficiaries throughout the state of California.

Background

The current project is based on a collaborative effort that evaluated the feasibility of a reservoir size between 1.3 million-acre-feet to 1.5 million-acre-feet. The reservoir would provide additional water supply for agriculture and municipal purposes, Central Valley Project (CVP) operational flexibility, benefits to anadromous fish, water supply for wildlife refuges, Delta ecosystem enhancement, flood damage reduction, and recreation opportunities.



Sites Reservoir would increase Northern California's water storage capacity by up to 15 percent.

When operated in coordination with other Northern California reservoirs such as Shasta, Oroville, and Folsom, Sites Reservoir would increase flexibility, reliability, and resiliency of statewide water supplies in drier years.

The proposed Sites Reservoir is an offstream facility that would not dam a major river nor block fish migration or spawning. Rather, Sites Reservoir offers multiple benefits.

Proposed Sites Reservoir would:

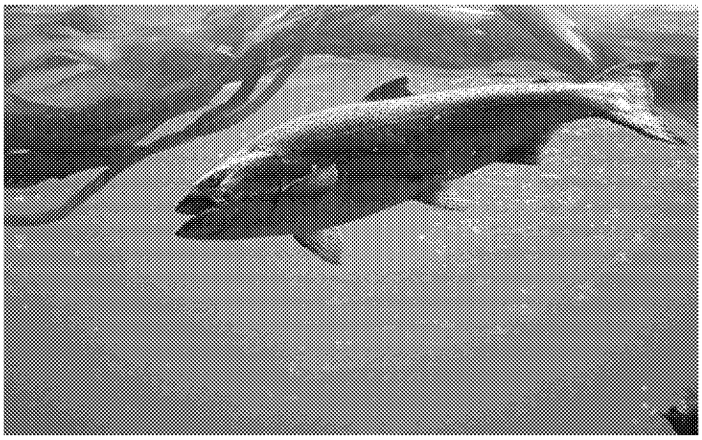
- **Provide water for up to 1.5 million homes for one year**
- **Increase needed water storage capacity for the state**
- **Create reliable water supplies for environmental, agriculture, and municipal uses**

Benefits

Sites Reservoir would provide increased water supply and improve the reliability of water deliveries for environmental, municipal, and agricultural uses, especially during drought conditions.


Photo showing an aerial view of the proposed Sites Reservoir location in Glenn and Colusa counties.

Sites Reservoir would benefit anadromous fish (including endangered winter-run Chinook salmon) and other aquatic species by providing opportunities for improved management of salmonid habitat, particularly in the Sacramento River above Red Bluff Diversion Dam.



Sites Reservoir would allow Reclamation to preserve more cold water in Shasta to help critically endangered salmon and improve water quality conditions, especially in dry and critical years.

The project would provide additional water to relieve some of the existing operational constraints in the CVP and help meet obligations under federal and state law.

Sites Reservoir would enhance the Delta ecosystem by providing water to convey food resources from the floodplain to the Delta, thereby improving the food chain and quality of the Delta's estuarine habitat for use by Delta smelt and other native species.

Sites Reservoir would also provide opportunities to reduce flooding in local watersheds in addition to recreational activities such as hiking, fishing, camping, boating, and mountain biking.

Sites Reservoir would provide water supply to Central Valley wildlife refuges.

Project Status

Reclamation completed a Feasibility Report for the project and transmitted to Congress in December 2020.

A Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) was completed in 2017. In October 2019, Sites Project Authority initiated a value planning process to identify and evaluate additional alternatives that could make the project more affordable while also addressing comments received on the 2017 Draft EIR/EIS. A Revised Draft EIR/Supplemental Draft EIS was released on November 12, 2021, to evaluate a project that can meet the water supply benefits required by the participating agencies.

The existing Tehama-Colusa Canal would be used to help convey Sacramento River water to Sites Reservoir.

Environmental compliance and water right processes are expected to continue through 2022. Early construction would begin in 2023 and continue through 2030.

Visit https://www.usbr.gov/mp/nodos/ for more project information.

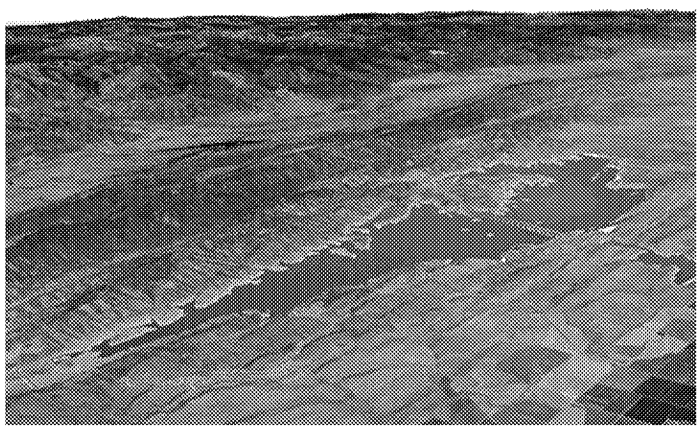


Photo showing an artist's rendition of the proposed reservoir.

Sites

BUREAU OF RECLAMATION

Sites Reservoir Project

RDEIR/SDEIS Frequently Asked Questions

The following questions and answers are meant to respond to common questions about the potential environmental impacts of the proposed Sites Reservoir Project.

1. **Would Sites Reservoir divert water from the Sacramento River during dry and critically dry years?**

   Yes, even during drier years there can be significant precipitation events that present conditions where water can be diverted safely from the river and placed in Sites Reservoir. All diversions would be subject to the highly protective operating conditions that are currently being proposed for the Sites Reservoir Project.

2. **Would Sites Reservoir meaningfully address future droughts?**

   Sites Reservoir is an insurance policy for future droughts. Sites Reservoir does not rely on snowpack and if the scientific projections are correct about the impacts of climate change (i.e., California is expected to receive about the same annual precipitation that it currently does but more will come as rain than snow and be subject to year-to-year variability), then having Sites Reservoir would mean we can collect more water in the reservoir for use during future droughts.

3. **Would Sites Reservoir decrease Delta flows?**

   Yes, slightly, when the Project is diverting. However, since the Sites Reservoir diversions would occur only when there are high river flows, any reduction to Delta flows would be minor and would not impact any of the beneficial uses of the water in the Delta. Storing water in Sites Reservoir during times when there is a lot of flow in the Sacramento River for use during times when the flows are low, including during drought periods, is part of the statewide strategy for adapting to changing climate conditions and to return much needed flexibility to our statewide water management system.

4. **Have concerns about the impact of Sites Reservoir operations on the environment been addressed in the current proposal?**

   The Project operations have been modified substantially over the last two years to be more protective of the environment. These modifications have reduced the Project diversions from the Sacramento River substantially (almost in half) as compared to the criteria proposed in 2017. The current Project operations strikes the needed balance between environmental protections and Project affordability that has to exist for the Project to proceed.

5. **Does this Project impact the Trinity River?**

   The Project would not affect or result in changes in the operation of the Central Valley Project (CVP), Trinity River Division facilities (including Clear Creek). Reclamation would continue to operate the Trinity River Division consistent with all applicable statutory, legal, and contractual obligations, including but not limited to the Trinity River Record of Decision (ROD), the 2017 ROD for the Long-Term Plan for the Lower Klamath River, and the provision of (not less than) 50,000 acre-feet identified in Trinity River Division Central Valley Project Act of 1955 to be made available to Humboldt County and downstream water users.

6. **How does this Project impact water quality in the Sacramento River and Delta?**

   The Project would have some impacts to water quality and would also enhance beneficial uses of water, even improving water quality in some areas. For example, increases in outflow in drier years could reduce seawater intrusion into the Delta. During those same periods, exchanges with Sites water could benefit fish by preserving cold-water supplies from Shasta Lake, Lake Oroville, and Folsom Lake later into the year. The Sites Project Authority would implement best management practices to minimize any potential water quality impacts associated with facility operations and maintenance. These would include actions to prevent spills and reduce runoff that may cause sediment or contaminants to flow into waterbodies. Monthly water quality testing would be performed for discharges moving into and through the Yolo Bypass, and mitigation measures – such as mercury sediment management – would be implemented to counteract any impacts to water quality.

7. **How will the Project benefit anadromous fish?**

   The additional water supply provided by Sites Reservoir may provide opportunities for improved management of salmonid habitat, particularly in the Sacramento River above Red Bluff Diversion Dam. By exchanging Sites water for CVP water, Reclamation has an additional tool to maintain and improve habitat for salmonid spawning, incubation, rearing, and migration. By delivering water to CVP contractors from Sites Reservoir, Reclamation may maintain supply in Shasta Lake for important periods to support these habitat conditions. The possible additional water supply in Shasta Lake can then be allocated during real-time management scenarios for a number of uses (e.g., cold-water pool maintenance, spring pulse or fall pulse flow events, reduced fall flows) that may provide enhanced anadromous fish benefits.

8. **Will this Project curtail or otherwise reduce allocations for other water right holders?**

   Sites Reservoir would only divert water when flows in the Sacramento River meet minimum diversion criteria, when the Delta is in "excess" conditions, when all senior downstream water rights have been met, when all environmental permit conditions have been met, and when there is excess capacity within the conveyance facilities, such as the Tehama-Colusa and Glenn-Colusa Canals. The Project would not curtail or otherwise reduce allocations of water for other water right holders.

U.S. Department of the Interior
Bureau of Reclamation
Program or Office Name

Sites Reservoir (North of Delta Offstream Storage)

Frequently Asked Questions

1. What are the benefits of Sites Reservoir and who are the beneficiaries?
The federal benefits of Sites Reservoir include operational flexibility for the Central Valley Project (CVP) and benefits for anadromous fish through increased cold-water storage. Additional state and local benefits include increased water supply for both North-of-Delta and South-of-Delta water users, improved reliability of water deliveries, water supply for refuges, and Delta ecosystem enhancement. Project beneficiaries include the Bureau of Reclamation, the state of California, and the member agencies of Sites Project Authority. Sites Project Authority has 23 member agencies, which include both agricultural and urban water districts throughout California.

2. What is the source of water for Sites Reservoir?
Sites Reservoir will divert water from the Sacramento River south of Shasta Dam during periods of excess conditions.

3. What is the timing of the Sites Reservoir project?
The Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Sites Reservoir Project is expected to be released in October 2022, followed by a Record of Decision in December 2022. Construction would occur 2023 – 2030, with full operation of the reservoir anticipated in 2030.

4. Why was a supplemental EIS necessary?
A Supplemental Draft EIS (SDEIS) is used when new or updated information becomes available after the publication of the Draft EIS (DEIS). The SDEIS for the Sites Reservoir Project expands on information provided in the Sites Reservoir Project DEIS released in 2017.

5. Will Reclamation respond to comments on the 2017 Draft EIS?
Yes, Reclamation will respond to comments on both the 2017 DEIS and the 2021 SDEIS that were received during their respective comment periods.

6. How is the project going to be funded?
The project is pursuing implementation as a state-led project under the Water Infrastructure Improvements for the Nation (WIIN) Act. Under the WIIN Act, the federal government can contribute a maximum of 25% cost share with a non-federal entity providing the remaining funding. The

remainder of the costs would be paid for by the state of California and the member agencies of the Sites Project Authority.

7. Does this project impact the Trinity River?

The project would not affect or result in changes in the operation of the CVP, Trinity River Division facilities (including Clear Creek). Reclamation would continue to operate the Trinity River Division consistent with all applicable statutory, legal and contractual obligations, including but not limited to the Trinity River Record of Decision (ROD), the 2017 ROD for the Long-Term Plan for the Lower Klamath River, and the provision of (not less than) 50,000 acre-feet identified in Trinity River Division Central Valley Project Act of 1955 to be made available to Humboldt County and downstream water users.

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The project would have some impacts to water quality and would also enhance beneficial uses of water, even improving water quality in some areas. For example, increases in outflow in drier years could reduce seawater intrusion into the Delta. During those same periods, exchanges with Sites project water could benefit fish by preserving cold-water supplies from Shasta Lake, Lake Oroville and Folsom Lake later into the year. Sites Project Authority would implement best management practices to minimize any potential water quality impacts associated with facility operations and maintenance. These would include actions to prevent spills and reduce runoff that may cause sediment or contaminants to flow into waterbodies. Monthly water quality testing would be performed for discharges moving into and through the Yolo Bypass, and mitigation measures – such as mercury sediment management – would be implemented to counteract any impacts to water quality.

9. How will the project benefit anadromous fish?

The additional water supply provided by Sites Reservoir may provide opportunities for improved management of salmonid habitat, particularly in the Sacramento River above Red Bluff Diversion Dam. By exchanging Sites project water for CVP water, Reclamation has an additional tool to maintain and improve habitat for salmonid spawning, incubation, rearing, and migration. By delivering water to CVP contractors from Sites Reservoir, Reclamation may maintain supply in Shasta Lake for important periods to support these habitat conditions. The possible additional water supply in Shasta Lake can then be allocated during real-time management scenarios for a number of uses (e.g., cold-water pool maintenance, spring pulse or fall pulse flow events, reduced fall flows) that may provide enhanced anadromous fish benefits.

10. Will this project curtail or otherwise reduce allocations for other water right holders?

Sites Reservoir would only divert water when flows in the Sacramento River meet minimum diversion criteria, when the Delta is in "excess" conditions, when all senior downstream water rights have been met, when all environmental permit conditions have been met, and when there is excess capacity within the conveyance facilities, such as the Tehama Colusa and Glenn-Colusa Canals. The project would not curtail or otherwise reduce allocations of water for other water right holders.

11. Would Sites Reservoir divert water from the Sacramento River during dry and critically dry years?
Yes, even during drier years there can be significant precipitation events that present conditions where water can be diverted safely from the river and placed in Sites Reservoir. All diversions would be subject to the highly protective operating conditions that are currently being proposed for the Sites Reservoir project.

12. Would Sites Reservoir decrease Delta flows?
Yes, slightly, when the project is diverting. However, since the Sites Reservoir diversions occur only when there are high river flows, any reduction to Delta flows would be minor and would not impact any of the beneficial uses of the water in the Delta. Storing water in Sites Reservoir during times when there is a lot of flow in the Sacramento River for use during times with the flows are low, including during drought periods, is part of the statewide strategy for adapting to changing climate conditions and to return much needed flexibility to our statewide water management system.

13. Have concerns about the impact of Sites Reservoir operations on the environment been addressed in the current proposal?
The project operations have been modified substantially over the last two years to be more protective of the environment. These modifications have reduced project diversions from the Sacramento River substantially (almost in half) as compared to the criteria proposed in 2017. The current project operations strikes the needed balance between environmental protections and project affordability that has to exist for the project to proceed.

14. Does Sites Reservoir threaten salmon and other fish in the Sacramento River and Bay-Delta?
There are highly protective operating conditions being proposed that must be in place before diversions into Sites Reservoir can proceed, including managing adaptively to evolving conditions. Also, the intakes being used for diverting water into Sites Reservoir include state-of-the-art fish screens that are proven to be highly effective at protecting fish.

15. Has the Sites Project Authority analyzed and considered a comprehensive range of environmental mitigation and protections to support salmon and the Bay-Delta ecosystem?
Absolutely, and there are a couple of specific elements of the project that are critical to supporting environmental needs. First, the state has made a large investment in the project through Proposition 1 to enhance their ability to support the Bay-Delta ecosystem. Second, there are opportunities to partner with the state and federal water projects in coordinated operations that may provide fishery benefits associated with their operations.

16. Would Sites Reservoir meaningfully address future droughts?
Sites Reservoir is an insurance policy for future droughts. Sites Reservoir does not rely on snowpack and if the scientific projections are correct about the impacts of climate change (i.e., California is expected to receive about the same annual precipitation that it currently does, but more will come as rain than snow and be subject to year-to-year variability), then having Sites Reservoir would mean we can collect more water in the reservoir for use during future droughts.

17. It has been stated that if operational today, Sites Reservoir would have 1 million acre-feet (MAF) of water in 2021. How much would be diverted in 2021?
Zero diversions into the reservoir in 2021 would have occurred if Sites Reservoir would have been in place. This is in accordance with the highly protective operating conditions that are currently being proposed for the project. However, the 1 MAF estimate that would have already been stored as result of the wetter years in 2017 and 2019 is the water that would be available today. And if 2022 is another dry year, it is estimated there could be approximately 400,000 acre-feet of that left in Sites Reservoir. This water is a badly needed addition to a severely depleted water supply system that was not built to address future climate.

18. Is Sites Reservoir compliant with Proposition 1?
Even with the project changes that have occurred since the original award in 2018, the Sites Reservoir project continues to provide the public benefits the California Water Commission conditionally approved for the project in State Proposition 1 funding in 2018. The project meets the conditions Proposition 1 says must met by January 1, 2022, and Sites Reservoir continues to meet all the feasibility requirements for investment by the state.

19. How does the cost of water from Sites compare to other sources during dry years?
The Sites Reservoir compares favorably to other dry year water supply alternatives which improves water affordability for project participants and the 24 million users they serve, including disadvantaged communities. With water being one of California's most scarce and valuable resources, it is essential to develop a diverse portfolio of sustainable water supply solutions. But it is equally important for decision-makers and stakeholders to evaluate the most cost-effective options available to maximize the value of these investments. The project has been designed to put the state's limited water resources to the best use in an affordable, flexible, and sustainable way.

20. Why has it taken so much time to get Sites to the finish line?
Sites has been around for decades with efforts originally being led by the California Department of Water Resources and the Bureau of Reclamation. The project had starts and stops, as we typically see of a large project led by the state or federal government. The Sites Project Authority was formed in 2010 to move the project more expeditiously. Big projects take time and careful consideration, and Sites Project Authority has done that over the last decade and will continue into the future. Sites Reservoir is anticipated to be operational by the end of this decade, around 2030. Sites Project Authority has made great strides over the last two years to "right-size" the project for affordability and permitability, two critical success factors. This represents a huge milestone for project advancement and sets a turning point that makes the project more feasible and more likely to be built than ever before.

21. Why does this project make sense now, after 60 years?
Many aspects of water management in California have changed in the recent decade that put the Sites Reservoir on the fast track to completion. These changes include the implementation of the Sustainable Groundwater Management Act, the continued declining reliability of the state and federal water projects, increasing regulatory changes requiring diversification of water purveyors' water

portfolios, and the need for water resiliency to address the inevitable uncertainty of our changing climate. Additionally, never before has California had a means to invest in storing water for the environment, made possible with the overwhelming voter passage in 2014 of Proposition 1 making $2.7B available for public benefits of water storage. Approximately 18% of Sites Reservoir is dedicated to delivering water for the environmental purposes as a result of Proposition 1 funds which, for the first time, creates an asset California's regulators can use to adaptively manage for the benefit of fish and wildlife.

22. In hindsight, should this project have been built when originally contemplated, and if so, what would be different today?

Hindsight is always 20/20 and if Sites Reservoir had been built decades ago, the added flexibility it would have created would have been very beneficial for California water management over the years. From a more recent perspective, if California had Sites Reservoir in a dry year like 2021, it is estimated there would be close to 1 million acre-feet of additional water supplies available for farms, cities, and the environment. Sites Reservoir diverts water in wet periods and stores that water for use in the drier times.

23. Is this reservoir a stand-alone, or does it work with other regional reservoirs?

Sites Reservoir is uniquely located in relation to other major components of the state and federal water projects like Shasta Lake, Lake Oroville, and Folsom Lake. Sites Reservoir is complementary to these existing crucial elements of statewide water management and could act to extend the functions they serve by creating flexibility to adapt to changing river and Delta management conditions. For example, Sites Reservoir can be operated in coordination with Shasta Lake to preserve and enhance cold water for endangered salmon in the Sacramento River. Or Sites Reservoir could contribute to the increased fresh-water flow into the Delta during drier periods to assist with salinity management of this critical estuary. Sites Reservoir would not compete for the water resources stored in these state and federal facilities, but would increase the total amount of managed water in storage. With all of the uncertainty California water managers face in the next century, having the Sites Reservoir is a necessity for statewide water management.

24. How will this project utilize and capitalize on existing infrastructure and what does that mean for the project footprint?

Extending the performance of existing infrastructure is good public policy, good business practice and makes for a more sustainable footprint by reducing the environmental impact of the constructed work. The project will utilize existing facilities and infrastructure to a great extent and the existing topography of the reservoir site itself is a natural bowl perfectly situated to accommodate a water reservoir. A significant portion of the 100-plus miles of conveyance (canals and pipelines) involved in the project will be existing facilities. The only new conveyance envisioned are the inlet/outlet works for the reservoir and the four miles of 10-foot diameter pipeline to convey water back to the Sacramento River between the Tehama-Colusa Canal and the Colusa Basin Drain.

Sites

— BUREAU OF —
RECLAMATION

Sites Reservoir Project

Community Guide to the Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS)

Introduction

In accordance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), the Sites Project Authority (Authority) and U.S. Bureau of Reclamation (Reclamation) have prepared a Revised Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS) to analyze the potential environmental impacts of construction and operation of the Sites Reservoir Project (Project).

The Authority would construct an offstream reservoir to capture excess water from major storms and store the water until it is most needed during dry periods. These saved water supplies would be used for the environment, people, and farms. Existing water storage facilities were designed to capture snowmelt, but precipitation in present-day California occurs more commonly in the form of rain. This trend is likely to continue in climate change conditions. The state's demand for water to serve communities, fuel the economy, and revitalize the environment has increased far beyond what the existing water storage system was designed to support. The Project is one tool in a toolbox of actions to assist the state in achieving the goals of water supply reliability for all users (including the environment) and adaptation to a changing climate.

The RDEIR/SDEIS includes a complete revision of the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) released in 2017 to reflect changes to the Project that have occurred since the 2017 Draft EIR/EIS. The Authority and Reclamation considered all public comments received on the 2017 Draft EIR/EIS in developing the refined alternatives and environmental impact analyses presented in the RDEIR/SDEIS.

The RDEIR/SDEIS contains a large volume of information and complex analyses. This community guide is intended to provide an overview of key elements of the environmental analysis provided in the RDEIR/SDEIS.

The 2017 Draft EIR/EIS evaluated four surface water reservoir size and conveyance alternatives. Each alternative included a reservoir to be filled using existing Sacramento River diversion facilities and a new Delevan Pipeline on the Sacramento River. In October 2019, the Authority initiated a value planning process to identify and evaluate additional alternatives that could make the Project more affordable for the Sites Storage Partners while also addressing comments received on the 2017 Draft EIR/EIS. Value planning process objectives included: (1) improving water supply and water supply reliability; (2) providing incremental Level 4 water supply for refuges; (3) improving the survival of anadromous fish; and (4) enhancing the Sacramento–San Joaquin Delta (Delta) ecosystem. Secondary objectives of the value planning process were to provide opportunities for flood damage reduction and recreation.

(continued on next page)

The value planning process resulted in three new alternatives, which include reservoir sizes from 1.3 to 1.5 million acre-feet and focus on using existing facilities to the extent practical for diversions to and releases from the reservoir. The RDEIR/SDEIS evaluates the potential environmental effects of these three new alternatives, as well as a No Project/No Action Alternative.

Some key differences in the facilities and operational characteristics between the alternatives evaluated in this RDEIR/SDEIS (Alternatives 1, 2, and 3) and the alternatives evaluated in the 2017 Draft EIR/EIS include, but are not limited to:

- **Elimination of the Delevan Facility on the Sacramento River and conveyance pipeline**
- **Elimination of Holthouse Reservoir and existing transmission line realignments**
- **Elimination of dedicated pump/generation hydropower facilities**
- **Fewer saddle dams**
- **New conveyance facilities**
- **New flow operations**

Additional information about the differences between the alternatives can be found in Appendix 2B, *Additional Alternatives Screening and Evaluation.*

Primary Characteristics of Project Alternatives

Project Element	Alternative 1	Alternative 2	Alternative 3
Reservoir Size	1.5 million acre-feet (MAF)	1.3 MAF	Same as Alternative 1
Inundation Area	13,200 acres	12,600 acres	Same as Alternative 1
Dams (scaled to the size of the reservoir)	Golden Gate and Sites Dams; 7 saddle dams; 2 saddle dikes	Golden Gate and Sites Dams; 4 saddle dams; 3 saddle dikes	Same as Alternative 1
Route Connecting East and West Sides of Reservoir	Permanent bridge crossing the reservoir	Paved roadway along south side of reservoir	Same as Alternative 1
Regulating Reservoirs	Funks Reservoir, Terminal Regulating Reservoir (TRR) East	Funks Reservoir, TRR West	Same as Alternative 1
Conveyance Releases	Releases 1,000 cubic feet per second (cfs) into new Dunnigan Pipeline discharging into the Colusa Basin Drain (CBD)	Releases of up to 1,000 cfs into new Dunnigan Pipeline discharging into the Sacramento River with an average of 300 cfs partial discharge into the CBD	Same as Alternative 1
Releases into Funks Creek and Stone Corral Creek	Specific flow criteria to maintain flows to protect downstream water right holders and ecological function	Same as Alternative 1	Same as Alternative 1
Bureau of Reclamation Involvement	Two options: Operational exchanges[1] only (Alternative 1A); or Funding partner (up to 7% investment) with operational exchanges[1] (Alternative 1B)	Operational exchanges[1] only	Funding partner (up to 25% investment) with operational exchanges[1]
California Department of Water Resources Involvement	Operational exchanges with Oroville and use of State Water Project facilities South-of-Delta	Similar to Alternative 1 (volumes may vary, however)	Similar to Alternative 1 (volumes may vary, however)

[1] Operational exchanges could include within-year exchanges and real-time exchanges.

Contents of the RDEIR/SDEIS

The focus of the RDEIR/SDEIS is the analysis of the impacts the Project may have on specific environmental resource areas and the mitigation measures that would reduce significant impacts. This analysis, which is presented in Chapters 5 through 30 of the RDEIR/SDEIS, includes a description of the existing environmental setting, methods of analysis, discussion of the impact findings, and discussion of the mitigation measures.

There are several additional discussions in the RDEIR/SDEIS that are important to providing a full description of the Project and its potential impacts. These discussions include:

- **Project Description and Alternatives, Chapter 2:** detailed discussion of the Project and alternatives analyzed, including objectives/purpose and need, location, components, construction, and operations and maintenance.
- **Environmental Analysis, Chapter 3:** terminology, organization, and approach to environmental impact analysis.
- **Regulatory Compliance, Chapter 4:** overview of applicable regulations, as well as the federal, state, and local approvals needed.
- **Climate Change, Chapter 28:** overview of the effects of climate change on the Project.
- **Cumulative Impacts, Chapter 31:** Project impacts (large or small) which, when combined with impacts of other closely related past, present, or reasonably foreseeable future projects, contribute substantially to a collectively significant impact.
- **Other Required Analyses, Chapter 32:** additional environmental analyses required under CEQA and NEPA.

Additional technical appendices, figures, and tables included in the RDEIR/SDEIS are designed to help support the analysis.

Summary of Potential Environmental Impacts and Mitigation Measures

The RDEIR/SDEIS includes an analysis of the Project's potential impacts on a range of environmental resource areas. A summary of the impacts requiring mitigation as well as the potentially significant and unavoidable impacts/adverse or substantially adverse effects are listed on the next page. No mitigation measures are required when an impact is determined to be beneficial or less than significant.

The full list of the environmental resource areas addressed can be found in the Executive Summary (Table ES-2) of the RDEIR/SDEIS.

Environmental impacts associated with the following resource areas would be less than significant (chapter number in parentheses): Surface Water Resources (5); Fluvial Geomorphology (7); Groundwater Resources (8); Minerals (13); Recreation Resources (16); Energy (17); Noise (19); Population and Housing (25); Public Services and Utilities (26); and Public Health and Environmental Hazards (27).

Commenting on the RDEIR/SDEIS

Comments should be limited to the environmental analysis in this RDEIR/SDEIS and not the prior 2017 Draft EIR/EIS. Although the 2017 Draft EIR/EIS was circulated for public review and comment, the RDEIR/SDEIS has been substantially revised and recirculated in its entirety; prior comments submitted on the 2017 Draft EIR/EIS do not require a response under CEQA. Reclamation will respond to comments submitted on the 2017 Draft EIR/EIS and this RDEIR/SDEIS in the Final EIR/EIS under NEPA.

All comments on the RDEIR/SDEIS must be postmarked or received by 5 p.m. PST on Jan. 11, 2022. Visit sitesproject.org/environmental-review for how to submit comments.

Resource Area (Chapter Number)	Impacts Requiring Mitigation	Significant & Unavoidable Impacts/Adverse & Substantial Effects
Surface Water Quality (6)	All Alternatives – increased methylmercury concentrations downstream of Sites Reservoir during construction and operation; metal concentrations and effects in Stone Corral Creek during operation; metal and pesticide concentrations and effects in Yolo Bypass during operation	All Alternatives – Increased methylmercury concentrations downstream of Sites Reservoir during construction and operation; minimize metal concentrations and effects in Stone Corral Creek during operation to the extent feasible; minimize metal and pesticide concentrations and effects in Yolo Bypass during operation to the extent feasible
Vegetation and Wetland Resources (9)	All Alternatives – Construction effects on special-status plant species, wetlands, and potential conflicts with Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP); operational effects on special-status plant species, riparian habitat or other sensitive natural community, and wetlands	All Alternatives – Construction related effects on oak woodlands, primarily in the reservoir inundation area
Wildlife Resources (10)	All Alternatives – Construction effects on special-status wildlife species, potential conflicts with local policies and HCPs/NCCPs, interference with movement of species/wildlife corridors; operational effects due to use of pesticides and herbicides, interference with movement of species/wildlife corridors	All Alternatives – interference with movement of native or migratory wildlife species or with established wildlife corridors; loss of nesting tree habitat for golden eagles
Aquatic Biological Resources (11)	All Alternatives – Construction effects on fish and aquatic biological resources; operations effects on winter-run, spring-run, fall-run/late fall-run chinook salmon and central valley steelhead; operations effects on longfin smelt and delta smelt	Less than significant with mitigation
Geology and Soils (12)	All Alternatives – Construction effects on paleontological resources	Alternatives 1 & 3 – Paleontological resource impacts due to construction method for TRR East
Land Use (14)	Alternative 2 – No feasible mitigation identified to address South Road physically dividing Lodoga and Maxwell	Alternative 2 – South Road physically divides Lodoga and Maxwell
Agriculture and Forestry Resources (15)	All Alternatives – Permanent conversion of farmlands and Williamson Act lands	All Alternatives – Permanent conversion of farmland and Williamson Act Lands
Navigation, Transportation, and Traffic (18)	Alternative 2 – No feasible mitigation identified to address increase in school bus travel time between Maxwell and Lodoga	Alternative 2 – South Road would substantially increase school bus travel time between Maxwell and Lodoga
Air Quality (20)	All Alternatives – Increase in criteria pollutant for which region is nonattainment during construction; recreational boat emissions during operation; expose sensitive receptors to substantial pollutant concentrations	All Alternatives – Increase in criteria pollutant for which region is nonattainment during construction and exposure of sensitive receptors to substantial pollutant concentrations during construction and operation
Greenhouse Gas Emissions (21)	All Alternatives – Generate greenhouse gas (GHG) emissions but would achieve net-zero emissions through a GHG Reduction Plan	Less than significant with mitigation
Cultural Resources (22)	All Alternatives – Impacts to historic/archaeological resources from construction and operation; disturbance of human remains	All Alternatives – Permanent loss of historic and archaeological resources and relocation of human remains due to construction and operation
Tribal Cultural Resources (23)	All Alternatives – Substantial adverse change in the significance of Tribal Cultural Resources	All Alternatives – Assumed presence of Tribal Cultural Resources in reservoir footprint area and permanent loss of those resources due to inundation
Visual Resources (24)	All Alternatives – Substantially degrade the visual character or quality of the inundation area; Alternative 2 – No feasible mitigation identified to address the visual character or quality of the Sacramento River discharge structure location	All Alternatives – Inundation substantially degrades the existing visual character; Alternative 2 – Sacramento River discharge structure substantially degrades the existing visual character
Indian Trust Assets (29)	All Alternatives – Operations potentially affecting current activities within an Indian Trust Asset	No effect/no adverse effect
Environmental Justice and Socioeconomics (30)	All Alternatives – Disproportionate and adverse effects on minority and low-income populations	All Alternatives – Construction and operation disproportionately and adversely affecting minority and low-income populations

Agenda Item 2.1 – Amendment 3 Real Estate Actions Budget

June 17, 2022

Sites

Purpose & Need

- Need for a meaningful, productive vehicle for local community input and two-way communication
- Builds on Authority Core Values
- Identify local challenges and potential solutions, maximize project benefits to the local community
- Local community working group & Tribal Government working group
- *Would not replace public agency-specific meetings*

Project expected to bring local challenges and opportunities

EIR process not necessarily the right vehicle to address some local issues/concerns

Core values include respect for community

Would supplement, not replace, public agency-specific meetings

Scope & Focus

- For the working group to be successful, the Authority must:
  - Provide a clear process for input and expected outcomes
  - Limit input to areas that can be influenced
  - Commit resources for meetings and communications
  - Value group members' time and involvement
- Potential topics of Discussion
  - Community: Traffic, economic/jobs, land use planning issues, community benefits
  - Tribal: Cultural resources protection, preservation of Tribal history
- Working group framework
  - Charter
  - Mission, guiding principles
  - Frequency of meetings
  - Membership

Local Community Participation

- Should include representation from the AB and RC
- Focus on local community agencies and organizations
- Try to represent a broad cross section of the local community
- Will rely on local participants to identify appropriate organizations
- Geographic coverage (Colusa, Glenn, and Yolo)

Community Work Group Potential Participants

- AB Representative
- RC Representative
- Federal Electeds Staff (LaMalfa, Thompson)
- State Electeds Staff (Aguilar Curry & Gallagher, Dahle)
- Colusa County (Public Works, Planning, and Sheriff)
- Glenn County (Public Works, Planning, and Sheriff)
- Yolo County (Public Works & Planning)
- Colusa County Superintendent of Schools
- Maxwell Unified School District
- Maxwell Fire Protection District
- Bear Valley Fire Protection District
- Maxwell Public Utility District
- Maxwell Park & Recreation District
- Colusa Migrant Farm Housing Center (Colusa Ag Commissioner) *
- Colusa County Farm Bureau
- Glenn County Farm Bureau
- Yolo County Farm Bureau
- Sac Valley Museum
- Stonyford Museum
- Colusa County Chamber of Commerce
- Willows Chamber of Commerce
- Local business representatives (Maxwell Inn and one from Stonyford)
- American Legion Post (Maxwell)
- Family Water Alliance

Potential Tribal Governments Work Group Invited Participants

- Cachil Dehe Band of Wintun Indians
- Yocha Dehe Wintun Nation
- Cortina Indian Rancheria
- Grindstone Indian Rancheria
- Paskenta Band of Nomlaki Indians
- AB Representative
- RC Representative

Path Forward

- Develop Working Group Charters
- Identify AB & RC representatives
- Identify and engage with potential participants to gauge interest
- Set first meeting date and send invitations
- Hold first meeting (tentatively August 2022)

Discussion & Questions

Sites

From: Sara M. Katz [skatz@katzandassociates.com]
Sent: 6/15/2022 3:41:37 PM
To: Jerry Brown [jbrown@sitesproject.org]
CC: Kevin Spesert [kspesert@sitesproject.org]; Ann Newton [anewton@katzandassociates.com]
Subject: Re: Draft Ag Alert Opinion Piece

Thanks for the quick turnaround. Will wait to see if Kevin has any comments as well. Will get a revised draft to you early next week. K & A started giving Juneteenth off as an official holiday last year, consistent with the federal government. So we will be off on Monday. FYI only.

Sent from my iPhone

On Jun 15, 2022, at 3:37 PM, Jerry Brown <jbrown@sitesproject.org> wrote:

Two items to consider:

1. 2nd para – its not just drought affecting ag, its sgma, and climate change - longer dry periods, less snowpack. I'd prefer we emphasize Sites as a solution to these longer term effects
2. 9th para – I don't understand the context for saying the participants have spent $60M. If we feel strongly about showing local investment, need to include state and federal investment to date also. Our message is that this is a project of local, statewide and national significance.

Thanks
Jerry

From: "Sara M. Katz" <skatz@katzandassociates.com>
Date: Wednesday, June 15, 2022 at 10:45 AM
To: Jerry Brown <jbrown@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: Ann Newton <anewton@katzandassociates.com>
Subject: Draft Ag Alert Opinion Piece

Jerry/Kevin – attached please find the draft we are proposing to send to Peter @CFBF. They are now looking to print this early July and have provided us a June 24 deadline. Perhaps we ask Fritz to lend his name to this given the audience? And please confirm re Fritz and we will reach out to him next.

Thanks

Sara M Katz

Sara M. Katz
Founder/CEO
mobile: 619.813.9551
San Diego · Los Angeles · San Francisco

From: Janis Offermann [janis@horizonh2o.com]
Sent: 6/16/2022 9:45:11 AM
To: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]; Alicia Forsythe [aforsythe@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]
Subject: RE: [EXTERNAL] RE: Monthly meeting with Yocha Dehe scheduled today

OK sounds good.
I think we have satisfied their GIS data request. I will check in with him about that when I tell him we would like to cancel today's call.
Thanks
janis

From: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Sent: Thursday, June 16, 2022 9:43 AM
To: Janis Offermann <janis@horizonh2o.com>; Alicia Forsythe <aforsythe@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Subject: [EXTERNAL] RE: Monthly meeting with Yocha Dehe scheduled today

Hi Janis,

Ali is out too- let's cancel, unless you have items to discuss with Laverne. Have we satisfied their request for GIS data now?

Thanks,

Laurie

From: Janis Offermann <janis@horizonh2o.com>
Sent: Thursday, June 16, 2022 9:36 AM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: Monthly meeting with Yocha Dehe scheduled today
Importance: High

Hello, all
This is just a reminder that we have our regular monthly meeting with Yocha Dehe scheduled for today at 2pm. Are there topics you would like to review with him (i.e., Local Tribal Working Group), or should I suggest we skip it?

Thanks
janis

Janis Offermann, MA, RPA
Cultural Resources Practice Lead
Horizon Water and Environment
1800 7th Street, Suite 100
Sacramento, CA 95811
530.220.4918

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Meeting: **Sites Reservoir Committee's Environmental Planning and Permitting Workgroup**

Locations: Maxwell Project Office, 122 Old Highway 99W, Maxwell, CA 95955

See below for alternate meeting locations.

Call in: **1-916-538-7066** Code: **209 737 511#** Click here to join the meeting

Workgroup Chair: Heather Dyer (SBVMWD)

Staff Lead: Ali Forsythe, Environmental Planning and Permitting Manager

AGENDA

Wednesday, June 7, 2023; 10:00 – 11:00 am

NO ACTION or DECISION WILL BE TAKEN

ROLL CALL & CALL TO ORDER:

- Introductions
- Period for Public Comment

Any person may speak about any subject of concern, provided it is within the workgroup's jurisdiction and a public comment card is submitted. The time allotted for receiving such public communication shall be limited to 3 minutes per person.

1. Discussion and Information Items:

1.1 Review and comment on the Final EIR/EIS, Part 3 (continued) status briefing in preparation for approval of the Project – Findings, Water Quality and Tribal Cultural Resources.

1.2 Review and comment on the status of the National Historic Preservation Act, Section 106 Programmatic Agreement.

1.3 Review and comment on the Executive Director entering into contracts with the Cachil Dehe Band of Wintun Indians (Colusa Indian Community Council) for geotechnical monitoring and Paskenta Band of Nomlaki Indians for geotechnical monitoring and completion of an ethnographic study.

1.4 Review and comment on the status of the Biological Assessment/Biological Opinion and Operations Incidental Take Permit application.

2. Environmental Planning and Permitting Manager's Report:

- Key Planning and Permitting Activities Report

3. <u>Upcoming Meetings</u>:

Joint Reservoir Committee and Authority Board
Friday, June 16, 2023 - 9:00 am to noon

Environmental Planning and Permitting Workgroup
Wednesday, August 9, 2023 - 10:00 to 11:00 am

Virtual Information will be provided before all meetings at Sitesproject.org.

ADJOURN

ADA COMPLIANCE: Upon request, agendas will be made available in alternative formats to accommodate persons with disabilities. In addition, any person with a disability who requires a modification or accommodation to participate or attend this meeting may request necessary accommodation. Please make your request to the Board Clerk, specifying your disability, the format in which you would like to receive this Agenda and any other accommodation required no later than 24 hours before the start of the meeting.

Alternate Meeting Locations:

Glenn-Colusa Irrigation District, 344 East Laurel St, Willows, CA 95988

San Bernardino Valley Municipal WD, 380 E. Vanderbilt Way, San Bernardino, CA 92408

Coachella Valley Water District, 51501 Tyler Street, Coachella CA 92236

Reclamation District 108, 975 Wilson Bend Rd., Grimes, CA 95950

Wheeler Ridge-Maricopa Water Storage District, 12109 Hwy 166, Bakersfield, CA 93313

Meeting: **Sites Reservoir Committee's Environmental Planning and Permitting Workgroup**

Locations: Maxwell Project Office, 122 Old Highway 99W, Maxwell, CA 95955

See below for alternate meeting locations.

Call in: **1-916-538-7066** Code: **209 737 511#** Click here to join the meeting

Workgroup Chair: Heather Dyer (SBVMWD)

Staff Lead: Ali Forsythe, Environmental Planning and Permitting Manager

AGENDA

Wednesday, February 8, 2023; 10:00am – 11:00am

NO ACTION or DECISION WILL BE TAKEN

ROLL CALL & CALL TO ORDER:

- Introductions
- Period for Public Comment

Any person may speak about any subject of concern, provided it is within the workgroup's jurisdiction and a public comment card is submitted. The time allotted for receiving such public communication shall be limited to 3 minutes per person.

1. Discussion and Information Items:

1.1 Review and comment on the Final EIR/EIS, Part 1 of 3 status briefing in preparation for approval of the Project.

1.2 Review and comment on the Charter Documents. **(Attachments A, B & C)**

2. Environmental Planning and Permitting Manager's Report:

- Key Planning and Permitting Activities Report

3. Upcoming Meetings:

Reservoir Operations and Engineering Workgroup
Wednesday, February 8, 2023 - 1:30 PM to 3:30 PM

Joint Reservoir Committee and Authority Board
Friday, February 17, 2023 - 9:00 AM to 12:00 PM

Environmental Planning and Permitting Workgroup
Wednesday, April 12, 2023 - 10:00 AM to 11:00 AM

Virtual Information will be provided before all meetings at Sitesproject.org.

ADJOURN

ADA COMPLIANCE: Upon request, agendas will be made available in alternative formats to accommodate persons with disabilities. In addition, any person with a disability who requires a modification or accommodation to participate or attend this meeting may request necessary accommodation. Please make your request to the Board Clerk, specifying your disability, the format in which you would like to receive this Agenda and any other accommodation required no later than 24 hours before the start of the meeting.

Alternate Meeting Locations:

Glenn-Colusa Irrigation District, 344 East Laurel St, Willows, CA 95988

San Bernardino Valley Municipal WD, 380 E. Vanderbilt Way, San Bernardino, CA 92408

Coachella Valley Water District, 51501 Tyler Street, Coachella CA 92236

Reclamation District 108, 975 Wilson Bend Rd., Grimes, CA 95950

Wheeler Ridge-Maricopa Water Storage District, 12109 Hwy 166, Bakersfield, CA 93313

Meeting: **Sites Reservoir Committee's Environmental Planning and Permitting Workgroup**

Locations: Maxwell Project Office, 122 Old Highway 99W, Maxwell, CA 95955
See below for alternate meeting locations.

Call in: **1-916-538-7066** Code: **209 737 511#** Click here to join the meeting

Workgroup Chair: Heather Dyer (SBVMWD)

Staff Lead: Ali Forsythe, Environmental Planning and Permitting Manager

AGENDA

Wednesday, April 12, 2023; 10:00am – 11:00am

NO ACTION or DECISION WILL BE TAKEN

ROLL CALL & CALL TO ORDER:

- Introductions
- Period for Public Comment

Any person may speak about any subject of concern, provided it is within the workgroup's jurisdiction and a public comment card is submitted. The time allotted for receiving such public communication shall be limited to 3 minutes per person.

1. Discussion and Information Items:

1.1 Review and comment on the Final EIR/EIS, Part 3 of 3 status briefing in preparation for approval of the Project.

2. Environmental Planning and Permitting Manager's Report:

- Key Planning and Permitting Activities Report

3. Upcoming Meetings:

Joint Reservoir Committee and Authority Board
Friday, April 21, 2023 - 9:00 AM to 12:00 PM

Environmental Planning and Permitting Workgroup
Wednesday, May 10, 2023 - 10:00 AM to 11:00 AM

Virtual Information will be provided before all meetings at Sitesproject.org.

ADJOURN

ADA COMPLIANCE: Upon request, agendas will be made available in alternative formats to accommodate persons with disabilities. In addition, any person with a disability who requires a modification or accommodation to participate or attend this meeting may request necessary accommodation. Please make your request to the Board Clerk, specifying your disability, the format in which you would like to receive this Agenda and any other accommodation required no later than 24 hours before the start of the meeting.

Alternate Meeting Locations:

Glenn-Colusa Irrigation District, 344 East Laurel St, Willows, CA 95988

San Bernardino Valley Municipal WD, 380 E. Vanderbilt Way, San Bernardino, CA 92408

Coachella Valley Water District, 51501 Tyler Street, Coachella CA 92236

Reclamation District 108, 975 Wilson Bend Rd., Grimes, CA 95950

Wheeler Ridge-Maricopa Water Storage District, 12109 Hwy 166, Bakersfield, CA 93313

Agenda Item 2.1 – Amendment 3 Budget for Real Estate Actions

June 17, 2022

Sites

Purpose & Need

- Entering period where significant land access for field activities is needed to help advance the Project's design and permitting
  - Engineering, geotechnical, biological, cultural
- Need for greater certainty of land availability and cost as transition to Project construction phase
  - Cost/schedule delays during construction due to acquisition schedule

Project expected to bring local challenges and opportunities

EIR process not necessarily the right vehicle to address some local issues/concerns

Core values include respect for community

Would supplement, not replace, public agency-specific meetings

Increased Real Estate Actions for Amendment 3

- Add scope to the Amendment 3 Work Plan
  - Land agreements could help provide a higher likelihood of land access for field work
  - Actions and land agreements to increase certainty of future parcel availability
- Near-term
  - Parcels where major project infrastructure is located
  - Parcels significant geotechnical, biological, or cultural surveys planned
- Long-term
  - Opportunity parcels identified as a result of landowner discussions

Budget to Support Real Estate Actions

- $2 million to cover new real estate action costs in Amendment 3
  - Current projections do not show a sufficient underrun to cover these costs
- Propose portion of the $9.3M undesignated carryover funds from A2 be assigned to cover these expenses.
  - Revisited at the end of FY2022 and possibly adjust in the FY2023 budget if updated projections show underruns in other areas.
- FY2022 Annual Budget to increase by $500,000 to a total annual budget of $43,350,981.

Discussion & Questions

Sites

Agenda Item 2.1 – Amendment 3 Budget for Real Estate Actions

June 17, 2022

Sites

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Discussion & Questions
Sites

File Provided Natively

Agenda Item 3.3 – Forming Public Engagement Working Group

June 17, 2022

Sites

Purpose & Need

- Need for a meaningful, productive vehicle for local community input and two-way communication
- Builds on Authority Core Values
- Identify local challenges and potential solutions, maximize project benefits to the local community
- Local community working group & Tribal Government working group
- *Would not replace public agency-specific meetings*

Project expected to bring local challenges and opportunities

EIR process not necessarily the right vehicle to address some local issues/concerns

Core values include respect for community

Would supplement, not replace, public agency-specific meetings

Scope & Focus

- For the working group to be successful, the Authority must:
  - Provide a clear process for input and expected outcomes
  - Limit input to areas that can be influenced
  - Commit resources for meetings and communications
  - Value group members' time and involvement
- Potential topics of Discussion
  - Community: Traffic, economic/jobs, land use planning issues, community benefits
  - Tribal: Cultural resources protection, preservation of Tribal history
- Working group framework
  - Charter
  - Mission, guiding principles
  - Frequency of meetings
  - Membership

Local Community Participation

- Should include representation from the AB and RC
- Focus on local community agencies and organizations
- Try to represent a broad cross section of the local community
- Will rely on local participants to identify appropriate organizations
- Geographic coverage (Colusa, Glenn, and Yolo)

Community Work Group Potential Participants

- AB Representative
- RC Representative
- Federal Electeds Staff (LaMalfa, Thompson)
- State Electeds Staff (Aguilar Curry & Gallagher, Dahle)
- Colusa County (Public Works, Planning, and Sheriff)
- Glenn County (Public Works, Planning, and Sheriff)
- Yolo County (Public Works & Planning)
- Colusa County Superintendent of Schools
- Maxwell Unified School District
- Maxwell Fire Protection District
- Bear Valley Fire Protection District
- Maxwell Public Utility District
- Maxwell Park & Recreation District
- Colusa Migrant Farm Housing Center (Colusa Ag Commissioner) *
- Colusa County Farm Bureau
- Glenn County Farm Bureau
- Yolo County Farm Bureau
- Sac Valley Museum
- Stonyford Museum
- Colusa County Chamber of Commerce
- Willows Chamber of Commerce
- Local business representatives (Maxwell Inn and one from Stonyford)
- American Legion Post (Maxwell)
- Family Water Alliance

Potential Tribal Governments Work Group Invited Participants

- Cachil Dehe Band of Wintun Indians
- Yocha Dehe Wintun Nation
- Cortina Indian Rancheria
- Grindstone Indian Rancheria
- Paskenta Band of Nomlaki Indians
- AB Representative
- RC Representative

Path Forward

- Develop Working Group Charters
- Identify AB & RC representatives
- Identify and engage with potential participants to gauge interest
- Set first meeting date and send invitations
- Hold first meeting (tentatively August 2022)

Discussion & Questions

From: Spranza, John [John.Spranza@hdrinc.com]
Sent: 6/17/2022 12:13:49 PM
To: Westcot, Cathy [Cathy.Westcot@hdrinc.com]; Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
CC: Joe Trapasso [jtrapasso@sitesproject.org]; Heydinger, Erin [erin.heydinger@hdrinc.com]
Subject: RE: URGENT RE: FAA Schedule Extension R20AC00105

I actually think they will extend further out, but what you have works for now. You can also extend the Adaptive Mgt Plan through 3/14/23

John Spranza

D 916.679.8858 M 818.640.2487

From: Westcot, Cathy <Cathy.Westcot@hdrinc.com>
Sent: Friday, June 17, 2022 12:12 PM
To: Spranza, John <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Cc: Joe Trapasso <jtrapasso@sitesproject.org>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Subject: RE: URGENT RE: FAA Schedule Extension R20AC00105

Are you ok with going with the highlighted dates for the FAA amendment? We have to show that the work slipped because we are extending the POP to 6/2023. If the dates keep moving that doesn't matter for this document that we need to have today.

