



Office of
Energy
Projects

December 2014

FERC/EIS-F-0244

**FINAL ENVIRONMENTAL IMPACT STATEMENT
FOR HYDROPOWER LICENSE**

**Volume 2:
Appendices**



**Upper Drum-Spaulding Hydroelectric Project
Project No. 2310-193 – California**

**Lower Drum Hydroelectric Project
Project No. 14531-000 – California**

**Deer Creek Hydroelectric Project
Project No. 14530-000 – California**

**Yuba-Bear Hydroelectric Project
Project No. 2266-102 – California**

**Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Licensing
888 First Street, NE
Washington, DC 20426**

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Upper Drum-Spaulling Hydroelectric Project—FERC Project No. 2310-193

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Appendix A

Aquatic Resources Tables

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Appendix A-1

Aquatic Resources Tables: Affected Environment

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Table 3-5. Physical characteristics of reservoirs, forebays, and afterbays, by sub-basin. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Reservoir, Forebay, Afterbay	Project	Development	Elevation (feet msl)		Storage Capacity (acre-feet)	
			Normal Maximum	Normal Minimum	Gross	Usable
Middle Yuba River Sub-Basin						
Jackson Meadows Reservoir	Yuba-Bear	Bowman	6,036	5,980	67,435	64,641
Milton Diversion Impoundment	Yuba-Bear	Bowman	5,690	5,686	275	275
Canyon Creek Sub-Basin						
Jackson Lake	Yuba-Bear	Bowman	6,592.7	6,570	1,334	975
French Lake	Yuba-Bear	Bowman	6,660.3	6,608	13,940	13,940
Faucherie Lake	Yuba-Bear	Bowman	6,123	6,090	3,980	3,740
Sawmill Lake	Yuba-Bear	Bowman	5,860	5,805	3,030	3,030
Bowman Lake	Yuba-Bear	Bowman	5,562	5,400	68,363	68,363
Upper Rock Lake	Upper Drum-Spaulding	Spaulding No. 3	6,741.5	6,700.3	275	207
Lower Rock Lake	Upper Drum-Spaulding	Spaulding No. 3	6,625.8	6,617.4	Unknown	48
Culbertson Lake	Upper Drum-Spaulding	Spaulding No. 3	6,436.4	6,421.7	3,150	953
Upper Lindsey Lake	Upper Drum-Spaulding	Spaulding No. 3	6,482.6	6,477.5	Unknown	18
Middle Lindsey Lake	Upper Drum-Spaulding	Spaulding No. 3	6,435.7	6,429.7	Unknown	110
Lower Lindsey Lake	Upper Drum-Spaulding	Spaulding No. 3	6,235.6	6,224.7	Unknown	278
Fall Creek Sub-Basin						

Table 3-5. Physical characteristics of reservoirs, forebays, and afterbays, by sub-basin. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Reservoir, Forebay, Afterbay	Project	Development	Elevation (feet msl)		Storage Capacity (acre-feet)	
			Normal Maximum	Normal Minimum	Gross	Usable
Feeley Lake	Upper Drum-Spaulding	Spaulding No. 3	6,723.6	6,706.8	Unknown	739
Carr Lake	Upper Drum-Spaulding	Spaulding No. 3	6,663.7	6,651.9	Unknown	150
Rucker Creek Sub-Basin						
Blue Lake	Upper Drum-Spaulding	Spaulding No. 3	5,931.6	5,910.8	4,042	1,158
Rucker Lake	Upper Drum-Spaulding	Spaulding No. 3	5,464.2	5,447.2	Unknown	648
South Yuba River Sub-Basin						
White Rock Lake	Upper Drum-Spaulding	Spaulding No. 1 and No. 2	7,820	7,810.5	Unknown	570
Meadow Lake	Upper Drum-Spaulding	Spaulding No. 1 and No. 2	7,281.8	7,252.7	4935	4,841
Lake Sterling	Upper Drum-Spaulding	Spaulding No. 1 and No. 2	6,987.9	6,966	Unknown	1,764
Fordyce Lake	Upper Drum-Spaulding	Spaulding No. 1 and No. 2	6,405.1	6,290.5	49525	49,426
Kidd Lake	Upper Drum-Spaulding	Spaulding No. 1 and No. 2	6,627.6	6,600.3	Unknown	1,505
Upper Peak Lake	Upper Drum-Spaulding	Spaulding No. 1 and No. 2	6,607.4	6,572.4	Unknown	1,736