Cathy Westcot, PMP
Project Controls Director

HDR
2379 Gateway Oaks Dr #200
Sacramento, CA 95833
M 916-213-3076
cathy.westcot@hdrinc.com

hdrinc.com/follow-us

From: Spranza, John <John.Spranza@hdrinc.com>
Sent: Friday, June 17, 2022 12:06 PM
To: Westcot, Cathy <Cathy.Westcot@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Cc: Joe Trapasso <jtrapasso@sitesproject.org>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>
Subject: RE: URGENT RE: FAA Schedule Extension R20AC00105

This is a tough question as we are just working out some details with reclamation on the schedule for our BiOp but based on today's schedule, there are no changes to permitting

John Spranza

D 916.679.8858 M 818.640.2487

From: Westcot, Cathy <Cathy.Westcot@hdrinc.com>
Sent: Friday, June 17, 2022 11:48 AM
To: Spranza, John <John.Spranza@hdrinc.com>; Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Cc: Joe Trapasso <jtrapasso@sitesproject.org>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>

Subject: URGENT RE: FAA Schedule Extension R20AC00105
Importance: High

I need your inputs to the changes to the schedule below, they need this information today since the FAA expires soon. Send it back to me when your done.

Thanks,

Cathy Westcot, PMP
Project Controls Director

HDR
2379 Gateway Oaks Dr #200
Sacramento, CA 95833
M 916-213-3076
cathy.westcot@hdrinc.com

hdrinc.com/follow-us

From: As-Salek, Junaid <JAsSalek@usbr.gov>
Sent: Friday, June 17, 2022 10:56 AM
To: Brown, Teresa E <TEBrown@usbr.gov>; Westcot, Cathy <Cathy.Westcot@hdrinc.com>; King, Vanessa M <vking@usbr.gov>
Cc: Joe Trapasso <jtrapasso@sitesproject.org>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Kabir, Jobaid N <jkabir@usbr.gov>
Subject: Re: FAA Schedule Extension R20AC00105

Cathy and Vanessa,

Please response to Teresa's request (in Teresa's email below) at your earliest convenience by today.

Thanks,

Junaid

From: Brown, Teresa E <TEBrown@usbr.gov>
Sent: Friday, June 17, 2022 10:14 AM
To: As-Salek, Junaid <JAsSalek@usbr.gov>; Westcot, Cathy <Cathy.Westcot@hdrinc.com>; King, Vanessa M <vking@usbr.gov>
Cc: Joe Trapasso <jtrapasso@sitesproject.org>; Heydinger, Erin <Erin.Heydinger@hdrinc.com>; Brown, Teresa E <TEBrown@usbr.gov>
Subject: FAA Schedule Extension R20AC00105

GM:
Did any of the dates change below? If so, please make the changes in red. This Agreement expires June 30, 2022 and I am trying to get it done today. I am thanking each of you in advance.

Task No.	**Task Title**	**Deliverables**	**Estimated Start Dates**	**Estimated Completion Dates**
01	Environmental Planning	Draft Env Work Plan	2/1/2020	4/30/2020
01	Environmental Planning	Annotated Outline	4/1/2020	8/31/2020
01	Environmental Planning	Draft EIR/EIS for Public Review	9/1/2020	**9/30/2021**
01A	**Environmental Planning**	**Alternative 3 Analysis**	**2/1/2021**	**5/30/2021**
01A	**Environmental Planning**	**Admin Final EIR/EIS**	**10/1/2021**	**6/30/2022 10/30/22**
02	Project Permitting	Mitigation Plan	4/1/2020	1/30/2021 2/15/23
02	Project Permitting	Adaptive Management Plan	4/1/2020	1/30/2021
02	Project Permitting	ITP- CESA (Sec 2081)	11/1/2020	12/31/2021 03/14/23
02	Project Permitting	Section 106	9/1/2020	12/31/2021 1/23/23
02A	**Project Permitting**	**Draft BA**	**2/1/2021**	**11/30/2021 8/16/22**
02A	**Project Permitting**	**404/401 Permit Application**	**2/1/2021**	**12/30/2021 11/29/22**
02A	**Project Permitting**	**Draft Water Right Application**	**2/1/2021**	**12/30/2021 05/30/22**

Cheers,

Teresa E. Brown

Grants Management Specialist, CGB-3839

Bureau Of Reclamation

Region 10 California-Great Basin - Acquisition Services

2800 Cottage Way, Room E-1815

Sacramento, CA 95825-1898

Phone: (916) 978-5049

tebrown@usbr.gov

"People will forget what you said, people will forget what you did, but they will never forget how you made them feel."

Mitigation Measure	Start Implementation				Complete Implementation				Specific Timing
	Pre-Construction	During Construction	Post Construction	Operations	Pre-Construction	During Construction	Post Construction	Operations	
Mitigation Measure WQ-1.1: *Methylmercury Management*	X							X	**Page 6-58** – "implement the following actions as part of the RMP" during operation; however, "Remove vegetation (e.g., brush, trees) in the inundation area prior to initial reservoir filling."
Mitigation Measure WQ-2.1: *Prevent Metals Impacts in Stone Corral Creek Associated with Sites Reservoir Discharge*	X							X	**Page 6-94 –** "Samples will be collected every other month for 1 year prior to construction and every other month after construction for a period sufficient to indicate that any impacts are less than significant, including during periods when the reservoir is at least 75% full."
Mitigation Measure WQ-2.2: *Prevent Net Detrimental Metal and Pesticide Effects Associated with Moving Colusa Basin Drain Water Through the Yolo Bypass*				X				X	**Page 6-95 –** "Samples will be collected monthly during June–October to evaluate concentrations before and during the period of CBD discharge to the Yolo Bypass."
Mitigation Measure VEG-1.1: *Conduct Appropriately Timed Surveys for Special-Status Plant Species Prior to Construction Activities*	X				X				**Page 9-26-** "conduct special-status plant surveys of the Project footprint, including all permanent and temporary construction impact areas and a 250-foot-wide buffer area to encompass areas where indirect effects may occur" and "Surveys will occur during the season that special-status plant species would be evident and identifiable, which generally is during their blooming period. The surveys will be conducted no more than 3 years prior to the start of ground-disturbing activities."
Mitigation Measure VEG-1.2: *Establish Activity Exclusion Zones Around Special-Status Plants in Temporary Impact Areas and Compensate for Permanent Impacts on Special-Status Plant Species*	X						X		**Pages 9-26 and 9-27 –** "avoid Project impacts on the species, if feasible, through the establishment of activity exclusion zones, in which no ground-disturbing activities will take place, including construction staging or other temporary work areas" and, "Prior to any construction activities that would result in permanent impacts on special-status plants, the Authority will acquire and permanently protect compensatory mitigation habitat for each affected species"
Mitigation Measure VEG-1.3: *Establish Activity Exclusion Zones Around Special-Status Plants Prior to Vegetation Maintenance Activities*				X				X	**Page 9-27 –** "Prior to surface-disturbing maintenance or herbicide use, the Authority will use the results of the surveys conducted under Mitigation Measure VEG-1.1 to mark the known locations of special-status plants in or within 50 feet of any maintenance areas."
Mitigation Measure VEG-2.1: *Conduct Surveys for Sensitive Natural Communities and Oak Woodlands in the Project Area Prior to Construction Activities*	X				X				**Page 9-38-** "Prior to the start of any Project construction activities, the Authority will retain qualified botanists to conduct surveys of the Project area, including all permanent and temporary impact areas and an additional buffer of 250 feet to encompass potential indirectly affected areas."
Mitigation Measure VEG-2.2: *Avoid and Compensate for Adverse Effects on Sensitive Natural Communities*	X						X		**Page 9-39 –** "the Authority will avoid Project impacts on the community, if feasible, through the establishment of activity exclusion zones, in which no ground-disturbing activities will take place, including construction staging or other temporary work areas" and "Prior to any activities that would result in permanent impacts on sensitive natural communities, the Authority will acquire and permanently protect compensation habitat for each affected species"
Mitigation Measure VEG-2.3: *Establish Activity Exclusion Zones Around Sensitive*			X					X	**Page 9-40 –** not specifically stated, "The Authority will fence and avoid any parts of sensitive natural communities that occur in or within 50

Mitigation Measure	Start Implementation				Complete Implementation				Specific Timing
	Pre-Construction	During Construction	Post Construction	Operations	Pre-Construction	During Construction	Post Construction	Operations	
Natural Communities Prior to Vegetation Maintenance Activities									feet of the vegetation maintenance areas that could be affected by surface-disturbing maintenance activities."
Mitigation Measure VEG-3.1*: Avoid and Minimize Disturbance of Wetlands and Non-Wetland Waters During Construction Activities*	X					X			**Page 9-46 – "**measures will be incorporated into contract specifications and implemented by the construction contractor" including design facilities to avoid
Mitigation Measure VEG-3.2*: Compensate for Temporary and Permanent Impacts on State- or Federally Protected Wetlands*	X						X		**Page 9-47 –** "mitigation will be implemented immediately following temporary impacts and concurrent with or in advance of permanent impacts"
Mitigation Measure VEG-3.3*: Compensate for Temporary and Permanent Impacts on State- or Federally Protected Non-Wetland Waters*	X						X		**Page 9-49 –** "mitigation will be implemented immediately following temporary impacts and concurrent with or in advance of permanent impacts"
Mitigation Measure VEG-3.4*: Establish Activity Exclusion Zones Around Wetlands and Non-Wetland Waters Prior to Vegetation Maintenance Activities*			X					X	**Page 9-50 –** "Prior to Vegetation Maintenance Activities"
Mitigation Measure VEG-4-1*: Avoid and Minimize Potential Adverse Effects on Oak Woodlands During Construction*		X				X			**Page 9-55 –** "avoid impacts on oak woodlands through the establishment of activity exclusion zones, within which no ground-disturbing activities will take place, including construction staging or other temporary work areas" and "measures will also be implemented during construction of each Project component to protect and minimize effects on retained oak woodland trees"
Mitigation Measure VEG-4.2: *Compensate for Adverse Effects on Oak Woodlands*	X						X		**Page 9-56 – "**the Authority, in coordination with Colusa County, will develop a management plan for the protection and enhancement of oak woodlands to offset the loss of oak woodlands" and "Prior to any activities that would result in permanent impacts on oak woodlands, any permanent impacts to oak woodlands will be mitigated by creating or preserving oak woodlands"
Mitigation Measure VEG-4.3: *Establish Activity Exclusion Zones Around Blue Oak Woodlands in Vegetation Maintenance Areas*			X					X	**Page 9-57 –** "Prior to vegetation maintenance activities"
Mitigation Measure WILD-1.1*: Assess Habitat Suitability and Survey Suitable Habitat for Vernal Pool Branchiopods*	X				X				**Page 10-37 –** "Once property access is granted and prior to the start of construction"
Mitigation Measure WILD-1.2*: Avoid and Minimize Potential Effects on Vernal Pool Branchiopods and Western Spadefoot*		X				X			**Page 10-38 –** not specified, during construction
Mitigation Measure WILD-1.3*: Compensate for Impacts on Occupied Vernal Pool Branchiopod Habitat*	X						X		**Page 10-38 –** not specified, likely prior, during and post-construction

Mitigation Measure	Start Implementation				Complete Implementation				Specific Timing
	Pre-Construction	During Construction	Post Construction	Operations	Pre-Construction	During Construction	Post Construction	Operations	
Mitigation Measure WILD-1.4: Evaluate and Survey Potential Habitat for Antioch Dunes Anthicid and Sacramento Anthicid Beetles and Implement Protective Measures	X				X				**Page 10-43 (Alternative 2 only) –** "prior to the start of construction of the Sacramento River discharge"
Mitigation Measure WILD-1.5: Compensate for the Loss of Occupied Antioch Dunes Anthicid and Sacramento Anthicid Beetle Habitat	X						X		**Page 10-44 (Alternative 2 only) –** not specified, likely prior, during and post-construction
***Mitigation Measure WILD-1.6**: Conduct Surveys for Suitable Valley Elderberry Longhorn Beetle Habitat*	**X**				**X**				**Page 10-47 -** not specified, but prior to and during construction
***Mitigation Measure WILD-1.7**: Fence Elderberry Shrubs to be Protected*	**X**					**X**			**Page 10-47 –** "Elderberry shrubs in or within 165 feet of work areas that will not be removed will be protected during construction"
***Mitigation Measure WILD-1.8**: Transplant Permanently Affected Elderberry Shrubs and Compensate for Loss of Valley Elderberry Longhorn Beetle and its Habitat*	**X**						**X**		**Page 10-48 –** "Before construction begins"
***Mitigation Measure WILD-1.9**: Protect Special-Status Invertebrates and Their Host and Food Plants from Herbicide and Pesticide Use*		**X**						**X**	**Page 10-49 –** prior to use of pesticides/herbicides
***Mitigation Measure WILD-1.10:** Assess Habitat Suitability and Survey for Presence of Monarch Butterfly Nectar and Larval Host Plants*	**X**				**X**				**Page 10-52 –** "No more than 3 years prior to the start of ground-disturbing activities"
***Mitigation Measure WILD-1.11**: Compensate for Loss of Monarch Butterfly Nectar and Larval Host Plants*	**X**						**X**		**Page 10- 52 -** not specified, but likely prior to, during and post-construction
***Mitigation Measure WILD-1.12**: Assess Habitat Suitability and Survey for Presence of Crotch Bumble Bee and Western Bumble Bee Food Plants*	**X**				**X**				**Page 10-56 –** "No more than 3 years prior to the start of ground-disturbing activities"
***Mitigation Measure WILD-1.13**: Compensate for Loss of Crotch Bumble Bee and Western Bumble Bee Habitat*	**X**						**X**		**Page 10-56 -** not specified, likely prior, during and post-construction
***Mitigation Measure WILD-1.14**: Assess Habitat Suitability and Survey Suitable Habitat for Western Spadefoot, California Red-legged Frog, and Western Pond Turtle*	**X**				**X**				**Page 10-63 –** "Once property access is granted and prior to the start of construction"
***Mitigation Measure WILD-1.15**: Design and Construct Wildlife Crossings for New Roadways at Suitable Locations*	**X**					**X**			**Page 10-64 –** "Prior to final roadway design for the Project"

Mitigation Measure	Start Implementation				Complete Implementation				Specific Timing
	Pre-Construction	During Construction	Post Construction	Operations	Pre-Construction	During Construction	Post Construction	Operations	
Mitigation Measure WILD-1.16*: Monitor and Maintain Wildlife Crossings*	X							X	**Page 10-65 –** "A monitoring and maintenance plan for wildlife crossings will be developed during design of wildlife crossings" monitoring will be ongoing during construction and operation
Mitigation Measure WILD-1.17*: Implement California Red-legged Frog Protective Measures*		X							**Page 10-69 –** "If California red-legged frog is found in the Project area either incidentally or during surveys"
Mitigation Measure WILD-1.18*: Compensate for Permanent and Temporary Losses of Occupied California Red-legged Frog Aquatic and Upland Habitats*	X						X		**Page 10-71 -** not specified, likely prior, during and post-construction
Mitigation Measure WILD-1.19*: Conduct Preconstruction Surveys for Western Pond Turtle and Monitor Initial In-Water Work*	X					X			**Page 10-76 –** "conduct preconstruction surveys within 24 hours of the start of activities that disturb occupied or suitable western pond turtle aquatic habitat"
Mitigation Measure WILD-1.20*: Implement Protective Measures for Giant Gartersnake*	X					X			**Page 10-80 –** "when working in or near giant gartersnake habitat"
Mitigation Measure WILD-1.21*: Compensate for Permanent and Temporary Losses of Giant Gartersnake Aquatic and Upland Habitats*	X						X		**Page 10-81 –** not specified, likely prior, during and post-construction
Mitigation Measure WILD-1.22*: Conduct Vegetation Removal During the Non-Breeding Season of Nesting Migratory Birds*	X				X				**Page 10-88 –** "during the non-breeding season for most migratory birds (generally between September 1 and January 31)"
Mitigation Measure WILD-1.23*: Conduct Preconstruction Surveys for Non-Raptor Nesting Migratory Birds and Implement Protective Measures if Found*	X					X			**Page 10-88 –** "no more than 14 days prior to the start of construction"
Mitigation Measure WILD-1.24*: Conduct Surveys for Western Burrowing Owl Prior to Construction and Implement Avoidance and Minimization Measures if Found*	X					X			**Page 10-89 –** "will conduct four surveys during the breeding season" and "if suitable habitat is present in the Project area, take avoidance (preconstruction) surveys will be conducted in the Project area (i.e., the area of ground disturbance and surrounding 500 feet) no less than 14 days prior to and 24 hours before initiating ground-disturbing activities"
Mitigation Measure WILD-1.25*: Restore Temporarily Disturbed Habitat and Compensate for the Permanent Loss of Occupied Burrowing Owl Habitat*			X				X		**Page 10-90 –** not specified, likely prior, during and post-construction
Mitigation Measure WILD-1.26*: Protect Special-Status Wildlife from Rodenticide Use*			X					X	**Page 10-91 –** not specified but prior to and during maintenance
Mitigation Measure WILD-1.27*: Construct Overhead Power Lines and Associated Equipment Following Suggested Practices to Reduce Bird Collisions with Power Lines*	X							X	**Page 10-92 –** "new transmission lines and associated equipment will be properly fitted with wildlife protective devices"

Mitigation Measure	Start Implementation				Complete Implementation				Specific Timing
	Pre-Construction	During Construction	Post Construction	Operations	Pre-Construction	During Construction	Post Construction	Operations	
***Mitigation Measure WILD-1.28**: Conduct Focused Surveys for Golden Eagle and Bald Eagle and Implement Protective Measures if Found*	X					X			**Page 10-97 –** "Prior to the start of construction" and monitoring during
***Mitigation Measure WILD-1.29**: Compensate for the Loss of Eagle Nest Trees*	X				X				**Page 10-98 –** "Prior to the start of construction"
***Mitigation Measure WILD-1.30**: Conduct Focused Surveys for Nesting Swainson's Hawk, White-tailed Kite, and Other Raptors Prior to Construction and Implement Protective Measures During Construction*	X					X			**Page 10-105 –** "Surveys will generally be conducted from February to July"
***Mitigation Measure WILD-1.31**: Compensate for the Permanent Loss of Foraging Habitat for Swainson's Hawk and White-tailed Kite*	X						X		**Page 10-106 -** not specified, likely prior, during and post-construction
***Mitigation Measure WILD-1.32**: Conduct Surveys and Implement Protection Measures for Special-Status Bat Species Prior to Building/Structure Demolition*	X					X			**Page 10-128 –** "Prior to building/structure demolition"; "buildings/structures where bats are confirmed to be present will not be demolished during the maternity season (generally assumed to be between April 15 and August 15 for this Project) or the hibernation season (generally from November 1 to March 1)"; "Removal of occupied roosting habitat will be conducted only following the maternity season and prior to hibernation, generally between August 16 and October 31" and "Installation of exclusion devices will be conducted only before maternity colonies establish (generally after March 1) or after they disperse (generally August 15 to October 31)"
***Mitigation Measure WILD-1.33**: Conduct Surveys and Implement Protection Measures for Special-Status Bat Species Prior to Tree Trimming and Removal*	X					X			**Page 10-129 –** "Prior to tree trimming or removal… Because of the limited timeframe for tree removal (September 15 to October 31), the tree habitat assessment should be conducted early enough to provide information to inform tree removal planning"
***Mitigation Measure WILD-1.34**: Compensate for Permanent Impacts on Occupied Roosting Habitat*	X						X		**Page 10-130 -** not specified, likely prior, during and post-construction
***Mitigation Measure WILD-1.35**: Implement Protective Measures to Avoid and Minimize Potential Impacts on American Badger*		X				X			**Page 10-135 –** "preconstruction survey will be conducted no less than 14 days and no more than 30 days before the beginning of ground disturbance" and "For potentially occupied dens, a 50-foot exclusion zone will be applied around the den; for occupied dens, a 100-foot exclusion zone will be applied around the den … and will remain in place throughout the pup-rearing season (February 15 through July 1)"
***Mitigation Measure FISH-2.1**: Wilkins Slough Flow Protection Criteria*				X				X	**Page 11-131** – "during March through May of all water year types if…"

Mitigation Measure	Start Implementation				Complete Implementation				Specific Timing
	Pre-Construction	**During Construction**	**Post Construction**	**Operations**	**Pre-Construction**	**During Construction**	**Post Construction**	**Operations**	
Mitigation Measure FISH-8.1*: Prevent Detrimental Dissolved Oxygen and Water Temperature Effects to Fish Associated with Moving Colusa Basin Drain Water Through the Yolo Bypass*				X				X	**Page 11-266 –** "when Project releases are made via the Dunnigan Pipeline to the Yolo Bypass DO and water temperature will be measured at 15-minute intervals… Measurements of DO and water temperature will occur before and during the period of CBD discharge to the Yolo Bypass"
Mitigation Measure FISH-9.1*: Tidal Habitat Restoration for Longfin Smelt*								X	**Page 11-275 –** not specified
Mitigation Measure GEO-7.1*: Retain a Qualified Paleontological Resource Specialist Prior to the Start of Construction*	X				X				**Page 12-61 –** "The Authority will retain a qualified Paleontological Resource Specialist once the construction footprint can be accessed and the engineering design is at sufficient level of detail but at least 90 days prior to the start of construction."
Mitigation Measure GEO-7.2*: Consultation with the Paleontological Resource Specialist Prior to and During Project Construction*	X					X			**Page 12-62 –** "At least 30 days prior to the start of construction, the Authority will provide maps or drawings to the Paleontological Resource Specialist that show the planned construction footprint" and "If construction proceeds in phases, maps and drawings may be submitted prior to the start of each phase"
Mitigation Measure GEO-7.3*: Prepare and Implement a Paleontological Resources Monitoring and Mitigation Plan*	X					X			**Page 12-62 –** "Once the construction footprint can be accessed and the engineering design is at sufficient level of detail, the Authority will prepare a PRMMP"
Mitigation Measure GEO-7.4*: Conduct Monitoring During Project Construction and Prepare Monthly Reports*		X					X		**Page 12-63 –** "During Project Construction"
Mitigation Measure GEO-7.5*: Ensure Implementation of the Paleontological Resources Monitoring and Mitigation Plan*		X					X		**Page 12-64 –** "during construction"
Mitigation Measure AG-1.1*: Purchase Agricultural Conservation Easements to Preserve Regional Important Farmland*	X							X	**Page 15-19 –** "Prior to the commencement of any Project activities that would result in the permanent conversion of Important Farmland"
Mitigation Measure AG-2.1: *Minimize Impacts on Williamson Act-Contracted Lands, Comply with Government Code Sections 51290–51293, and Coordinate with Landowners and Agricultural Operators*	X					X			**Page 15-26 –** "Whenever it appears that land within a preserve or under contract may be required for a public improvement, DOC and the local jurisdiction responsible for administering the preserve must be notified"
Mitigation Measure AQ-1.1*: Zero Emission and/or Near Zero Emission Vehicles and Off-Road equipment*	X					X			**Page 20-33 –** "the Authority will require that construction contractors provide documentation to the Authority, on an annual basis at minimum, showing the percentage of vehicles and equipment that are ZE or NZE"
Mitigation Measure AQ-1.2*: Offset Construction and Operation-Generated Criteria Pollutants in CCAPCD, GCAPCD, and YSAQMD*			X					X	**Page 20-34 –** "Prior to issuance of construction contracts, the Authority will enter into a memorandum or multiple memoranda of understanding (MOU) with CCAPCD, GCAPCD, YSAQMD, TCAPCD, or other air district located in the SVAB (collectively referred to as the Air Districts), to reduce NOX and PM10"

Mitigation Measure	Start Implementation				Complete Implementation				Specific Timing
	Pre-Construction	During Construction	Post Construction	Operations	Pre-Construction	During Construction	Post Construction	Operations	
***Mitigation Measure AQ-2.1**: Recreational Boat Emissions Minimization Plan*	X							X	**Page 20-38-** "the Authority will develop and implement an emissions reduction plan... that the Authority will implement during the operational lifetime of the recreational area at the reservoir ... The plan will be part of the Recreation Management Plan (Section 2D.8) and thus approved at the same time as the Recreation Management Plan"
***Mitigation Measure AQ-2.2**: Offset Operation-Generated Criteria Pollutants in CCAPCD and GCAPCD*				X				X	**Page 20-38-** "Prior to issuance of the commencement of recreational boating activities, the Authority will enter into a memorandum or multiple memoranda of understanding (MOU) with CCAPCD, GCAPCD, YSAQMD, TCAPCD, or other air district"
***Mitigation Measure GHG-1.1**: Achieve Net-Zero Emissions Through a GHG Reduction Plan*	X								**Page 21-24 –** "The Authority will prepare the GHG Reduction Plan prior to issuance of the first construction or grading permit for the Project. For Project operations, the GHG Reduction Plan will be prepared prior to the end of construction and prior to the start of the next five-year phase of operations."
***Mitigation Measure CUL-1.1**: Identify Significant Built Resources*	X				X				**Page 22-30 –** "will be completed prior to construction"
***Mitigation Measure CUL-1.2**: Avoid Significant Built Resources*	X					X			**Page 22-30 –** "implement feasible Project construction protocols to avoid significant historic built resources, including workers' cultural resources sensitivity training, prior to and during construction activities"
***Mitigation Measure CUL-1.3**: Protect Significant Built Resources*		X						X	**Page 22-30 –** "develop feasible protection measures for significant historic built resources prior to and during construction activities and during operation activities."
***Mitigation Measure CUL-1.4**: Significant Historic Built Resources Treatment*	X						X		**Page 22-31 –** "Prior to construction" and "implement the treatment plans prior to and during construction, and following construction, depending on the details of the resource-specific treatment"
***Mitigation Measure CUL-2.1**: Identify Significant Archaeological Resources*	X					X			**Pages 22-36 and 22-37 –** all steps to be implemented prior to construction
***Mitigation Measure CUL-2.2**: Avoid Significant Archaeological Resources*	X							X	**Page 22-37 –** "design changes will be implemented to avoid significant archaeological resources" and "have a familiarity of the resource locations and identifications so that future operations or changes in operations can avoid those resources"
***Mitigation Measure CUL-2.3**: Protect Significant Archaeological Resources*		X						X	**Page 22-37 –** "develop feasible Project protection of significant archaeological resources during construction and operations"
***Mitigation Measure CUL-2.4**: Significant Archaeological Resources Treatment*	X							X	**Page 22-38 –** not specified but develop before and implement during construction and operation
***Mitigation Measure CUL-3.1**: Cemetery Relocation Plan*	X				X				**Page 22-42 -** not specified but prior to construction in the inundation footprint
***Mitigation Measure CUL-3.2**: Avoid, Protect, and Treat Human Burials*	X							X	**Page 22-42 –** "avoid and protect any human remains encountered during pre-construction, construction, post-construction, operations, and maintenance"

Mitigation Measure	Start Implementation				Complete Implementation				Specific Timing
	Pre-Construction	**During Construction**	**Post Construction**	**Operations**	**Pre-Construction**	**During Construction**	**Post Construction**	**Operations**	
Mitigation Measure TCR-1.1*: Implement Mitigation Measures Recommended in Public Resources Code Section 21084.3 to Avoid Damaging Effects on Tribal Cultural Resources*	X							X	**Page 23-15 –** "planning and construction to avoid" and "Permanent conservation easements"
Mitigation Measure TCR-1.2*: Tribal Monitoring*		X				X			**Page 23-16 –** during "all ground-disturbing activities"
Mitigation Measure TCR-1.3*: Implement Agreed-Upon Protocol for the Treatment of Human Remains and Cultural Items*		X						X	**Page 23-17 –** "If human remains or associated grave goods are discovered"

From: Heydinger, Erin [Erin.Heydinger@hdrinc.com]
Sent: 6/20/2022 3:38:05 PM
To: Alicia Forsythe [aforsythe@sitesproject.org]
Subject: FW: SPJPA Sites: Alternative 2 Memo
Attachments: SPJPA_Sites_Alt2Reivew_rev01_20220614.pdf; SPJPA_Sites_Alt2Reivew_rev01_20220614_Attachment_1_SitesMetrics_rev32c_5scn__ALT2_011221_ALT2_051722.pdf; SPJPA_Sites_Alt2Reivew_rev01_20220614_Attachment_2_SelectedResults.pdf

Hi Ali,

FYI – attached is the memo Jacobs put together that outlines modeling changes seen in Alt 2 from draft to final. The changes seen are consistent between all alternatives. I've also sent this over to Laurie for her to communicate with ICF.

Erin

Erin Heydinger PE, PMP
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From: Micko, Steve/SAC <Steve.Micko@jacobs.com>
Sent: Tuesday, June 14, 2022 9:54 AM
To: Heydinger, Erin <erin.heydinger@hdrinc.com>
Cc: Leaf, Rob/SAC <Rob.Leaf@jacobs.com>; Thayer, Reed/SAC <Reed.Thayer@jacobs.com>
Subject: SPJPA Sites: Alternative 2 Memo

Hi Erin,

Draft memo, comparing RDEIR/SDEIS and FEIR/EIS Alternative 2, is attached.

Please let me know if you have any questions.

Best,
Steve

Steve Micko, PE | Jacobs | Project Manager and Water Group Leader
O:916.286.0358 | M:408.834.6614 | Steve.Micko@jacobs.com
2485 Natomas Park Drive Suite 600 | Sacramento, CA 95833

Sites Reservoir Project: Comparison of Alternative 2 in RDEIR/SDEIS and FEIR/EIS

The Sites Reservoir Project has completed its RDEIR/SDEIS, reviewing public comments, and is conducting modeling for the FEIR/EIS. Since publication of the RDEIR/SDEIS, modeled Sites Projection operations have changed. This technical memorandum reviews the changes in operations modeling (CalSim II) results of Alternative 2, and identifies any potentially significant changes in Alternative 2 modeling results between the RDEIR/SDEIS and the FEIR/EIS.

Operations Modeling Results

Changes in operations modeling results from the RDEIR/SDEIS and FEIR/EIS are summarized in the sub-sections below. More detailed modeling results are provided in the following attachments: Attachment 1, Sites Metrics for Alternative 2 and Attachment 2, Selected Results for Alternative 2. Attachment 1, Sites Metrics for Alternative 2 presents summary Sites, CVP and SWP operations results in long-term and dry and critically dry year averages. Attachment 2, Selected Results for Alternative 2 presents monthly patterns and water year type averages of storage and flow in the Upper Sacramento River, Feather River, American River and Delta regions.

In each sub-section, a change in the relative change from Alternative 2 and its respective No Action Alternative (NAA) are summarized.

Sites Project Diversions

As compared to the RDEIR/SDEIS, total long-term average annual Sites diversions in the FEIR/EIS are unchanged. However, the seasonality and diversions by water year type have varied. As shown in Figure 1, Sites diversions in the FEIR/EIS increase in December and decrease in March, as compared to the RDEIR/SDEIS. Additionally, average annual Sites diversions decrease in Wet years and increase in Above Normal Years. These changes in diversion patterns are consistent across all FEIR/EIS alternatives.

To understand the effect of increased diversions in December, comparative flow results at several locations downstream of the diversions were tabulated. Tables 1 through 4 display the relative change in December flow between Alternative 2 and its respective NAA in the RDEIR/SDEIS and the FEIR/EIS at: Sacramento River near Wilkins Slough, Yolo Bypass, Sacramento River at Freeport, and Delta outflow. Although there are some variations, changes to flow in the Sacramento River and the Delta outflow (Tables 1, 2 and 4) do not change significantly. However, there is a further decrease to Yolo Bypass flow in the FEIR/EIS as compared to the RDEIR/SDEIS in December of Below Normal years (Table 3). This reduction in Yolo Bypass flow in December takes the place of a decrease that occurred in March (Table 5). Therefore, as compared to the RDEIR/SDEIS, Yolo Bypass flow decreases in December and increases in March in the FEIR/EIS. As noted above, this change to Yolo Bypass flow pattern is consistent across all FEIR/EIS alternatives.

In sum, the change to the diversion pattern (as a result of revised diversion criteria) is consistent across all FEIR/EIS alternatives, and leads to a further reduction in Yolo Bypass flow in December. However, relative to the RDEIR/SDEIS, Yolo Bypass flow in March increases (consistent with the observed change to pattern in diversions).

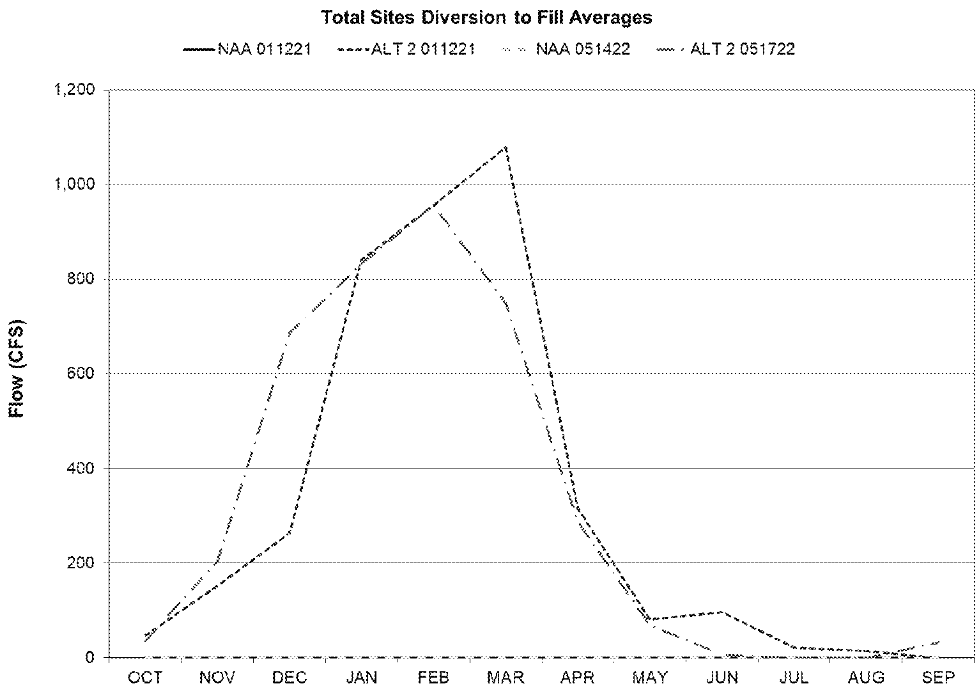


Figure 1. Monthly Pattern of Sites Diversions

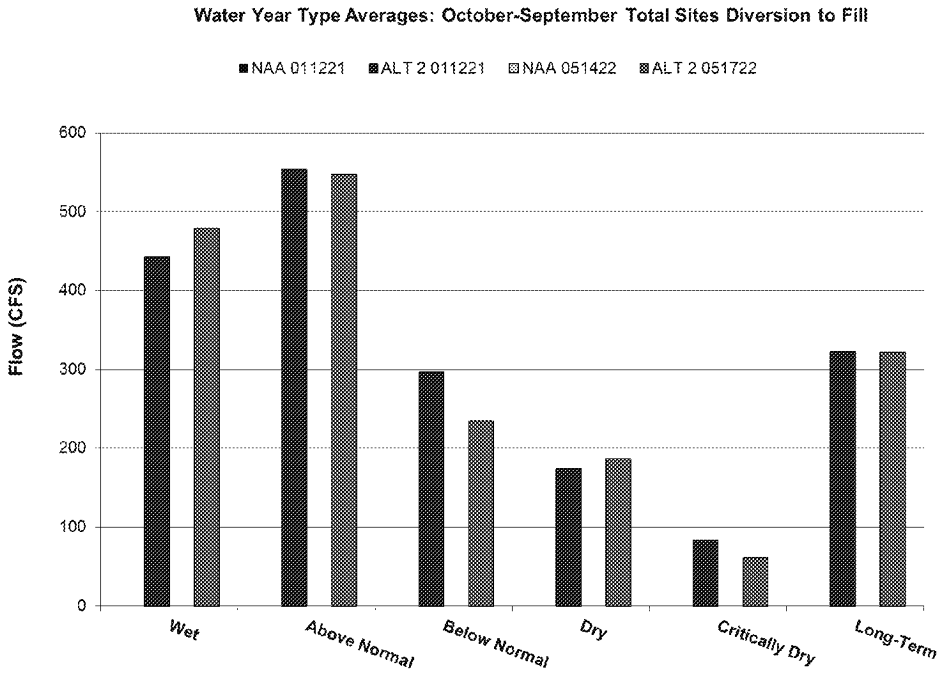


Figure 2. Average Annual Sites Diversions by Water Year Type

Table 1. Relative Change to Flow at Sacramento River near Wilkins Slough in December

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	-1%	-1%	0%	-5%	-1%
FEIR/EIS	-1%	-3%	-4%	-3%	-1%	-2%

Table 2. Relative Change to Flow in Yolo Bypass in December

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	0%	-4%	-1%	0%	-1%
FEIR/EIS	-4%	-4%	-10%	-3%	-1%	-5%

Table 3. Relative Change to Flow at Sacramento River at Freeport in December

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	-1%	-1%	0%	-3%	0%
FEIR/EIS	-1%	-2%	-3%	-2%	0%	-2%

Table 4. Relative Change to Delta Outflow in December

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	-1%	-2%	-1%	-4%	-1%
FEIR/EIS	-2%	-3%	-4%	-2%	-1%	-3%

Table 5. Relative Change to Flow in Yolo Bypass in March

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	-2%	-7%	-9%	-9%	-4%	-3%
FEIR/EIS	0%	-9%	-5%	-6%	-3%	-2%

Sites Project Releases

Monthly patterns of Sites releases are shown in Figure 3. As compared to the RDEIR/SDEIS, total releases from Sites reservoir in the FEIR/EIS decrease in the Spring and early Summer (May through July) and increase in the Fall (September through November). As releases from Sites reservoir may be exported at Banks or Jones Pumping Plants, these releases may affect Delta flows. Changes to Delta outflow in September, October and November are tabulated in Tables 6, 7 and 8, respectively. As compared to the RDEIR/SDEIS, Delta outflow decreases in November of Below Normal years. However, this decrease is an artifact of year-type in November, when the water year type is unknown. The change in relative differences can be contextualized in an exceedance plot (Figure 4). According to the exceedance curves, relative changes under Alternative 2 between the RDEIR/SDEIS and the FEIR/EIS are similar.

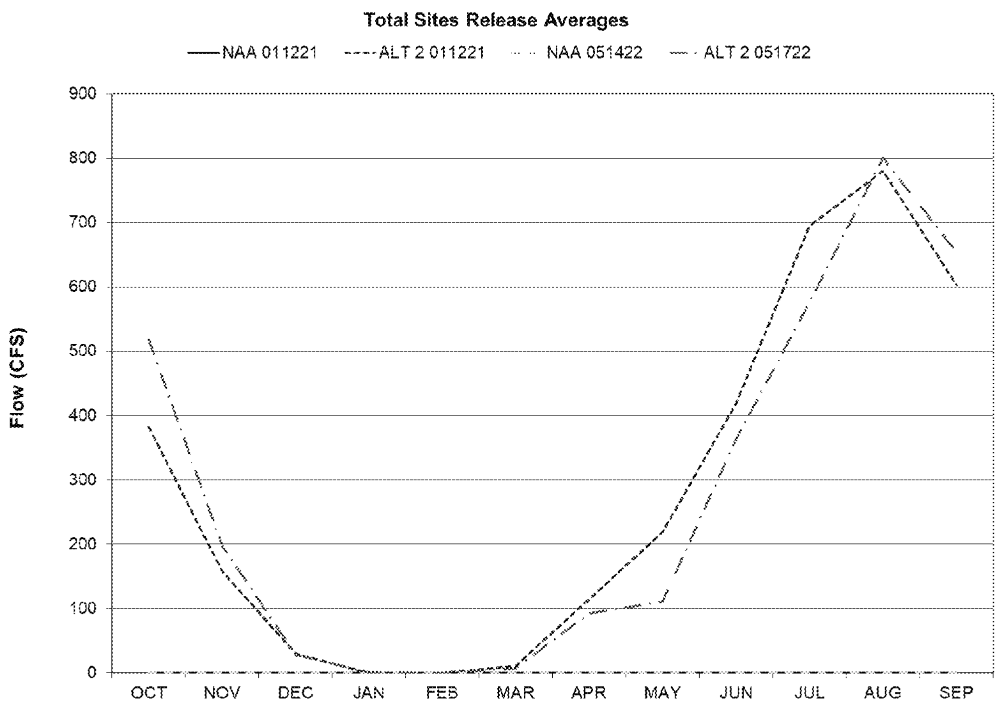


Figure 3. Monthly Pattern of Sites Release

Table 6. Relative Change to Delta Outflow in September

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	3%	3%	10%	9%	0%	4%
FEIR/EIS	3%	4%	5%	7%	7%	4%

Table 7. Relative Change to Delta Outflow in October

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	2%	3%	4%	7%	22%	5%
FEIR/EIS	2%	5%	0%	5%	-3%	2%

Table 8. Relative Change to Delta Outflow in November

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	-3%	-2%	-3%	1%	-7%	-2%
FEIR/EIS	-2%	-2%	-8%	0%	1%	-3%

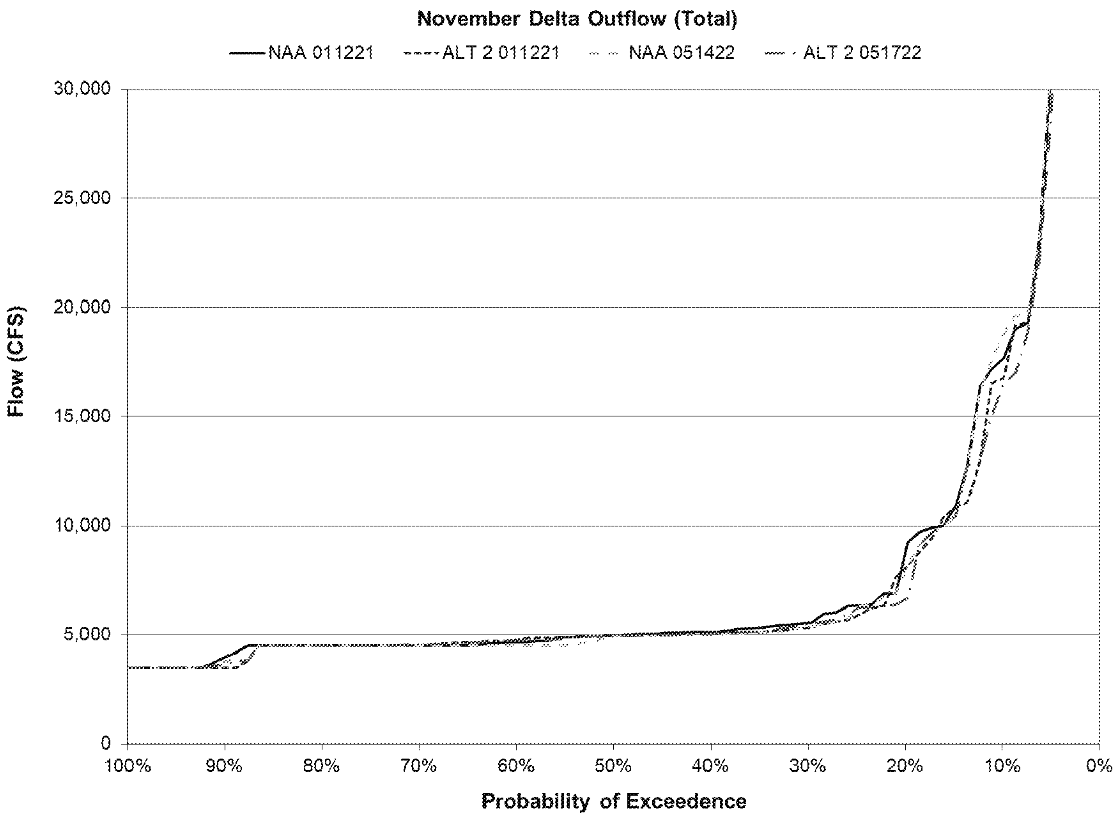


Figure 4. Exceedance Plot of November Delta Outflow

Sacramento River Flow

As compared to the RDEIR/SDEIS, the relative reduction in Sacramento River flow near Wilkins Slough has decreased in May of Critically Dry years. In the RDEIR/SDEIS, the Sacramento River flow near Wilkins Slough decreased by 11 percent in Critically Dry years. In the FEIR/EIS modeling, Sacramento River flow near Wilkins Slough decreased by 6 percent in Critically Dry years. These results are demonstrated in Figure 5 and Table 9.

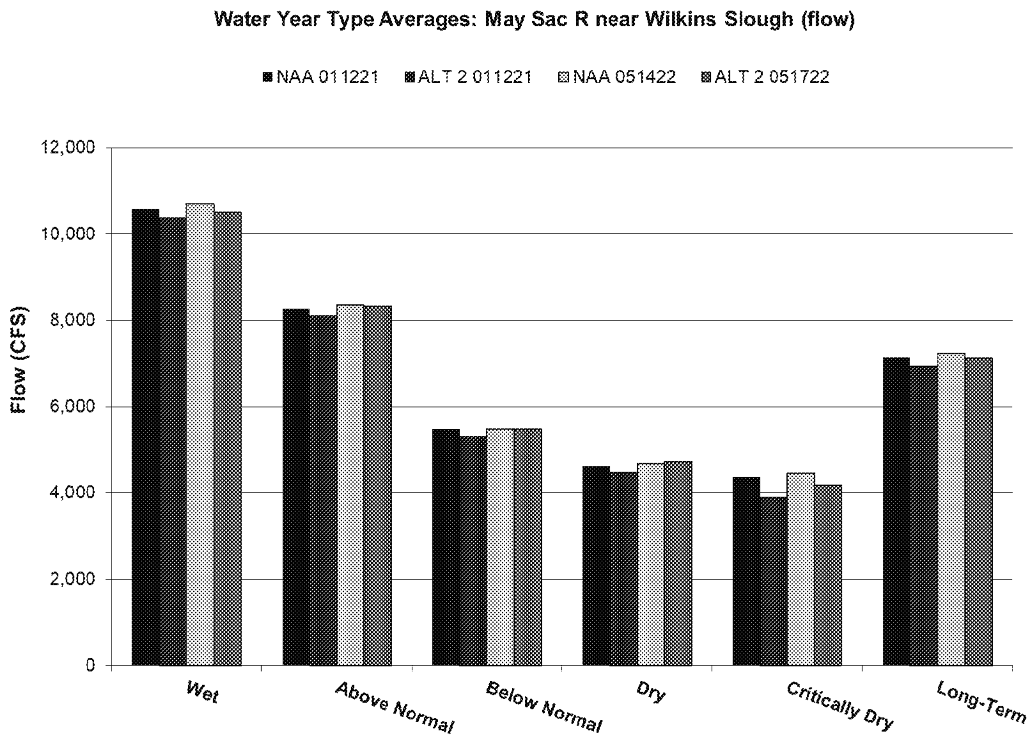


Figure 5. Flow at Sacramento River near Wilkins Slough in May by Water Year Type

Table 9. Relative Change to Flow at Sacramento River near Wilkins Slough in May

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	-2%	-2%	-3%	-3%	-11%	-3%
FEIR/EIS	-2%	0%	0%	1%	-6%	-1%

Oroville Storage

As compared to the RDEIR/SDEIS, the Oroville Storage in December of Critically Dry years increased in the FEIR/EIS (Figure 6). In the RDEIR/SDEIS, the Oroville storage decreased by 3 percent in Critically Dry years. In the FEIR/EIS modeling, Oroville storage increased by 1 percent in Critically Dry years (Table 10).

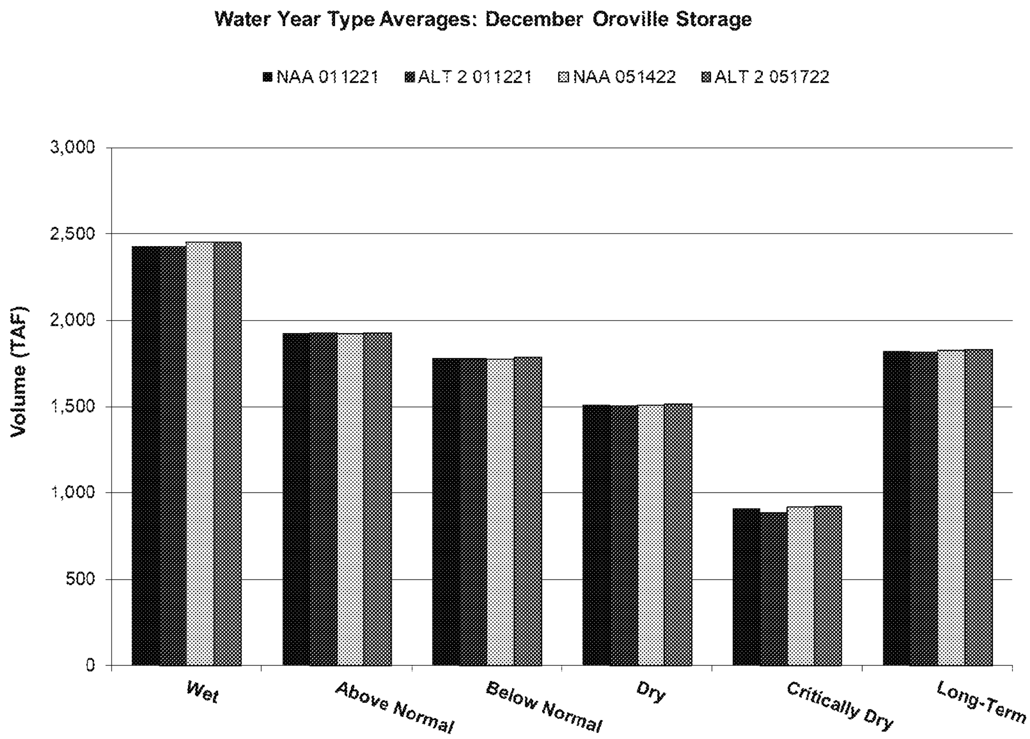


Figure 6. December Oroville Storage by Water Year Type

Table 10. Relative Change to Oroville Storage in December

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	0%	0%	0%	-3%	0%
FEIR/EIS	0%	0%	1%	0%	1%	0%

CVP/SWP Deliveries Table

Deliveries (TAF/year) (change from No Project Alternative conditions) [a]	ALT 2 011221		ALT 2 051722		ALT 2 051722 - ALT 2 011221	
	Average	**Dry and Critical**	**Average**	**Dry and Critical**	**Average**	**Dry and Critical**
	1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate		1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate		1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate	
CVP OpFlex Deliveries	**2**	**10**	**1**	**2**	**-1**	**-8**
NOD Ag	-1	2	-2	1	-2	-1
NOD M&I	0	0	0	0	0	0
SOD Ag	3	8	4	1	1	-8
SOD M&I	0	0	0	0	-1	0
CVP Refuge Water Supply	**1**	**1**	**0**	**1**	**-1**	**-1**
NOD (Level 2)	1	1	0	1	-1	-1
SOD (Level 2)	0	0	0	0	0	0
SWP Deliveries	**1**	**-2**	**4**	**4**	**3**	**6**
SWP SOD Ag (Table A)	0	1	0	2	0	1
SWP SOD M&I (Table A)	-2	-1	2	5	4	6
SWP SOD Interruptible (Article 21)	2	-2	1	-3	-1	-1
Total change in CVP/SWP Deliveries	**4**	**10**	**5**	**6**	**1**	**-3**

Notes:

[a] *Values shown are the net change between the Project Alternative and No Project Alternative*

Results are dependent on storage allocations (see storage allocation table)

Shasta Storage and Operations Table

Volumes (TAF/year) (change from No Project Alternative conditions) [a]	ALT 2 011221		ALT 2 051722		ALT 2 051722 - ALT 2 011221	
	Average	Dry and Critical	Average	Dry and Critical	Average	Dry and Critical
	1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate		1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate		1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate	
Additional End of April Shasta Storage	**5**	**13**	**12**	**33**	**7**	**20**
CVP OpFlex Storage	3	8	10	27	7	19
Storage exchanged from Sites	2	5	2	6	0	1
Additional End of September Shasta Storage	**10**	**18**	**21**	**27**	**11**	**8**
CVP OpFlex Storage	5	6	6	20	1	14
Storage exchanged from Sites	5	13	15	7	10	-6
Fall Flow Stability (Oct - Feb)	**-2**	**-5**	**2**	**-2**	**4**	**4**
CVP OpFlex Fall Flow Stability	-2	-5	-2	-4	0	1
Exchange Fall Flow Stability	0	0	4	2	4	2
Spring Pulse Flow (Mar - May)	**-1**	**-3**	**1**	**3**	**2**	**6**
CVP OpFlex Spring Pulse Flow	-1	-3	1	3	2	6
Exchange Spring Pulse Flow	0	0	0	0	0	0

Notes:

[a] *Values shown are the net change between the Project Alternative and No Project Alternative*

Results are dependent on storage allocations (see storage allocation table)

Authority Deliveries Table

Deliveries (TAF/year) (change from No Project Alternative conditions) [a]	ALT 2 011221		ALT 2 051722		ALT 2 051722 - ALT 2 011221	
	Average	**Dry and Critical**	**Average**	**Dry and Critical**	**Average**	**Dry and Critical**
	1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate		1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate		1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate	
Authority PWA Deliveries	**117**	**277**	**107**	**250**	**-9**	**-27**
NOD	29	62	23	43	-6	-18
SOD	87	215	84	206	-3	-9
CVP Operational Flexibility	**2**	**10**	**1**	**2**	**-1**	**-8**
Sub-Total Supplemental Deliveries for Water Supply	**119**	**287**	**108**	**251**	**-11**	**-35**
Refuge Water Supply	**23**	**38**	**19**	**33**	**-3**	**-4**
NOD (Level 4)	5	7	4	5	-1	-1
SOD (Level 4)	18	31	15	28	-2	-3
Yolo Bypass Habitat Water Supply	**41**	**25**	**40**	**14**	**-1**	**-11**
Total Authority Deliveries	**182**	**349**	**167**	**299**	**-15**	**-50**
Percentage of Total Authority Deliveries						
Authority PWA Deliveries - North of Delta	16%	18%	14%	15%	-2%	-3%
Authority PWA Deliveries - South of Delta	48%	62%	50%	69%	2%	7%
CVP Deliveries - Operational Flexibility	1%	3%	1%	1%	-1%	-2%
Refuge Water Supply	12%	11%	12%	11%	-1%	0%
Yolo Bypass Habitat Water Supply	22%	7%	24%	5%	1%	-2%
Consideration of Incidental Change to CVP and SWP Deliveries						
Incidental Change to SWP Deliveries	1	-2	4	4	3	6
Total Authority, CVP OpFlex and SWP Deliveries	183	348	171	303	-12	-45
Incremental Change as a Percentage of Total Authority Deliveres	0%	0%	2%	1%	2%	2%
Incremental Change as a Percentage of Total Authority, CVP OpFlex and SWP Delivere	0%	0%	2%	1%	2%	2%

Notes:

[a] *Values shown are the net change between the Project Alternative and No Project Alternative*

Results are dependent on storage allocations (see storage allocation table)

Storage Table

Storage Increases (TAF)	ALT 2 011221		ALT 2 051722		ALT 2 051722 - ALT 2 011221	
(above No Project Alternative conditions) [a]	Average	Dry and Critical	Average	Dry and Critical	Average	Dry and Critical
	1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate		1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate		1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate	
End-of-April						
Additional end-of-April storage	**-1**	**-2**	**15**	**37**	**16**	**38**
Trinity	0	0	0	0	0	0
Shasta	5	13	12	33	7	20
CVP OpFlex Storage	*3*	*8*	*10*	*27*	*7*	*19*
Storage exchanged from Sites	*2*	*5*	*2*	*6*	*0*	*1*
Oroville	-6	-16	2	1	8	17
SWP Storage	*-6*	*-16*	*2*	*1*	*8*	*17*
Sites Delta Participants Storage	*0*	*0*	*0*	*0*	*0*	*0*
Folsom (CVP OpFlex)	0	1	1	2	0	1
Percentage of Total Additional End-of-April Storage						
Portion of total additional end-of-April storage						
Trinity	0%	0%	0%	0%	0%	0%
Shasta	-416%	-669%	82%	91%	498%	760%
Oroville	549%	827%	13%	4%	-536%	-823%
Folsom	-33%	-58%	5%	6%	38%	64%
End-of-September						
Additional end-of-September storage	**27**	**47**	**35**	**61**	**8**	**14**
Trinity	0	0	0	0	0	0
Shasta	10	18	21	27	11	8
CVP OpFlex Storage	*5*	*6*	*6*	*20*	*1*	*14*
Storage exchanged from Sites	*5*	*13*	*15*	*7*	*10*	*-6*
Oroville	12	19	13	31	1	13
SWP Storage	*-5*	*-14*	*-2*	*-2*	*3*	*12*
Sites Delta Participants Storage	*17*	*33*	*15*	*33*	*-2*	*1*
Folsom (CVP OpFlex)	5	9	1	3	-4	-7
Percentage of Total Additional End-of-September Storage						
Portion of total additional end-of-September storage						
Trinity	0%	0%	0%	0%	0%	0%
Shasta	36%	40%	60%	44%	24%	4%
Oroville	44%	40%	36%	52%	-8%	12%
Folsom	20%	20%	4%	4%	-16%	-16%

Notes:
[a] Values shown are the net change between the Project Alternative and No Project Alternative
Results are dependent on storage allocations (see storage allocation table)

Sites Releases Table

Releases (TAF/year)	ALT 2 011221		ALT 2 051722		ALT 2 051722 - ALT 2 011221	
	Average	**Dry and Critical**	**Average**	**Dry and Critical**	**Average**	**Dry and Critical**
	1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate		1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate		1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate	
Releases for Authority PWA Deliveries - North of Delta	29	62	23	43	-6	-18
Assumed transfer from North of Delta to South of Delta	6	5	6	5	0	0
Releases for Authority PWA Deliveries - South of Delta	101	238	108	240	7	3
Releases for CVP Deliveries - Operational Flexibility	0	0	0	0	0	0
Releases for Refuge Water Supply	27	42	23	40	-4	-2
Releases for Yolo Bypass Habitat Water Supply	47	28	46	16	-1	-12
Total Releases	**209**	**374**	**205**	**345**	**-4**	**-29**
Percentage of Total Releases from Sites						
Releases for Authority PWA Deliveries - North of Delta	14%	16%	11%	13%	-3%	-4%
Assumed transfer from North of Delta to South of Delta	3%	1%	3%	2%	0%	0%
Releases for Authority PWA Deliveries - South of Delta	48%	64%	53%	70%	4%	6%
Releases for CVP Deliveries - Operational Flexibility	0%	0%	0%	0%	0%	0%
Releases for Refuge Water Supply	13%	11%	11%	12%	-2%	0%
Releases for Yolo Bypass Habitat Water Supply	22%	8%	22%	5%	0%	-3%

Notes:
Results are dependent on storage allocations (see storage allocation table)

Sites Fills Table

Fills (TAF/year)	ALT 2 011221		ALT 2 051722		ALT 2 051722 - ALT 2 011221	
	Average	**Dry and Critical**	**Average**	**Dry and Critical**	**Average**	**Dry and Critical**
	1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate		1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate		1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate	
Fills for Authority PWA - North of Delta	41	19	35	17	-6	-2
Fills for Authority PWA - South of Delta	111	43	120	53	9	10
Fills for CVP Operational Flexibility	0	0	0	0	0	0
Fills for Refuge Water Supply	28	13	25	12	-3	-1
Fills for Yolo Bypass Habitat Water Supply	48	25	48	16	0	-9
Total Fill	**229**	**99**	**229**	**98**	**0**	**-2**
Percentage of Total Fills						
Fills for Authority PWA - North of Delta	18%	19%	15%	17%	-3%	-2%
Fills for Authority PWA - South of Delta	48%	43%	52%	55%	4%	11%
Fills for CVP Operational Flexibility	0%	0%	0%	0%	0%	0%
Fills for Refuge Water Supply	12%	13%	11%	12%	-1%	-1%
Fills for Yolo Bypass Habitat Water Supply	21%	25%	21%	16%	0%	-8%

Notes:

Results are dependent on storage allocations (see storage allocation table)

Sites Storage Allocation Table

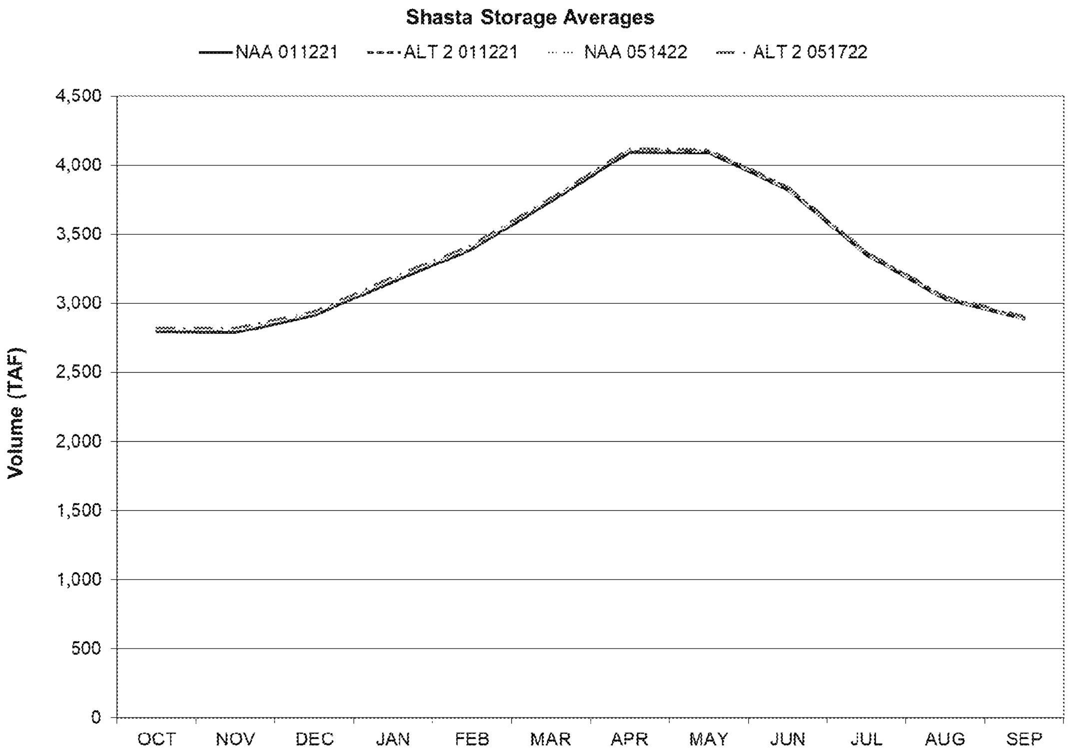
Storage Volumes (TAF)	ALT 2 011221	ALT 2 051722	ALT 2 051722 - ALT 2 011221
	1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate	1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate	1.27 MAF Reservoir Dunnigan Pipeline (outlet to Sac R) Historic Climate
Authority PWA - North of Delta	223	238	15
TCCA	*120*	*126*	*6*
GCID	*27*	*29*	*2*
RD108	*22*	*25*	*3*
Other Sacramento Valley	*54*	*58*	*4*
Authority PWA - South of Delta	683	729	46
CVP Operational Flexibility	0	0	0
Refuge Water Supply	124	124	0
Yolo Bypass Habitat Water Supply	120	120	0
Dead Pool Storage	120	60	-60
Total Storage	**1270**	**1271**	**1**
Percentage of Total Storage Capacity			
Authority PWA - North of Delta	19%	20%	0%
Authority PWA - South of Delta	59%	60%	1%
CVP Operational Flexibility	0%	0%	0%
Refuge Water Supply	11%	10%	-1%
Yolo Bypass Habitat Water Supply	10%	10%	-1%

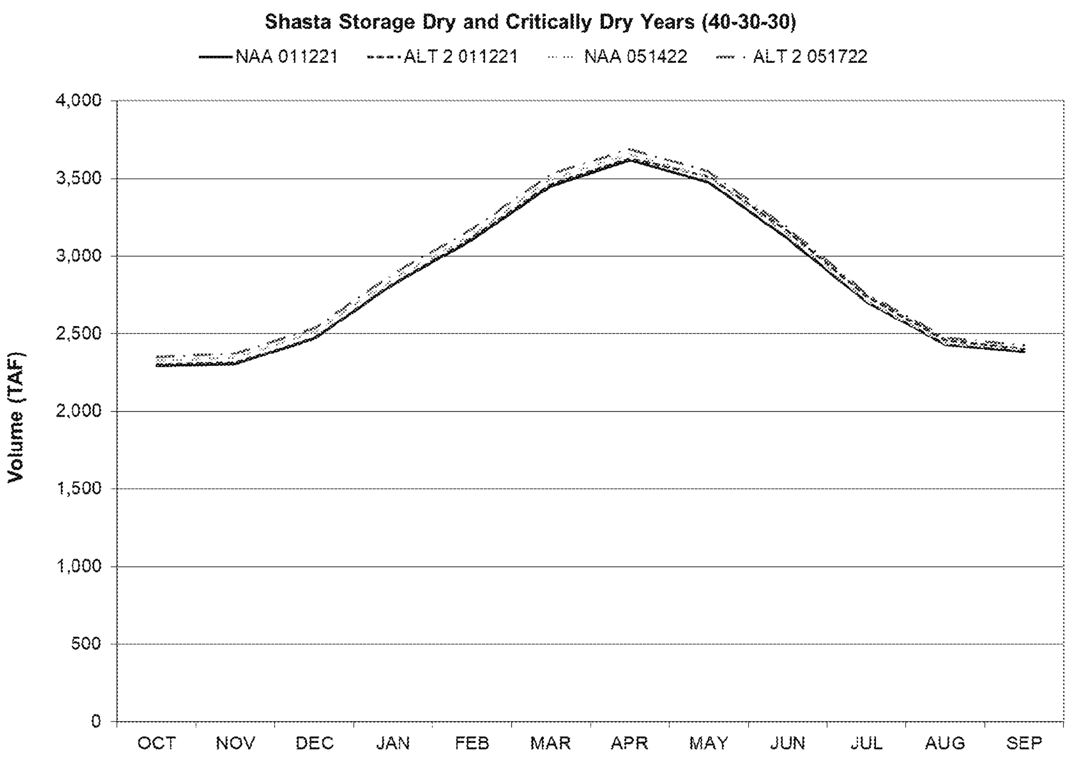
Notes:

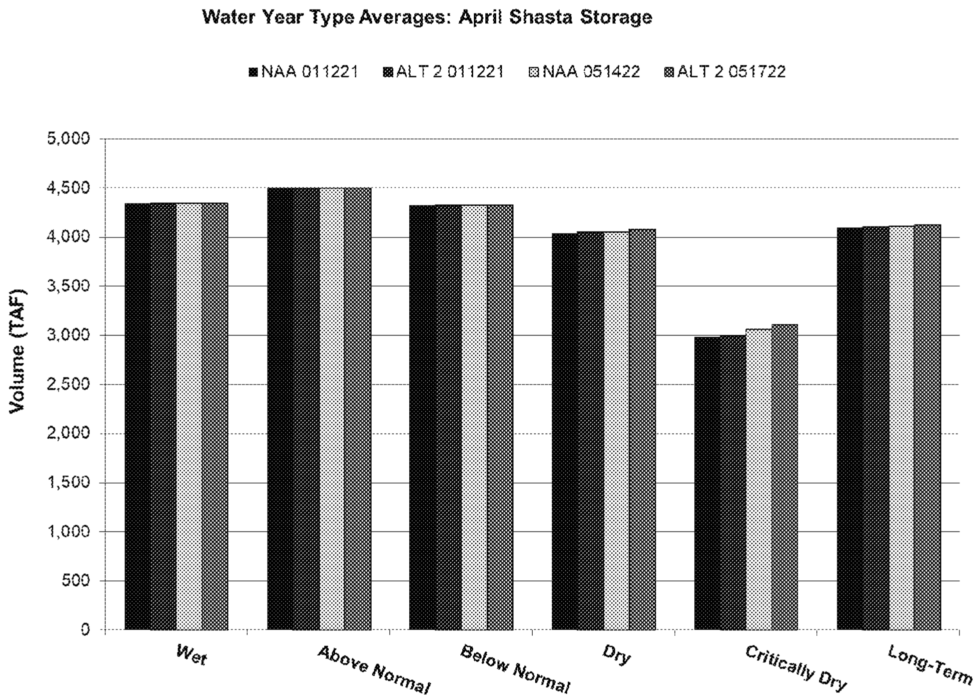
Results are dependent on storage allocations

Sites Reservoir Project: Comparison of Alternative 2 in RDEIR/SDEIS and FEIR/ESI: Attachment 2, Selected Results for Alternative 2

Shasta Storage

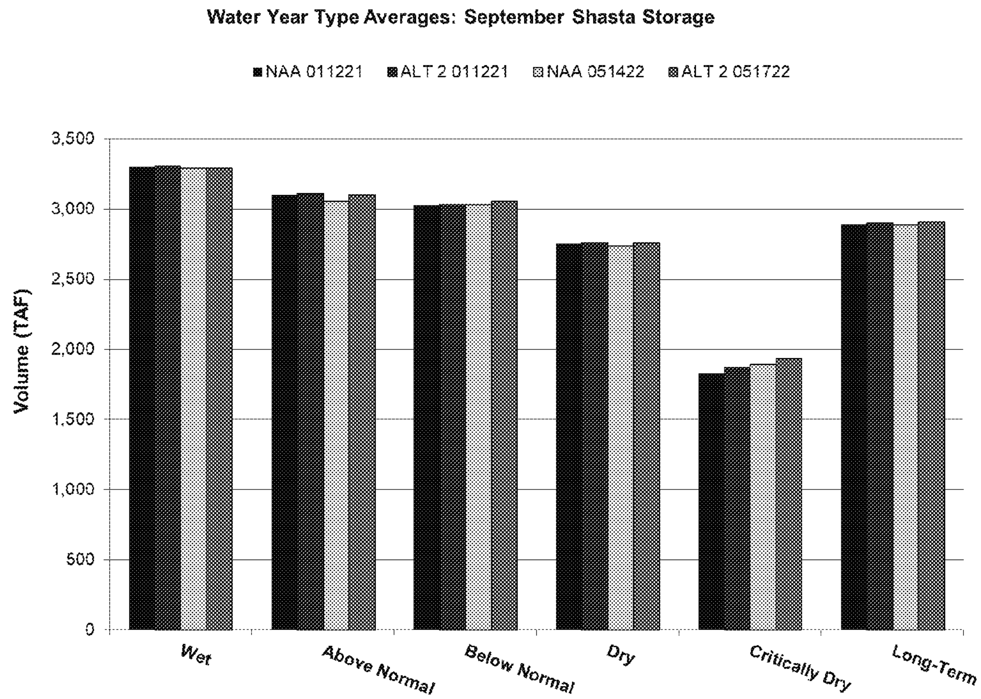



Shasta Storage Dry and Critically Dry Years (40-30-30)
NAA 011221
ALT 2 011221
NAA 051422
ALT 2 051722
Volume (TAF)
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP



Relative Change to End of April Shasta Storage by Water Year Type

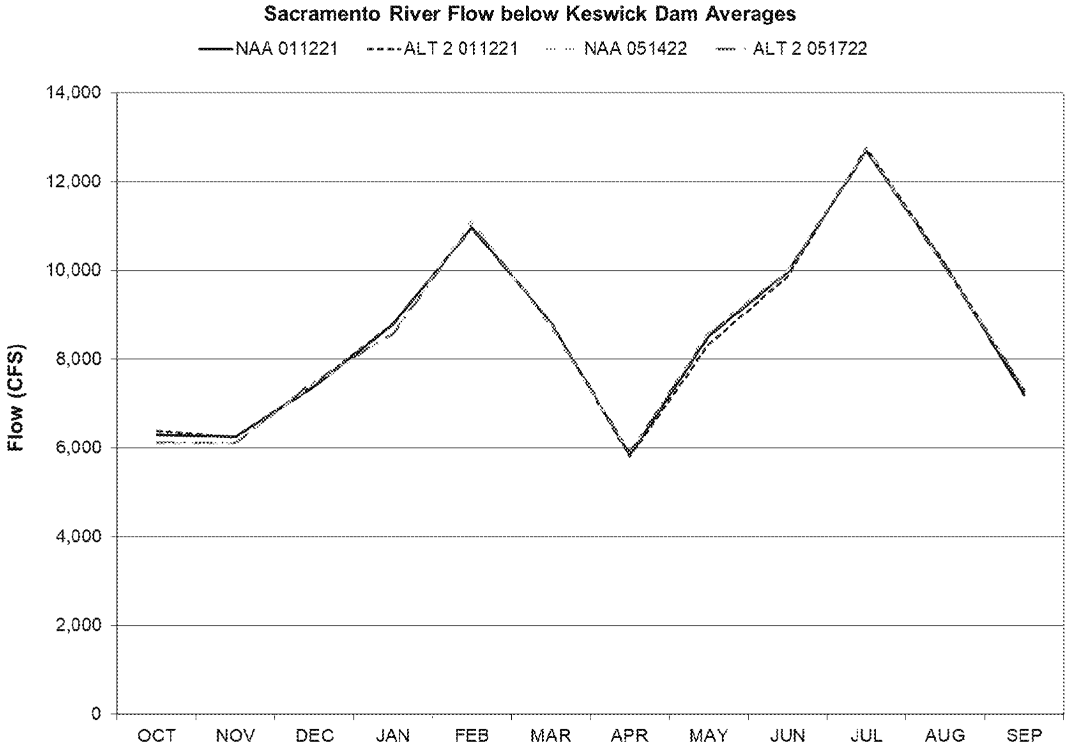
Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	0%	0%	0%	0%	0%
FEIR/EIS	0%	0%	0%	1%	1%	0%

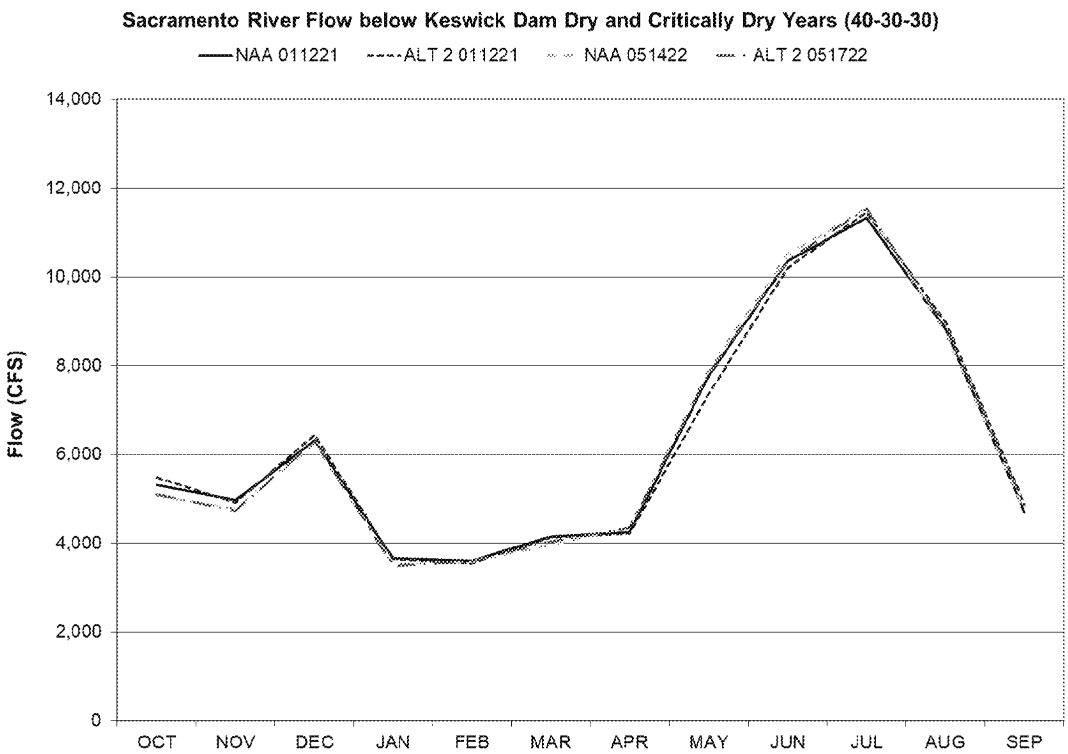


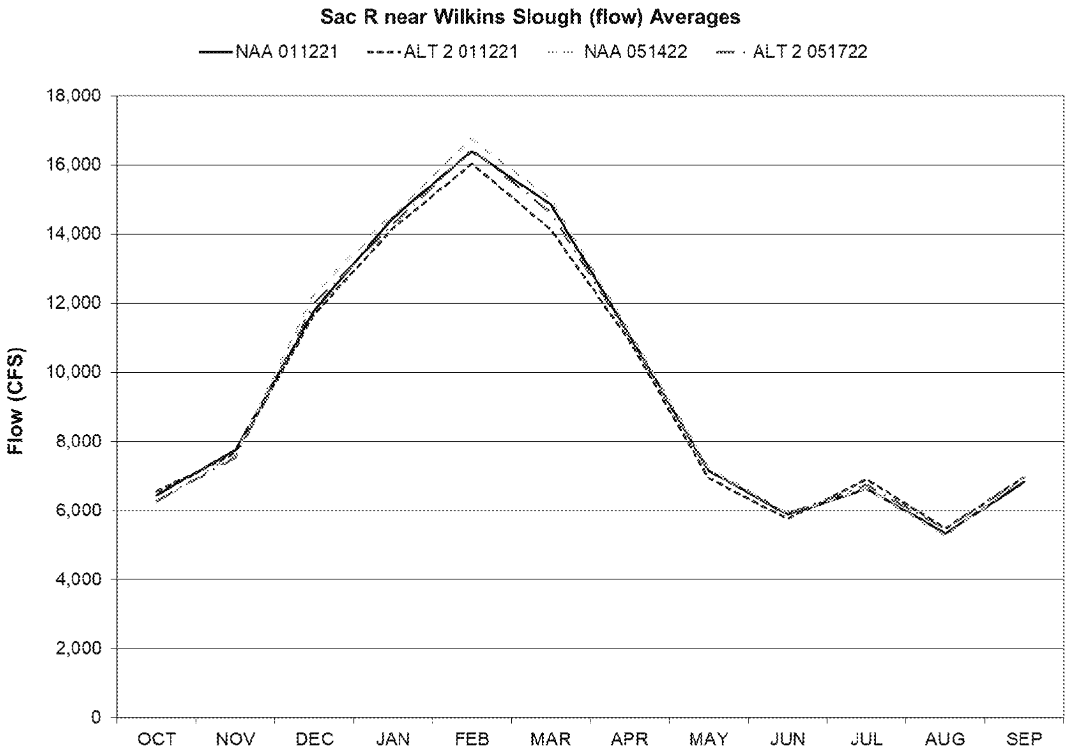
Relative Change to End of September Shasta Storage by Water Year Type

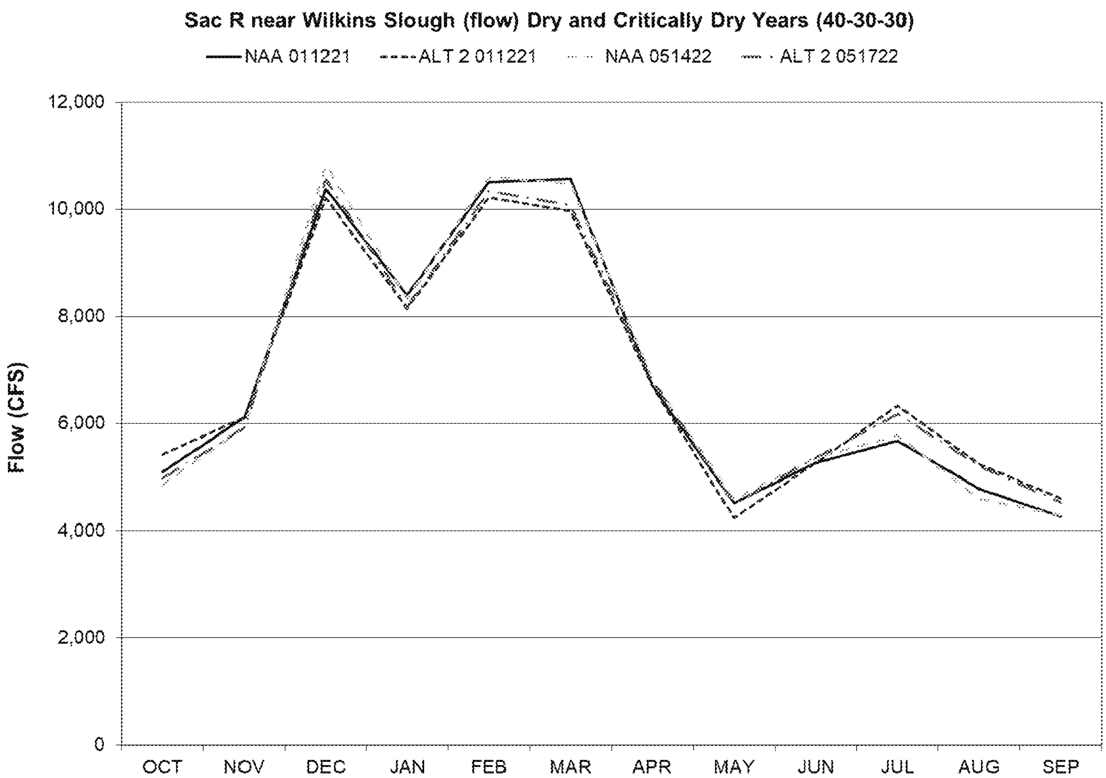
Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	0%	0%	0%	2%	0%
FEIR/EIS	0%	2%	1%	1%	2%	1%

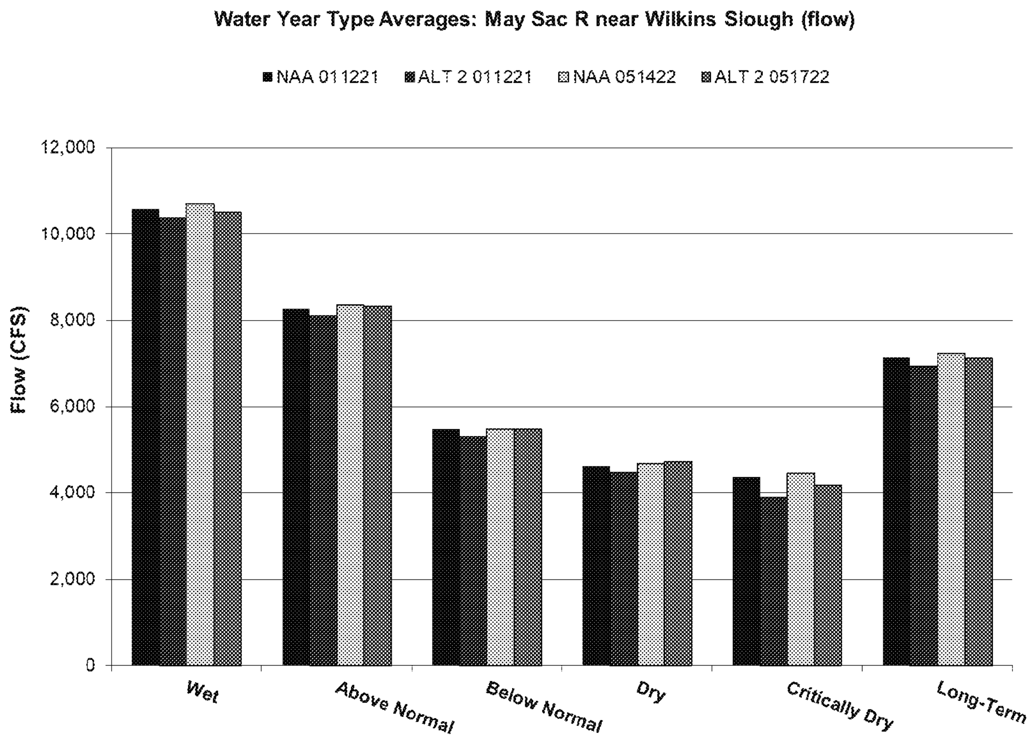
Upper Sacramento River Flow





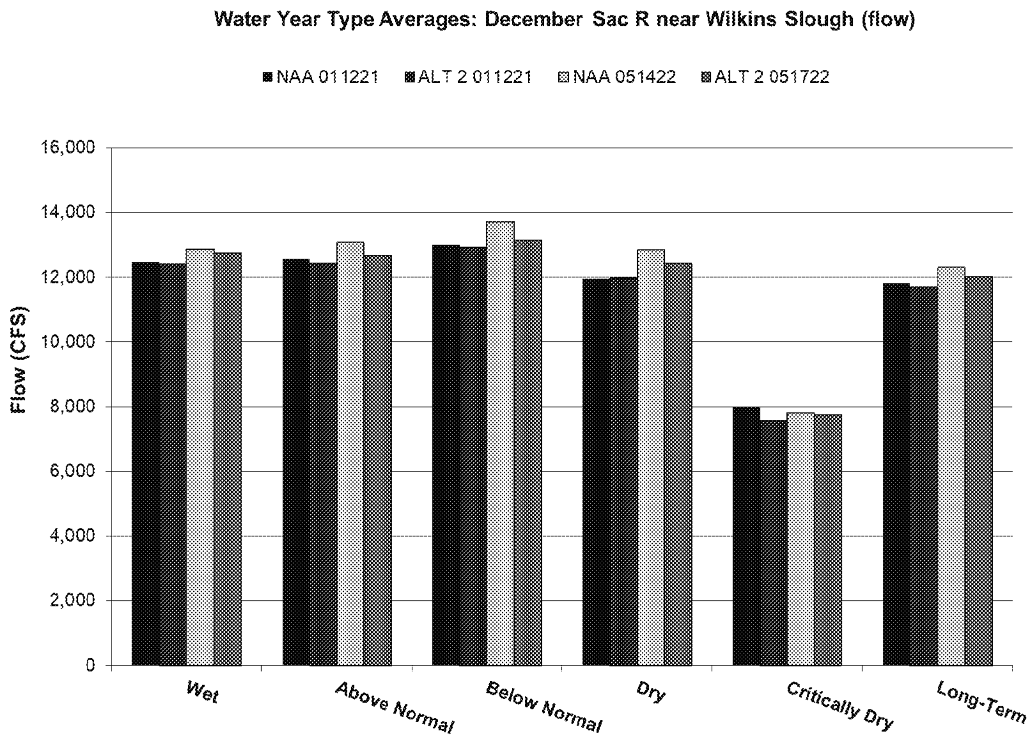

Sac R near Wilkins Slough (flow) Averages
NAA 011221
ALT 2 011221
NAA 051422
ALT 2 051722
Flow (CFS)
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP


Sac R near Wilkins Slough (flow) Dry and Critically Dry Years (40-30-30)
NAA 011221
ALT 2 011221
NAA 051422
ALT 2 051722
Flow (CFS)
12,000
10,000
8,000
6,000
4,000
2,000
0
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP



Relative Change to Sacramento River near Wilkins Slough flow in May by Water Year Type

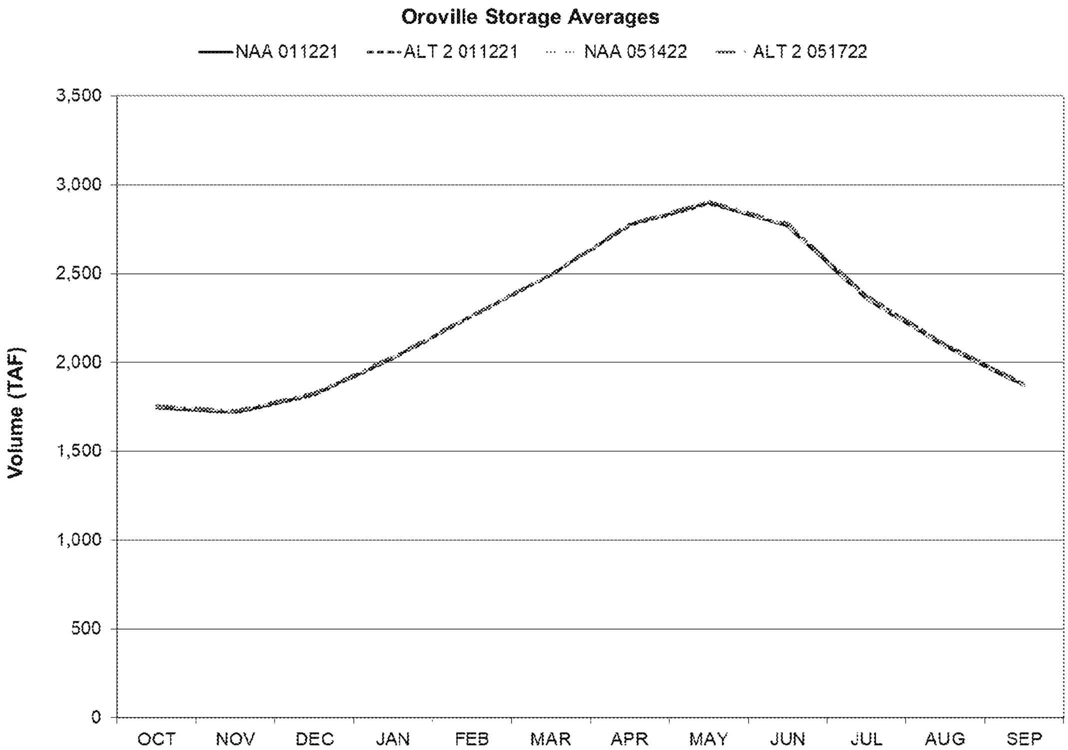
Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	-2%	-2%	-3%	-3%	-11%	-3%
FEIR/EIS	-2%	0%	0%	1%	-6%	-1%

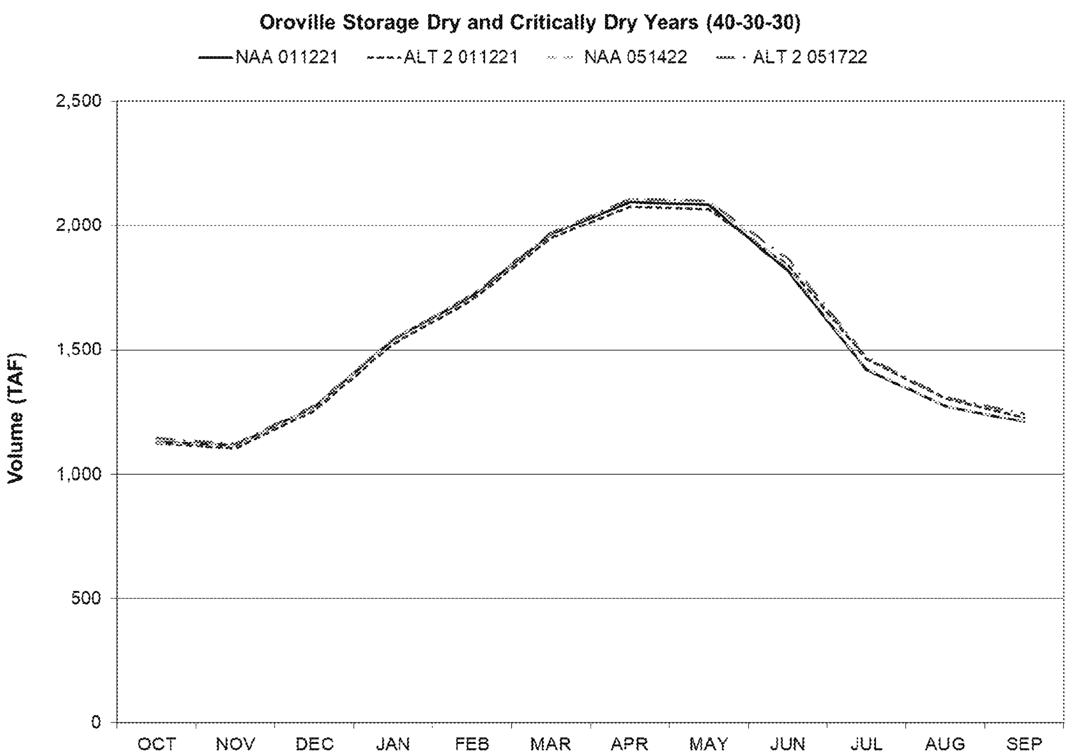


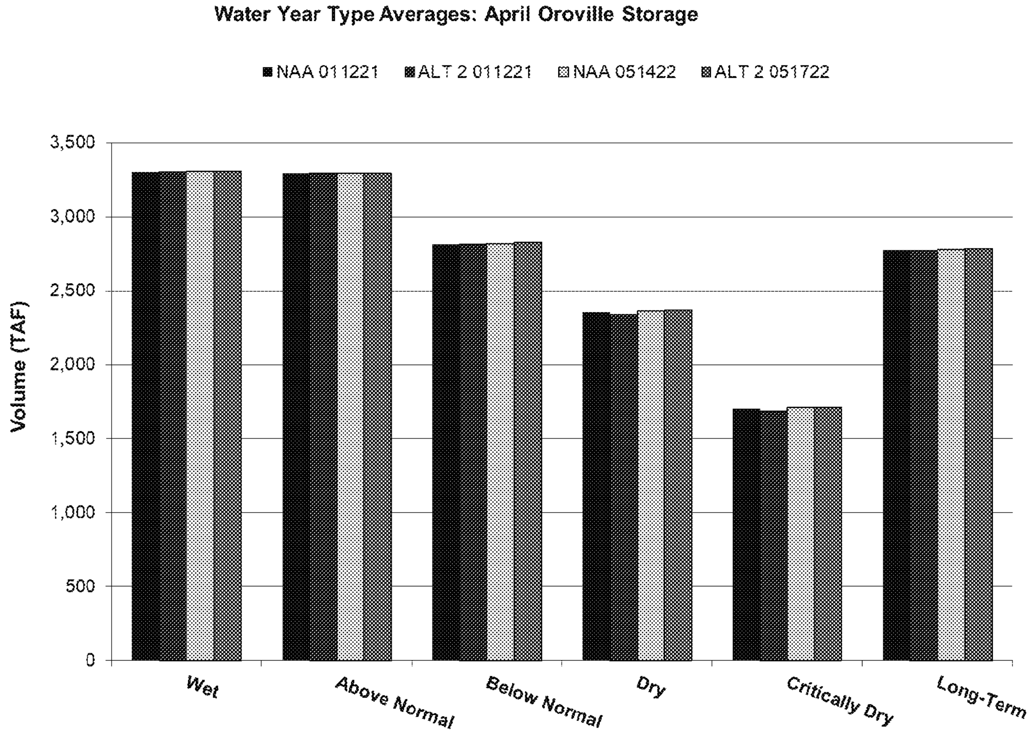
Relative Change to Sacramento River near Wilkins Slough flow in December by Water Year Type

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	-1%	-1%	0%	-5%	-1%
FEIR/EIS	-1%	-3%	-4%	-3%	-1%	-2%

Oroville Storage

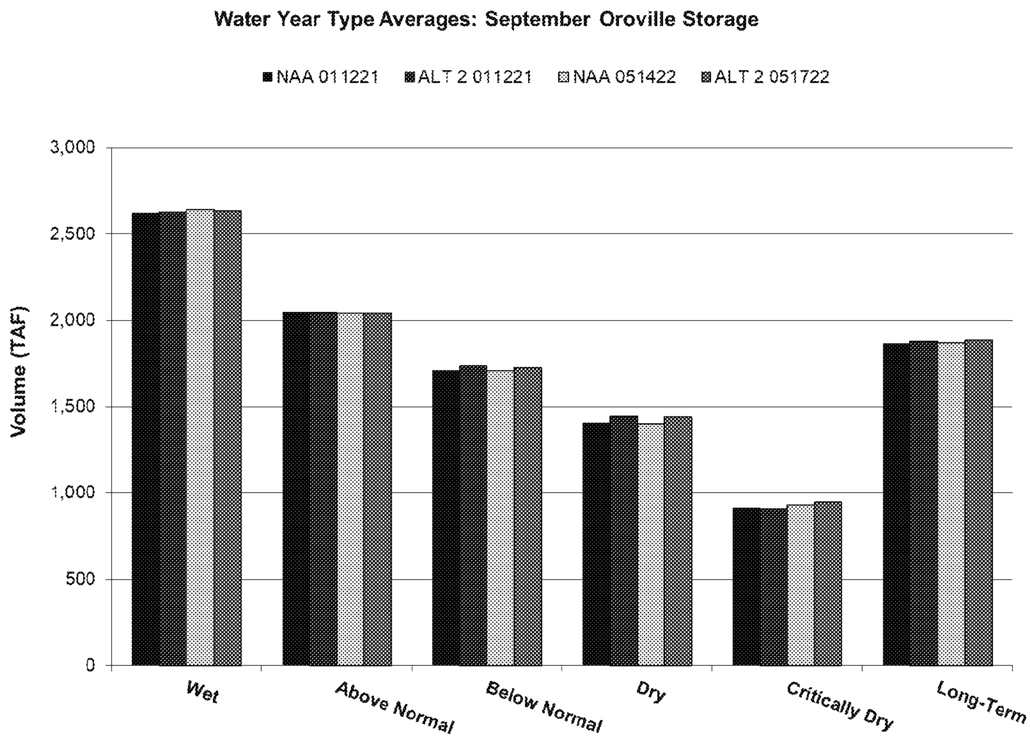






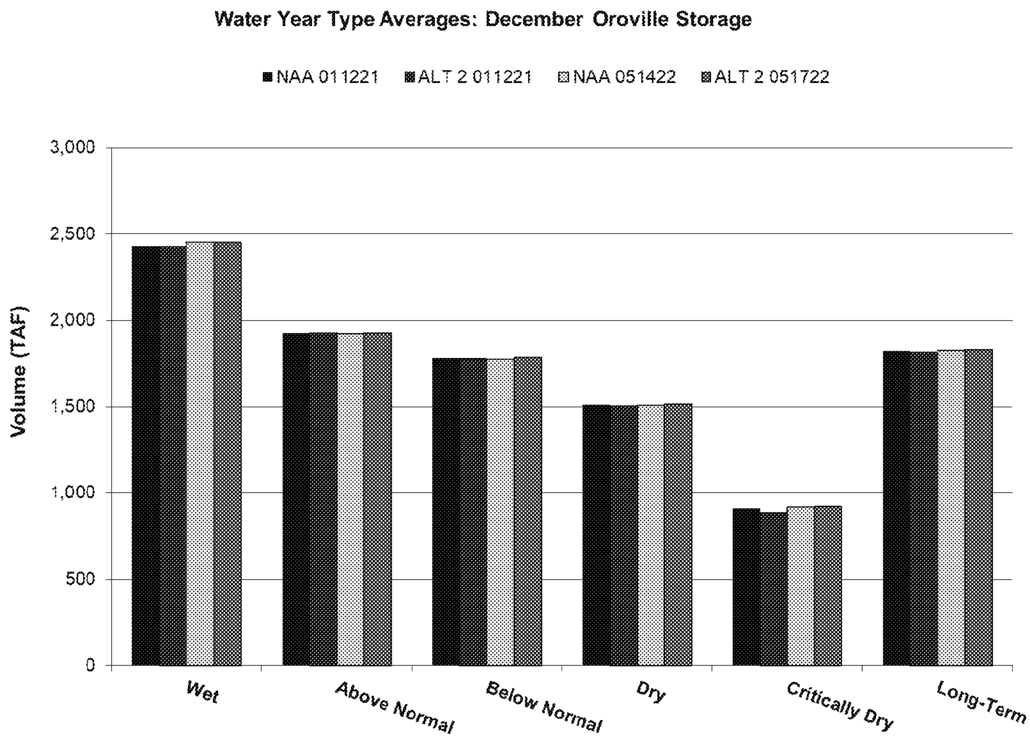
Relative Change to End of April Oroville Storage by Water Year Type

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	0%	0%	-1%	-1%	0%
FEIR/EIS	0%	0%	0%	0%	0%	0%



Relative Change to End of September Oroville Storage by Water Year Type

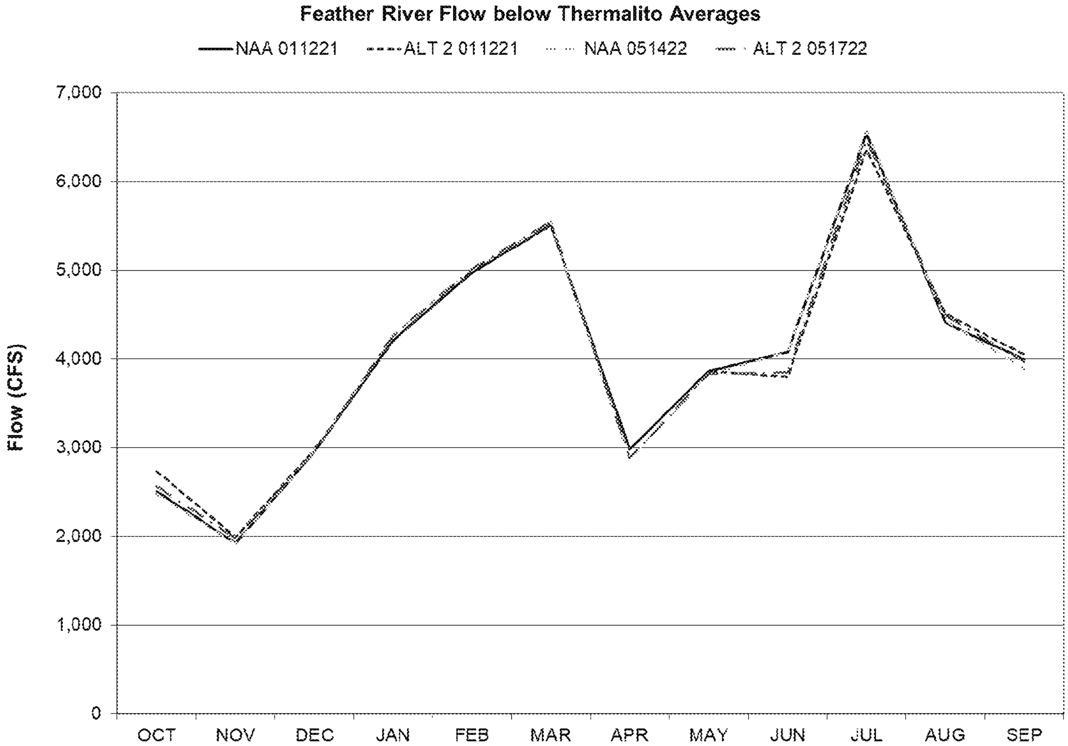
Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	0%	2%	3%	-1%	1%
FEIR/EIS	0%	0%	1%	3%	2%	1%

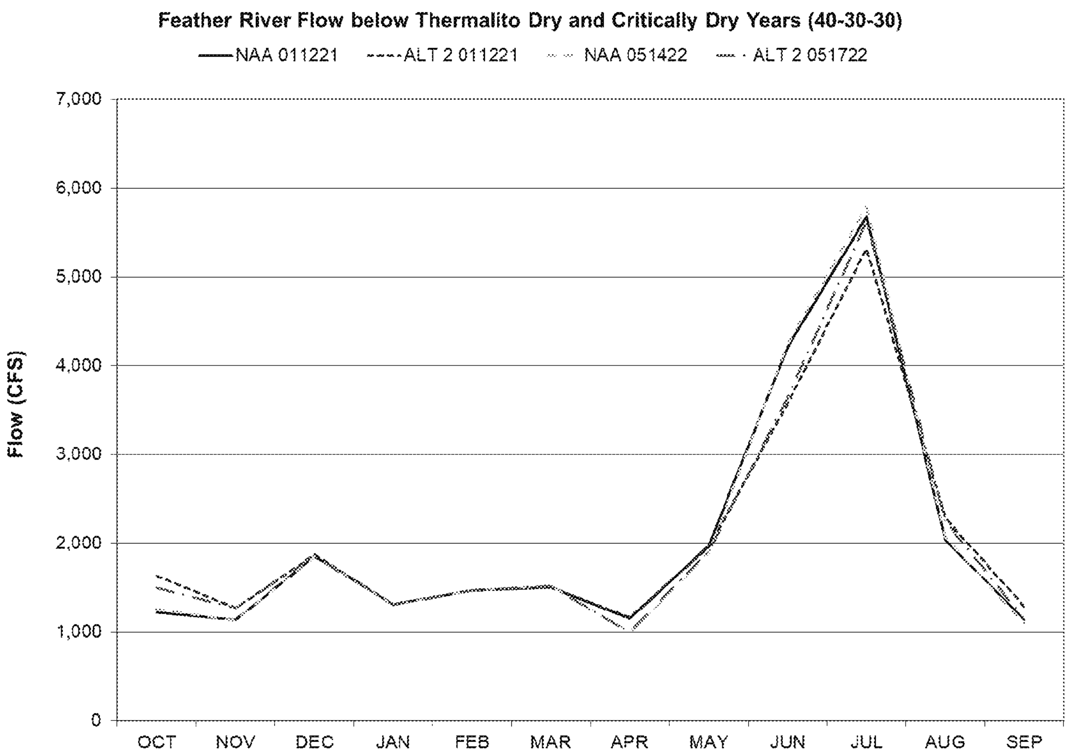


Relative Change to Oroville Storage in December

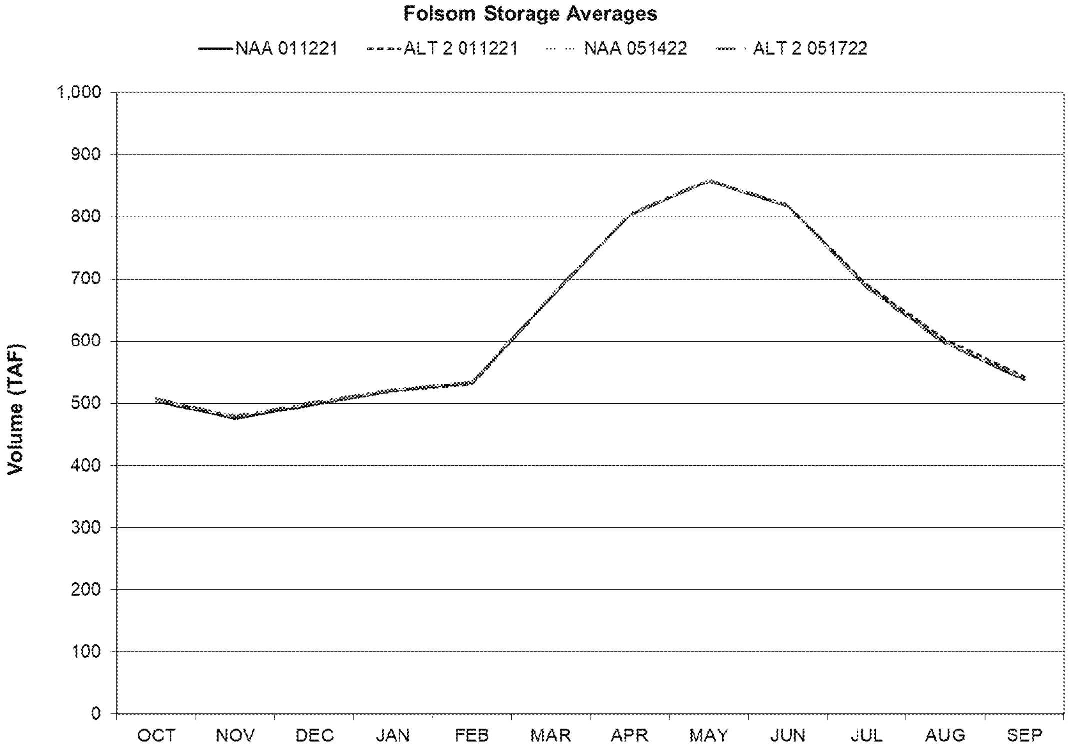
Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	0%	0%	0%	-3%	0%
FEIR/EIS	0%	0%	1%	0%	1%	0%

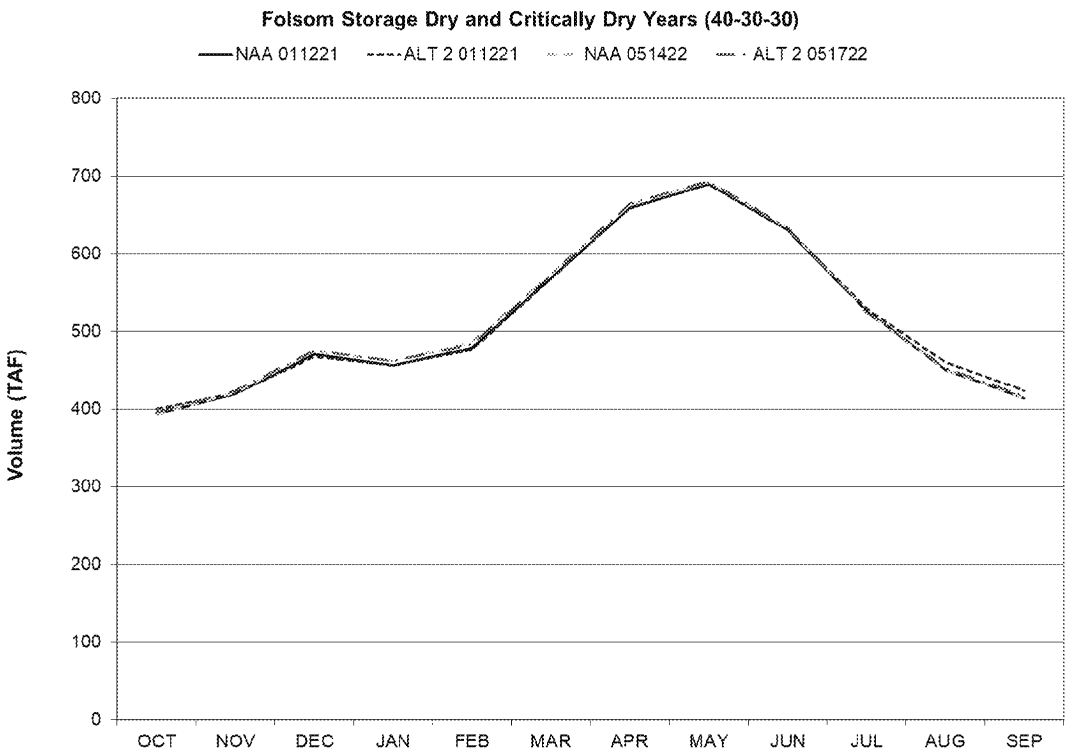
Feather River Flow

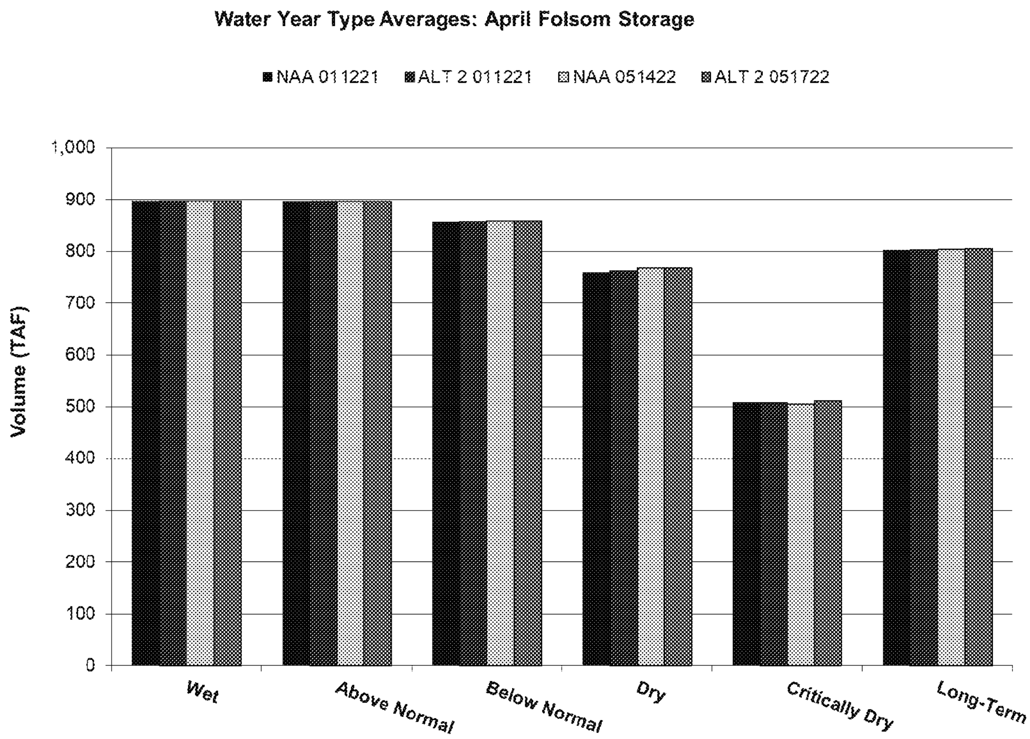




Folsom Storage

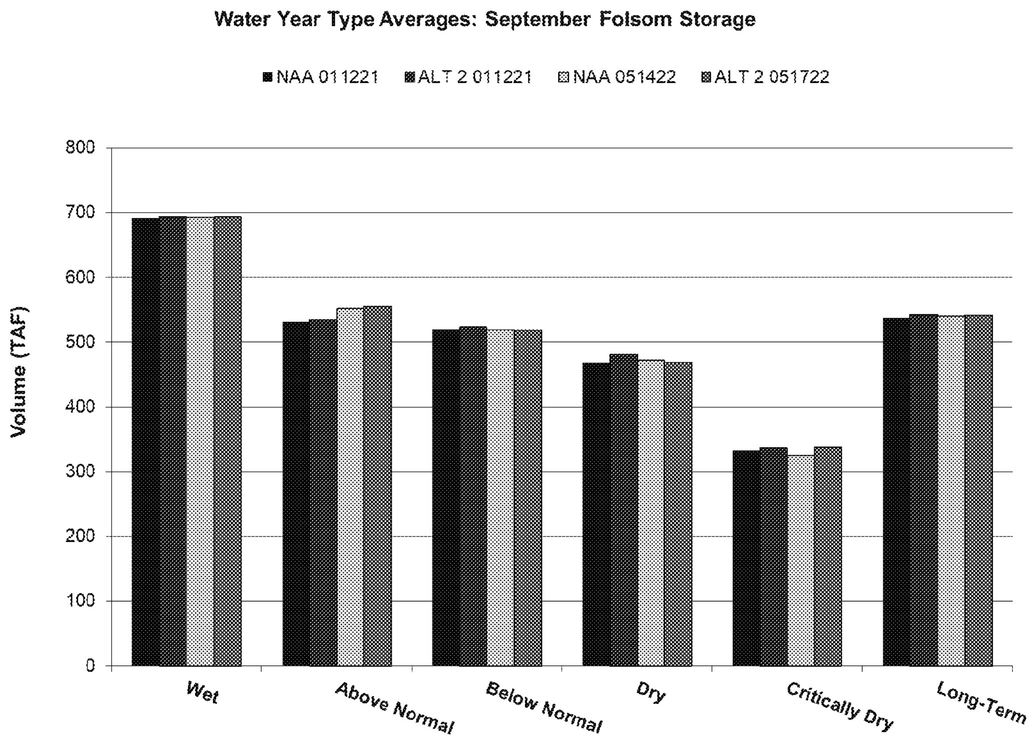






Relative Change to End of April Folsom Storage by Water Year Type

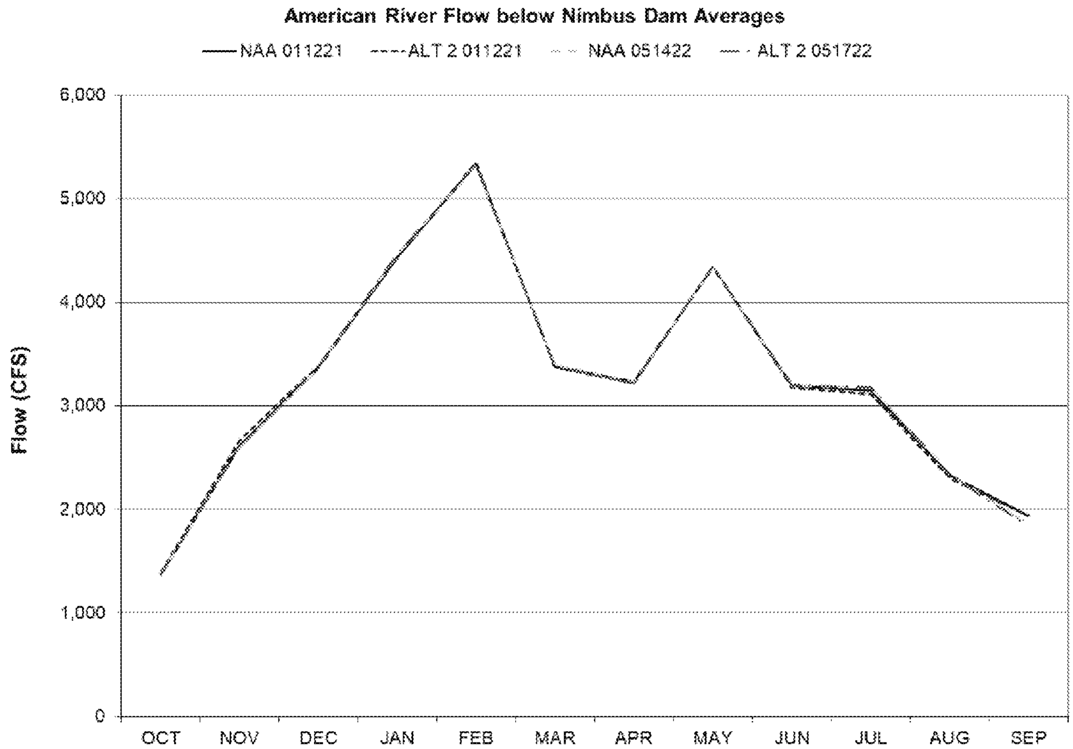
Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	0%	0%	0%	0%	0%
FEIR/EIS	0%	0%	0%	0%	1%	0%

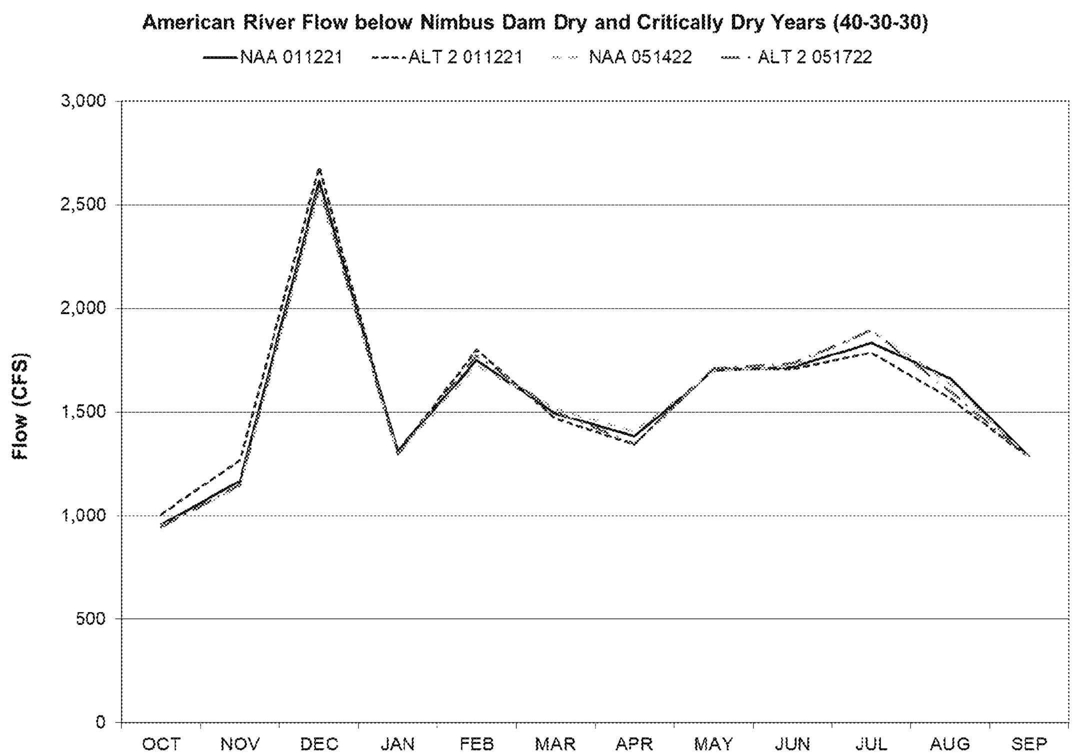


Relative Change to End of September Folsom Storage by Water Year Type

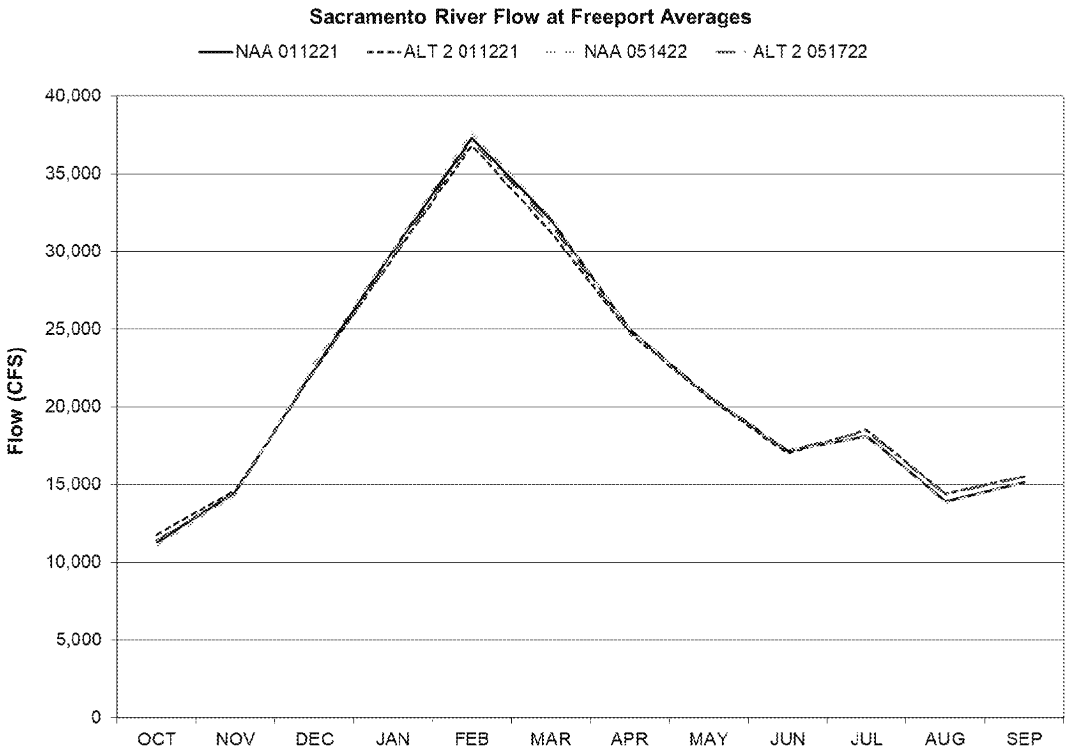
Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	0%	1%	3%	1%	1%
FEIR/EIS	0%	0%	0%	-1%	4%	0%

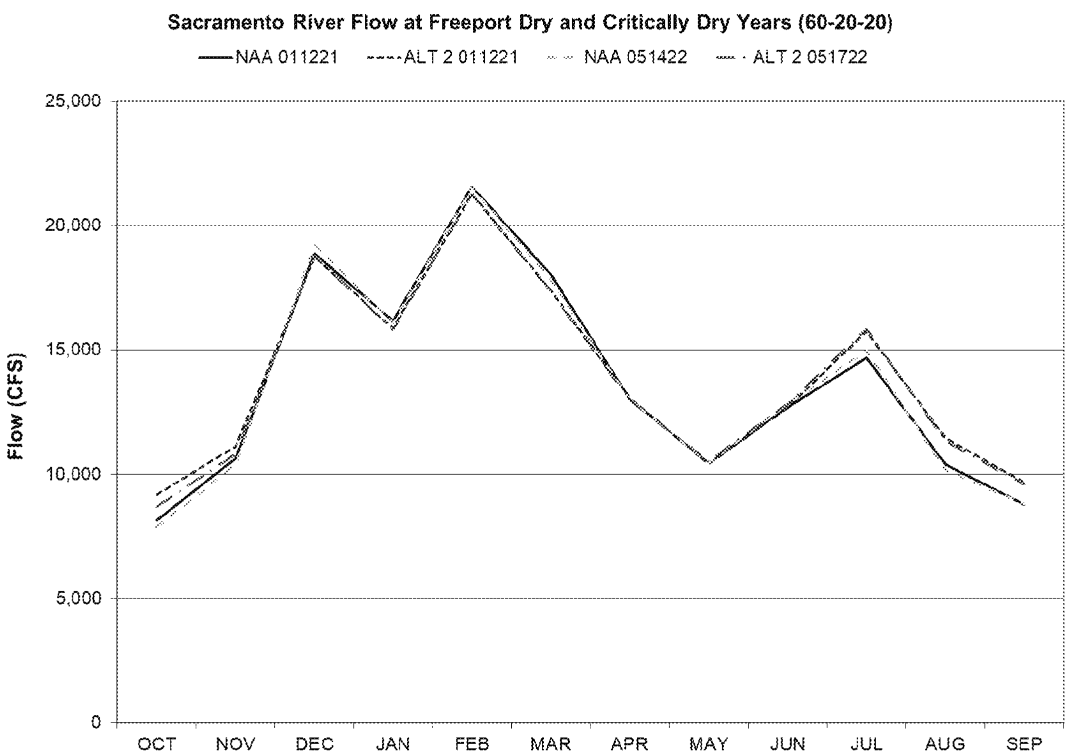
American River Flow

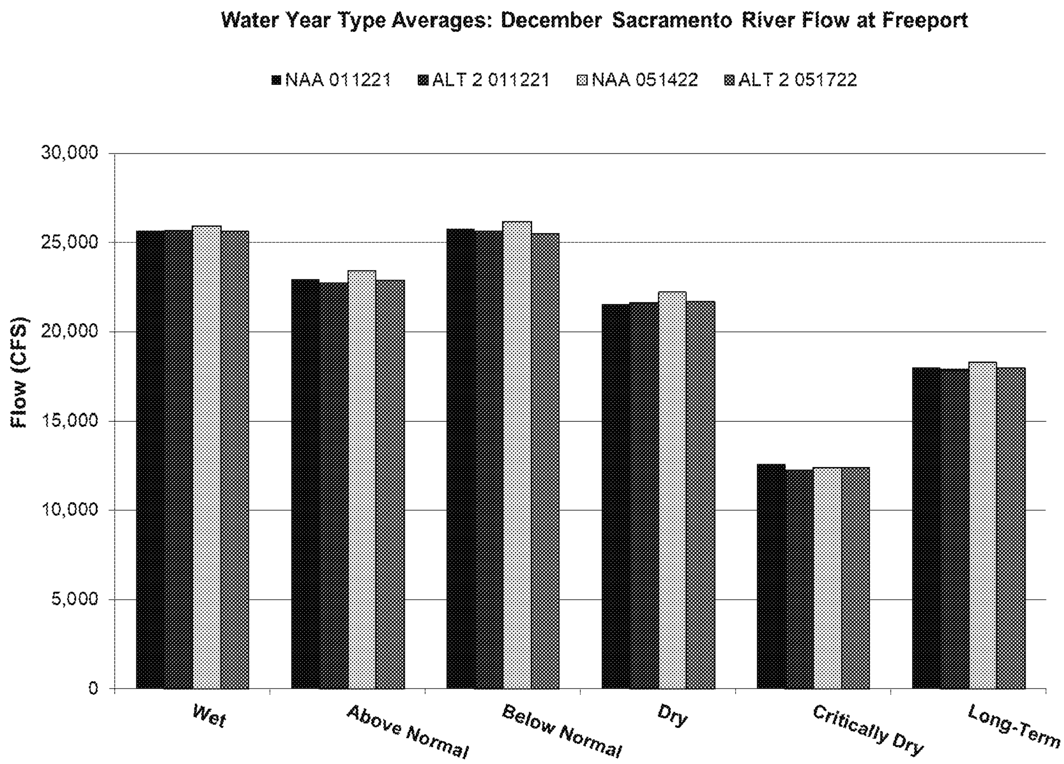




Delta Inflow

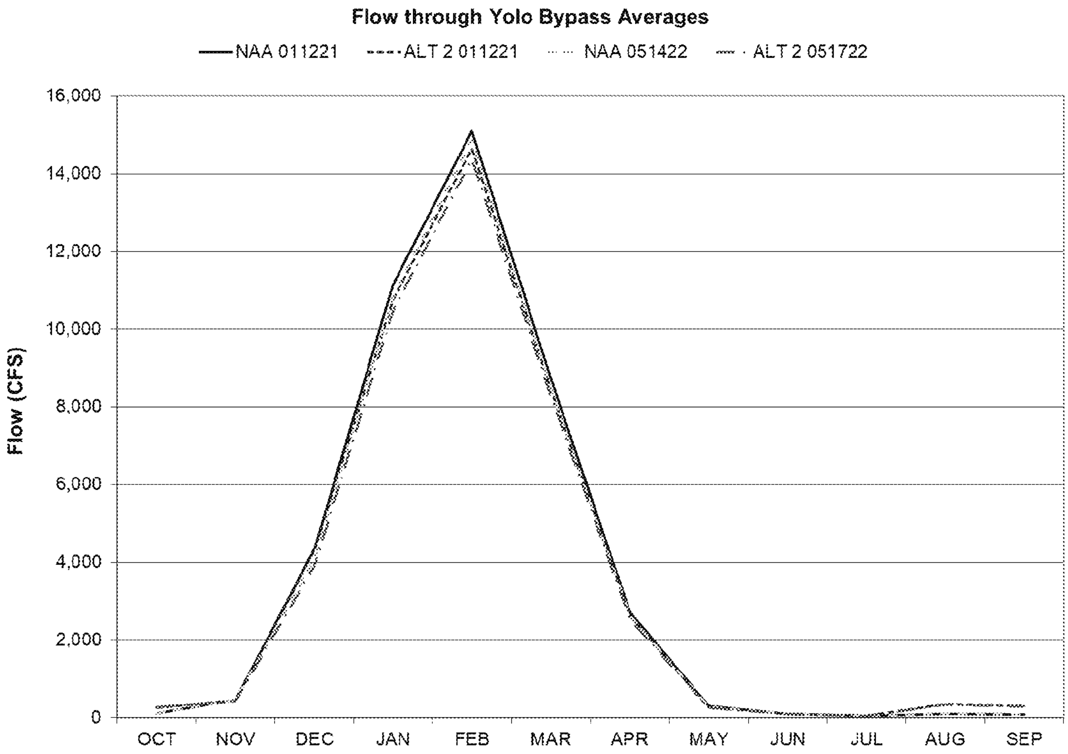


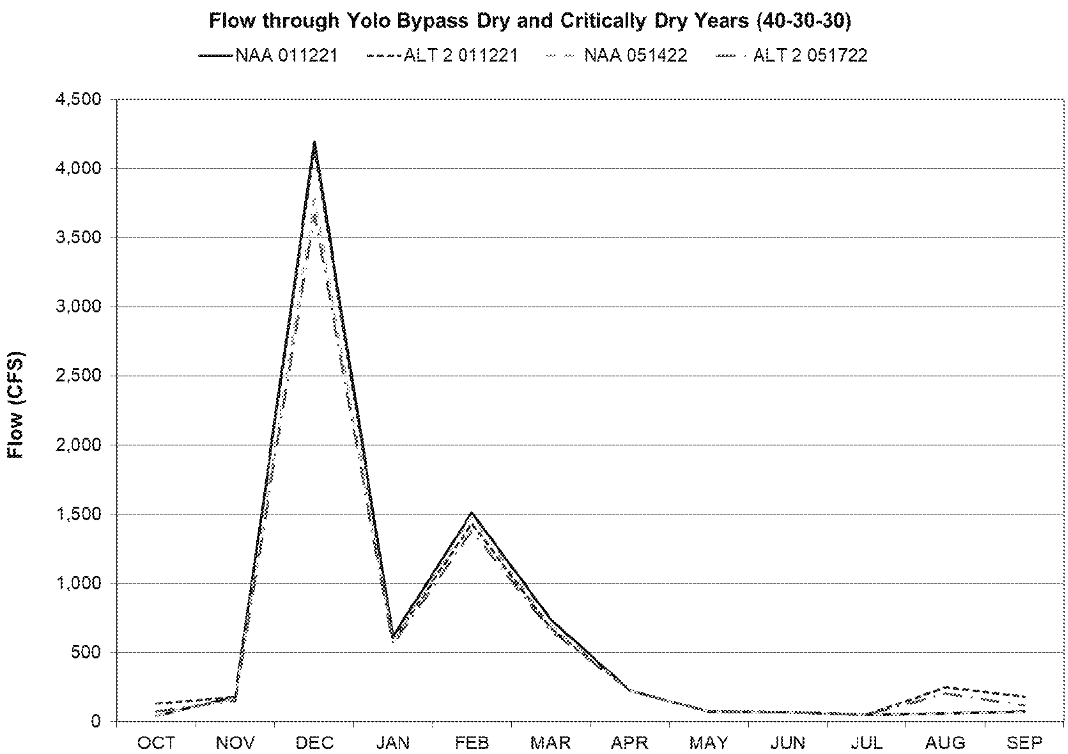


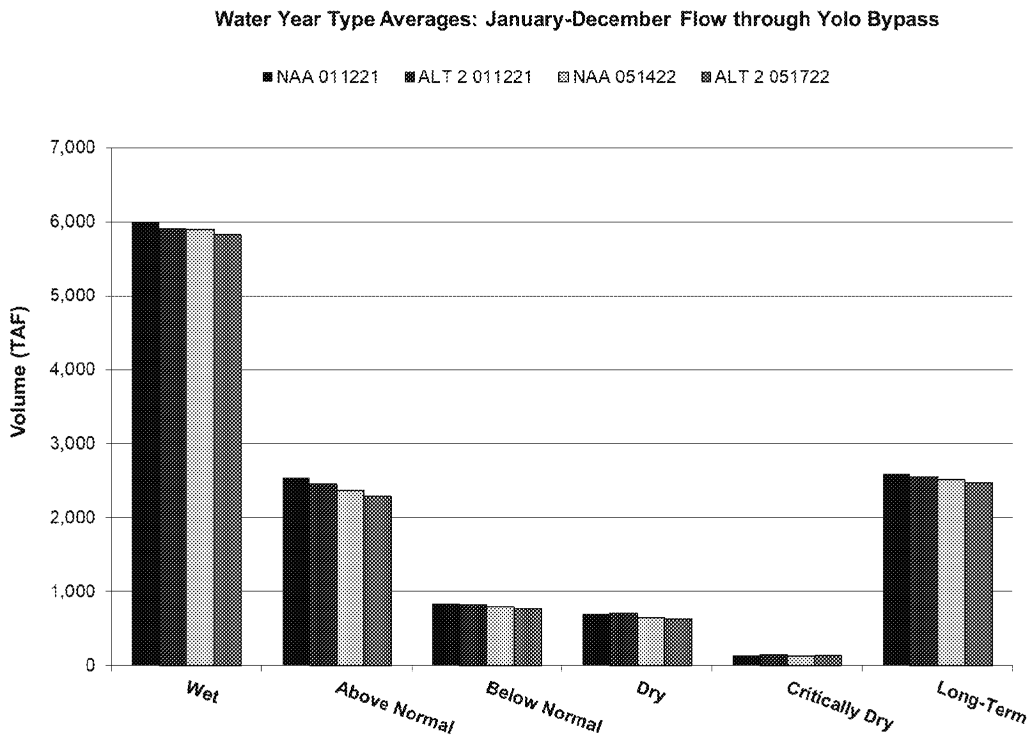


Relative Change to Sacramento River flow at Freeport in December by Water Year Type

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	-1%	-1%	0%	-3%	0%
FEIR/EIS	-1%	-2%	-3%	-2%	0%	-2%

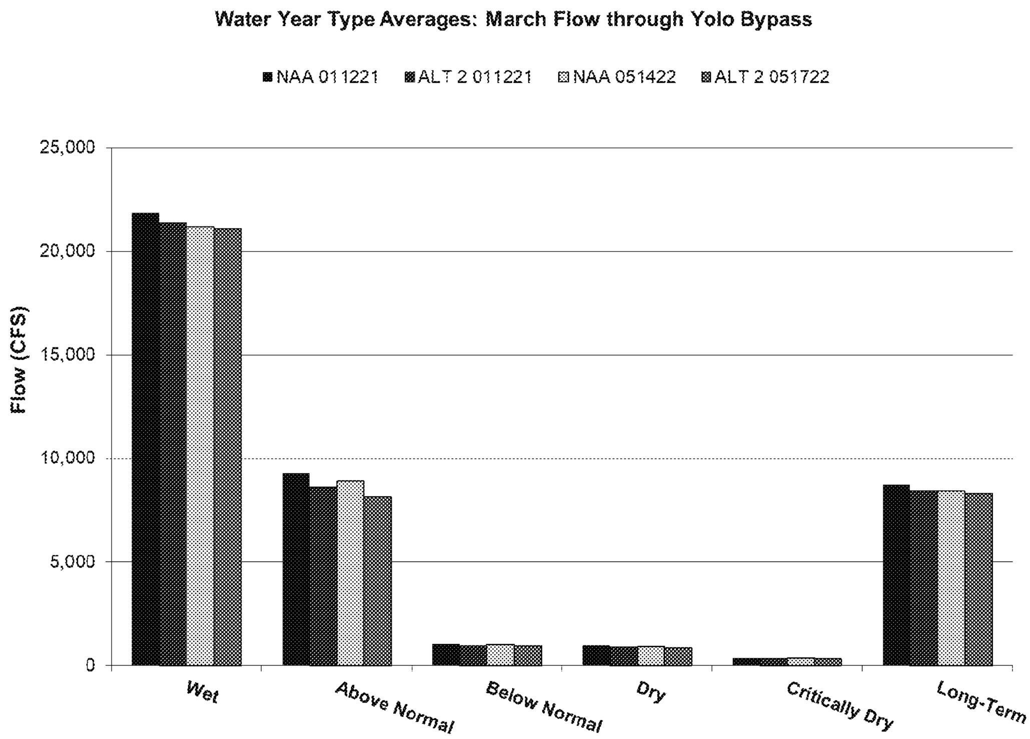

Flow through Yolo Bypass Averages
NAA 011221
ALT 2 011221
NAA 051422
ALT 2 051722
Flow (CFS)
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP


Flow through Yolo Bypass Dry and Critically Dry Years (40-30-30)
NAA 011221
ALT 2 011221
NAA 051422
ALT 2 051722
Flow (CFS)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP



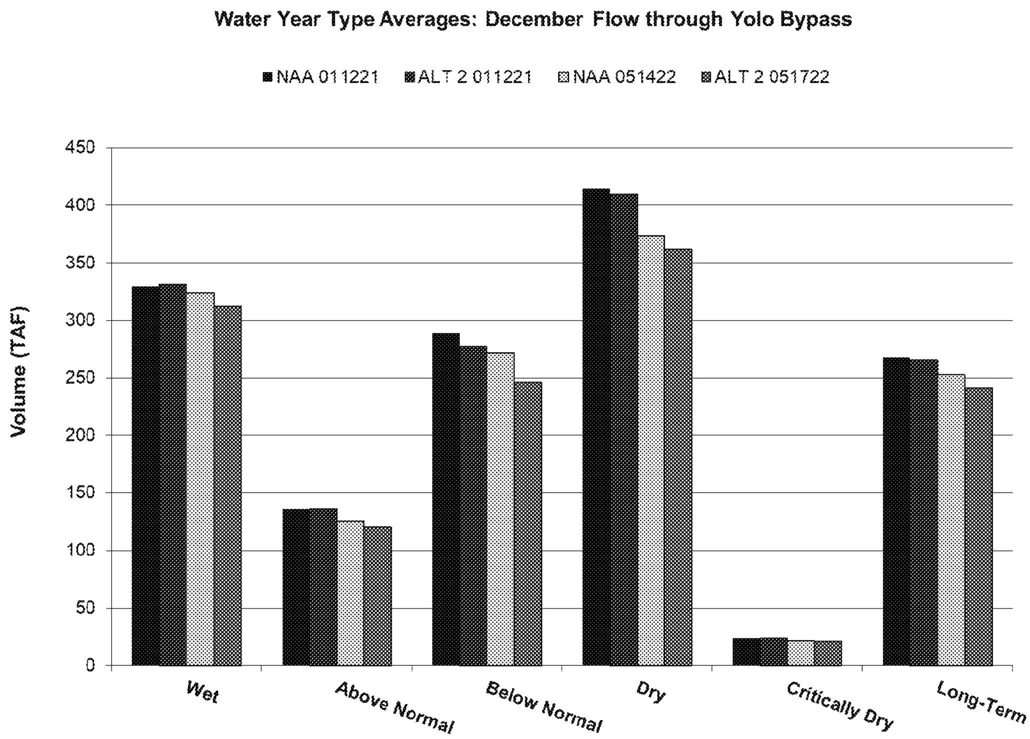
Relative Change to Annual Average Yolo Bypass Flow by Water Year Type

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	-1%	-3%	-2%	2%	6%	-2%
FEIR/EIS	-1%	-4%	-3%	-2%	6%	-2%



Relative Change to Yolo Bypass Flow in March by Water Year Type

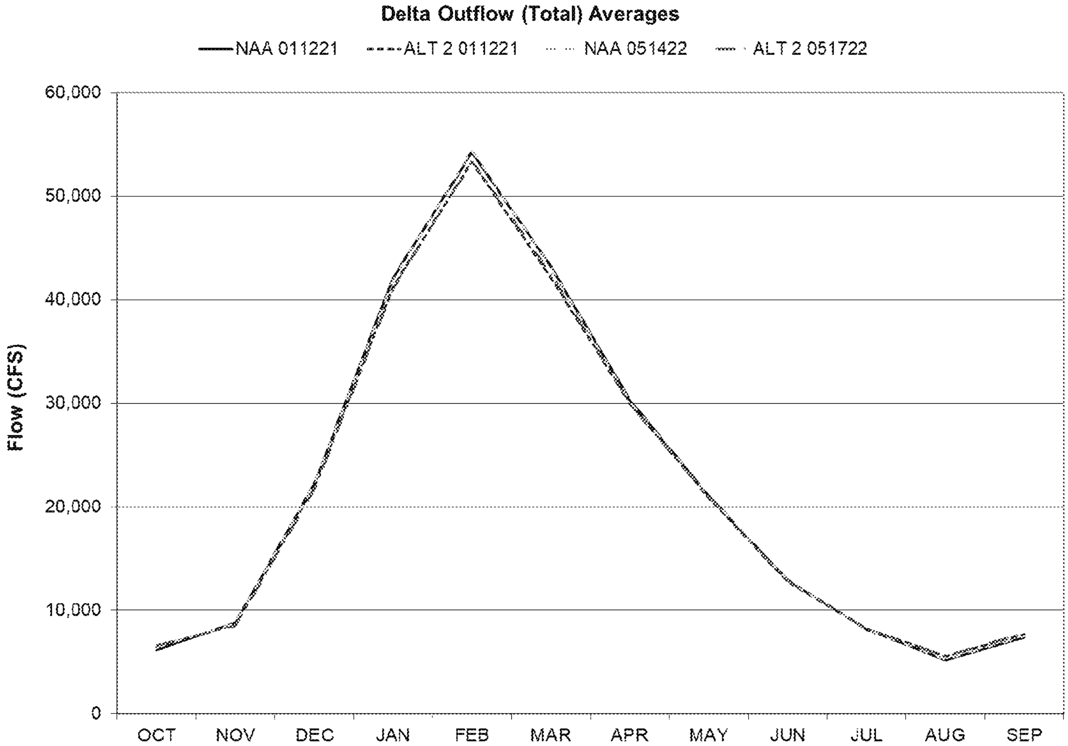
Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	-2%	-7%	-9%	-9%	-4%	-3%
FEIR/EIS	0%	-9%	-5%	-6%	-3%	-2%

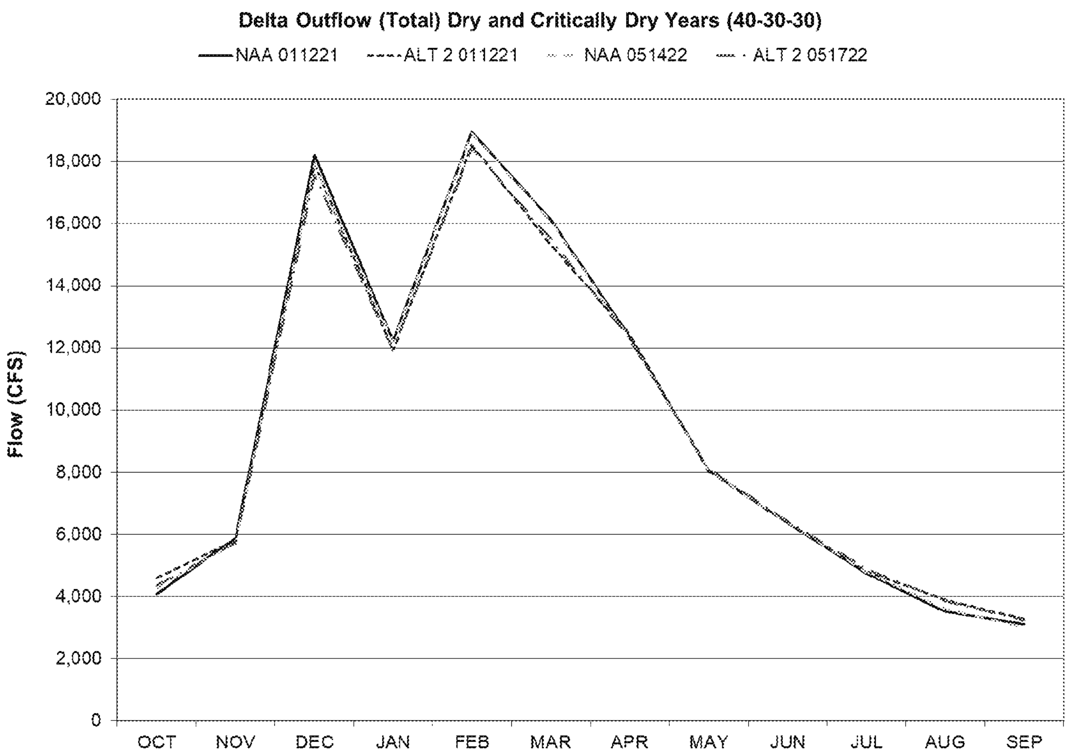


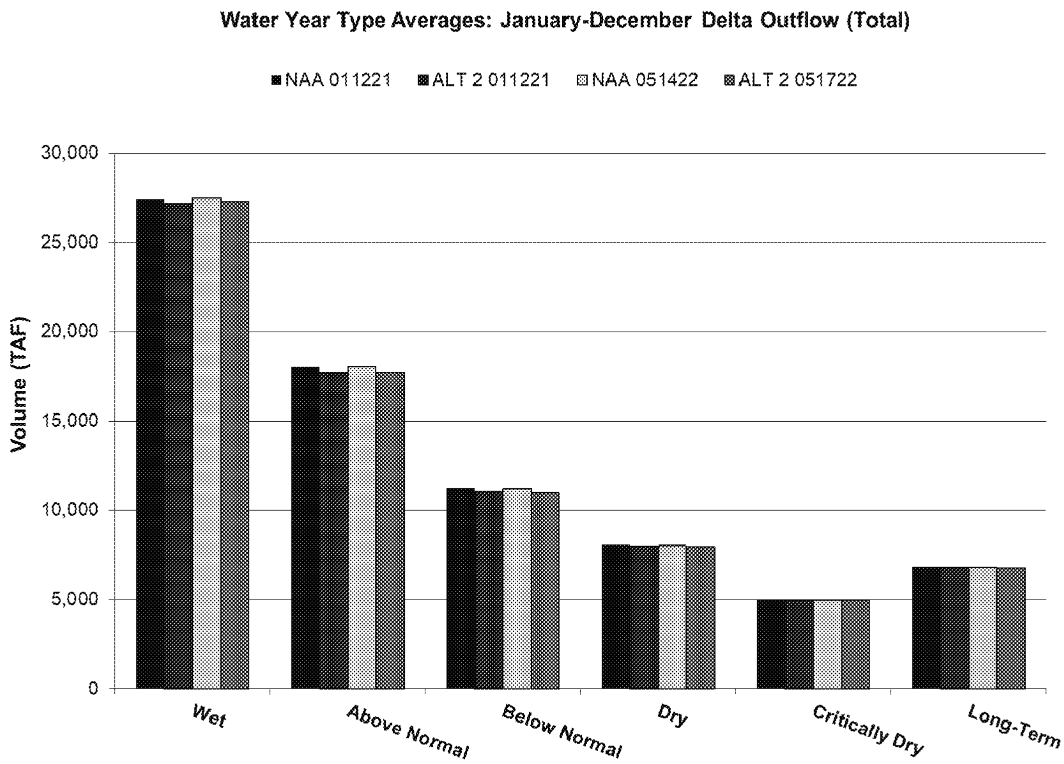
Relative Change to Yolo Bypass Flow in December by Water Year Type

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	0%	-4%	-1%	0%	-1%
FEIR/EIS	-4%	-4%	-10%	-3%	-1%	-5%

Delta Outflow

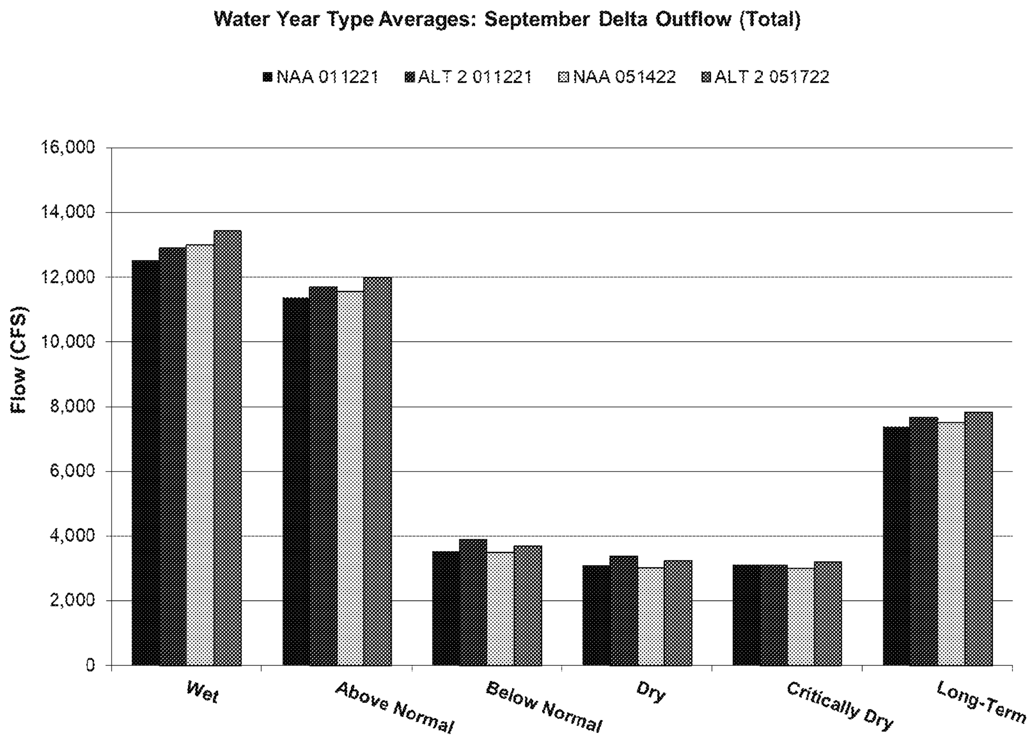






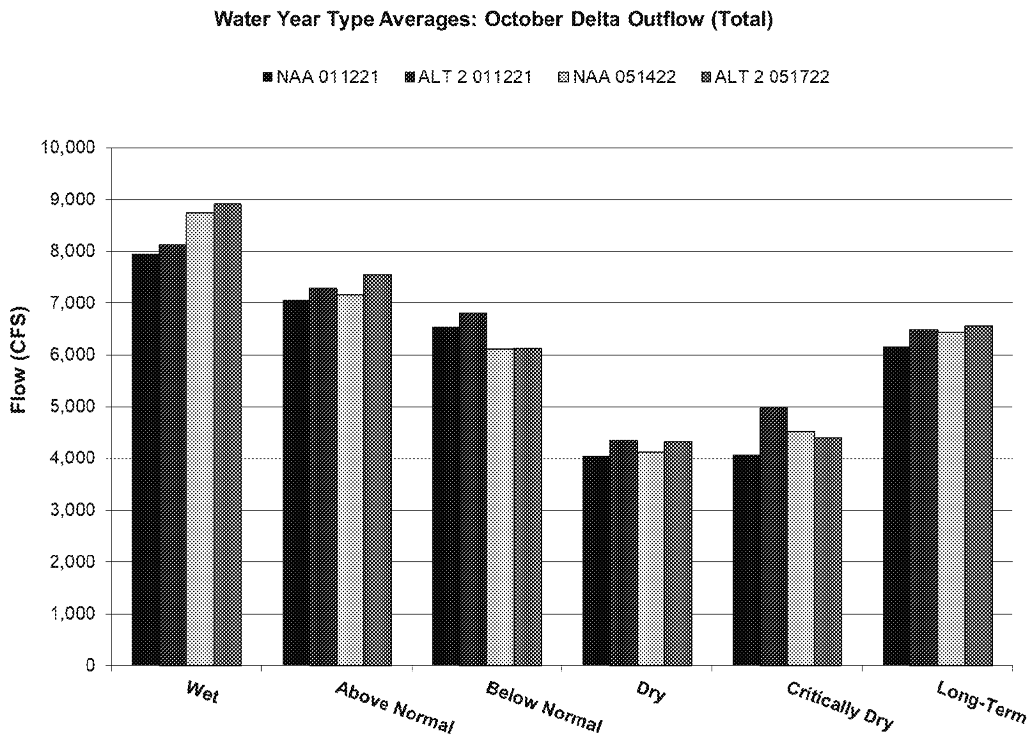
Relative Change to Annual Average Total Delta Outflow by Water Year Type

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	-1%	-2%	-2%	-1%	0%	-1%
FEIR/EIS	-1%	-2%	-2%	-1%	0%	-1%



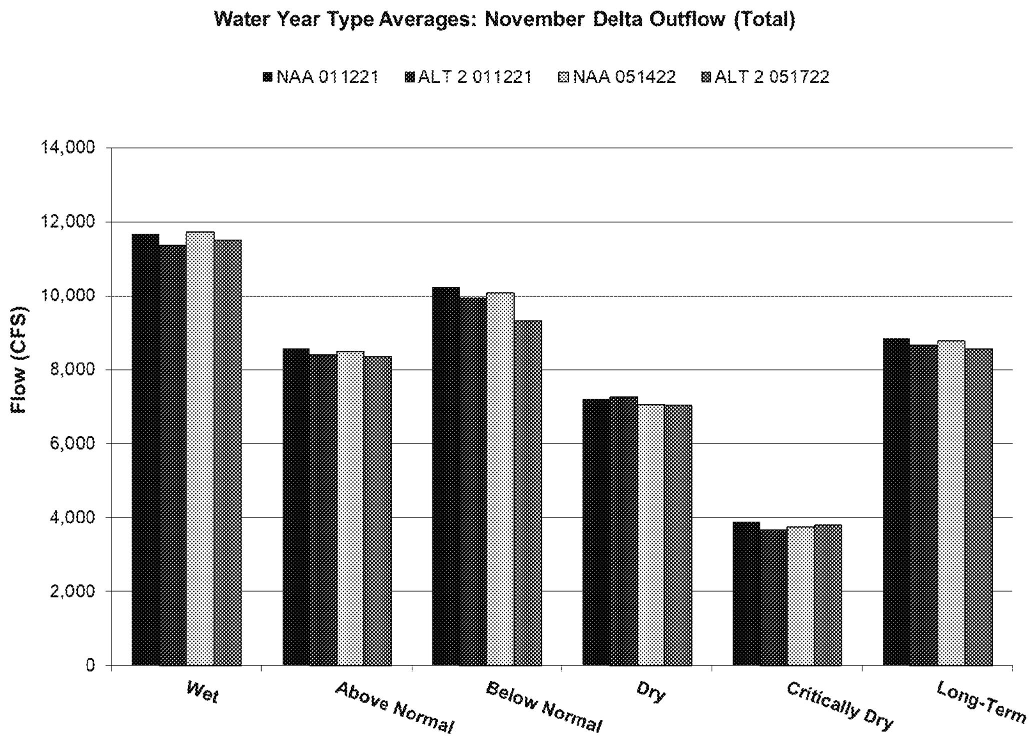
Relative Change to Total Delta Outflow in September by Water Year Type

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	3%	3%	10%	9%	0%	4%
FEIR/EIS	3%	4%	5%	7%	7%	4%



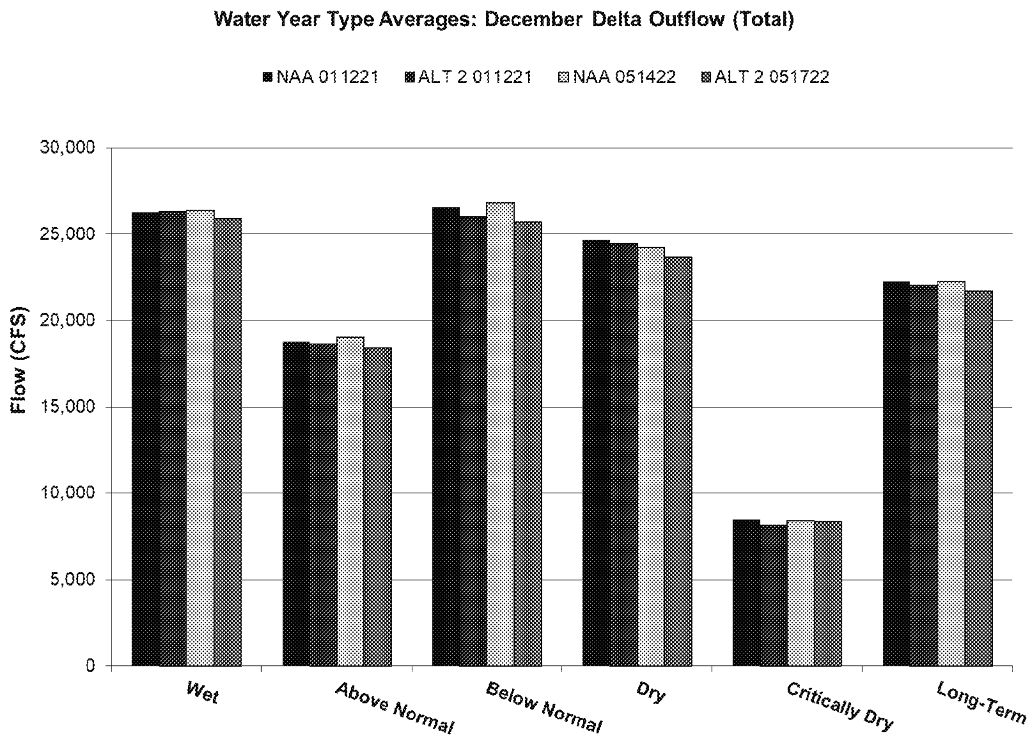
Relative Change to Total Delta Outflow in October by Water Year Type

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	2%	3%	4%	7%	22%	5%
FEIR/EIS	2%	5%	0%	5%	-3%	2%



Relative Change to Total Delta Outflow in November by Water Year Type

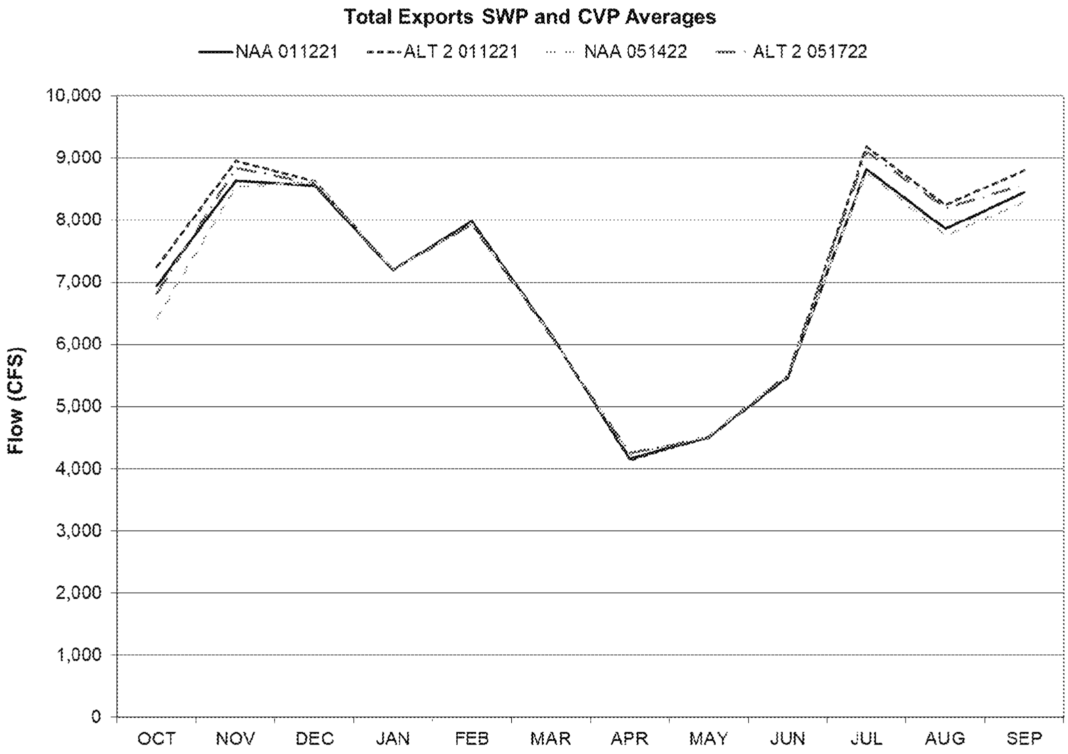
Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	-3%	-2%	-3%	1%	-7%	-2%
FEIR/EIS	-2%	-2%	-8%	0%	1%	-3%

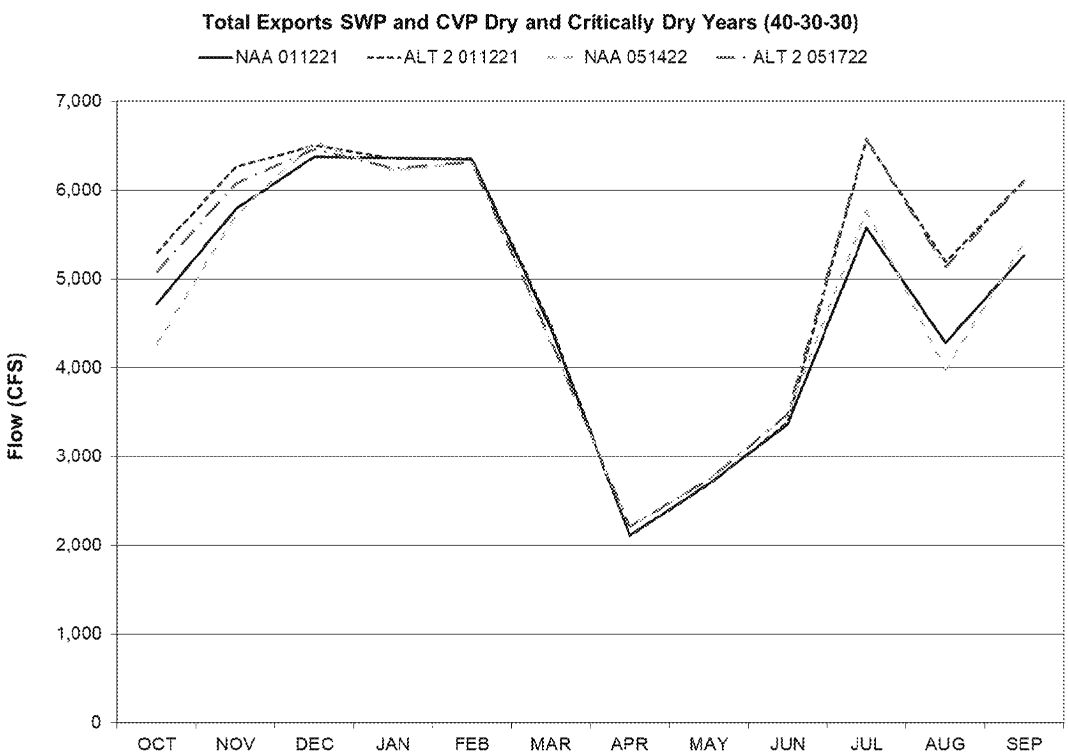


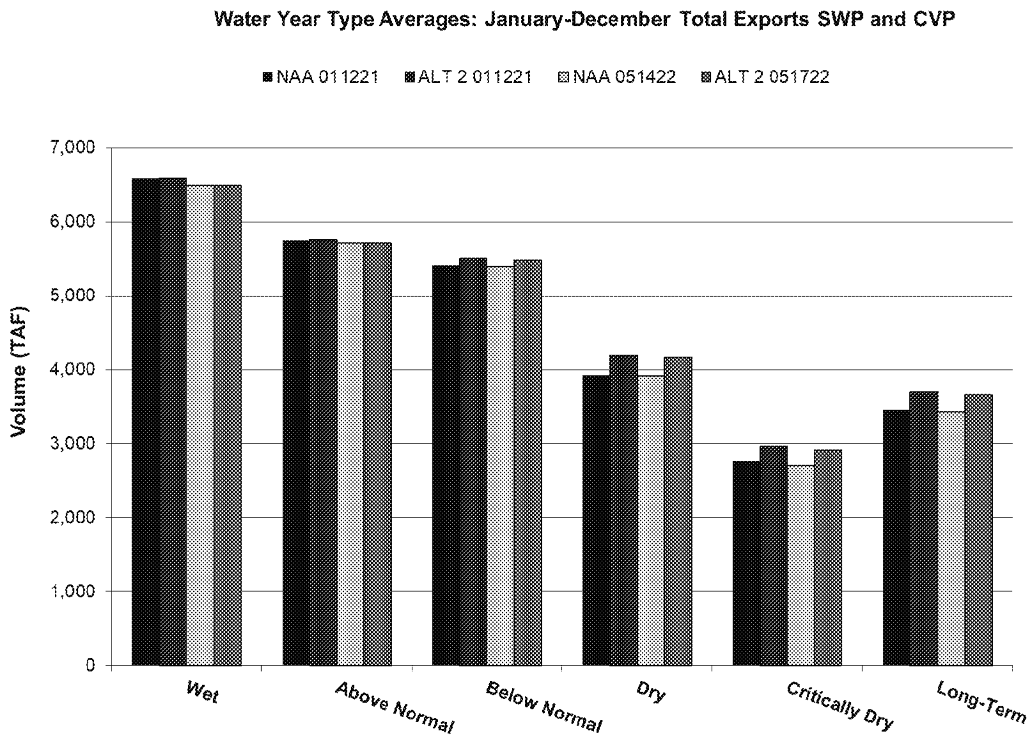
Relative Change to Total Delta Outflow in December by Water Year Type

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	-1%	-2%	-1%	-4%	-1%
FEIR/EIS	-2%	-3%	-4%	-2%	-1%	-3%

Delta Exports







Relative Change to Annual Average Delta Exports by Water Year Type

Comparison	Wet	Above Normal	Below Normal	Dry	Critically Dry	Long-term
RDEIR/SDEIS	0%	0%	2%	7%	7%	2%
FEIR/EIS	0%	0%	2%	6%	7%	2%

SITES RESERVOIR

Increasing Drier Year Supplies

Sites Reservoir is generational opportunity to construct a multi-benefit water storage project that helps restore flexibility, reliability, and resiliency to our statewide water supply. Simply put, no other storage project currently under consideration in California can positively influence the operational efficiencies of our existing statewide water.

Perhaps what makes Sites Reservoir so unique is that it is not a "traditional" reservoir project. It is an off-stream facility that does not dam a major river system and would not block fish migration or spawning. Rather, Sites Reservoir offers a significant water storage opportunity that benefits both people and the environment.

Sites Reservoir captures and stores stormwater flows from the Sacramento River—after all other water rights and regulatory requirements are met—for release primarily in dry and critical years for environmental use and for California communities, farms, and businesses when it is so desperately needed. Sites Reservoir is designed to be adaptable to a changing climate. As snowpack declines due to climate change and more of our water comes in the form of atmospheric rivers – Sites Reservoir will become even more vital to the future resiliency of our statewide water supply.

How It Works

Located 10 miles west of the town of Maxwell in rural Glenn and Colusa counties, the Sites Reservoir would be an off-stream storage facility that captures and stores stormwater flows in the Sacramento River—after all other water rights and regulatory requirements are met—for release in dry and critical years for environmental use and for California communities, farms and businesses when it is so desperately needed.

When operated in coordination with other Northern California reservoirs such as Shasta, Oroville and Folsom, which function as the backbone to both the Central Valley Project and the State Water Project, Sites Reseravoir will greatly increase flexibility, reliability and resiliency of statewide water supplies in drier periods.

With Sites Reservoir, California has a rare opportunity to enhance statewide water supplies and provide a dedicated allocation of water specifically for the environment.

It provides federal and state resource agencies with a dedicated and reliable supply of water they can manage to provide environmental benefits, especially during drier years.

A significant portion of the project's annual water supplies will be provided for environmental flows, which will help to improve conditions for Delta smelt; help preserve cold-water pools in Shasta later into the summer months to support salmon development, spawning and rearing; and improve Pacific Flyway habitat for migratory birds and other native species.

Sites Reservoir Fast Facts

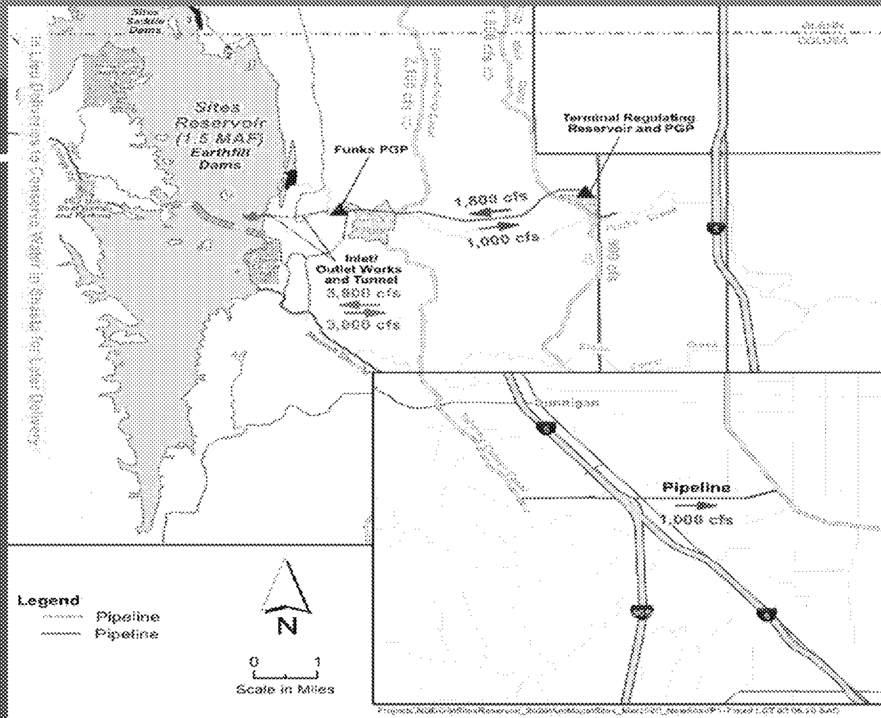
- Provide water for up to **1.5 million homes and businesses** for one year
- Increases Sacramento Valley water storage capacity
- Creates **reliable supplies** for environmental, agricultural, and municipal uses
- **29 participating agencies** representing communities across California

Sites Reservoir Benefits

- **Reliable dry-year water supply for California communities, farms and businesses**
- **Improved water quality**
- **Groundwater recharge**
- **Flood management**
- **Contribution to California's renewable energy goals**
- **Environmental water in drier periods for native fish and Pacific Flyway habitat for migratory birds and other native species**
- **Recreational opportunities**
- **Creation and protection of middle class jobs, including a large skilled work force during seven-year construction**

Support and Funding

Widely supported both regionally and statewide, the project has made significant progress. A bipartisan group of more than 175 organizations, agencies, businesses and elected officials support the Sites Reservoir Project. In 2018, the project was awarded $816 million in funding from California's Proposition 1 water bond, and secured a $449 million investment from the United States Department of Agriculture. The United States Bureau of Reclamation is also a significant project partner.



The Sites Reservoir would be an off-stream storage facility located 10 miles west of the town of Maxwell, California in rural Colusa County.

Sites Reservoir Participating Entities

Colusa County *
Colusa County Water District *
Glenn-Colusa Irrigation District *
Glenn County *
Placer County Water Agency & City of Roseville *
Reclamation District 108 *
Sacramento County Water Agency & City of Sacramento *
Tehama-Colusa Canal Authority *
Westside Water District *
TC 4 **
Western Canal Water District **
American Canyon, City of
Antelope Valley-East Kern Water Agency
CA Department of Water Resources (Ex Officio)
Carter Municipal Water Company
Coachella Valley Water District
Cortina Water District
Davis Water District
Desert Water Agency
Dunnigan Water District
LaGrande Water District
Metropolitan Water District
San Bernardino Valley Municipal Water District
San Gorgonio Pass Water Agency
Santa Clara Valley Water District
Santa Clarita Valley Water Agency
US Bureau of Reclamation (Cost-share)
Wheeler Ridge-Maricopa Water Storage District
Zone 7 Water Agency

* Authority Board Member
** Associate Board Member

What Makes Sites Reservoir Different?

Features	Benefits
Off-stream storage	Does not create barriers to native fish migration Improves local flood management Improved conservation of stored water to be available when it is needed most
Cooperative operations	Increases effectiveness and efficiency of existing water storage infrastructure
Sacramento Valley-led	Aligns with Sacramento Valley's values Authority will be an integral part of community Fosters regional and statewide collaboration
Beneficiary pays	Provides equity among participating partners Improves accountability and value creation
Federal and state agencies manage environmental water	Adaptable to current and future conditions and priorities Ensures federal and state environmental priorities are met—today and into the future
Adaptable to climate change	Operational flexibility to ensure the water will be applied to the highest beneficial uses despite an uncertain future

FOR MORE INFORMATION, PLEASE VISIT **WWW.SITESPROJECT.ORG**.

STATEMENT OF WORK (SOW)

1. **Public Law**, *including Section and Sub-section verbatim, which provides Reclamation authority to award Financial Assistance for this project. Provide a statement that directly relates the activities to be funded to the referenced authority.*

This Financial Assistance Agreement (Agreement) is entered into between the United States of America, acting through the Department of the Interior, Bureau of Reclamation (Reclamation) and Sites Project Authority (Recipient), pursuant to PL 114-322; Water Infrastructure Improvements for the Nation (WIIN) Act Section 4007. Storage. (a)(2)(c)(d)(e)(g)(h)(i)(k). The following section, provided in full text, authorizes Reclamation to award this financial assistance agreement:

PL 114-322; Water Infrastructure Improvements for the Nation (WIIN) Act
Section 4007. Storage. (a)(2)(c)(d)(e)(g)(h)(i)(k)
(a) Definitions. --In this subtitle:

(1) Federally owned storage project. --The term ``federally owned storage project'' means any project involving a surface water storage facility in a Reclamation State--

(A) to which the United States holds title; and

(B) that was authorized to be constructed, operated, and maintained pursuant to the reclamation laws.

(2) State-led storage project.--The term ``State-led storage project'' means any project in a Reclamation State that--

(A) involves a groundwater or surface water storage facility constructed, operated,
and maintained by any State, department of a State, subdivision of a State, or public
agency organized pursuant to State law; and

(B) provides a benefit in meeting any obligation under Federal law (including regulations).

(c) State-Led Storage Projects.—

(1) In General.—Subject to the requirements of this subsection, the Secretary of the Interior may participate in a State-led storage project in an amount equal to not more than 25 percent of the total cost of the State-led storage project.

(2) Request by Governor.—Participation by the Secretary of the Interior in a State-led storage project under this subsection shall not occur unless— (A) the participation has been requested by the Governor of the State in which the State-led storage project is located; (B) the State or local sponsor determines, and the Secretary of the Interior concurs, that— (i) the State-led storage project is technically and financially feasible and provides a Federal benefit in accordance with the reclamation laws; (ii) sufficient

non-Federal funding is available to complete the State-led storage project; and (iii) the State-led storage project sponsors are financially solvent; (C) the Secretary of the Interior determines that, in return for the Federal cost-share investment in the State led storage project, at least a proportional share of the project benefits are the Federal benefits, including water supplies dedicated to specific purposes such as environmental enhancement and wildlife refuges; and(D) the Secretary of the Interior submits to Congress a written notification of these determinations within 30 days of making such determinations.

(3) Environmental Laws.—When participating in a State led storage project under this subsection, the Secretary shall comply with all applicable environmental laws, including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(4) Information.—When participating in a State-led storage project under this subsection, the Secretary of the Interior— (A) may rely on reports prepared by the sponsor of the State-led storage project, including feasibility (or equivalent) studies, environmental analyses, and other pertinent reports and analyses; but (B) shall retain responsibility for making the independent determinations described in paragraph (2).

(d) Authority To Provide Assistance.--The Secretary of the Interior may provide financial assistance under this subtitle to carry out projects within any Reclamation State.

(e) Rights To Use Capacity.--Subject to compliance with State water rights laws, the right to use the capacity of a federally owned storage project or State-led storage project for which the Secretary of the Interior has entered into an agreement under this subsection shall be allocated in such manner as may be mutually agreed to by the Secretary of the Interior and each other party to the agreement.

(g) Partnership and Agreements.--The Secretary of the Interior, acting through the Commissioner, may partner or enter into an agreement regarding the water storage projects identified in section 103(d)(1) of the Water Supply, Reliability, and Environmental Improvement Act (Public Law 108-361; 118 Stat. 1688) with local joint powers authorities formed pursuant to State law by irrigation districts and other local water districts and local governments within the applicable hydrologic region, to advance those projects.

(h) Authorization of Appropriations.--

(1) $335,000,000 of funding in section 4011(e) is authorized to remain available until expended.

(2) Projects can only receive funding if enacted appropriations legislation designates funding to them by name, after the Secretary recommends specific projects for funding pursuant to this section and transmits such recommendations to the appropriate committees of Congress.

(i) Sunset.--This section shall apply only to federally owned storage projects and Stateled storage projects that the Secretary of the Interior determines to be feasible before January 1, 2021.

(j) Consistency With State Law.--Nothing in this section preempts or modifies any obligation of the United States to act in conformance with applicable State law.

(i) Sunset.--This section shall apply only to federally owned storage projects and State-led storage projects that the Secretary of the Interior determines to be feasible before January 1, 2021.

(k) Calfed Authorization.--Title I of Public Law 108-361 (the Calfed Bay-Delta Authorization Act) (118 Stat. 1681; 123 Stat. 2860; 128 Stat. 164; 128 Stat. 2312) (as amended by section 207 of Public Law 114-113) is amended by striking ``2017" each place it appears and inserting ``2019". Public Law 116-94, H. R. 1865—132 "That in accordance with section 4007 of Public Law 114–322, and as recommended by the Secretary in a letter dated February 13, 2019, funding provided for such purpose in fiscal years 2017 and 2018 shall be made available to…the North-of-the Delta Off stream Storage (Sites Reservoir Project)"

2. **<u>Background</u>**: *Clear background for program and project.*

The Sites Reservoir is a proposed off-stream reservoir that will be filled by pumping water from the Sacramento River. The project includes the Sites Reservoir and new facilities to integrate with both the existing Tehama-Colusa Canal (TC Canal) and Glenn-Colusa Irrigation District (GCID) Main Canal. Once constructed, the Sites Reservoir will be one of the state's largest reservoirs and will substantially increase surface water storage in the Sacramento Valley. The project's facilities will be independently owned and operated by the Sites Project Authority (Authority) under its own water rights and other regulatory requirements, in cooperation with the U.S. Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR)—operators of the Central Valley Project (CVP) and State Water Project (SWP), respectively.

Water Infrastructure Improvements for the Nation (WIIN) Act funding will allow the project to progress by incorporating necessary services including engineering design and conveyance design advancement, geological and geotechnical engineering functions, project permitting and environment planning support, mitigation, operations simulation modeling, real estate functions, communication efforts, program operations support, and program support. The project scope is funding-limited, and deliverables are identified based on the level of funding available to the project. The scope outlined in the following sections will allow the Authority to update and complete the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) and further the development of feasibility- and preliminary-level designs. It will provide needed staffing resources to augment Authority staffing and further the communication and real estate needs of the project.

3. **<u>Non-Competitive Selection</u>** ***(if applicable Per ACM 01-02):*** *The merit based selection of a recipient for a financial assistance agreement through any means other than a competition must follow the noncompetitive selection process. A non-competitive selection may be made as either a discretionary or non-discretionary selection.*

(1) Mandatory/Non-Discretionary. Selection of a recipient for a financial assistance agreement may be made without competition if Reclamation has no discretion in regards to the selection of the recipient for the proposed award. Non-discretionary selection must be based on either a statutorily mandated recipient or on other preexisting agreements or arrangements which remove Reclamation's discretion in the selection process.

(2) Discretionary Selection. Non-competitive selection of a financial assistance recipient may be made on a discretionary basis when circumstances would limit selection to a single entity. The justification must include how the selection is both based upon merit and in the best interest of the government. The allowable justifications for a non-competitive discretionary selection are as follows.

(a) Unsolicited Proposal. The proposed recipient submitted an unsolicited application for funding for a project or activity which represents a unique or innovative idea, method, or approach which is not the subject of a current or planned contract, financial assistance agreement, or funding opportunity, but is deemed advantageous to the funding program's objectives.

(b) Continuation. The activity to be funded is necessary for the satisfactory completion of, or is a continuation of an activity currently being funded, and for which competition would have a significant adverse effect on the continuity of the activity.

(c) Unique Qualifications. The proposed recipient is uniquely qualified to perform the activity based upon a variety of demonstrable factors such as location, property ownership, technical expertise, or other factors which preclude other entities from performing the proposed activities.

(d) Legislative Intent. The language in the applicable authorizing legislation or legislative history clearly indicates Congress' intent to restrict the award to a particular recipient.

(e) Emergencies. There is insufficient time available for an adequate competitive process due to a compelling or urgent circumstance such as a substantial danger to health or safety.

Congress approved funding for the Sites Reservoir Project under Section 4007 of the WIIN Act, authorizing funding from 2017-2022. Pursuant to Reclamation's Directives and Standard ACM 01-02 Section 5 A. (2)(b), Reclamation's Discretionary Selection of Sites Reservoir Authority is based on the continuation of funding under Agreement R20AC00105 providing funding through June 30, 2022. The proposed Agreement will continue the work Reclamation has previously funded, furthering the development of the Sites Reservoir Project.

4. **Public Purpose *(grants and cooperative agreements must have this)***: *Prove sufficient explanation as to how the project will assist the recipient in accomplishing its public purpose/needs, which are authorized by the public law. Demonstrate that the project is not primarily for the direct benefit of Reclamation or other Federal government agencies.*

The Authority has requested funding to apply towards engineering, geotechnical, planning/permitting, mitigation, operations modeling, real estate services, communications efforts, program operations, and program support. These services provide the foundation by which the Sites Reservoir Authority can accomplish its ultimate vision, to provide affordable water that is sustainably managed for California's farms, cities, and environment for generations to come. Funding moves the Sites Project closer to providing California the benefits the reservoir project is being designed to provide. These benefits include improved water supply, improved water supply reliability, incremental Level 4 water supply for refuges, improved survival of anadromous fish, enhance the Delta ecosystem, provide opportunities for recreation, and provide flood damage reduction. These benefits reach the general public, the environment, the economy, as well as local, state and federal agencies.

5. **Objectives**: *Describe specifically what the agreement will be accomplishing; demonstrating that it is an undertaking of a clearly defined objective that supports the purpose.*

The agreement will accomplish 8 objectives that directly support the purpose and progress of the Sites Reservoir Project.

Objective 1: Engineering
The Engineering tasks performed under this agreement will advance the design of the Sites Reservoir Service Area facilities from feasibility design through preliminary design.

Objective 2: Geology/Geotechnical Engineering
The geology and geotechnical tasks performed under this agreement involves work associated with planning, permitting and execution of field data collection efforts at locations which have received environmental permitting and right of access clearance.

Objective 3: Planning and Permitting
The work performed under this agreement includes the planning and permitting work required to finalize the EIR/EIS and obtain key permits and environmental clearances.

Objective 4: Compensatory Natural Resource Mitigation
This task will provide for the development of a comprehensive mitigation plan and begin the planning process for the mitigation needed for the Project.

Objective 5: Operations Simulation Modeling
The operations modeling performed under this agreement will provide analysis, modeling and documentation needed to support the Authority with environmental planning, operational agreements, permitting and water rights applications. This includes the EIR/EIS, Biological Assessment/Incidental Take Permit (ITP) and WSIP benefits agreements. This objective will also support the development of Version 2 of the Sites Reservoir Operations Plan.

Objective 6: Real Estate
The real estate tasks performed under this agreement involves Landowner engagement, Geotech Right-of-Entry and preparation of a Right-of -Way manual.

Objective 7: Communications
The communication efforts performed under this agreement will support the operational needs of the Authority as well as the environmental review and permitting process. Support will include outreach, strategic counsel and communication guidance, information materials, and media relations.

Objective 8: Program Operations
Program operations support is required to provide the Authority the additional support needed to establish and manage reservoir operations. This includes project management, project controls, project funding tasks, quality management, coordination, project administrative support and risk management functions.

Objective 9: Program Support
Program support is required to provide the Authority the additional staffing needed to perform needed support functions such as document management, GIS functions, IT support and staffing support.

6. **Benefits:** *Explain the benefits to be derived from the performance of the project. Demonstrate that the activity to be undertaken is of a public benefit and is in furtherance of Reclamation mission.*

The Sites Reservoir Project will offer several benefits to California on the state, regional, and local level.

Improve Water Supply and Water Supply Reliability. The water stored and released from Sites Reservoir will allow for improved water supply and reliability for participants in the project and California on the state, regional, and local level.

Provide Incremental Level 4 Water Supply for Refuges. The State has committed to invest in incremental Level 4 water supply for refuges at an undetermined level. Level 4 refuge demand is located primarily south of the Sacramento-San Joaquin Delta (Delta).

Improve the Survival of Anadromous Fish. The Authority is supportive of actions that benefit salmon, steelhead, and other anadromous fish species of concern in the Sacramento River watershed. Exchanges with Reclamation enable the conservation of the coldwater pool in Shasta and Folsom Lakes. The species benefit from improved coldwater pool management, lower river water temperatures, and supplemental flows to prevent the dewatering of redds.

Enhance the Delta Ecosystem. Water released from Sites Reservoir would be conveyed to the Yolo Bypass toe drain to convey biomass to the Delta to help supply food for Delta smelt.

Provide Opportunities for Recreation. State funding will support the construction of new recreation facilities, including the Stone Corral Creek Recreation Area on the east side of the reservoir, a boat ramp on the west side of the reservoir, and the Peninsula Hills Recreation Area on the west side of the reservoir.

Provide Flood Damage Reduction. Once completed, Sites Dam will reduce the likelihood of flooding in the Stone Corral Creek watershed, and Golden Gate Dam will improve flood damage reduction for extreme events on Funks Creek.

7. **Period of Performance:** *(date of execution through month/date/year). Agreements and/or modifications **will not** exceed a total of 5 years.*

   January 1, 2022 through December 31, 2024

8. **Scope of Work**: *MUST have detailed descriptions of project objectives. The project plan must describe, in detail, the activities to be undertaken, including the proposed work, reporting, major tasks, and project milestones including the identification of the anticipated start and ending dates of all major stages/objectives of the project proposal.*

Descriptions of the objectives of the project activities funded under this agreement are provided below.

Task 1: Engineering
This scope of work covers advancing the design of the Sites Reservoir facilities from the Feasibility Design (10-15%) undertaken in Task Order No. 2 through Preliminary Engineering (20-30%) Design. The major activities under Preliminary Engineering Design include (1) coordinating with the Authority, California Department of Water Resources Division of Safety of Dams (DSOD) and other jurisdictional agencies; (2) coordinating with the Environmental, Permitting, Real Estate, Geology/Geotechnical and Engineering teams; (3) geotechnical data monitoring during the field investigations and data interpretation for use in design analyses; (4) value engineering; (5) updating the project schedule; (6) engineering analyses and Basis of Design Report; (7) Preliminary Engineering Design drawings and specification list; (8) updating the construction cost estimates to reflect the Preliminary Engineering design; and (9) developing contract procurement strategies/project delivery methods.

Major Tasks:

- Survey & Topo Mapping
- Geology/Geotechnical Field Investigations Data Monitoring and Interpretation Reports
- Preliminary Engineering Basis of Design Report
- Preliminary Design Engineering Analysis
- Preliminary Design Drawings and Specifications List

- Value Engineering
- Coordination with jurisdictional Agencies
- Utility Coordination
- DSOD fees
- Identify and Initiate Procurement Strategies
- Project Construction Schedule
- Project Coordination and Management
- Project Risk Management
- Support Real Estate Activities

Task 2: Geology/Geotechnical Engineering
The geology and geotechnical tasks performed under this agreement involves work associated with planning, permitting and execution of field data collection efforts at locations which have received environmental permitting and right of access clearance.

Major Tasks:
- Environmental Permitting Document Review
- Field investigation activities scheduled between 2022 and 2024
- Geology/Geotechnical Data Reports

Task 3: Planning and Permitting
The work performed under this agreement includes the planning and permitting work required to finalize the EIR/EIS and obtain key permits and environmental clearances.

Major Tasks:
- 401 Permit Submitted
- 404 Permit Submitted
- Aquatic Resources Management Plan
- BA - Draft and Final
- Biological Survey Plan and Plant, Aquatic Resources, and Wildlife surveys
- Tribal Resources-AB 52 Tribal Consultation Support
- Programmatic Historic Properties Management Plan\
- Section 106 Documents and Consultation Support
- Eagle Permit & Surveys
- EIR/EIS – Final
- EIR/EIS – Findings, SOC
- EIR/EIS – Responses to Comments
- EIR/EIS – ROD Support
- Geotech Pre-Construction Surveys
- Geotech Field Monitoring (Full-Time)

- Geotech Section 106 Coordination
- Geotech CV Flood Encroachment Permits Invasive Species Plan
- Lake and Streambed Alteration Agreement (LSAA)
- Reservoir Management Plan
- Stone & Funks Creek Flow Plan & Survey
- Antelope Valley Hydrology Assessment and Monitoring
- Worker Environmental Awareness Program (WEAP)

Task 4: Mitigation
This task will provide for the development of a comprehensive mitigation plan and begin the planning process for the mitigation needed for the Project.

Major Tasks:

- Mitigation Monitoring and Reporting Program
- Mitigation Support Findings and Statement of Overriding Considerations

Task 5: Operations Simulation Modeling
The operations modeling performed under this agreement will provide analysis, modeling and documentation needed to support the Authority with environmental planning, operational agreements, permitting and water rights applications. This includes the EIR/EIS and WSIP benefits agreement. This objective will also support the development of Version 2 of the Sites Reservoir Operations Plan.

Major Tasks:

- Operations Analysis for Final EIR/EIS
- Operations Plan, Version 2
- Support for operational agreements
- Modeling for water Rights
- WSIP Benefits Agreements

Task 6: Real Estate
The real estate task involves work associated with land, real estate, right-of-way, interagency coordination, and public/landowner engagement considerations in support of the engineering, environmental, permitting, geotechnical, and communications efforts for the Sites Reservoir Project, in addition to programmatic real estate development for near-term land access, future land needs, land acquisition, and land management, in support of the Authority's objectives.

Major Tasks:

- Continued Landowner Engagement

- Geotech Right-of-Entry
- Right-of-Way Manual
- Real Estate ROE Fees

Task 7: Communications

The communication efforts performed under this agreement will support the operational needs of the Authority as well as the environmental review and permitting process. Support will include outreach, strategic counsel and communication guidance, information materials, and media relations.

Major Tasks:

- Authority Board/Reservoir Committee Engagement/Public Affairs Support
- Environmental Public Involvement
- Informational Materials and Media
- Communications for Permitting and Agency Outreach
- Strategic Communications and Message Development

Task 8: Program Operations

Project operations support is required to provide Authority staff assistance with project funding, project controls, project management, risk management, coordination, quality management and business management functions.

Major Tasks:

- Accounts Payable and Receivable
- Business Management
- Contract Administration, Compliance, and Contract Strategy
- Administration of Local, State, and Federal Funding
- Health & Safety
- Policies & Procedures
- Project Administrative Support
- Project Controls
- Project Financing and Agreements Support
- Project Management
- Quality Management
- Reclamation Coordination
- Risk Management
- Work Planning and Scheduling

Task 9: Program support
Program support includes document management, GIS data management, Information Technology and Staff support.

Major Tasks:

- Document Management
- GIS
- IT
- Staff Support

9. **Milestones/Timeline/Schedule**: *The project plan must describe, in detail, the activities to be undertaken, including the proposed work, reporting, major tasks, and project milestones including the identification of the anticipated start and ending dates of all major stages/tasks of the project proposal. It is highly recommended that the milestones within the SOW are constructed around the reporting frequency. For example, if the reporting frequency is semi-annual, then there would be milestones for each semi-annual period.*

A schedule with tasks and deliverables is presented below:

Task No.	Task	Deliverable	Estimated Start Date	Estimated Completion Date
01	Engineering	Geology/Geotechnical Field Investigations Data Monitoring	01/03/2022	12/27/2024
01	Engineering	Geology/Geotechnical Investigations Interpretation Reports	03/06/2023	12/27/2024
01	Engineering	Preliminary Engineering Design	07/28/2022	12/27/2024
01	Engineering	Survey & Topo Mapping	01/03/2022	08/31/2022
01	Engineering	Risk Management	01/03/2022	12/27/2024
01	Engineering	Project Delivery/Procurement Strategy	01/03/2022	12/27/2024
01	Engineering	Preliminary Design Value Engineering	01/02/2023	07/05/2024
01	Engineering	Preliminary Engineering Cost Estimate	07/28/2022	07/05/2024
01	Engineering	Project Construction Schedule	05/22/2022	01/05/2024
01	Engineering	Preliminary Design Engineering Analysis	07/28/2022	01/05/2024
01	Engineering	Preliminary Engineering Drawings and Specifications List	07/28/2022	01/05/2024

02	Geotechnical	Env Planning Document Review	01/01/2022	12/31/2023
02	Geotechnical	Geotech Work Package #1	07/28/2022	02/02/2023
02	Geotechnical	Geotech Work Package #2	12/30/2022	07/03/2023
02	Geotechnical	Geotech Work Package #3	06/20/2023	12/22/2023
02	Geotechnical	Geotech Work Package #4	12/11/2023	06/13/2024
02	Geotechnical	Geotech Work Package #5	05/31/2024	12/04/2024
03	Planning/Permitting	401	01/01/2022	12/30/2023
03	Planning/Permitting	404	02/24/2021	12/30/2023
03	Planning/Permitting	Aquatic Resources Management Plan	09/01/2022	12/30/2023
03	Planning/Permitting	BA	01/02/2022	12/30/2022
03	Planning/Permitting	Eagle Permit & Surveys	01/02/2022	12/30/2023
03	Planning/Permitting	EIR/EIS	04/01/2022	12/30/2022
03	Planning/Permitting	Invasive Species Plan	07/01/2024	12/30/2024
03	Planning/Permitting	Geotech	01/03/2022	12/30/2024
03	Planning/Permitting	Surveys	04/01/2022	12/30/2024
04	Mitigation Planning	Mitigation Master Plan	08/17/2022	02/15/2023
05	Operations Modeling	BA/ITP Modeling Support	01/02/2022	12/30/2023
05	Operations Modeling	Operations Analysis	01/02/2022	12/30/2024
05	Operations Modeling	Operations Plan Version 2	01/02/2023	12/30/2023
05	Operations Modeling	Support Operational Agreements	01/02/2022	01/31/2022
05	Operations Modeling	Water Rights	01/03/2022	12/30/2024
05	Operations Modeling	WSIP Benefit Agreements	01/03/2022	12/30/2023
06	Real Estate	Real Estate	01/03/2022	12/30/2024
07	Communications	Communications	01/03/2022	12/30/2024
08	Program Operations	Coordination and Management Support	06/01/2021	12/30/2024
09	Program Support	Document management, IT/GIS Support	01/03/2022	12/30/2024

10. <u>Recipient Responsibilities:</u> *If the SOW contains construction activities, the Recipient is responsible for construction inspection, oversight, and acceptance. If applicable, the Recipient shall also coordinate and obtain approvals from site owners and operators.*

<u>Responsibilities of Sites Project Authority</u>:

The responsibilities of Sites Project Authority are described below and incorporated as part of this Agreement.

1. Perform all tasks specified in the proposal.

2. Ensure that project activities are in compliance with all relevant local, State, and Federal regulations.

3. Recognize the contribution of Reclamation through documents and in any public statements, publications, or signage relevant to the project.

4. Comply with the reporting and distribution requirements of this Agreement. Submit reports and correspondence to:

Junaid As-Salek, Grants Officer Technical Representative
Bureau of Reclamation
2800 Cottage Way, Room W-2830
Sacramento CA 95825

5. Provide Reclamation with manuscripts published in scientific journals, as data warrant. Promptly provide to Reclamation, at the Recipient's sole cost, electronic files of all field data, photographs, and research products including reports, analyses, databases, and models, as applicable, that are produced by the Recipient in connection with the investigations undertaken through this Agreement, whether published or not.

If the agreement is a Cooperative Agreement, the proposal must include both the responsibilities of the recipient and of Reclamation. Please review the information below:

11. <u>Reclamation Responsibilities</u>: (<u>REQUIRED IF COOPERATIVE AGREEMENT</u>)

Must clearly state as to how Reclamation's responsibilities constitute "substantial involvement." in which the GOTR participates and collaborates jointly with the recipient partner, volunteer, scientist, technician, or other personnel, in carrying out the scope of work, trains recipient personnel, or details federal personnel to work on the project effort.

If Substantial involvement between Reclamation and the Recipient is anticipated during the performance of this Agreement, then add the following statement and outline the activities *and responsibilities that Reclamation will perform in support of the agreement that constitute substantial involvement:*

Substantial involvement by Reclamation is anticipated during the performance of activities funded under this cooperative agreement. In support of this Agreement, Reclamation will be responsible for the following:

Cooperative Agreements must include the responsibilities of the recipient and of Reclamation:

Responsibilities of Reclamation:

N/A

12. **Budget:** *As an Attachment, must provide a DETAILED budget (including Reclamation, Recipients and other entity contribution) using the Recommended Budget Table Format. Budget documents must include supporting documents for each line items (with justification), an approved indirect cost rate, if applicable. Budget must be reviewed and approved by GOTR before submitting to MP-3800.* Detailed budget is attached.

13. **Pre-Award Incurrence of Costs:** *Provide date with justification. Incurrence of costs is authorized (if approved by the GO) if the cost was incurred after the agreement was entered into, and would have been allowable, allocable, and reasonable under the terms and conditions of the agreement.*

    The Applicant will submit a request for approval of the pre-award incurrence of costs effective from January 1, 2021.

14. **Cost Sharing Requirement:** *(List of participants/collaborators (including type of recipient and amount). If program authority requires a cost share/match, provide a copy of the Public Law, section and sub-section, verbatim.*

    At least 50% non-Federal cost-share is required for costs incurred under this Agreement. If pre-award costs are authorized, reimbursement of these costs is limited to federal cost share percentage identified in this agreement.

Funding Source	Original Funding Amount ($)	Amendment 1	Total Funding Amount ($)
Non-federal entities	—	—	—
Participation partners funding	42,345,543	—	42,345,543
Subtotal (non-federal)	**42,345,543**	**—**	**42,345,543**
Requested Reclamation funding	42,000,000	—	42,000,000

Funding Source	Original Funding Amount ($)	Amendment 1	Total Funding Amount ($)
Total	84,345,543	—	84,345,543

15. Reporting: *Any type of special reporting beyond Reclamation's requirement.*

Reports and Deliverables

In compliance with the terms of the Authority's Financial Assistance Agreement with Reclamation, the Authority will submit performance and financial reports describing the progress completed during the previous quarter. The performance reports include a summary of percent complete, deliverable status, and work anticipated for the next period whereas the financial report includes a budget status reported in the form of the appropriate federal template (SF-425). Separate from the FAA reporting, the Authority will also continue to provide quarterly financial reports to Reclamation in compliance with cost share reporting requirements. The Authority will continue to track overall expenses against requests for reimbursement on a quarterly basis and will confirm that requests for reimbursement do not exceed the overall 25% total cost share.

Financial Status Report	Interim	Final
Format	Hard copy	Hard copy
Form	SF-425	SF-425
Reporting Frequency	Quarterly	Due upon completion of agreement period of performance
Reporting Period	3/31, 6/30, 9/30, 12/31	Entire period of performance
Due Date	Within 30 days after the end of the Reporting Period	Within 90 days after the completion date of the agreement
Send one original to each:	GO and GOTR	GO and GOTR

Recipient Key Personnel: *(contact information) Name of person Project/Program Manager, Title, Address, Phone, Email and etc.*

Recipient
Sites Project Authority
112 Old Highway 99 West
Maxwell, CA 95955
530-438-2309

DUNS # 0812668150000
TIN # 90-0635251
Special District Government

Points of Contact (POC)
Joe A. Trapasso
112 Old Highway 99 West
Maxwell, CA 95955
Program Operations Manager
530-387-1102
jtrapasso@sitesproject.org

Jerry Brown
112 Old Highway 99 West
Maxwell, CA 95955
Executive Director
925-260-7417
jbrown@sitesproject.org

16. GOTR: *(contact information) Name of person, Title, Address, Phone, Email and etc.*

Bureau of Reclamation, Interior Region 10, California-Great Basin, Resource Management Division
Junaid As-Salek
Bureau of Reclamation, Room W-2830
2800 Cottage Way
Sacramento CA 95825
(916) 978-5099
jassalek@usbr.gov

17. Post-Award Monitoring Plan: *A completed and signed post-award monitoring plan for agreement's with a total estimated federal amount in excess of $500,000.00.*

The Sites Project Authority is responsible for oversight of the completion of activities supported under this agreement. Sites Project Authority must monitor activities to ensure compliance with applicable Federal requirements and performance expectations are being achieved. Monitoring by the non-Federal entity must cover each program, function, or activity.

Performance progress reports will be submitted quarterly as described in the reporting section above.

18. Government-Furnished Property: *Must clearly state if government furnished property is provided.*

N/A

19. Real Property: *Must clearly state if real property is acquired.*

No real property is being acquired as part of this request.

20. Research Agreement: *Include a statement if the agreement will result in Patents and Inventions.*

The agreement will not result in Patents and Inventions being created.

21. Recipient Signature

Joe Trapasso

Joe A. Trapasso
Program Operations Manager

STATEMENT OF WORK (SOW)

1. **Public Law**, *including Section and Sub-section verbatim, which provides Reclamation authority to award Financial Assistance for this project. Provide a statement that directly relates the activities to be funded to the referenced authority.*

This Financial Assistance Agreement (Agreement) is entered into between the United States of America, acting through the Department of the Interior, Bureau of Reclamation (Reclamation) and Sites Project Authority (Recipient), pursuant to PL 114-322; Water Infrastructure Improvements for the Nation (WIIN) Act Section 4007. Storage. (a)(2)(c)(d)(e)(g)(h)(i)(k). The following section, provided in full text, authorizes Reclamation to award this financial assistance agreement:

PL 114-322; Water Infrastructure Improvements for the Nation (WIIN) Act Section 4007. Storage. (a)(2)(c)(d)(e)(g)(h)(i)(k)

(a) Definitions. --In this subtitle:

(1) Federally owned storage project. --The term ``federally owned storage project'' means any project involving a surface water storage facility in a Reclamation State--
(A) to which the United States holds title; and
(B) that was authorized to be constructed, operated, and maintained pursuant to the reclamation laws.
(2) State-led storage project.--The term ``State-led storage project'' means any project in a Reclamation State that--
(A) involves a groundwater or surface water storage facility constructed, operated, and maintained by any State, department of a State, subdivision of a State, or public agency organized pursuant to State law; and
(B) provides a benefit in meeting any obligation under Federal law (including regulations).

(c) State-Led Storage Projects.—

(1) In General.—Subject to the requirements of this subsection, the Secretary of the Interior may participate in a State-led storage project in an amount equal to not more than 25 percent of the total cost of the State-led storage project.

(2) Request by Governor.—Participation by the Secretary of the Interior in a State-led storage project under this subsection shall not occur unless— (A) the participation has been requested by the Governor of the State in which the State-led storage project is located; (B) the State or local sponsor determines, and the Secretary of the Interior concurs, that— (i) the State-led storage project is technically and financially feasible

and provides a Federal benefit in accordance with the reclamation laws; (ii) sufficient non-Federal funding is available to complete the State-led storage project; and (iii) the State-led storage project sponsors are financially solvent; (C) the Secretary of the Interior determines that, in return for the Federal cost-share investment in the State led storage project, at least a proportional share of the project benefits are the Federal benefits, including water supplies dedicated to specific purposes such as environmental enhancement and wildlife refuges; and(D) the Secretary of the Interior submits to Congress a written notification of these determinations within 30 days of making such determinations.

(3) Environmental Laws.—When participating in a State led storage project under this subsection, the Secretary shall comply with all applicable environmental laws, including the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(4) Information.—When participating in a State-led storage project under this subsection, the Secretary of the Interior— (A) may rely on reports prepared by the sponsor of the State-led storage project, including feasibility (or equivalent) studies, environmental analyses, and other pertinent reports and analyses; but (B) shall retain responsibility for making the independent determinations described in paragraph (2).

(d) Authority To Provide Assistance.--The Secretary of the Interior may provide financial assistance under this subtitle to carry out projects within any Reclamation State.

(e) Rights To Use Capacity.--Subject to compliance with State water rights laws, the right to use the capacity of a federally owned storage project or State-led storage project for which the Secretary of the Interior has entered into an agreement under this subsection shall be allocated in such manner as may be mutually agreed to by the Secretary of the Interior and each other party to the agreement.

(g) Partnership and Agreements.--The Secretary of the Interior, acting through the Commissioner, may partner or enter into an agreement regarding the water storage projects identified in section 103(d)(1) of the Water Supply, Reliability, and Environmental Improvement Act (Public Law 108-361; 118 Stat. 1688) with local joint powers authorities formed pursuant to State law by irrigation districts and other local water districts and local governments within the applicable hydrologic region, to advance those projects.

(h) Authorization of Appropriations.--

(1) $335,000,000 of funding in section 4011(e) is authorized to remain available until expended.

(2) Projects can only receive funding if enacted appropriations legislation designates funding to them by name, after the Secretary recommends specific projects for funding pursuant to this section and transmits such recommendations to the appropriate committees of Congress.

(i) Sunset.--This section shall apply only to federally owned storage projects and Stateled storage projects that the Secretary of the Interior determines to be feasible before January 1, 2021.

(j) Consistency With State Law.--Nothing in this section preempts or modifies any obligation of the United States to act in conformance with applicable State law.

(i) Sunset.--This section shall apply only to federally owned storage projects and State-led storage projects that the Secretary of the Interior determines to be feasible before January 1, 2021.

(k) Calfed Authorization.--Title I of Public Law 108-361 (the Calfed Bay-Delta Authorization Act) (118 Stat. 1681; 123 Stat. 2860; 128 Stat. 164; 128 Stat. 2312) (as amended by section 207 of Public Law 114-113) is amended by striking ``2017'' each place it appears and inserting

``2019''. Public Law 116-94, H. R. 1865—132 "That in accordance with section 4007 of Public Law 114–322, and as recommended by the Secretary in a letter dated February 13, 2019, funding provided for such purpose in fiscal years 2017 and 2018 shall be made available to…the North-of-the Delta Off stream Storage (Sites Reservoir Project)"

2. **Background**: *Clear background for program and project.*

The Sites Reservoir is a proposed off-stream reservoir that will be filled by pumping water from the Sacramento River. The project includes the Sites Reservoir and new facilities to integrate with both the existing Tehama-Colusa Canal (TC Canal) and Glenn-Colusa Irrigation District (GCID) Main Canal. Once constructed, the Sites Reservoir will be one of the state's largest reservoirs and will substantially increase surface water storage in the Sacramento Valley. The project's facilities will be independently owned and operated by the Authority under its own water rights and other regulatory requirements, in cooperation with the U.S. Bureau of Reclamation (Reclamation) and the California Department of Water Resources (DWR)—operators of the Central Valley Project (CVP) and State Water Project (SWP), respectively.

Water Infrastructure Improvements for the Nation (WIIN) Act funding will allow the project to provide operations modeling and feasibility- and preliminary-level designs while also supporting the right-of-entry and landowner coordination required to complete the geotechnical field work. The project scope is funding-limited, and deliverables are identified based on the level of funding available to the project. The scope outlined in the following sections will allow the Authority to support the development of the revised Draft EIR/EIS and prepare feasibility- and preliminary-level designs.

3. **Non-Competitive Selection (if applicable Per ACM 01-02):** *The merit based selection of a recipient for a financial assistance agreement through any means other than a competition must follow the noncompetitive selection process. A non-competitive selection may be made as either a discretionary or non-discretionary selection.*

(1) Mandatory/Non-Discretionary. Selection of a recipient for a financial assistance agreement may be made without competition if Reclamation has no discretion in regards to the selection of the recipient for the proposed award. Non-discretionary selection must be based on either a statutorily mandated recipient or on other preexisting agreements or arrangements which remove Reclamation's discretion in the selection process.

(2) Discretionary Selection. Non-competitive selection of a financial assistance recipient may be made on a discretionary basis when circumstances would limit selection to a single entity. The justification must include how the selection is both based upon merit and in the best interest of the government. The allowable justifications for a non-competitive discretionary selection are as follows.

(a) Unsolicited Proposal. The proposed recipient submitted an unsolicited application for funding for a project or activity which represents a unique or innovative idea, method, or approach which is not the subject of a current or

planned contract, financial assistance agreement, or funding opportunity, but is deemed advantageous to the funding program's objectives.

(b) Continuation. The activity to be funded is necessary for the satisfactory completion of, or is a continuation of an activity currently being funded, and for which competition would have a significant adverse effect on the continuity of the activity.

(c) Unique Qualifications. The proposed recipient is uniquely qualified to perform the activity based upon a variety of demonstrable factors such as location, property ownership, technical expertise, or other factors which preclude other entities from performing the proposed activities.

(d) Legislative Intent. The language in the applicable authorizing legislation or legislative history clearly indicates Congress' intent to restrict the award to a particular recipient.

(e) Emergencies. There is insufficient time available for an adequate competitive process due to a compelling or urgent circumstance such as a substantial danger to health or safety.

Congress approved funding for the Sites Reservoir Project under Section 4007 of the WIIN Act, authorizing funding from 2017-2021. Pursuant to Reclamation's Directives and Standard ACM 01-02 Section 5 A. (2)(b), Reclamation's Discretionary Selection of Sites Reservoir Authority is based on the continuation of funding under Agreement R20AC00105 providing funding through June 30, 2022 with a requested extension through March 31, 2023. The proposed Agreement will continue the work Reclamation has previously funded, furthering the development of the Sites Reservoir Project.

4. **Public Purpose (grants and cooperative agreements must have this)**: *Prove sufficient explanation as to how the project will assist the recipient in accomplishing its public purpose/needs, which are authorized by the public law. Demonstrate that the project is not primarily for the direct benefit of Reclamation or other Federal government agencies.*

Sites has requested funding to apply towards modeling, engineering, geotechnical and real estate services. These services provide the foundation by which the Sites Reservoir Authority can accomplish its ultimate vision, to provide affordable water that is sustainably managed for California's farms, cities, and environment for generations to come. Funding moves the Sites Project closer to providing California the benefits the reservoir project is being designed to provide. These benefits include improved water supply, improved water supply reliability, incremental Level 4 water supply for refuges, improved survival of anadromous fish, enhance the Delta ecosystem, provide opportunities for recreation, and provide flood damage reduction. These benefits reach the general public, the environment, the economy, as well as local, state, and federal agencies.

5. **Objectives**: *Describe specifically what the agreement will be accomplishing; demonstrating that it is an undertaking of a clearly defined objective that supports the purpose.*

The agreement will accomplish 4 objectives that directly support the purpose of the Sites Reservoir Project.

Objective 1:
The operations modeling performed under this agreement will provide analysis needed to support permitting efforts and water rights applications. This includes the EIR/EIS, Biological Assessment/Incidental Take Permit and future climate change scenarios. This objective will also develop Version 1 of the Sites Reservoir Operations Plan.

Objective 2:
The Engineering tasks performed under this agreement will provide the preliminary hydraulics modeling, a Class IV cost estimate, a DSOD engagement plan, a constructability analysis, a program design/construction/permit and implementation schedule, an environmental feasibility support and the preparation of a Geotechnical Permit Planning and Investigation Plan. Preliminary engineering efforts will advance the design to 30%.

Objective 3:
The geotechnical tasks performed under this agreement will consist of field data collection, preparing geotechnical data reports, preliminary planning for design, and work plans for design-level geologic and geotechnical data needs.

Objective 4:
The real estate tasks performed under this agreement involves the engagement of up to 25 landowners/tenants/entities for temporary right-of-entry access.

6. **Benefits:** *Explain the benefits to be derived from the performance of the project. Demonstrate that the activity to be undertaken is of a public benefit and is in furtherance of Reclamation mission.*

The Sites Reservoir Project will offer several benefits to California on the state, regional, and local level.

Improve Water Supply and Water Supply Reliability. The water stored and released from Sites Reservoir will allow for improved water supply and reliability for participants in the project and California on the state, regional, and local level.

Provide Incremental Level 4 Water Supply for Refuges. The State has committed to invest in incremental Level 4 water supply for refuges at an undetermined level. Level 4 refuge demand is located primarily south of the Sacramento-San Joaquin Delta (Delta).

Improve the Survival of Anadromous Fish. The Authority is supportive of actions that benefit salmon, steelhead, and other anadromous fish species of concern in the Sacramento River watershed. Exchanges with Reclamation enable the conservation of the coldwater pool in Shasta and Folsom Lakes. The species benefit from improved coldwater pool management, lower river water temperatures, and supplemental flows to prevent the dewatering of redds.

Enhance the Delta Ecosystem. Water released from Sites Reservoir would be conveyed to the Yolo Bypass toe drain to convey biomass to the Delta to help supply food for Delta smelt.

Provide Opportunities for Recreation. State funding will support the construction of new recreation facilities, including the Stone Corral Creek Recreation Area on the east side of the reservoir, a boat ramp on the west side of the reservoir, and the Peninsula Hills Recreation Area on the west side of the reservoir.

Provide Flood Damage Reduction. Once completed, Sites Dam will reduce the likelihood of flooding in the Stone Corral Creek watershed, and Golden Gate Dam will improve flood damage reduction for extreme events on Funks Creek.

7. **Period of Performance:** *(date of execution through month/date/year). Agreements and/or modifications* ***will not*** *exceed a total of 5 years.*

   January 1, 2021 through June 30, 2023

8. **Scope of Work**: *MUST have detailed descriptions of project objectives. The project plan must describe, in detail, the activities to be undertaken, including the proposed work, reporting, major tasks, and project milestones including the identification of the anticipated start and ending dates of all major stages/objectives of the project proposal.*

Descriptions of the objectives of the project activities funded under this agreement are provided below.

Task 1 – Operations Modeling

Operations modeling will evaluate the operations for up to three alternatives to be included in the EIR/EIS. This will also include modeling support for the Biological Assessment (BA)/Incidental Take Permit (ITP) and future climate change scenarios. This task will provide additional analysis of the preferred alternative specific to preparation of the BA/ITP and other analyses needed to support permitting efforts and water rights application. This task will also include fisheries modeling, climate change analysis of potential future hydrologic and sea level rise conditions, and mercury modeling with a qualitative assessment of mercury effects.

This task will also involve develop Version 1 of the Sites Reservoir Operations Plan.

Major Tasks:

- Full operations analysis
- EIR/EIS modeling support
- BA/ITP modeling support
- Develop modeling documentation for EIR/EIS
- Develop modeling documentation for BA/ITP
- Operations Plan, Version 1

Task 1 Outcome: Modeling will support the revised Draft Environmental Impact Report (EIR)/Environmental Impact Statement (EIS)

Task 2 – Engineering

Engineering efforts will support the environmental impact assessment of the preferred project identified through the value planning process. Work will include completing feasibility-level designs and drawings of project features. This information will be used in estimating quantities and assessing impacts, assessing haul routes, identifying construction activities and schedules, and identifying key operation and maintenance activities for the EIS/EIR.

The engineering task will provide the preliminary hydraulics modeling, providing three types of models that are needed to size the facility components to meet the needs of the project. A Class IV cost estimate, including mitigation measures, will be developed for the facilities and associated mitigation measures developed by the environmental/permitting team. The engineering technical feasibility will include confirming public benefits and non-public benefits that will be quantified using physical and monetary measures. A benefits-based cost allocation will be included to support the demonstration of economic feasibility. A benefit-to-cost ratio will be developed to demonstrate that the expected benefits of the project equal or exceed the expected costs. The cost allocation will also be used to develop a cost assignment for the project; this information will demonstrate that sufficient funds will be available from public and non-public sources.

Engineering will provide a constructability analysis to demonstrate that the facilities can be constructed using existing technology and availability of construction materials, work force, and equipment. This effort may include evaluating and identifying feasible construction methods, viable materials and sources, construction phasing, site access, potential haul routes, temporary and permanent bridges, coffer dams in water bodies to allow construction in the dry, potential tunneling methods, long-lead items and durations, time periods when delivery of irrigation water can and cannot be interrupted, and flood constraints in the Colusa Basin Drain and Sacramento River. As the project progresses from preliminary to final design, it is expected that the constructability analysis will be updated and refined.

Based on the feasibility-level designs, engineering will develop a Program Design/Construction/Permit and Implementation Schedule, along with a Geotechnical Permit Planning and Investigation Plan that will include the execution of the feasibility-phase geotechnical exploration program that was conducted in 2020 and 2021.

Environmental feasibility will include conducting a feasibility-level design for the purpose of supporting the feasibility-level project description, construction cost estimates, and environmental documentation and permitting. This effort is needed to achieve the facility definition required for Class IV cost estimates and the information required for the Draft EIS/EIR. This will also include confirming environmental feasibility with mitigation.

Development of the Geotechnical Investigation Work Plans (GIWPs) for the final design phase will involve coordination with the geotechnical team, which will provide the details of the investigation methodology. Two GIWPs will be prepared: one for DSOD jurisdictional facilities (dams, inlet/outlet tower and tunnels, and spillway) and one for non-DSOD jurisdictional facilities (roads and bridge).

Preliminary engineering efforts will also be undertaken to advance from feasibility-level design (10%) to preliminary design (30%). This will be carried out for the preferred project, as identified in the Draft EIR/EIS.

Major Tasks:

- Preliminary hydraulics model
- Class IV cost estimate
- DSOD engagement plan
- Engineering – technical feasibility
- Environmental feasibility support (project design/feasibility design)
- Geotechnical Permit Planning and Investigation Plan
- Preliminary engineering

Task 2 Outcome: Supports the environmental impact assessment of the preferred project identified through the value planning process.

Task 3 – Geotechnical

The geotechnical task involves work associated with planning, permitting, and execution of field data collection and support for Reclamation field teams at a select number of exploration points. The field data collection will inform and support the Sites Authority Feasibility Study and further development of the overall project description.

This task will include conducting field data collection in the Funks to TRR area and the proposed Dunnigan pipeline alignment area extending from the TCC to the Sacramento River. It will also include conducting a borrows study of TRR pipeline alignment soils and the location soils based on findings from the field exploration.

This task involves preparing two geotechnical data reports corresponding with field data collection activities. Each report will summarize all research and field activities conducted relevant to the study area, with chapters outlining findings and conclusions based on the information gathered during desktop and field activities, and specific chapters addressing data requests. Reports will be complete with field data logs, CPT and field survey reports completed by Reclamation, a geologic and geomorphic study technical memorandum completed by Fugro, borrow studies completed by Fugro, site plans depicting limits of the study, data locations and significant findings, and figures showing our interpretation of findings.

Preliminary planning for design-level geologic and geotechnical engineering investigations involves conducting a data gap assessment of geologic and geotechnical data needs related to each facility/feature proposed for the project.

Work plans for design-level geologic and geotechnical engineering investigations involves preparing two geologic and geotechnical engineering work plans describing the need for and methods to be used during design-level geologic and geotechnical engineering investigations.

Major Tasks:

- Field data collection work plan/cost estimate
- Geotechnical data reports
- Preliminary planning for design
- Site plan with proposed borings

Task 3 Outcome: Inform and support the Sites Authority Feasibility Study and further development of the overall project description.

Task 4 – Real Estate

The real estate task involves work associated with land, real estate, right-of-way, interagency coordination, and public/landowner engagement considerations in support of the engineering, environmental, permitting, geotechnical, and communications efforts for the Sites Reservoir Project, in addition to programmatic real estate development for near-term land access, future land needs, land acquisition, and land management, in support of the Authority's objectives. This assumes an effort of engaging up to 25 landowners/tenants/entities for temporary right-of-entry access.

Major Tasks:

- Real estate landowner coordination

Task 4 Outcome: Coordination with landowners regarding project developments

9. **Milestones/Timeline/Schedule**: *The project plan must describe, in detail, the activities to be undertaken, including the proposed work, reporting, major tasks, and project milestones including the identification of the anticipated start and ending dates of all major stages/tasks of the project proposal. It is highly recommended that the milestones within the SOW are constructed around the reporting frequency. For example, if the reporting frequency is semi-annual, then there would be milestones for each semi-annual period.*

A schedule with tasks and deliverables is presented below:

Task No.	Task	Deliverable	Estimated Start Date	Estimated Completion Date
01	Operations Modeling	Full operations analysis complete	11/23/20	03/30/21
01	Operations Modeling	Operations plan, Version 1	11/01/20	12/31/21
01	Operations Modeling	Appendices for BA/ITP	03/01/22	07/01/22
02	Engineering	Preliminary hydraulics modeling	09/01/20	06/30/21
02	Engineering	Class IV estimate	09/01/20	06/30/21
02	Engineering	Technical feasibility	10/01/20	02/28/22
02	Engineering	Environmental feasibility	09/01/20	12/30/21
02	Engineering	Geotechnical permit planning	11/01/20	02/20/22
02	Engineering	Preliminary engineering	01/03/22	12/30/22
03	Geotechnical	Geotechnical work plans	11/01/20	08/30/21
03	Geotechnical	Field data collection	01/04/21	08/30/21
03	Geotechnical	Date evaluation and reporting	01/04/21	10/30/21
04	Right-of-way	Right-of-entry	01/01/21	12/30/22

10. **Recipient Responsibilities:** *If the SOW contains construction activities, the Recipient is responsible for construction inspection, oversight, and acceptance. If applicable, the Recipient shall also coordinate and obtain approvals from site owners and operators.*

This request does not contain construction activities.

If the agreement is a Cooperative Agreement, the proposal must include both the responsibilities of the recipient and of Reclamation. Please review the information below:

11. **<u>Budget:</u>** *As an Attachment, must provide a DETAILED budget (including Reclamation, Recipients and other entity contribution) using the Recommended Budget Table Format. Budget documents must include supporting documents for <u>each</u> line items (with justification), an approved indirect cost rate, if applicable. Budget must be reviewed and approved by GOTR before submitting to MP-3800.*

12. **<u>Pre-Award Incurrence of Costs:</u>** *Provide date with justification. Incurrence of costs is authorized (if approved by the GO) if the cost was incurred after the agreement was entered into, and would have been allowable, allocable, and reasonable under the terms and conditions of the agreement.*

The Applicant will submit a request for approval of the pre-award incurrence of costs effective from January 1, 2021.

13. **<u>Cost Sharing Requirement:</u>** (*List of participants/collaborators (including type of recipient and amount). If program authority requires a cost share/match, provide a copy of the Public Law, section and sub-section, verbatim.*

At least 50% non-Federal cost-share is required for costs incurred under this Agreement. If pre-award costs are authorized, reimbursement of these costs is limited to federal cost share percentage identified in this agreement.

Funding Source	Original Funding Amount ($)	Amendment 1	Total Funding Amount ($)
Non-federal entities	—	—	—
Participation partners funding	6,900,247	—	6,900,247
Subtotal (non-federal)	**6,900,247**	**—**	**6,900,247**
Requested Reclamation funding	6,900,000	—	6,900,000
Total	**$13,800,247**	**—**	**$13,800,247**

14. **<u>Reporting:</u>** *Any type of special reporting beyond Reclamation's requirement.*

<u>Reports and Deliverables</u>

In compliance with the terms of the Sites Project Authority's (Authority) Financial Assistance Agreement with Reclamation, the Authority will submit performance and financial reports describing the progress completed during the previous quarter. The performance reports include a summary of percent complete, deliverable status, and work anticipated for the next period whereas the financial report includes a budget status reported in the form of the appropriate federal template (SF-425). Separate from the FAA reporting, the Authority will also continue to provide quarterly financial reports to Reclamation in compliance with cost share reporting requirements.

Financial Status Report	Interim	Final
Format	Hard copy	Hard copy
Form	SF-425	SF-425
Reporting Frequency	Quarterly	Due upon completion of agreement period of performance
Reporting Period	3/31, 6/30, 9/30, 12/31	Entire period of performance
Due Date	Within 30 days after the end of the Reporting Period	Within 90 days after the completion date of the agreement
Send one original to each:	GO and GOTR	GO and GOTR

15. Recipient Key Personnel: *(contact information) Name of person Project/Program Manager, Title, Address, Phone, Email and etc.*

Recipient
Sites Project Authority
112 Old Highway 99 West
Maxwell, CA 95955
530-438-2309

DUNS # 0812668150000
TIN # 90-0635251
Special District Government

Points of Contact (POC)
Joe A. Trapasso
112 Old Highway 99 West
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Program Operations Manager
530-387-1102
jtrapasso@sitesproject.org

Jerry Brown
112 Old Highway 99 West
Maxwell, CA 95955
Executive Director
925-260-7417

jbrown@sitesproject.org

16. GOTR: *(contact information) Name of person, Title, Address, Phone, Email and etc.*

Bureau of Reclamation, Interior Region 10, California-Great Basin, Division of Planning
Vanessa King
Bureau of Reclamation
2800 Cottage Way
Sacramento CA 95825
(916) 978-5077

17. Post-Award Monitoring Plan: *A completed and signed post-award monitoring plan for agreements with a total estimated federal amount in excess of $500,000.00.*

The Sites Project Authority is responsible for oversight of the completion of activities supported under this agreement. Sites Project Authority must monitor activities to ensure compliance with applicable Federal requirements and performance expectations are being achieved. Monitoring by the non-Federal entity must cover each program, function, or activity.

Performance progress reports will be submitted quarterly as described in the reporting section above.

18. Government-Furnished Property: *Must clearly state if government furnished property is provided.*

N/A

19. Real Property: *Must clearly state if real property is acquired.*

No real property is being acquired as part of this request.

20. Research Agreement: *Include a statement if the agreement will result in Patents and Inventions.*

The agreement will not result in Patents and Inventions being created.

21. Recipient Signature

Joe Trapasso
Joe A. Trapasso
Program Operations Manager

From: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Sent: 6/23/2022 6:08:13 AM
To: Heydinger, Erin [erin.heydinger@hdrinc.com]; Spranza, John [john.spranza@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]
Subject: FW: SPJPA Sites: Alternative 2 Memo

Preliminary review of the Alternative 2 memo and thoughts from ICF are below.

From: Williams, Nicole <Nicole.Williams@icf.com>
Sent: Wednesday, June 22, 2022 8:57 PM
To: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: RE: SPJPA Sites: Alternative 2 Memo

Hi Laurie,

Confirmed; received. Anne and I spoke briefly this afternoon. She may have additional thoughts, but I wanted to send you these initial thoughts.

In general the content that Jacobs provided shows:

- Changes to Alt 2 are small compared to results presented for Alt 2 in the RDEIR/SDEIS
- Changes are similar to what is observed in the refined modeled runs for Alt 1A, 1B, and 3

I think this generally means a new appendix could be included in the Final EIR/EIS with the content in the memo. The modelers would likely need to further explain why comparing RDEIR/SDEIS Alt 2 results to the baseline or the refined Alt1A, 1B, and 3 results doesn't result in anything "new" and/or fully discloses impacts. This might be somewhat similar to what was done for the supporting appendices Jacobs prepared for socioeconomics explaining why differences in the baseline and water supply results wouldn't result in any "worse" impacts as previously disclosed by the Draft 2017 modeling.

A Few Considerations:

1. Changes to "NAA" (modeled baseline): I'm not sure I realized changes to the modeled baseline was occurring, but now it can be seen in numeric form. The modelers may need to explain that the RDEIR/SDEIS modeled NAA and the Final EIR/EIS modeled NAA are essentially "the same" in a new appendix.
2. Potentially more input from the modelers and other technical folks to support why #1 wouldn't result in substantial changes in "downstream models". This may include describing the relationships in other models – I know the relationships aren't always linear – so it may be somewhat challenging.
3. Practical application of merging refined results for Alt 1A, 1B and 3 with RDEIR/SDEIS results for Alt 2 in the Final EIR/EIS may present interesting challenges and result in oddities that could be complex to describe, in the event that we try. I asked Anne to pull together a few examples, and below is the one she was able to get to today. Please see below.

TABLE 6-16 FROM RDEIR/SDEIS:

Table 6-16. X2: No Action Alternative (km) and Change between No Action and Alternatives 1, 2, and 3 (km)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Critically Dry Water Years												
NAA (km)	92.9	92.4	87.6	83.5	77.2	76.7	79.0	84.1	87.2	89.6	91.5	93.0
Alt 1A Change	-1.3	-0.7	0.4	0.3	0.4	0.5	0.1	0.1	0.0	-0.3	-0.5	-0.5
Alt 1B Change	-1.2	-0.7	0.4	0.3	0.3	0.4	0.1	0.1	0.1	-0.3	-0.5	-0.6
Alt 2 Change	-1.2	-0.6	0.4	0.3	0.3	0.4	0.1	0.1	0.1	-0.3	-0.5	-0.4
Alt 3 Change	-0.8	-0.6	0.4	0.3	0.4	0.4	0.1	0.1	0.1	-0.2	-0.4	-0.3
Wet Water Years												
NAA (km)	78.7	79.5	75.3	57.5	54.8	55.5	56.7	59.3	65.4	73.6	81.0	78.4
Alt 1A Change	-0.3	0.1	0.3	0.1	0.0	0.1	0.0	0.0	0.1	0.1	-0.1	-0.3
Alt 1B Change	-0.3	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.1	0.1	-0.1	-0.3
Alt 2 Change	-0.3	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.1	0.1	-0.2	-0.4
Alt 3 Change	-0.3	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.1	-0.1	-0.3

New Version that uses old X2 values for Alt 2. Changes in the Alt 2 differences relative to baseline are due to changes in NAA – This makes Alt 2 look better (decrease in X2) in critical years and worse (increase in X2) in wet years

Average X2 (km): Alternatives Compared to Baseline - Difference

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Critical Years												
Baseline (TAF)	92.6	92.2	87.7	83.8	77.5	76.9	79.0	84.1	87.1	89.5	91.5	92.9
Alt 1A Change	-0.3	-0.1	0.0	0.2	0.1	0.2	0.1	-0.1	-0.1	-0.3	-0.7	-0.7
Alt 1B Change	-0.2	0.0	0.0	0.2	0.1	0.2	0.1	0.0	0.0	-0.3	-0.6	-0.7
Alt 2 Change	-0.8	-0.4	0.2	0.0	0.0	0.2	0.1	0.0	0.1	-0.2	-0.4	-0.3
Alt 3 Change	-0.1	-0.1	-0.1	0.2	0.0	0.2	0.1	0.0	0.0	-0.3	-0.5	-0.3
Wet Years												
Baseline (TAF)	77.7	78.9	74.9	57.6	54.8	55.5	56.8	59.3	65.4	73.6	80.9	77.9
Alt 1A Change	-0.3	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	-0.5
Alt 1B Change	-0.3	0.2	0.3	0.2	0.0	0.0	0.0	-0.1	0.0	0.0	-0.3	-0.5
Alt 2 Change	0.8	0.8	0.6	0.0	0.0	0.1	0.0	0.0	0.1	0.1	-0.1	0.2
Alt 3 Change	-0.2	0.2	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.0	-0.3	-0.4

Cheers, Nicole

NICOLE L. WILLIAMS
Managing Director
ICF
o 916.231.9614
icf.com

From: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Sent: Wednesday, June 22, 2022 4:20 PM
To: Williams, Nicole <Nicole.Williams@icf.com>
Subject: Re: SPJPA Sites: Alternative 2 Memo

Hi Nicole,

Confirming that you received this and whether. You and Anne have any concerns about being able to address Alt 2 without further modeling.

Thanks,

Laurie

On Jun 22, 2022, at 8:27 AM, Laurie Warner Herson <laurie.warner.herson@phenixenv.com> wrote:

Steve's response is below

Sent from my iPhone

Begin forwarded message:

From: "Micko, Steve/SAC" <Steve.Micko@jacobs.com>
Date: June 22, 2022 at 8:09:47 AM PDT
To: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>, "Heydinger, Erin" <erin.heydinger@hdrinc.com>
Subject: RE: SPJPA Sites: Alternative 2 Memo

Yes, a similar table, with ALT1A, ALT1B, ALT2 and ALT3 was provided via email on May 19, 2022.
It is also posted to the SharePoint.

Best,
Steve

From: Laurie Warner Herson [laurie.warner.herson@phenixenv.com]
Sent: 6/23/2022 6:57:12 AM
To: Heydinger, Erin [erin.heydinger@hdrinc.com]; Spranza, John [john.spranza@hdrinc.com]; Alicia Forsythe [aforsythe@sitesproject.org]
Subject: FW: SPJPA Sites: Alternative 2 Memo

More thoughts from ICF, below.

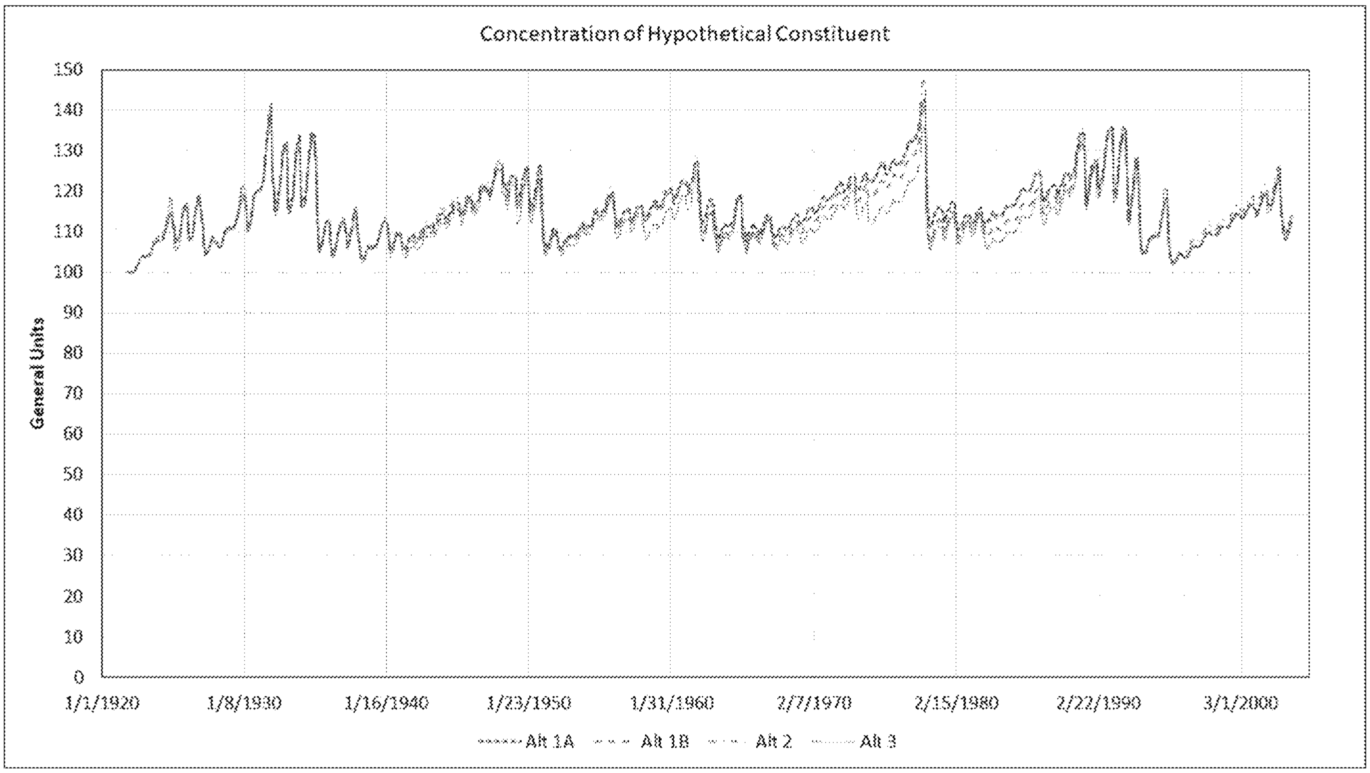
By the way, my intent is to only update Reclamation on Alt 2 our ongoing work to identify an approach, not discuss a preferred approach since we are not there yet.

From: Williams, Nicole <Nicole.Williams@icf.com>
Sent: Thursday, June 23, 2022 6:48 AM
To: Laurie Warner Herson <laurie.warner.herson@phenixenv.com>
Subject: RE: SPJPA Sites: Alternative 2 Memo

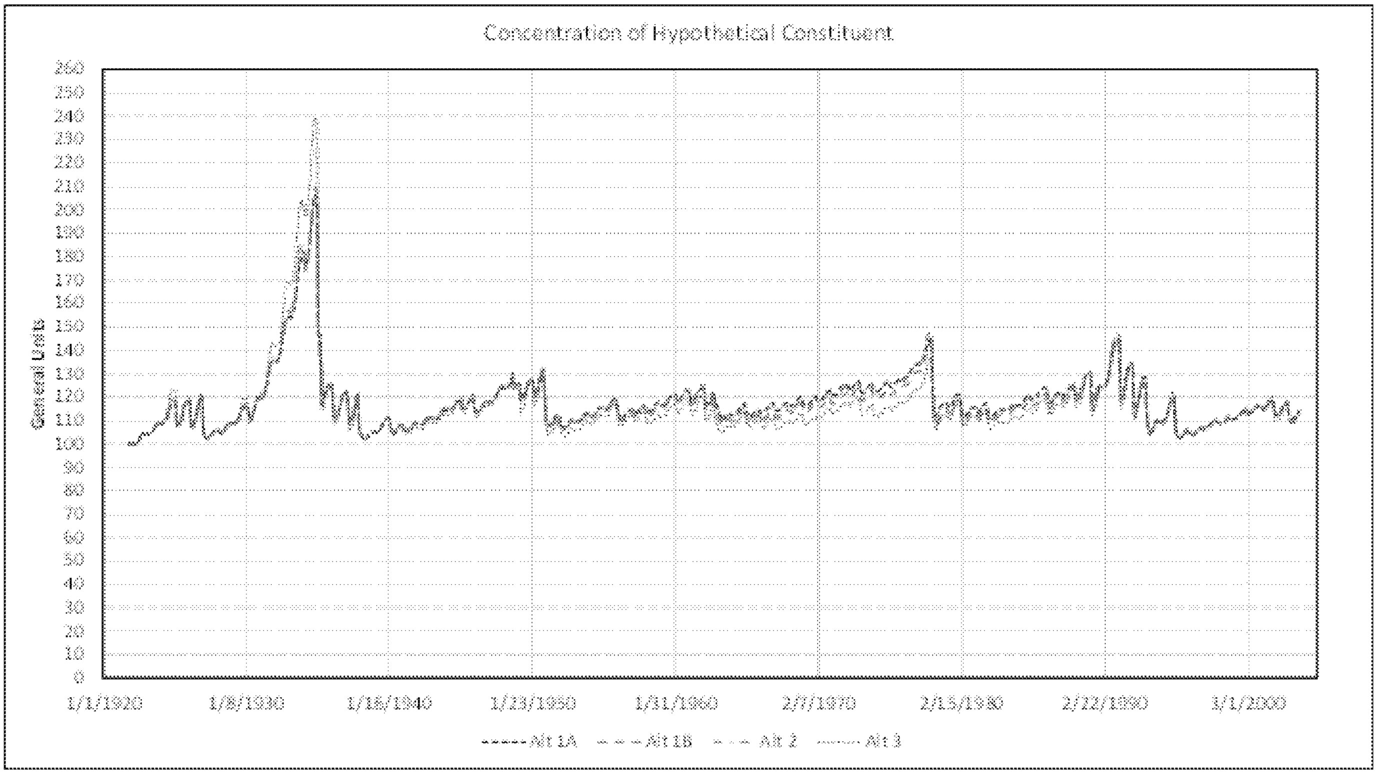
Morning Laurie, below is another example of #3 (practical application may present interesting challenges and result in oddities…") I think we probably need to discuss with Reclamation today that we are still working on this Alternative 2 issue and our hope is that we find an approach that doesn't require re-running all models for Alternative 2. But it may remain to be seen if we've found that actual approach. Cheers, Nicole

Evapoconcentration graphs show some issues and likely will need to say something about the new increase in concentration in the 1930s.

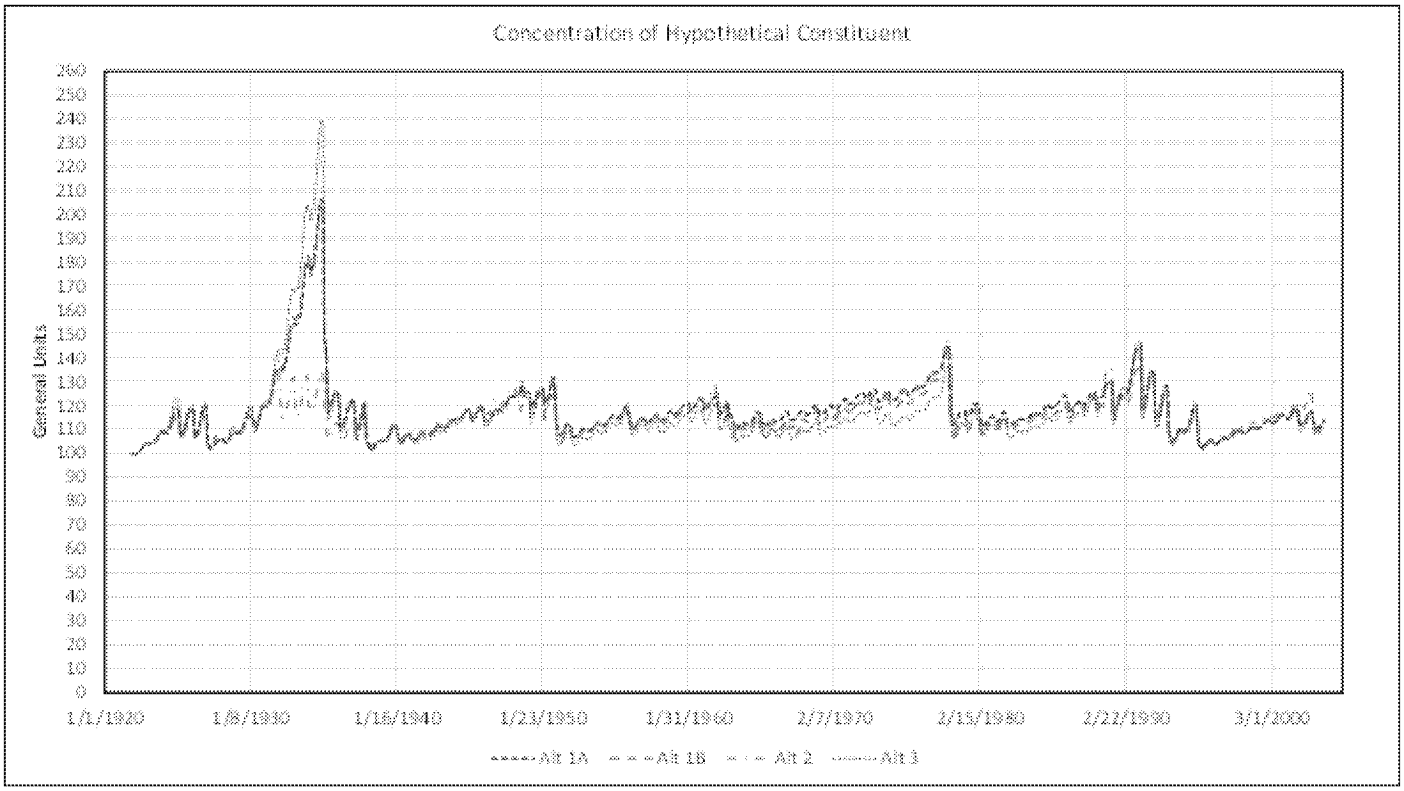
1. Original graph in RDEIR/SDEIS



2. Graph using full set of refined CalSim results including refined Alt 2 - didn't realize until now that there is a major change in the 1930s due to basically no diversions to storage during 1930 - 1935



3. Graph using new calsim results for 1A, 1B, and 3 and RDEIR/SDEIS Alt 2 results – you can see RDEIR/SDEIS Alt 2 down along the bottom when there was diversions to storage, but now apparently there are no diversions to storage under the refined modeled results



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Best,
Steve

From: Luu, Henry [Henry.Luu@hdrinc.com]
Sent: 6/23/2022 4:55:25 PM
To: Katherine Maher [KMaher@valleywater.org]
CC: JP Robinette [jrobinette@sitesproject.org]
Subject: RE: Sites schedule question

Hi Katherine,

The estimated construction schedule/timing can be found in Chapter 2 and Appendix 2C of the Project RDEIR-SDEIS (https://sitesproject.org/revised-draft-environmental-impact-report-supplemental-draft-environmental-impact-statement/). Table 2-8 in Chapter 2 shows the general construction timing and sequencing for the project and Attachment 2 of Appendix 2C is a preliminary construction schedule – both of which shows estimated completion within the 2030 timeframe. Feel free to call me if there are questions.

Cheers,

Henry H. Luu, PE
D 916.679.8857 M 916.754.7566

hdrinc.com/follow-us

From: Katherine Maher <KMaher@valleywater.org>
Sent: Thursday, June 23, 2022 3:16 PM
To: Luu, Henry <Henry.Luu@hdrinc.com>
Cc: JP Robinette <jrobinette@sitesproject.org>
Subject: FW: Sites schedule question

Hi Henry,

I emailed JP and got an out of office reply that directed me to you. We had a comment from the public on Sites at a recent committee meeting that the project would not be completed/operational until 2040. I'm relatively new to the Project, but I thought that construction was estimated to be completed around 2030. I can't find a project schedule that shows the estimated construction completion date, do you have one you can share?

Thanks,

Katherine

From: Katherine Maher
Sent: Thursday, June 23, 2022 3:00 PM
To: jrobinette@sitesproject.org
Subject: Sites schedule question

Hi JP,

We have an item going to our Board next week requesting approval to send a letter indicating that we'd like the opportunity to increase participation in Sites if space becomes available in the future. This item went through a committee meeting last week and there were a number of comments from the public on the project. One of the comments was that the reservoir wouldn't be complete and operational until 2040. That seems pretty far out, but I realized that I haven't seen a project schedule that actually shows project construction/ completion so I couldn't respond to the comment. Do you have a schedule that shows the estimated completion for the project construction?

Thanks,

KATHERINE MAHER, PE
SENIOR ENGINEER
Imported Water Unit
Cell (408) 472-8099

Valley Water

Clean Water • Healthy Environment • Flood Protection

5750 Almaden Expressway, San Jose CA 95118
www.valleywater.org

JACOBS

Memorandum

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F +1.916.920.8463
www.jacobs.com

Project Name Sites Reservoir Project

Subject Model Results to Support the 2022 Final EIR/EIS: No Action Alternative, Alternative 1A, Alternative 1B, and Alternative 3 – Suitable Floodplain Habitat

Attention Ali Forsythe/Sites Project Authority; Monique Briard/ICF; Erin Heydinger/HDR; Mike Hendrick /ICF; Laurie Warner Herson/Phenix; Nicole Williams/ICF; Neil Nikirk/JACOBS; Anne Huber/ICF; Lyna Black/JACOBS

From Robert Leaf/JACOBS; Steve Micko/JACOBS; Chad Whittington/JACOBS; Sai Nudurupati/JACOBS

Date June 24, 2022

1. Introduction

The Sites Reservoir Project team has developed model simulations to support quantitative analysis of Sites long-term operations as part of developing a Final EIR/EIS, for completion in 2022.

The results of these model simulations are provided for informational and review purposes. If there are any questions regarding the results of these simulations, please contact the modeling team.

2. Modeled Scenarios

Model results are provided for the alternatives tabulated below.

Model Name	Label Name (as seen in results)	Description
No Action Alternative 051422	NAA 051422	Baseline simulation (Reclamation 2021 Benchmark)
Alternative 1A 051722	ALT 1A 051722	1.5 MAF Reservoir
Alternative 1B 051722	ALT 1B 051722	1.5 MAF Reservoir with 101 TAF of Reclamation Investment
Alternative 3 051722	ALT 3 051722	1.5 MAF Reservoir with 360 TAF of Reclamation Investment

The Suitable Floodplain Habitat results were developed for the Sites Final EIR/EIS. Please review Appendix 11M of the Sites Reservoir Project RDEIR/SDEIS for details on approach, assumptions, and limitations. These results are useful so long as the results are interpreted consistent with the model limitations.

3. Model Simulations for Modeled Scenarios

3.1 Suitable Floodplain Habitat Area by Month and Water Year Type

The “1_Habitat_Area_by_Month_and_WYT” folder includes comparison tables of mean inundation area by month and water year type. The inundation areas were calculated using the 8-day running averages of flow throughout the entire 82-year period, excluding the first 7 days

The following pdf report is provided:

- HabitatAcreageByMonthWYT_AllRegions__FEIRS2022_HIST_NAA_ALT1A_ALT1B_ALT3.pdf

3.2 Suitable Floodplain Habitat Area Frequency and Duration

The “2_Frequency_Duration” folder includes frequency and duration comparison tables for events of varying magnitudes lasting 8-17 days, 18-24 days, and greater than 24 days. The Sutter Bypass and Yolo Bypass include additional files showing inundation events of varying acreages lasting within or greater than 10 days, 20 days, 30 days, and 45 days.

The following pdf reports are provided:

- InChannel_AllReaches_Inundation_Area_Duration-Frequency_FEIRS2022_HIST_NAA_ALT1A_ALT1B_ALT3.pdf
- InChannel_Reach1_Inundation_Area_Duration-Frequency_FEIRS2022_HIST_NAA_ALT1A_ALT1B_ALT3.pdf
- InChannel_Reach2_Inundation_Area_Duration-Frequency_FEIRS2022_HIST_NAA_ALT1A_ALT1B_ALT3.pdf
- InChannel_Reach3_Inundation_Area_Duration-Frequency_FEIRS2022_HIST_NAA_ALT1A_ALT1B_ALT3.pdf
- Sutter_Bypass_Inundation_Area_Duration-Frequency_FEIRS2022_HIST_NAA_ALT1A_ALT1B_ALT3.pdf
- SutterBypass_InundationComparison_FEIRS2022_HIST_NAA_ALT1A_ALT1B_ALT3.pdf
    - Inundation events of varying acreages lasting within or greater than 10 days, 20 days, 30 days, and 45 days
- Yolo_Bypass_Inundation_Area_Duration-Frequency_FEIRS2022_NAA_ALT1A_ALT1B_ALT3.pdf
- YoloBypass_InundationComparison_FEIRS2022_HIST_NAA_ALT1A_ALT1B_ALT3.pdf
    - Inundation events of varying acreages lasting within or greater than 10 days, 20 days, 30 days, and 45 days

3.3 Suitable Floodplain Habitat Area Daily Timeseries

The "3_Yolo_Bypass_Daily_Flow_and_Habitat_Area_Timeseries" folder includes daily flow and inundation area (habitat acreage) timeseries for the Yolo Bypass. The inundation areas were calculated using the 8-day running averages of flow throughout the entire 82-year period, excluding the first 7 days.

The following excel file is provided:

- Daily_Flow_and_Habitat_Area_Timeseries_YoloBypass_FEIRS2022_HistClim_NAA_ALT1A_ALT1B_ALT3.xlsx

Figure 1. Frequency of Reach 2 Habitat Area Inundation Events.

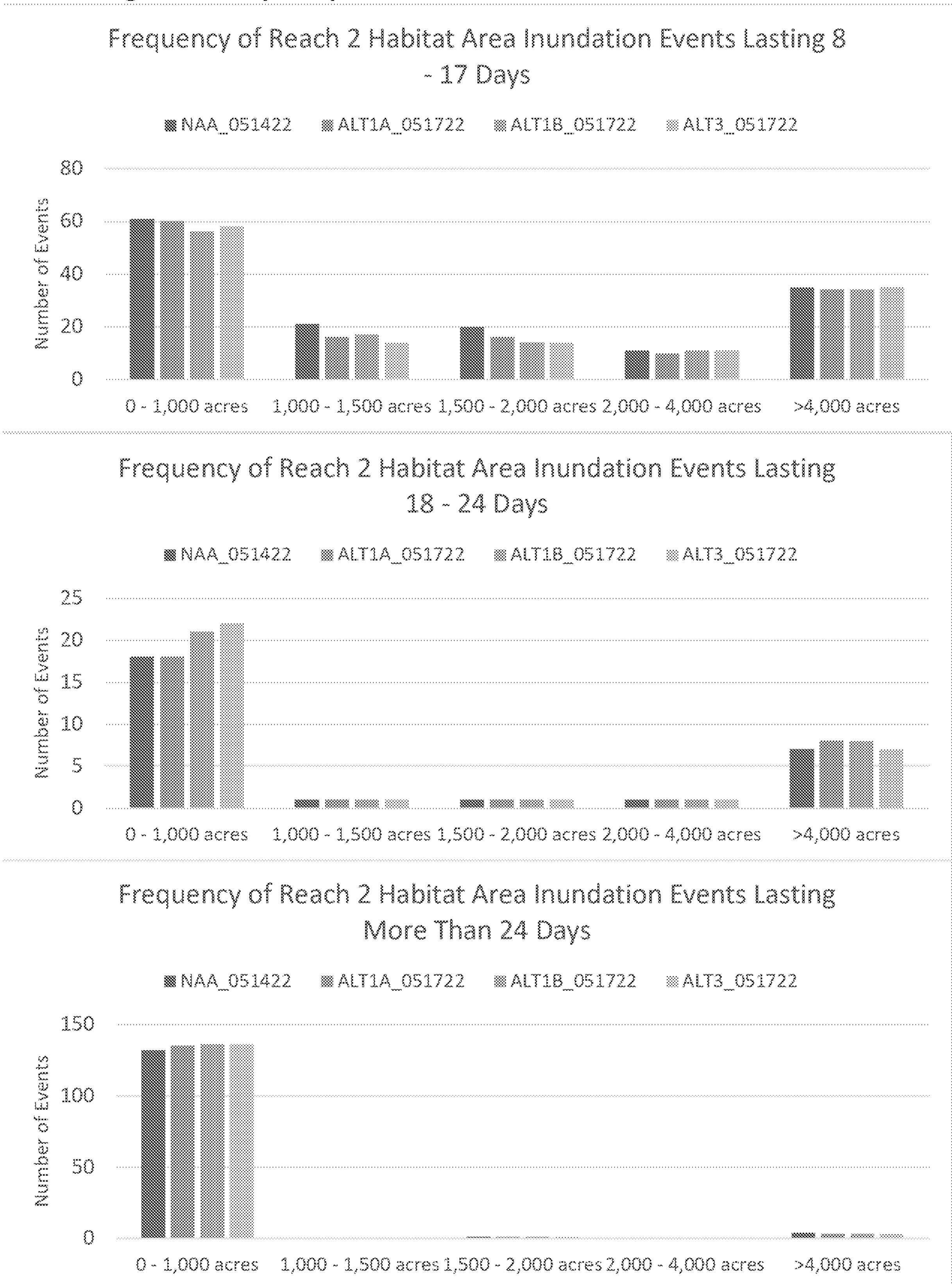


Table 1. Frequency of Sacramento River Reach 2 Habitat Area Inundation Events.

	Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	61	60	-1	-2%	56	-5	-8%	58	-3	-5%
1,000 - 1,500 acres	21	16	-5	-24%	17	-4	-19%	14	-7	-33%
1,500 - 2,000 acres	20	16	-4	-20%	14	-6	-30%	14	-6	-30%
2,000 - 4,000 acres	11	10	-1	-9%	11	0	0%	11	0	0%
>4,000 acres	35	34	-1	0	34	-1	0	35	0	0

	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	18	18	0	0%	21	3	17%	22	4	22%
1,000 - 1,500 acres	1	1	0	0%	1	0	0%	1	0	0%
1,500 - 2,000 acres	1	1	0	0%	1	0	0%	1	0	0%
2,000 - 4,000 acres	1	1	0	0%	1	0	0%	1	0	0%
>4,000 acres	7	8	1	0	8	1	0	7	0	0

	Frequency of Reach 2 Habitat Area Inundation Events Lasting More Than 24 Days									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	132	135	3	2%	136	4	3%	136	4	3%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	1	1	0	0%	1	0	0%	1	0	0%
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	4	3	-1	0	3	-1	0	3	-1	0

*Based on total number of events in 82 year simulation period.

Table 2. Monthly Summary of Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days

Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days in October

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0	0	0	-	0	0	-	0	0	-
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days in November

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	6	5	-1	-17%	4	-2	-33%	5	-1	-17%
1,000 - 1,500 acres	0	1	1	-	2	2	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	1	1	-
2,000 - 4,000 acres	0	1	1	-	1	1	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	1	1	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days in December

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	10	11	1	10%	9	-1	-10%	11	1	10%
1,000 - 1,500 acres	2	2	0	0%	1	-1	-50%	1	-1	-50%
1,500 - 2,000 acres	5	5	0	0%	5	0	0%	3	-2	-40%
2,000 - 4,000 acres	3	2	-1	-33%	2	-1	-33%	4	1	33%
>4,000 acres	4	4	0	0%	4	0	0%	4	0	0%

Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days in January

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	14	13	-1	-7%	14	0	0%	13	-1	-7%
1,000 - 1,500 acres	1	3	2	200%	3	2	200%	3	2	200%
1,500 - 2,000 acres	1	0	-1	-100%	0	-1	-100%	0	-1	-100%
2,000 - 4,000 acres	2	0	-2	-100%	0	-2	-100%	0	-2	-100%
>4,000 acres	7	6	-1	-14%	7	0	0%	8	1	14%

Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days in February

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	10	10	0	0%	10	0	0%	10	0	0%
1,000 - 1,500 acres	3	0	-3	-100%	0	-3	-100%	0	-3	-100%
1,500 - 2,000 acres	6	3	-3	-50%	1	-5	-83%	2	-4	-67%
2,000 - 4,000 acres	2	3	1	50%	4	2	100%	3	1	50%
>4,000 acres	10	9	-1	-10%	8	-2	-20%	8	-2	-20%

Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days in March

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	12	11	-1	-8%	9	-3	-25%	9	-3	-25%
1,000 - 1,500 acres	4	1	-3	-75%	2	-2	-50%	1	-3	-75%
1,500 - 2,000 acres	1	2	1	100%	2	1	100%	2	1	100%
2,000 - 4,000 acres	2	2	0	0%	2	0	0%	2	0	0%
>4,000 acres	8	9	1	13%	9	1	13%	8	0	0%

Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days in April

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	5	6	1	20%	6	1	20%	6	1	20%
1,000 - 1,500 acres	4	3	-1	-25%	3	-1	-25%	3	-1	-25%
1,500 - 2,000 acres	5	4	-1	-20%	4	-1	-20%	4	-1	-20%
2,000 - 4,000 acres	1	1	0	0%	1	0	0%	1	0	0%
>4,000 acres	6	6	0	0%	6	0	0%	6	0	0%

Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days in May

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	4	4	0	0%	4	0	0%	4	0	0%
1,000 - 1,500 acres	5	4	-1	-20%	4	-1	-20%	4	-1	-20%
1,500 - 2,000 acres	2	2	0	0%	2	0	0%	2	0	0%
2,000 - 4,000 acres	1	1	0	0%	1	0	0%	1	0	0%
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days in June

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0	0	0	-	0	0	-	0	0	-
1,000 - 1,500 acres	1	1	0	0%	1	0	0%	1	0	0%
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days in July

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0	0	0	-	0	0	-	0	0	-
1,000 - 1,500 acres	1	1	0	0%	1	0	0%	1	0	0%
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days in August

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0	0	0	-	0	0	-	0	0	-
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days in September

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0	0	0	-	0	0	-	0	0	-
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Table 3. Monthly Summary of Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days

	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in October								
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0	0	0	-	0	0	-	0	0	-
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-
	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in November									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0	0	0	-	0	0	-	0	0	-
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-
	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in December									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	3	3	0	0%	3	0	0%	3	0	0%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-
	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in January									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	4	3	-1	-25%	5	1	25%	5	1	25%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	4	4	0	0%	4	0	0%	3	-1	-25%
	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in February									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	5	4	-1	-20%	4	-1	-20%	4	-1	-20%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	1	1	0	0%	1	0	0%	1	0	0%
>4,000 acres	1	2	1	100%	2	1	100%	2	1	100%
	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in March									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	3	6	3	100%	7	4	133%	7	4	133%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	2	2	0	0%	2	0	0%	2	0	0%
	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in April									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	2	2	0	0%	2	0	0%	2	0	0%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-
	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in May									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	1	0	-1	-100%	0	-1	-100%	1	0	0%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-
	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in June									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0	0	0	-	0	0	-	0	0	-
1,000 - 1,500 acres	1	1	0	0%	1	0	0%	1	0	0%
1,500 - 2,000 acres	1	1	0	0%	1	0	0%	1	0	0%
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-
	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in July									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0	0	0	-	0	0	-	0	0	-
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-
	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in August									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0	0	0	-	0	0	-	0	0	-
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-
	Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in September									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0	0	0	-	0	0	-	0	0	-
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Table 4. Monthly Summary of Frequency of Reach 2 Habitat Area Inundation Events Lasting More Than 24 Days

Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in October

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	5	5	0	0%	5	0	0%	5	0	0%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in November

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	4	4	0	0%	4	0	0%	4	0	0%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in December

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	5	6	1	20%	7	2	40%	5	0	0%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in January

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	15	16	1	7%	16	1	7%	18	3	20%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in February

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	8	9	1	13%	9	1	13%	11	3	38%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	2	2	0	0%	2	0	0%	2	0	0%

Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in March

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	16	17	1	6%	17	1	6%	15	-1	-6%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	1	1	0	0%	1	0	0%	1	0	0%
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	2	1	-1	-50%	1	-1	-50%	1	-1	-50%

Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in April

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	10	9	-1	-10%	9	-1	-10%	9	-1	-10%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in May

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	3	3	0	0%	3	0	0%	3	0	0%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in June

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	4	4	0	0%	4	0	0%	4	0	0%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in July

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	27	27	0	0%	26	-1	-4%	26	-1	-4%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

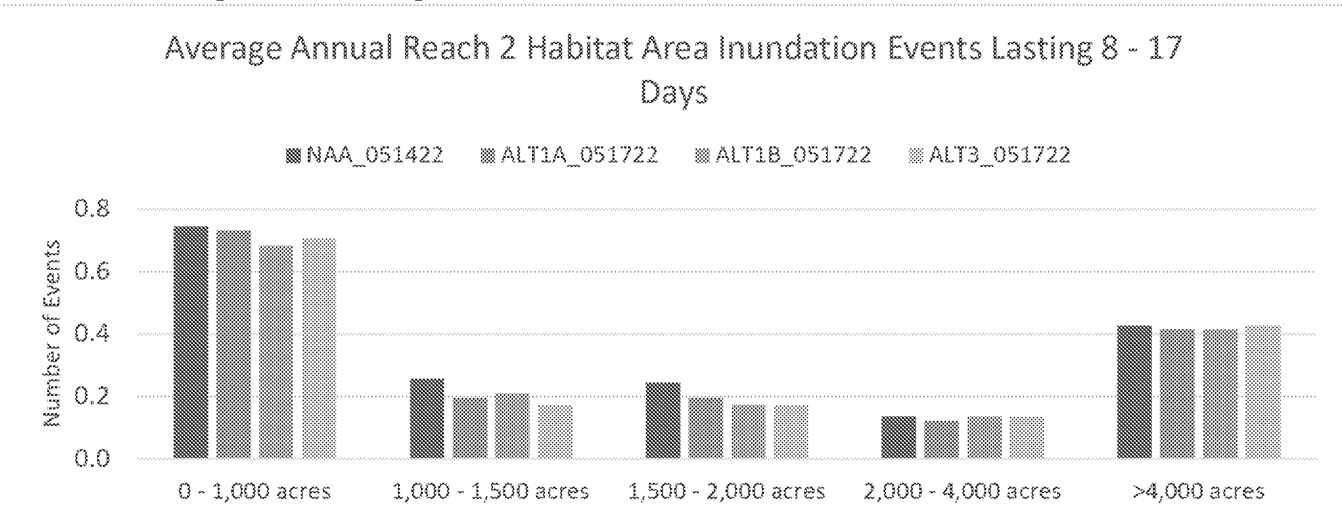
Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in August

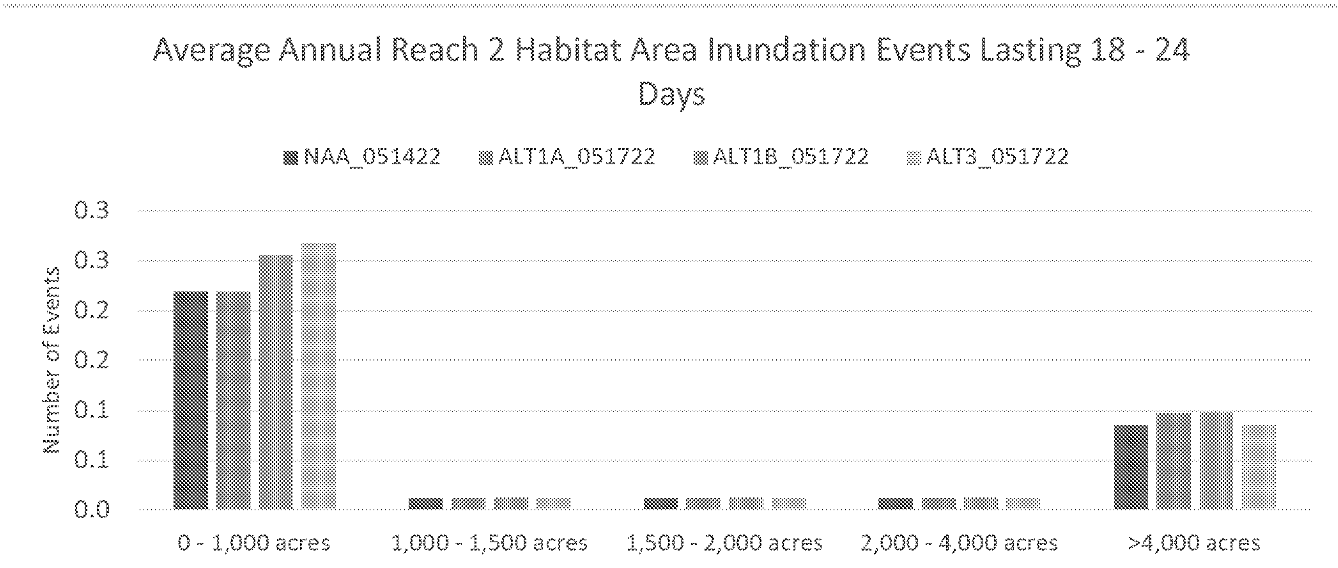
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	18	18	0	0%	19	1	6%	20	2	11%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Frequency of Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days in September

Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	17	17	0	0%	17	0	0%	16	-1	-6%
1,000 - 1,500 acres	0	0	0	-	0	0	-	0	0	-
1,500 - 2,000 acres	0	0	0	-	0	0	-	0	0	-
2,000 - 4,000 acres	0	0	0	-	0	0	-	0	0	-
>4,000 acres	0	0	0	-	0	0	-	0	0	-

Figure 2. Average Annual Reach 2 Habitat Area Inundation Events.





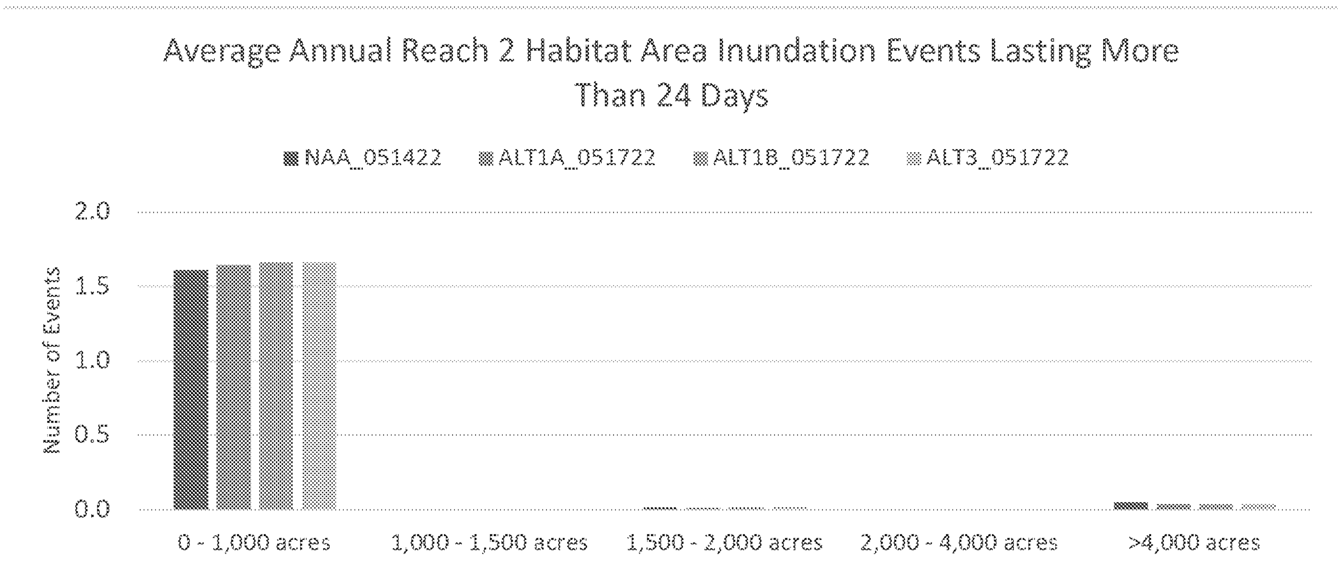


Table 4. Average Annual Reach 2 Habitat Area Inundation Events.

	Average Annual Reach 2 Habitat Area Inundation Events Lasting 8 - 17 Days									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0.74	0.73	-0.01	-2%	0.68	-0.06	-8%	0.71	-0.04	-5%
1,000 - 1,500 acres	0.26	0.20	-0.06	-24%	0.21	-0.05	-19%	0.17	-0.09	-33%
1,500 - 2,000 acres	0.24	0.20	-0.05	-20%	0.17	-0.07	-30%	0.17	-0.07	-30%
2,000 - 4,000 acres	0.13	0.12	-0.01	-9%	0.13	0.00	0%	0.13	0.00	0%
>4,000 acres	0.43	0.41	-0.01	0	0.41	-0.01	0	0.43	0.00	0
	Average Annual Reach 2 Habitat Area Inundation Events Lasting 18 - 24 Days									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	0.22	0.22	0.00	0%	0.26	0.04	17%	0.27	0.05	22%
1,000 - 1,500 acres	0.01	0.01	0.00	0%	0.01	0.00	0%	0.01	0.00	0%
1,500 - 2,000 acres	0.01	0.01	0.00	0%	0.01	0.00	0%	0.01	0.00	0%
2,000 - 4,000 acres	0.01	0.01	0.00	0%	0.01	0.00	0%	0.01	0.00	0%
>4,000 acres	0.09	0.10	0.01	0	0.10	0.01	0	0.09	0.00	0
	Average Annual Reach 2 Habitat Area Inundation Events Lasting 24 - 99999 Days									
Area Range	NAA_051422	ALT1A_051722	ALT1A_051722 minus NAA_051422	Percent Change	ALT1B_051722	ALT1B_051722 minus NAA_051422	Percent Change	ALT3_051722	ALT3_051722 minus NAA_051422	Percent Change
0 - 1,000 acres	1.61	1.65	0.04	2%	1.66	0.05	3%	1.66	0.05	3%
1,000 - 1,500 acres	0.00	0.00	0.00	--	0.00	0.00	--	0.00	0.00	--
1,500 - 2,000 acres	0.01	0.01	0.00	0%	0.01	0.00	0%	0.01	0.00	0%
2,000 - 4,000 acres	0.00	0.00	0.00	-	0.00	0.00	-	0.00	0.00	-
>4,000 acres	0.05	0.04	-0.01	0	0.04	-0.01	0	0.04	-0.01	0

*Based on total events in 82 year simulation period.

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Project Name	Sites Reservoir Project	
Subject	Climate Change Sensitivity Analysis Model Results to Support the 2022 Final EIR/EIS: No Action Alternative, Alternative 1A, Alternative 1B, Alternative 2, and Alternative 3	
Attention	Ali Forsythe/Sites Project Authority	Nicole Williams/ICF
	Erin Heydinger/HDR	Mike Hendrick /ICF
	Laurie Warner Herson/Phenix	Anne Huber/ICF
	Lyna Black/Jacobs	Monique Briard/ICF
	Neil Nikirk/Jacobs	
From	Robert Leaf/JACOBS	Steve Micko/JACOBS
	Reed Thayer/JACOBS	Solmaz Rasoulzadeh/JACOBS
Date	June 27, 2022	

1. Introduction

The Sites Reservoir Project team has developed model simulations to support quantitative analysis of Sites long-term operations as part of developing a final environmental document, for completion in 2022. Operations models were conducted at climate conditions representative of 2035 hydrology (2035 CT) and 15 cm of sea level rise and 2070 hydrology (WSIP 2070) and 45 cm of sea level rise. These model simulations are sensitivity analyses; limited changes to operations and model assumptions were made to accommodate the change to each climate scenario.

The results of these model simulations are provided for informational and review purposes. If there are any questions regarding the results of these simulations, please contact the modeling team.

2. Modeled Scenarios

Model results are provided for the alternatives tabulated below.

Model Name	Label Name (as seen in spreadsheet)	Description
No Action Alternative 062122 2035 CT	NAA 062122 2035 CT	Baseline simulation at 2035CT hydrology and 15 cm of seal level

Model Name	Label Name (as seen in spreadsheet)	Description
		rise (Reclamation 2021 Benchmark)
Alternative 1A 062222 2035 CT	ALT 1A 062222 2035 CT	1.5 MAF Reservoir at 2035CT hydrology and 15 cm of seal level rise
Alternative 1B 062222 2035 CT	ALT 1B 062222 2035 CT	1.5 MAF Reservoir with 101 TAF of Reclamation Investment at 2035CT hydrology and 15 cm of seal level rise
Alternative 2 062222 2035 CT	ALT 2 062222 2035 CT	1.27 MAF Reservoir at 2035CT hydrology and 15 cm of seal level rise
Alternative 3 062222 2035 CT	ALT 3 062222 2035 CT	1.5 MAF Reservoir with 360 TAF of Reclamation Investment at 2035CT hydrology and 15 cm of seal level rise
No Action Alternative 062122 WSIP 2070	NAA 062122 WSIP 2070	Baseline simulation (Reclamation 2021 Benchmark at WSIP 2070 hydrology and 45 cm of sea level rise)
Alternative 1A 062222 WSIP 2070	ALT 1A 062222 WSIP 2070	1.5 MAF Reservoir at WSIP 2070 hydrology and 45 cm of sea level rise
Alternative 1B 062222 WSIP 2070	ALT 1B 062222 WSIP 2070	1.5 MAF Reservoir with 101 TAF of Reclamation Investment at WSIP 2070 hydrology and 45 cm of sea level rise
Alternative 2 062222 WSIP 2070	ALT 2 062222 WSIP 2070	1.27 MAF Reservoir at WSIP 2070 hydrology and 45 cm of sea level rise
Alternative 3 062222 WSIP 2070	ALT 3 062222 WSIP 2070	1.5 MAF Reservoir with 360 TAF of Reclamation Investment at WSIP 2070 hydrology and 45 cm of sea level rise

The CalSim II model was used to simulate Sites Reservoir, CVP, and SWP water operations, including reservoir operations, river flows and diversions at key project-related locations.

The CalSim II models used were developed in coordination with and reviewed by Sites Project Authority (Authority) and revised according to direction provided by the Authority.

This model (CalSim II) has been jointly developed by Reclamation and the California Department of Water Resources (DWR) over many years. This model is useful so long as the results are interpreted consistent with the model limitations.

Future climate hydrology and sea level rise were applied. Then, limited changes to operations and model assumptions were made to accommodate the change to climate.

3. Model Simulations for Modeled Scenarios

3.1 CalSim II Simulations

Two Trend Reporting spreadsheets are provided:

- NODOS_Trend_Reporting_rev53dpcye_DV6_MultiClim_CALSIM__2035CT_NAA_062122_2035CT_ALT1A_062222_2035CT_ALT1B_062222_2035CT_ALT2_062222_2035CT_ALT3_062222.xlsm
- NODOS_Trend_Reporting_rev53dpcye_DV6_MultiClim_CALSIM__WSIP2070_NAA_062122_WSIP2070_ALT1A_062222_WSIP2070_ALT1B_062222_WSIP2070_ALT2_062222_WSIP2070_ALT3_062222.xlsm

4. Trend Reporting Spreadsheet

The trend reporting spreadsheet is designed to provide easy viewing of multiple scenarios. Please focus on the "Report - ALL (DASHBOARD)" tab. At this tab, you can select the parameter that you wish to evaluate, the type of statistic that you would like to view (e.g. averages, water-year type averages, dry periods), and the seasonal period (e.g. individual months, water year, CVP contract year, selected seasons). If flow results are presented, there is an option to convert flow data in CFS to volume in TAF/month.

The "Report - ALL (DASHBOARD)" presents data in the following formats:

- Results Table
- Bar chart of results
- Timeseries of selected statistic
- Exceedance plot (displays all data for the selected seasonal period; is not affected by "select statistic")
- Monthly Pattern (displays the selected statistic for each month; is not affected by "select seasonal period")
- Overall timeseries (includes entire timeseries, not affected by "select statistic" or "select seasonal period").

Not all statistics or seasonal periods should be used for all parameters. For example, seasonal averages or annual averages of reservoir storage do not provide value.

If reviewing results by water year type, please note that water year type averages are calculated based on calendar year, not water year.

For each climate change scenario, the model references different water year types. The trend reporting spreadsheet allows for the selection of different water year type references for statistical calculations. This does not change the water year types used in the CalSim II model but allows the user to select on what climate scenario's water year types will be used in the trend reporting spreadsheet calculations. Water year type references may be selected for each scenario on the “Control” tab. The table below specifies the number of years assigned to each water-year type in each climate scenario.

Number of Water Years Classified as Each Water Year Type (WY 1922-2003)			
D-1641 Sacramento Valley 40-30-30 Index			
Water Year Type	Climate Scenario		
	Historical	2035 CT	WSIP 2070
Wet	26	27	26
Above Normal	12	10	11
Below Normal	14	15	13
Dry	18	18	20
Critically Dry	12	12	12

File Provided Natively

Bi-Weekly Sites-USBR Coordination Draft Agenda

Sites

Affordable Water, Sustainably Managed

Our Core Values – Safety, Trust and Integrity, Respect for Local Communities, Environmental Stewardship, Shared Responsibility and Shared Benefits, Accountability and Transparency, Proactive Innovation, Diversity and Inclusivity
Our Commitment – To live up to these values in everything we do

Meeting Participants:

Date:	June 28, 2022	**Location:**	Join Microsoft Teams Meeting
Start Time:	3:00 p.m.	**Finish Time:**	4:00 p.m.

Purpose: Coordinate activities related to planning and permitting of the Sites Reservoir Project. This is a standing bi-weekly meeting.

Meeting Participants:

Jerry Brown, Sites	Henry Luu, Sites	Erin Heydinger, Sites	John Spranza, Sites
Ali Forsythe, Sites	Vanessa King, Bureau	Laurie Warner Herson, Sites	Michael Mosley, Bureau
Richard Welsh, Bureau	Gregory Mongano, Bureau	Jobaid Kabir, Bureau	Melissa Dekar, Bureau
Don Bader, Bureau	Darryl Good, Bureau	Stacey Leigh, Bureau	Susanne Manugian, Bureau
Natalie Taylor, Bureau	Levi Johnson, Bureau	Mark Carper, Bureau	Austin Olah, Bureau
Mark Morberg, Bureau	Luke Davis, Bureau	Shane Hunt, Bureau	Kevin Jacobs, Bureau

Discussion Topic	Topic Leader	Time
1. Introductions	All	
2. Follow-up on action items from the last meeting: a. None.		1 min
3. EIR/EIS, Permitting, Operations		20 min
4. Financial Assistance		20 min
5. Other Activities		10 min
6. Review of Action Items		As time allows

Bi-Weekly Sites-USBR Coordination Draft Agenda

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1. Introductions	All	
2. Follow-up on action items from the last meeting: a. None.		1 min
3. EIR/EIS, Permitting, Operations		20 min
4. Financial Assistance		20 min
5. Other Activities		10 min
6. Review of Action Items		As time allows

From: Sandra Yarbrough [syarbrough@sitesproject.org]
Sent: 6/28/2022 11:48:50 AM
To: Jerry Brown [jbrown@sitesproject.org]; Alicia Forsythe [aforsythe@sitesproject.org]; Kevin Spesert [kspesert@sitesproject.org]
CC: EIR-EIS-Comments [eir-eis-comments@sitesproject.org]; Marcia Kivett [MKivett@sitesproject.org]
Subject: Request for comment

This call came through the Maxwell office and I asked her to email me so I could forward it along.

Thanks,
Sandra

From: Ray Levy Uyeda <ray@prismreports.org>
Sent: Tuesday, June 28, 2022 11:38 AM
To: Sandra Yarbrough <syarbrough@sitesproject.org>
Subject: Fwd: Comment Request for Prism Reports

---------- Forwarded message ---------
From: **Ray Levy Uyeda** <ray@prismreports.org>
Date: Tue, Jun 21, 2022 at 11:17 AM
Subject: Comment Request for Prism Reports
To: <info@sitesproject.org>

To Whom It May Concern:

My name is Ray Uyeda and I'm a climate justice reporter at Prism Reports. I'm writing about the Sites Reservoir, and I wanted to offer an opportunity to comment on the following items. Please let me know if you intend to provide a comment by Wednesday, 6/29 at 8 am PST.

1. The project claims that the Sites Reservoir will be beneficial to native birds and fish. What specific benefits will the reservoir offer?
2. How many feet across will the reservoir be?
3. The reservoir claims to "capture excess water from storms." What is "excess water"? Will water be captured in non-storm seasons, like summer?
4. Does the Sites Reservoir have a plan to mitigate methane releases? If so, what is the plan?
5. Does the Sites Reservoir have a plan to mitigate evaporation? If so, what is the plan?
6. What is the project's response to the numerous harms Native Tribes and leaders have alerted to, specifically those regarding salmon runs and overall population health?
7. Would the Sites Reservoir pull as much as 100,000 acre feet of water from tributaries even in drought years?
8. What is the current predicted cost of operationalizing the Sites Reservoir?

--

Ray Levy Uyeda (they/them)
Staff Reporter, Prism
650.815.6032 | ray@prismreports.org
prismreports.org

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From: Kevin Spesert [kspesert@sitesproject.org]
Sent: 6/28/2022 1:40:46 PM
To: Jerry Brown [jbrown@sitesproject.org]; Alicia Forsythe [aforsythe@sitesproject.org]; Sara M. Katz [skatz@katzandassociates.com]; Ann Newton [anewton@katzandassociates.com]
CC: Marcia Kivett [MKivett@sitesproject.org]
Subject: RE: Request for comment
Attachments: Prism Reports Response Draft.docx

Forgot to add the attachment...pretty quick turn around on this they want it tomorrow morning by 8:00am...

Either Ann or Sara should send it on to the reporter when it is completed...

From: Kevin Spesert
Sent: Tuesday, June 28, 2022 1:34 PM
To: Jerry Brown <jbrown@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>; Sara M. Katz <skatz@katzandassociates.com>; Ann Newton <anewton@katzandassociates.com>
Cc: Marcia Kivett <MKivett@sitesproject.org>
Subject: RE: Request for comment

I think we should as well...I am included Sara and Ann in the thread as this is a media request

---

From: Jerry Brown <jbrown@sitesproject.org>
Sent: Tuesday, June 28, 2022 1:03 PM
To: Alicia Forsythe <aforsythe@sitesproject.org>; Kevin Spesert <kspesert@sitesproject.org>
Cc: Marcia Kivett <MKivett@sitesproject.org>
Subject: Re: Request for comment

I think we should respond to this. Here's a quick initial draft for your review/input.

From: Sandra Yarbrough <syarbrough@sitesproject.org>
Date: Tuesday, June 28, 2022 at 11:48 AM
To: Jerry Brown <jbrown@sitesproject.org>, Alicia Forsythe <aforsythe@sitesproject.org>, Kevin Spesert <kspesert@sitesproject.org>
Cc: EIR-EIS-Comments <eir-eis-comments@sitesproject.org>, Marcia Kivett <MKivett@sitesproject.org>
Subject: Request for comment

This call came through the Maxwell office and I asked her to email me so I could forward it along.

Thanks,
Sandra

From: Ray Levy Uyeda <ray@prismreports.org>
Sent: Tuesday, June 28, 2022 11:38 AM
To: Sandra Yarbrough <syarbrough@sitesproject.org>
Subject: Fwd: Comment Request for Prism Reports

---------- Forwarded message ---------
From: **Ray Levy Uyeda** <ray@prismreports.org>

Date: Tue, Jun 21, 2022 at 11:17 AM
Subject: Comment Request for Prism Reports
To: <info@sitesproject.org>

To Whom It May Concern:

My name is Ray Uyeda and I'm a climate justice reporter at Prism Reports. I'm writing about the Sites Reservoir, and I wanted to offer an opportunity to comment on the following items. Please let me know if you intend to provide a comment by Wednesday, 6/29 at 8 am PST.

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8. What is the current predicted cost of operationalizing the Sites Reservoir?

--

Ray Levy Uyeda (they/them)
Staff Reporter, Prism
650.815.6032 | ray@prismreports.org
prismreports.org

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From: Kevin Spesert [kspesert@sitesproject.org]
Sent: 6/28/2022 2:40:33 PM
To: Sara M. Katz [skatz@katzandassociates.com]; Jerry Brown [jbrown@sitesproject.org]; Alicia Forsythe [aforsythe@sitesproject.org]; Ann Newton [anewton@katzandassociates.com]
CC: Marcia Kivett [MKivett@sitesproject.org]
Subject: RE: Request for comment
Attachments: Prism Reports Response Draft_KS edits.docx

All,

I have made a few changes to Jerry's first cut…I just talked with Ali and she is going to make some edits as well…

From: Sara M. Katz <skatz@katzandassociates.com>
Sent: Tuesday, June 28, 2022 1:46 PM
To: Kevin Spesert <kspesert@sitesproject.org>; Jerry Brown <jbrown@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>; Ann Newton <anewton@katzandassociates.com>
Cc: Marcia Kivett <MKivett@sitesproject.org>
Subject: RE: Request for comment

Passing emails in the night, so to speak ☺

From: Kevin Spesert <kspesert@sitesproject.org>
Sent: Tuesday, June 28, 2022 1:42 PM
To: Sara M. Katz <skatz@katzandassociates.com>; Jerry Brown <jbrown@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>; Ann Newton <anewton@katzandassociates.com>
Cc: Marcia Kivett <MKivett@sitesproject.org>
Subject: RE: Request for comment

Just sent it to you

From: Sara M. Katz <skatz@katzandassociates.com>
Sent: Tuesday, June 28, 2022 1:41 PM
To: Kevin Spesert <kspesert@sitesproject.org>; Jerry Brown <jbrown@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>; Ann Newton <anewton@katzandassociates.com>
Cc: Marcia Kivett <MKivett@sitesproject.org>
Subject: RE: Request for comment

Is the draft available? It was not attached. Not much lead-time offered by said reporter. Thanks

K&A KATZ & ASSOCIATES
Sara M. Katz
Founder/CEO
mobile: 619.813.9551
San Diego · Los Angeles · San Francisco

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Sent: Tuesday, June 28, 2022 1:34 PM
To: Jerry Brown <jbrown@sitesproject.org>; Alicia Forsythe <aforsythe@sitesproject.org>; Sara M. Katz <skatz@katzandassociates.com>; Ann Newton <anewton@katzandassociates.com>

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Staff Reporter, Prism
650.815.6032 | ray@prismreports.org
prismreports.org

From: Ann Newton [anewton@katzandassociates.com]
Sent: 6/28/2022 2:42:08 PM
To: Kevin Spesert [kspesert@sitesproject.org]; Sara M. Katz [skatz@katzandassociates.com]; Jerry Brown [jbrown@sitesproject.org]; Alicia Forsythe [aforsythe@sitesproject.org]
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Staff Reporter, Prism
650.815.6032 | ray@prismreports.org
prismreports.org

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From: Marcia Kivett [MKivett@sitesproject.org]
Sent: 6/29/2022 12:02:05 PM
To: Jerry Brown [jbrown@sitesproject.org]; Sarah Seal [sseal@katzandassociates.com]
Subject: Fw: Request for comment

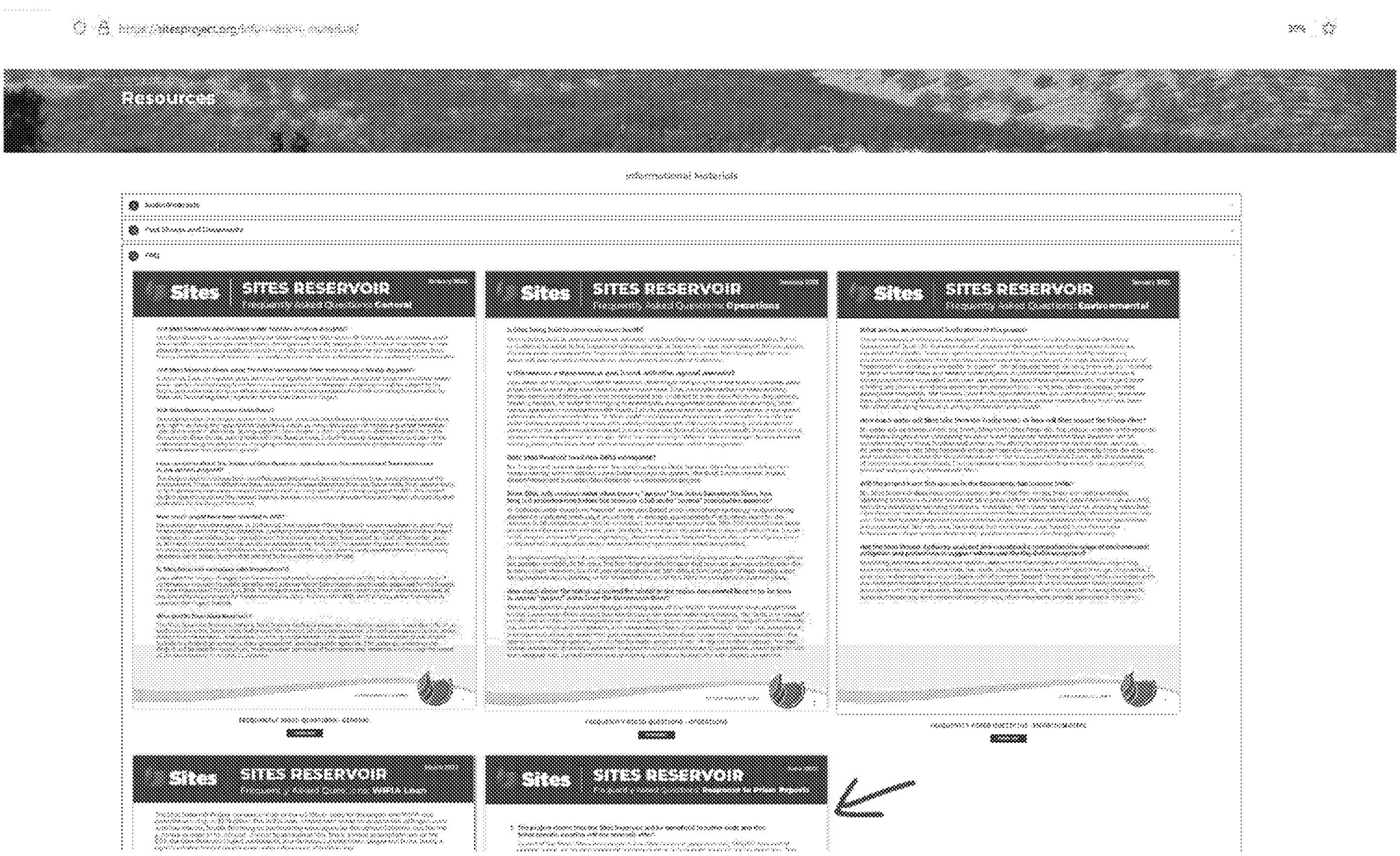
Thank you, Sarah!

Jerry, this is now online.

From: Sarah Seal <sseal@katzandassociates.com>
Sent: Wednesday, June 29, 2022 10:48 AM
To: Marcia Kivett <MKivett@sitesproject.org>; Ann Newton <anewton@katzandassociates.com>
Cc: Sarah Rossetto <srossetto@katzandassociates.com>; Kevin Spesert <kspesert@sitesproject.org>; Sandra Yarbrough <syarbrough@sitesproject.org>; Board Clerk <boardclerk@sitesproject.org>
Subject: RE: Request for comment

Hello Marcia

I've converted the Prism Reports Q&A into the normal template for Sites FAQs and posted it here:



Kind regards

Sarah Seal
Designer
c: 510.944.3200
San Diego · Los Angeles · San Francisco

From: Marcia Kivett <MKivett@sitesproject.org>
Sent: Wednesday, June 29, 2022 8:16 AM
To: Ann Newton <anewton@katzandassociates.com>
Cc: Sarah Rossetto <srossetto@katzandassociates.com>; Sarah Seal <sseal@katzandassociates.com>; Kevin Spesert <kspesert@sitesproject.org>; Sandra Yarbrough <syarbrough@sitesproject.org>; Board Clerk <boardclerk@sitesproject.org>
Subject: Fw: Request for comment

Hi Ann,

Jerry would like to have this posted on our website under FAQs. I'm copying the normal group when I request a web post.

Thanks,

Marcia

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Thanks all, attached is the final. I'll sign online around 7:30 to send to the reporter. If you have changes before then, I can make them but I think this looks good.

Ann Newton
Director, Los Angeles
d: 310.774.7639
San Diego · Los Angeles · San Francisco

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prismreports.org

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Geometry and Operational Information for four Weirs/Structures in Colusa Basin Drain

Date:	June 30, 2022
Project name:	Sites Reservoir Project: Colusa Basin Drain Hydraulic Model
Project no:	D3380603
Attention:	John Stofleth/ CBEC; Jenna Duffin / CBEC
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Introduction

This memorandum provides information on four structures in the Colusa Basin Drain as represented in Jacob's HEC-RAS model of the Colusa Basin Drain and connecting waterways. This model is currently being used to support the Sites Reservoir Project on behalf of the Sites Authority.

Information is provided on four structures in the Colusa Basin Drain, namely Davis Weir, Balsdon Weir, Wallace Weir, and the Knights Landing Outfall Gates structure (KLOG). Information is primarily contained in screen shots of the structure geometry and operational logic used in the USACE HEC-RAS Model of the upper Sacramento River system. The operational logic represents expected operations of the Davis and Wallace Weirs and the KLOG structure, and was developed with input from DWR. Operations are water level dependent.

KLOG Structure

The Knights Landing outfall structure has 10 gates. Gates 1 and 10 are identical (parameters shown below); gates 2 through 9 are identical (parameters shown below). Gate 11 is a dummy gate to allow the model to remain wet, passing a minimal flow downstream at all times.

KLOG is operated to maintain a set point water surface elevation in the lower Colusa Basin Drain. The logic is relatively straight-forward, but has to be repeated for each of the gates, so it takes 120 lines of code in RAS to define the operations.

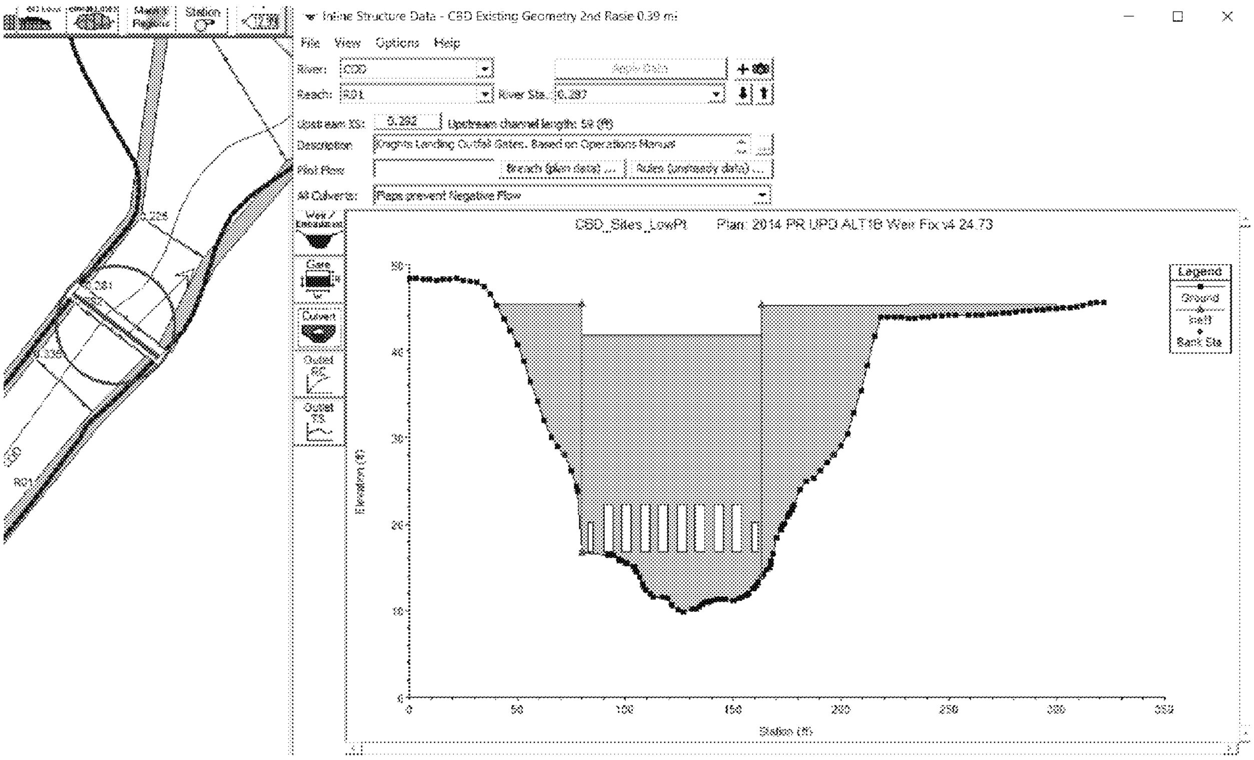

Figure 1. KLOG Structure Cross Section

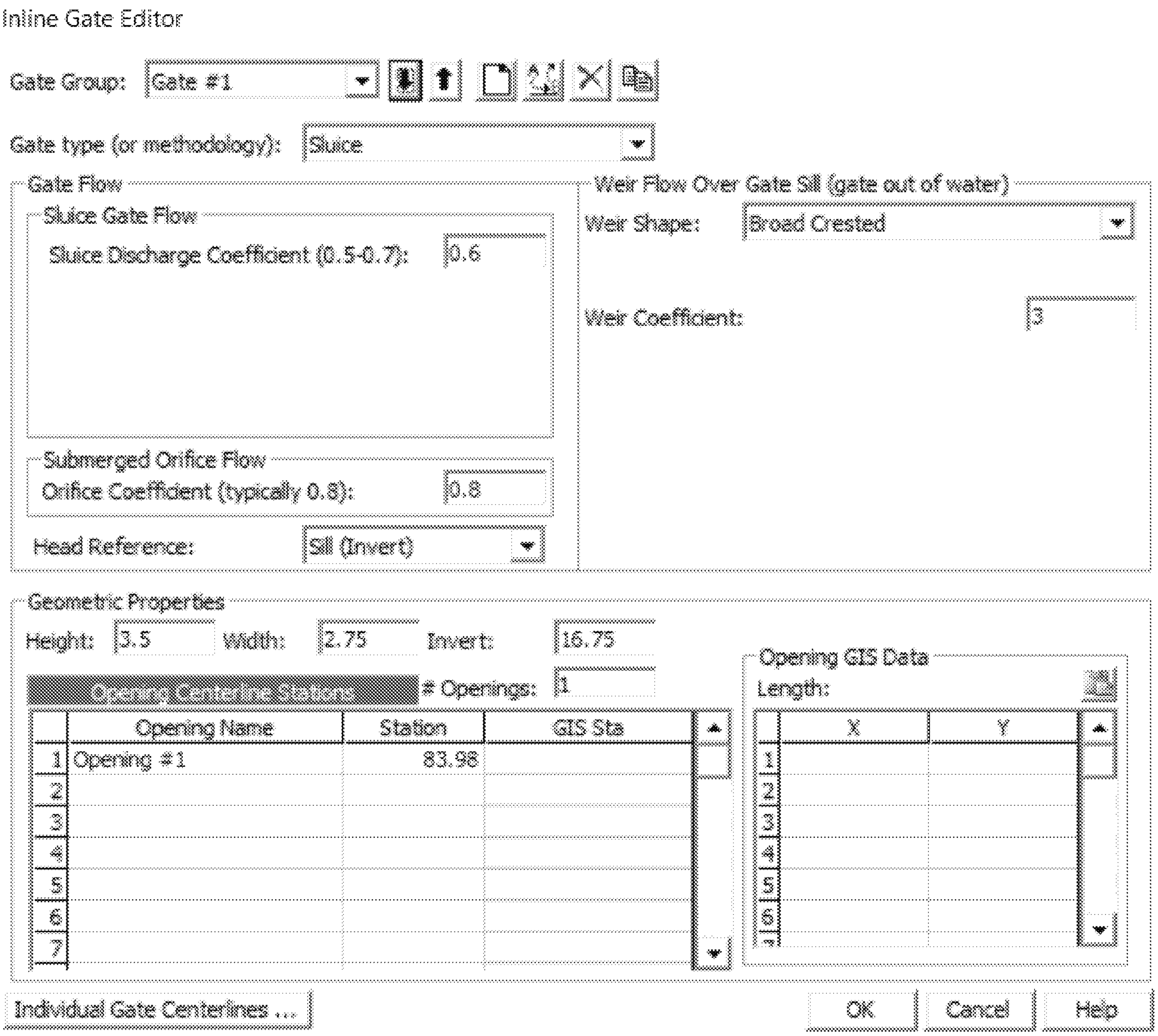

Figure 2. KLOG Gate Parameters (gates 1 and 10 are identical)

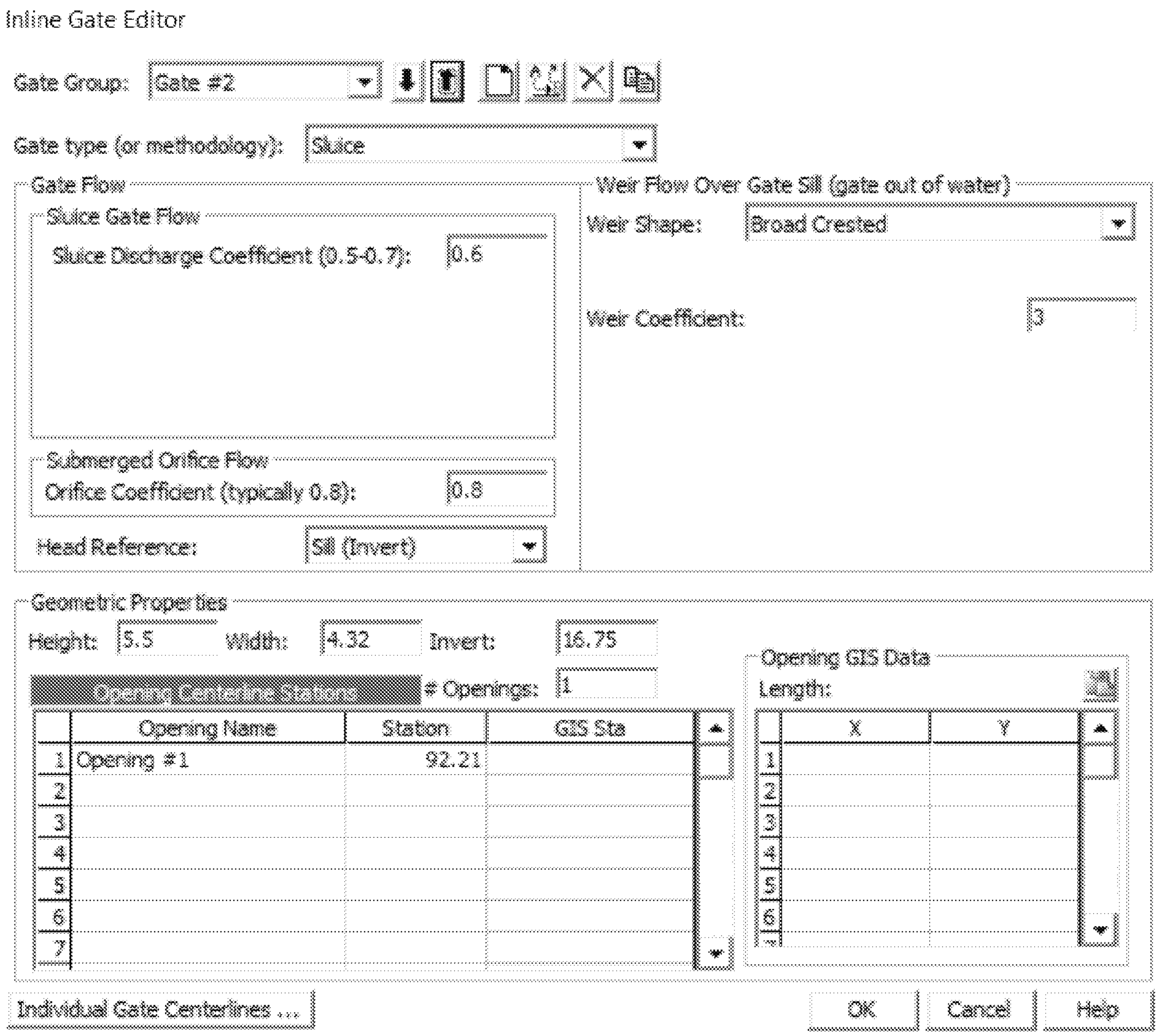

Figure 3. KLOG Gate Parameters (gates 2 through 9 are identical)

Gate Parameters

	Location	Open Rate (ft/min)	Close Rate (ft/min)	Max Opening	Min Opening	Initial Opening
1	Gate #1	0.18	0.18	3.5	0	0
2	Gate #2	0.28	0.28	5.5	0	0
3	Gate #3	0.28	0.28	5.5	0	0
4	Gate #4	0.28	0.28	5.5	0	0
5	Gate #5	0.28	0.28	5.5	0	0

Gate Parameters

	Location	Open Rate (ft/min)	Close Rate (ft/min)	Max Opening	Min Opening	Initial Opening
6	Gate #6	0.28	0.28	5.5	0	0
7	Gate #11	0.1	0.1	0.1	0.1	0.1
8	Gate #7	0.28	0.28	5.5	0	0
9	Gate #8	0.28	0.28	5.5	0	0
10	Gate #9	0.28	0.28	5.5	0	0

Gate Parameters

	Location	Open Rate (ft/min)	Close Rate (ft/min)	Max Opening	Min Opening	Initial Opening
7	Gate #11	0.1	0.1	0.1	0.1	0.1
8	Gate #7	0.28	0.28	5.5	0	0
9	Gate #8	0.28	0.28	5.5	0	0
10	Gate #9	0.28	0.28	5.5	0	0
11	Gate #10	0.18	0.18	3.5	0	0

Figure 4. Gate Operation Parameters (KLOG)

Operation Rules

Rule Based Operations

row	Operation
1	Integer `t1` (Initial Value = 0)
2	Integer `t2` (Initial Value = 0)
3	Integer `go_cnt` (Initial Value = 0)
4	Integer `Gate#` (Initial Value = 0)
5	Real `smgt_rate` (Initial Value = 0.18)
6	Real `lrggt_rate` (Initial Value = 0.28)
7	`US_WSE` = Cross Sections:WS Elevation(COD,R01,0.292,Value at current time step)
8	`DS_WSE` = Cross Sections:WS Elevation(COD,R01,0.281,Value at current time step)
9	`g1` = Inline Structures:Gate.Opening(COD,R01,0.287,Gate #1,Value at current time step)
10	`g2` = Inline Structures:Gate.Opening(COD,R01,0.287,Gate #2,Value at current time step)
11	`g3` = Inline Structures:Gate.Opening(COD,R01,0.287,Gate #3,Value at current time step)
12	`g4` = Inline Structures:Gate.Opening(COD,R01,0.287,Gate #4,Value at current time step)
13	`g5` = Inline Structures:Gate.Opening(COD,R01,0.287,Gate #5,Value at current time step)
14	`g6` = Inline Structures:Gate.Opening(COD,R01,0.287,Gate #6,Value at current time step)
15	`g7` = Inline Structures:Gate.Opening(COD,R01,0.287,Gate #7,Value at current time step)
16	`g8` = Inline Structures:Gate.Opening(COD,R01,0.287,Gate #8,Value at current time step)
17	`g9` = Inline Structures:Gate.Opening(COD,R01,0.287,Gate #9,Value at current time step)
18	`g10` = Inline Structures:Gate.Opening(COD,R01,0.287,Gate #10,Value at current time step)
19	`t1` = Time:Minute of Hour(Beginning of time step)
20	`sim_hr` = Time:Hour of Simulation(Beginning of time step)
− 21	If (`sim_hr` >= 0) Then
22	! Adjust Gate Opening
− 23	If (`sim_hr` = 0) Or (`t1` = `t2`) Then
− 24	If (`t1` = 50) Then
25	`t2` = 0
26	Else
27	`t2` = `t1` + 10
28	End If
− 29	If (`DS_WSE` > 22.25) Then
30	Gate.Opening(Gate #1) = 0

Figure 5. KLOG Operations Logic (1 of 4)

```
          Gate.Opening(Gate #1) = 0
          Gate.Opening(Gate #2) = 0
          Gate.Opening(Gate #3) = 0
          Gate.Opening(Gate #4) = 0
          Gate.Opening(Gate #5) = 0
          Gate.Opening(Gate #6) = 0
          Gate.Opening(Gate #7) = 0
          Gate.Opening(Gate #8) = 0
          Gate.Opening(Gate #9) = 0
          Gate.Opening(Gate #10) = 0
      Elseif (DS_WSE' > 20.25) Then
          Gate.Opening(Gate #1) = 0
          Gate.Opening(Gate #10) = 0
      Elseif ('US_WSE' > 24.73) Then
          'go_cnt' = 'go_cnt' + 1
          If ('Gate#' < 10) Then
              'Gate#' = 'Gate#' + 1
          Else
              'Gate#' = 1
          End If
          If ('Gate#' = 1) Then
              'g1' = 'g1' + 'smgt_rate'
              Gate.Opening(Gate #1) = 'g1'
          Elseif ('Gate#' = 2) Then
              'g2' = 'g2' + 'lrggt_rate'
              Gate.Opening(Gate #2) = 'g2'
          Elseif ('Gate#' = 3) Then
              'g3' = 'g3' + 'lrggt_rate'
              Gate.Opening(Gate #3) = 'g3'
          Elseif ('Gate#' = 4) Then
              'g4' = 'g4' + 'lrggt_rate'
              Gate.Opening(Gate #4) = 'g4'
```

Figure 5. KLOG Operations Logic (2 of 4)

```
            Gate.Opening(Gate #4) = 'g4'
        ElseIf ('Gate#' = 5) Then
            'g5' = 'g5' + 'lrggt_rate'
            Gate.Opening(Gate #5) = 'g5'
        ElseIf ('Gate#' = 6) Then
            'g6' = 'g6' + 'lrggt_rate'
            Gate.Opening(Gate #6) = 'g6'
        ElseIf ('Gate#' = 7) Then
            'g7' = 'g7' + 'lrggt_rate'
            Gate.Opening(Gate #7) = 'g7'
        ElseIf ('Gate#' = 8) Then
            'g8' = 'g8' + 'lrggt_rate'
            Gate.Opening(Gate #8) = 'g8'
        ElseIf ('Gate#' = 9) Then
            'g9' = 'g9' + 'lrggt_rate'
            Gate.Opening(Gate #9) = 'g9'
        ElseIf ('Gate#' = 10) Then
            'g10' = 'g10' + 'smgt_rate'
            Gate.Opening(Gate #10) = 'g10'
        End If
    ElseIf ('US_WSE' < 24.73) And ('go_cnt' > 0) Then
        If ('Gate#' = 1) Then
            'g1' = 'g1' - 'smgt_rate'
            Gate.Opening(Gate #1) = 'g1'
        ElseIf ('Gate#' = 2) Then
            'g2' = 'g2' - 'lrggt_rate'
            Gate.Opening(Gate #2) = 'g2'
        ElseIf ('Gate#' = 3) Then
            'g3' = 'g3' - 'lrggt_rate'
            Gate.Opening(Gate #3) = 'g3'
        ElseIf ('Gate#' = 4) Then
            'g4' = 'g4' - 'lrggt_rate'
```

Figure 5. KLOG Operations Logic (3 of 4)

```
                Gate.Opening(Gate #3) = `g3'
            ElseIf (`Gate#' = 4) Then
                `g4' = `g4' - `lrggt_rate'
                Gate.Opening(Gate #4) = `g4'
            ElseIf (`Gate#' = 5) Then
                `g5' = `g5' - `lrggt_rate'
                Gate.Opening(Gate #5) = `g5'
            ElseIf (`Gate#' = 6) Then
                `g6' = `g6' - `lrggt_rate'
                Gate.Opening(Gate #6) = `g6'
            ElseIf (`Gate#' = 7) Then
                `g7' = `g7' - `lrggt_rate'
                Gate.Opening(Gate #7) = `g7'
            ElseIf (`Gate#' = 8) Then
                `g8' = `g8' - `lrggt_rate'
                Gate.Opening(Gate #8) = `g8'
            ElseIf (`Gate#' = 9) Then
                `g9' = `g9' - `lrggt_rate'
                Gate.Opening(Gate #9) = `g9'
            ElseIf (`Gate#' = 10) Then
                `g10' = `g10' - `smgt_rate'
                Gate.Opening(Gate #10) = `g10'
            End If
            If (`Gate#' > 1) Then
                `Gate#' = `Gate#' - 1
            Else
                `Gate#' = 10
            End If
        End If
    End If
End If
```

Figure 5. KLOG Operations Logic (4 of 4)

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Wallace Weir

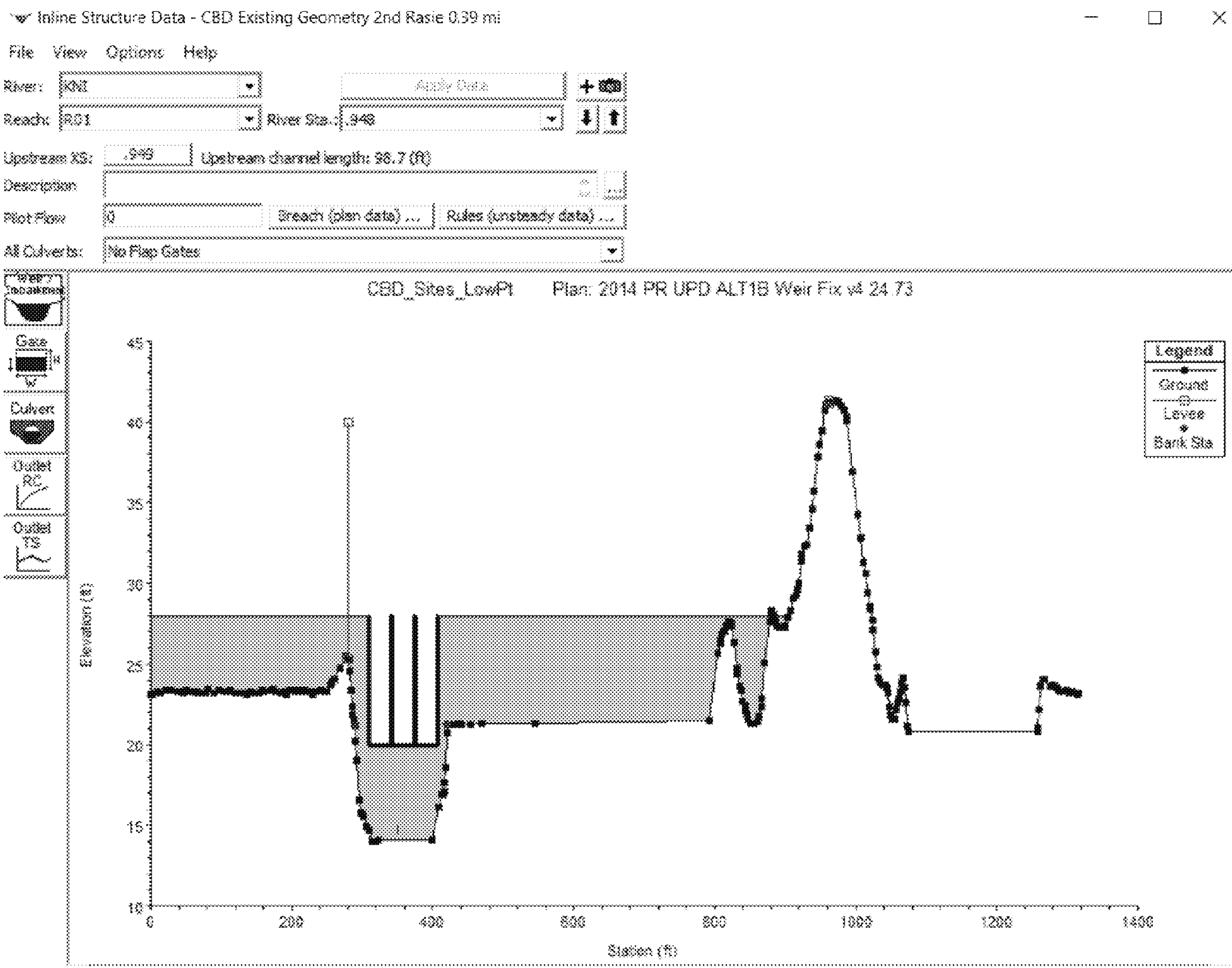

Figure 6. Wallace Weir Cross Section

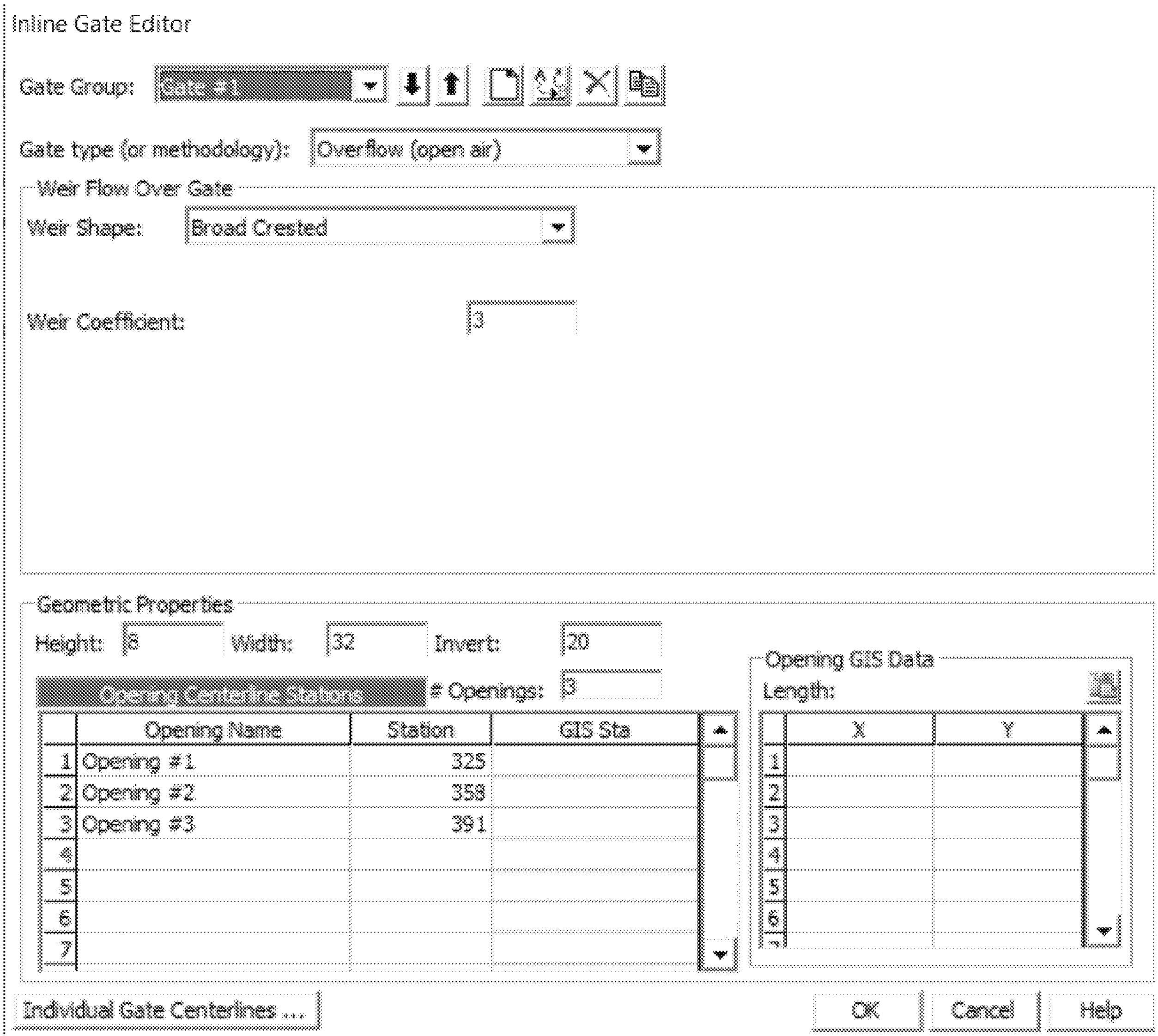

Figure 7. Wallace Weir Gate Parameters

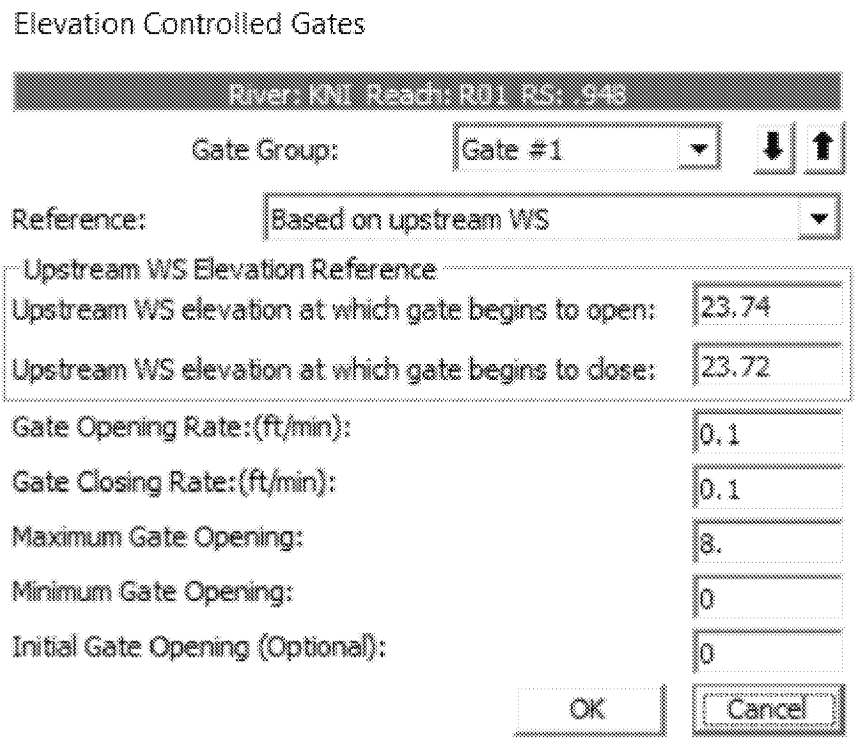

Figure 8. Wallace Weir Operations

Davis Weir

10 Identical openings

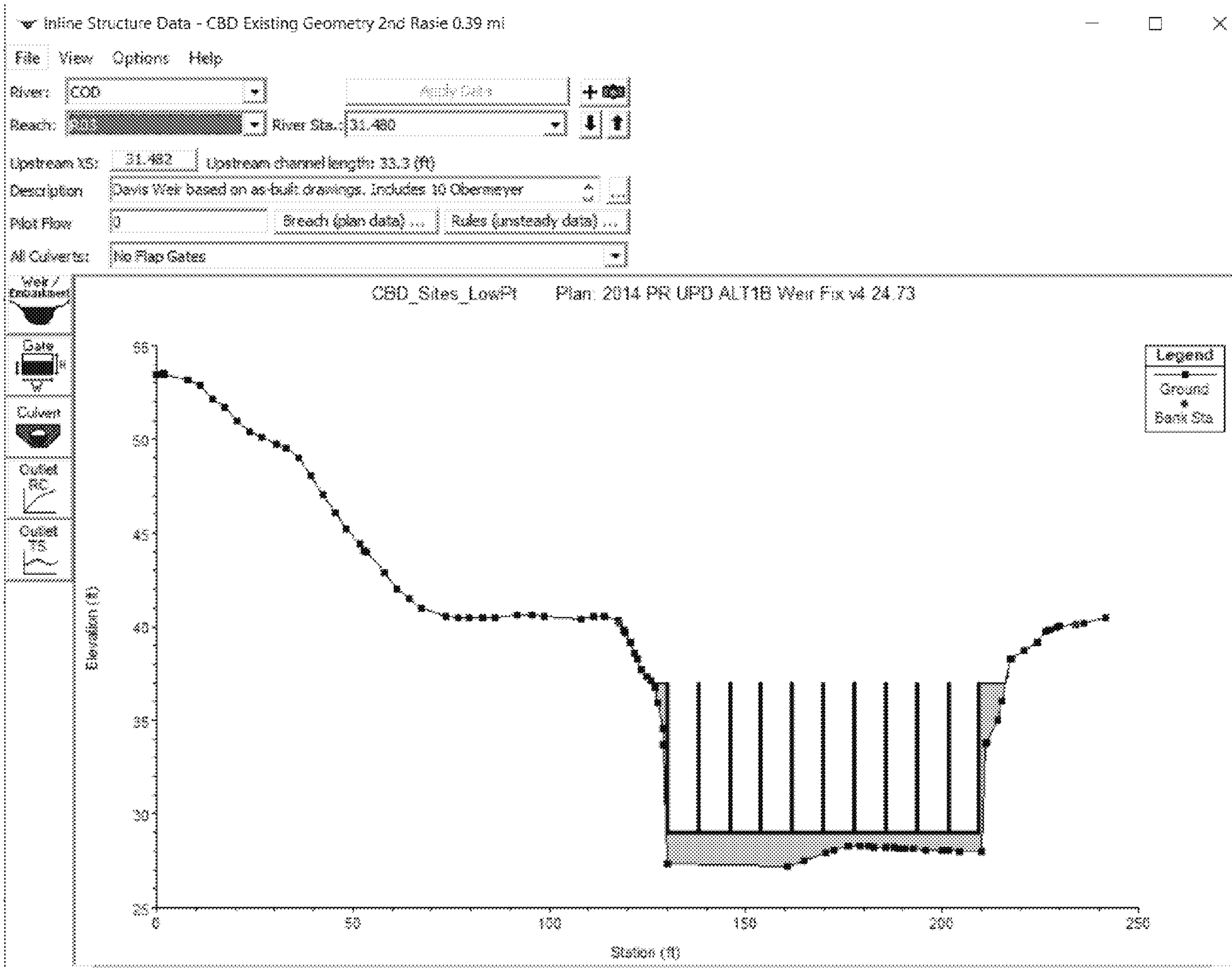

Figure 9. Davis Weir Cross Section

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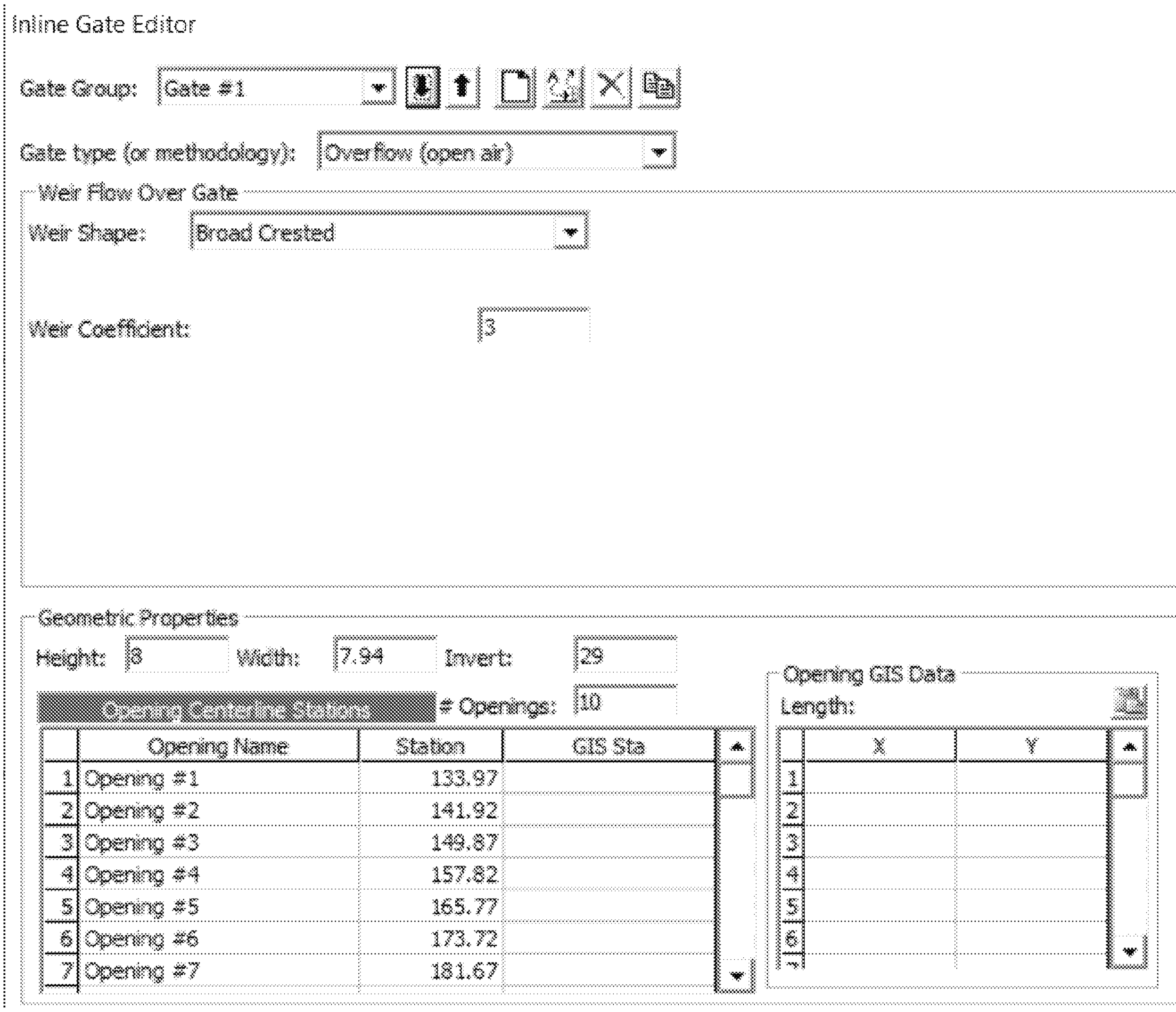

Figure 10. Davis Weir Gate Parameters (10 identical gates)

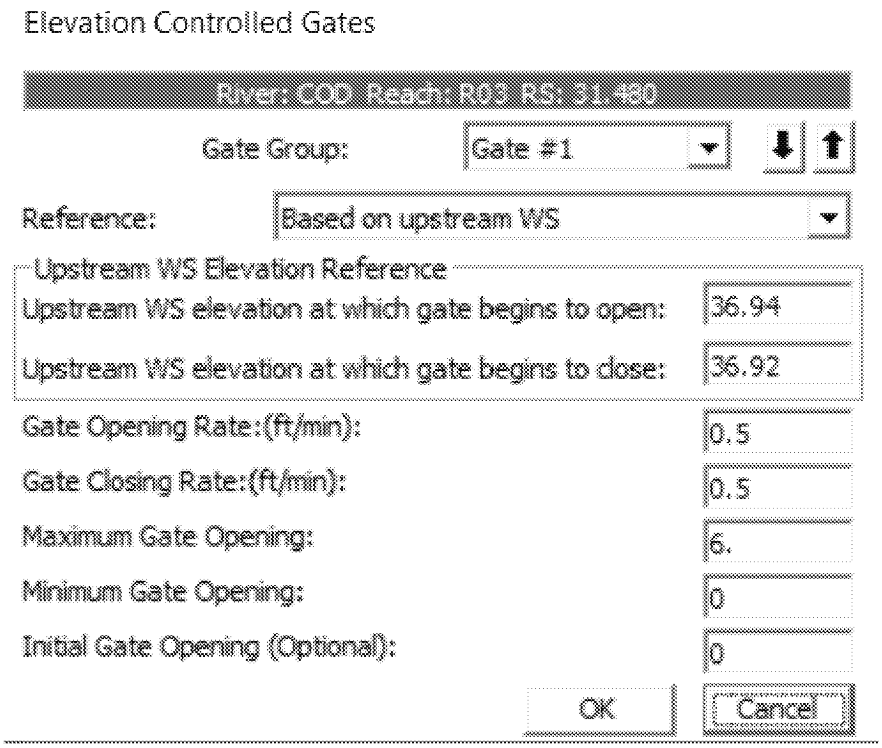

Figure 11. Davis Weir Operations

Balsdon Weir

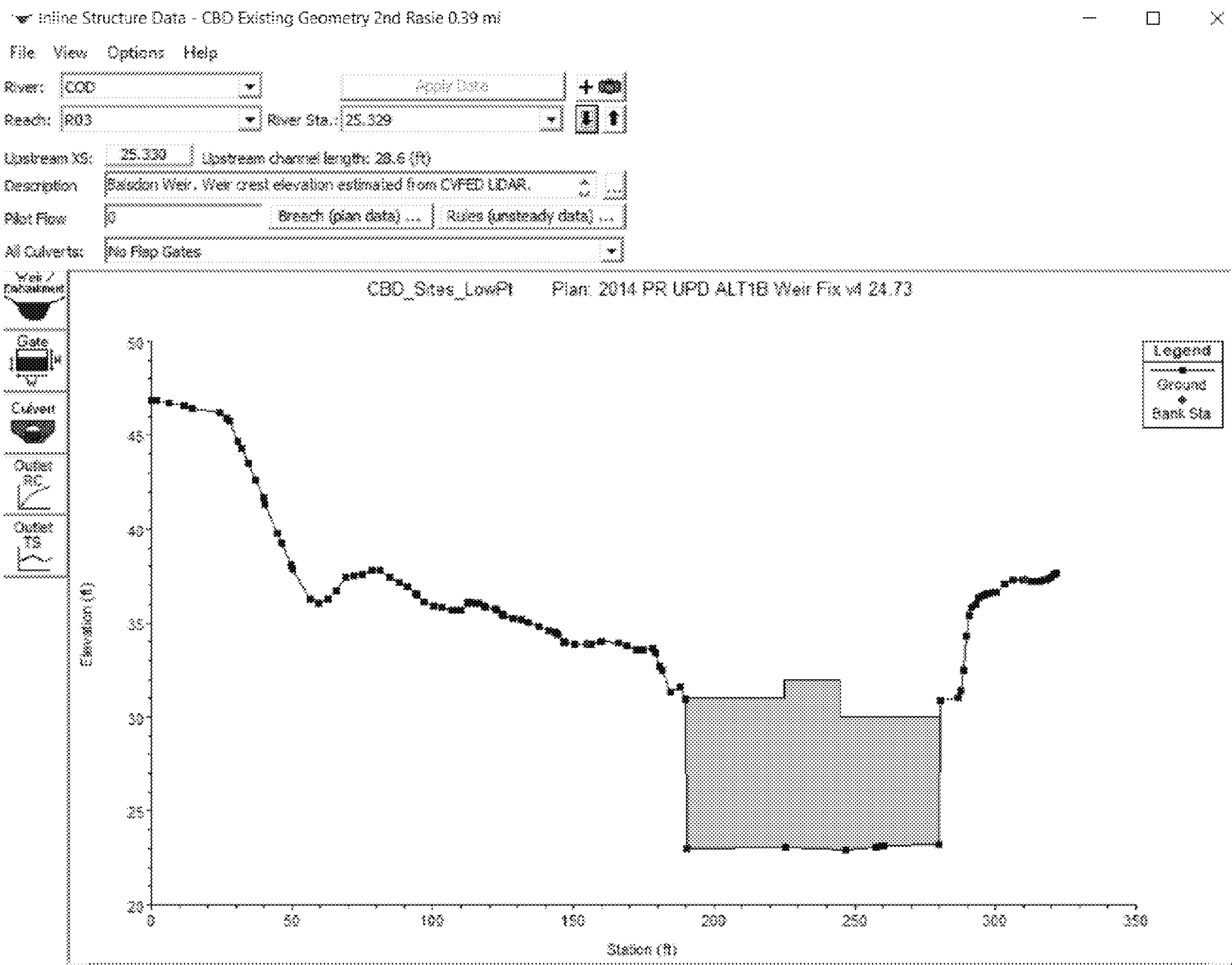

Figure 12. Balsdon Weir Cross Section

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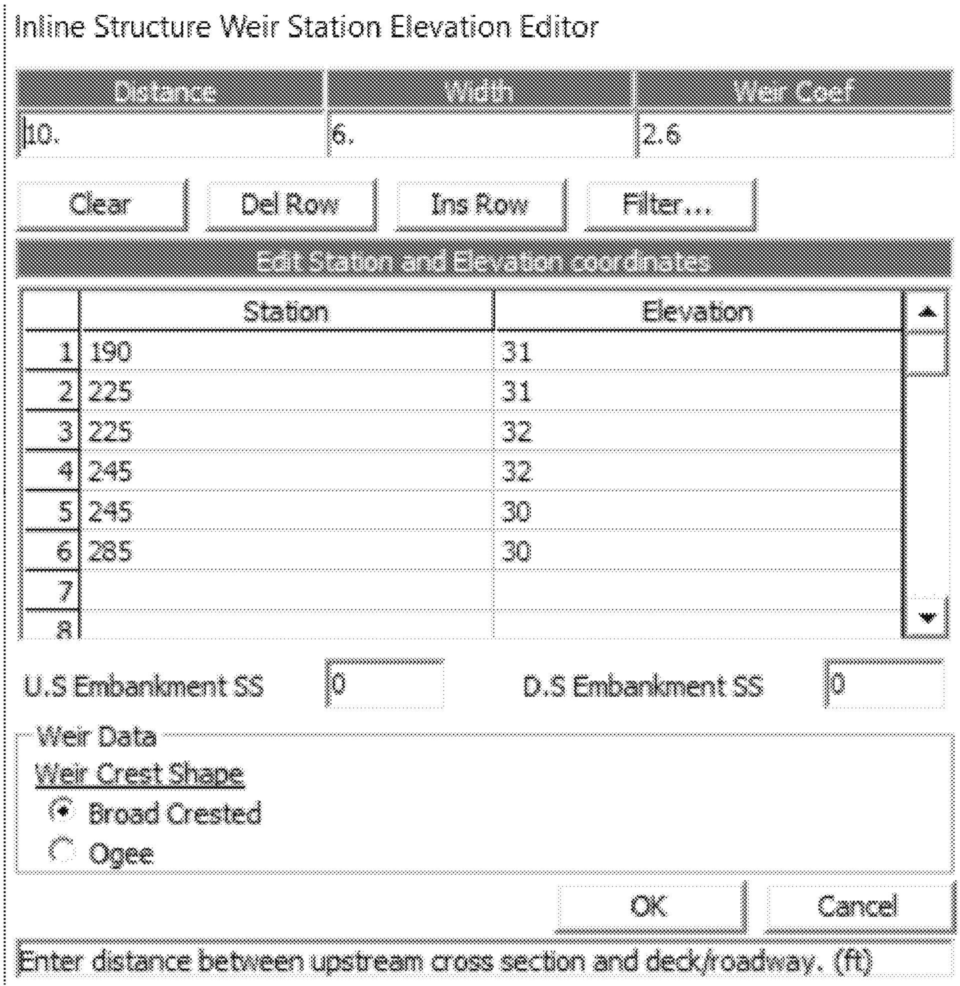

Figure 13. Balsdon Weir Gate Parameters

Davis Weir Data

Davis Weir Flow Data from GCID Staff (2013-2020 Seasonality) is shown in Figure 14. An Excel file with this daily flow database is included in the transmittal of this memorandum.

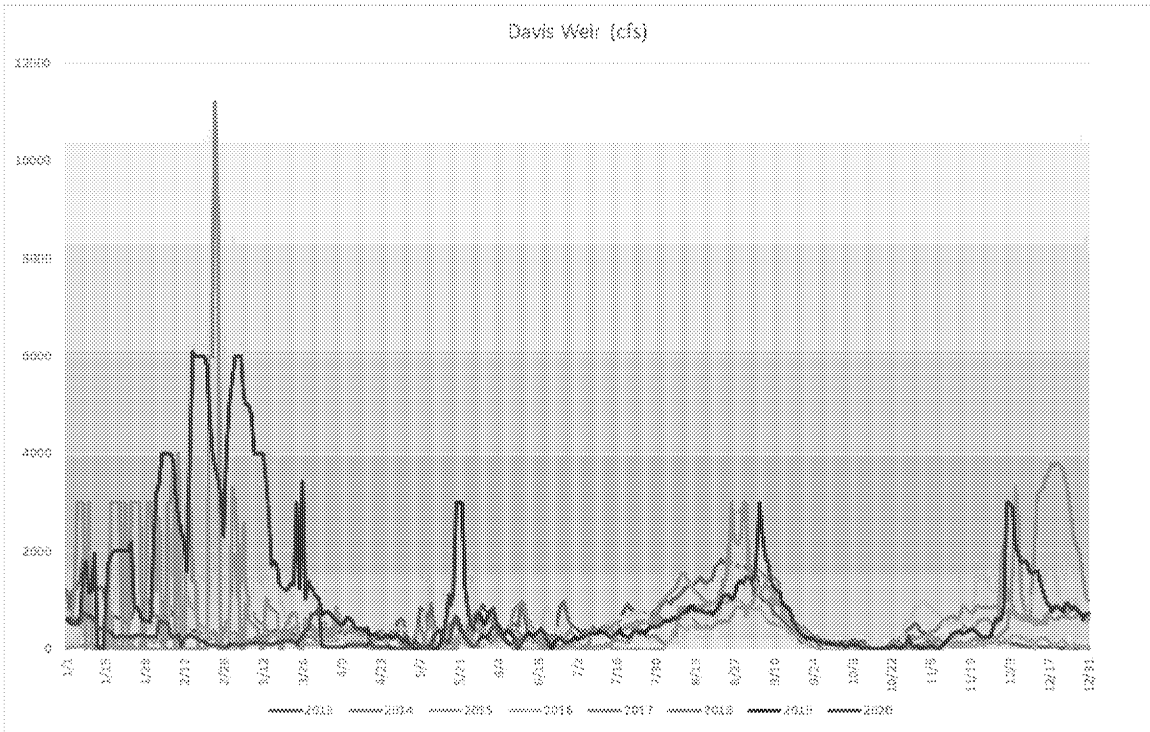

Figure 14. Davis Weir Historical Daily Flows

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Memorandum

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Project Name Sites Reservoir Project

Subject Model Results to Support the 2022 Final EIR/EIS: No Action Alternative, Alternative 1A, Alternative 1B and Alternative 3

Attention Ali Forsythe/Sites Project Authority; Erin Heydinger/HDR; Laurie Warner Herson/Phenix; Lyna Black/Jacobs; Neil Nikirk/Jacobs; Monique Briard/ICF; Mike Hendrick /ICF; Nicole Williams/ICF; Anne Huber/ICF

From Robert Leaf/JACOBS; Reed Thayer/JACOBS; Samaneh Saadat/JACOBS; Steve Micko/JACOBS; Samaneh Saadat/JACOBS

Date June 30, 2022

1. Introduction

The Sites Reservoir Project team has developed model simulations to support quantitative analysis of Sites long-term operations as part of developing a Final Environmental Document, for completion in 2022.

The results of these model simulations are provided for informational and review purposes. If there are any questions regarding the results of these simulations, please contact the modeling team.

2. Modeled Scenarios

Model results are provided for the alternatives tabulated below.

Model Name	**Label Name (as seen in spreadsheet)**	**Description**
No Action Alternative 051422	NAA 051422	Baseline simulation (Reclamation 2021 Benchmark)
Alternative 1A 051722	ALT 1A 051722	1.5 MAF Reservoir
Alternative 1B 051722	ALT 1B 051722	1.5 MAF Reservoir with 101 TAF of Reclamation Investment

Model Name	Label Name (as seen in spreadsheet)	Description
Alternative 3 051722	ALT 3 051722	1.5 MAF Reservoir with 360 TAF of Reclamation Investment

The Sites Reservoir temperature and release temperature blending results were developed for the Sites Final EIR/EIS. Please review Appendix 6D of the Sites Reservoir Project Final EIR/EIS. These results are useful so long as the results are interpreted consistent with the model limitations.

3. Model Simulations for Modeled Scenarios

3.1 Sites Reservoir Temperature and Release Temperature Blending

The following results are provided:

- SPJPA_Sites_CEQUAL_SitesReservoir__ALT1A_051722_ALT1B_051722_ALT2_051722_ALT3_051722.xlsx, and
- SPJPA_Sites_ReservoirReleaseTemperatureBlending_rev11_20220519.pdf.