Table 3-5. Physical characteristics of reservoirs, forebays, and afterbays, by sub-basin. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Reservoir, Forebay, Afterbay	Project	Development	Elevation (feet msl)		Storage Capacity (acre-feet)	
			Normal Maximum	Normal Minimum	Gross	Usable
Lower Peak Lake	Upper Drum-Spaulding	Spaulding No. 1 and No. 2	6,581.9	6,560.4	Unknown	484
Fuller Lake	Upper Drum-Spaulding	Spaulding No. 1 and No. 2	5,341.8	5,320.4	Unknown	1,109
Lake Spaulding	Upper Drum-Spaulding	Spaulding No. 1 and No. 2	5,014.6	4,832.3	75912	75,912
Deer Creek Sub-Basin						
Deer Creek Forebay	Deer Creek	Deer Creek	4,473	4,469	15.8	10.7
North Fork American River Sub-Basin						
Kelly Lake	Drum-Spaulding	Drum No. 1 and No. 2	5,908.8	5,890.2	Unknown	352
Lake Valley Reservoir	Drum-Spaulding	Drum No. 1 and No. 2	5,784.9	5,728.4	7,902	7,902
Bear River Sub-Basin						
Drum Forebay	Drum-Spaulding	Drum No. 1 and No. 2	4,756	4,738	621	436
Drum Afterbay	Drum-Spaulding	Dutch Flat No. 1	3,383.3	3,342	154.5	150.4
Dutch Flat No. 2 Forebay	Yuba-Bear	Dutch Flat No.2	3,330	3,323	177.9	159.8
Alta Forebay	Drum-Spaulding	Alta	4,240	4,236	37.5	19.4
Dutch Flat Afterbay	Yuba-Bear	Chicago Park	2,741	2,729	1,359.2	1,359.2
Chicago Park Forebay	Yuba-Bear	Chicago Park	2,716	2,710	103	103
Rollins Reservoir	Yuba-Bear	Rollins	2,171	2,030	58,682	54,453
Mormon Ravine Sub-Basin						
Halsey Forebay	Lower Drum	Halsey	1,816.7	1,803.7	244	238

Table 3-5. Physical characteristics of reservoirs, forebays, and afterbays, by sub-basin. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Reservoir, Forebay, Afterbay	Project	Development	Elevation (feet msl)		Storage Capacity (acre-feet)	
			Normal Maximum	Normal Minimum	Gross	Usable
Halsey Afterbay	Lower Drum	Wise And Wise No. 2	1,494	1,480.8	86	76
Rock Creek Reservoir	Lower Drum	Wise And Wise No. 2	1,439.6	1,423.1	485	482
Auburn Ravine Sub-Basin						
Wise Forebay	Lower Drum	Wise And Wise No. 2	1,418	1,407	32	32

Table 3-6. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Upper Rock Lake (Upper Drum-Spaulding Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	7.0 ^(a)	60.0 ^(a)	117.0 ^(a)
November	15.6 ^(a)	45.0 ^(a)	89.8 ^(a)
December	20.0 ^(a)	108.6 ^(a)	174.3 ^(a)
January	19.0 ^(a)	154.8 ^(a)	199.0 ^(a)
February	19.0 ^(a)	190.0 ^(a)	199.8 ^(a)
March	87.3 ^(a)	201.0 ^(a)	207.0 ^(a)
April	159.9 ^(a)	204.0 ^(a)	207.0 ^(a)
May	198.0 ^(a)	207.0 ^(a)	207.0 ^(a)
June	191.0 ^(a)	205.0 ^(a)	207.0 ^(a)
July	162.0 ^(a)	188.0 ^(a)	203.0 ^(a)
August	123.0 ^(a)	151.0 ^(a)	175.0 ^(a)
September	54.0 ^(a)	111.0 ^(a)	145.9 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-7. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Lower Rock Lake (Upper Drum-Spaulding Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	12.7 ^(a)	31.0 ^(a)	46.1 ^(a)
November	7.0 ^(a)	28.0 ^(a)	48.0 ^(a)
December	11.5 ^(a)	44.6 ^(a)	48.0 ^(a)
January	20.2 ^(a)	48.0 ^(a)	48.0 ^(a)
February	28.4 ^(a)	48.0 ^(a)	48.0 ^(a)
March	36.7 ^(a)	48.0 ^(a)	48.0 ^(a)
April	45.1 ^(a)	48.0 ^(a)	48.0 ^(a)
May	47.7 ^(a)	48.0 ^(a)	48.0 ^(a)
June	46.4 ^(a)	48.0 ^(a)	48.0 ^(a)
July	42.9 ^(a)	47.6 ^(a)	48.0 ^(a)
August	37.0 ^(a)	45.0 ^(a)	48.0 ^(a)
September	31.0 ^(a)	40.5 ^(a)	48.0 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-8. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Culbertson Lake (Upper Drum-Spaulding Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	6.0 ^(a)	267.0 ^(a)	529.0 ^(a)
November	30.0 ^(a)	242.0 ^(a)	459.8 ^(a)
December	101.2 ^(a)	265.0 ^(a)	584.3 ^(a)
January	63.2 ^(a)	391.0 ^(a)	431.0 ^(a)
February	149.5 ^(a)	337.5 ^(a)	438.0 ^(a)
March	218.5 ^(a)	368.5 ^(a)	823.0 ^(a)
April	323.0 ^(a)	505.0 ^(a)	953.0 ^(a)
May	399.0 ^(a)	598.0 ^(a)	953.0 ^(a)
June	340.8 ^(a)	781.0 ^(a)	953.6 ^(a)
July	292.0 ^(a)	813.0 ^(a)	920.0 ^(a)
August	195.2 ^(a)	669.0 ^(a)	812.4 ^(a)
September	73.6 ^(a)	418.0 ^(a)	678.9 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-9. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Middle Lindsey Lake (Upper Drum-Spaulding Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	12.6 ^(a)	23.0 ^(a)	49.3 ^(a)
November	12.0 ^(a)	23.1 ^(a)	53.4 ^(a)
December	14.0 ^(a)	38.1 ^(a)	80.1 ^(a)
January	14.0 ^(a)	28.3 ^(a)	96.8 ^(a)
February	14.0 ^(a)	89.0 ^(a)	98.0 ^(a)
March	82.2 ^(a)	103.6 ^(a)	110.0 ^(a)
April	107.3 ^(a)	110.0 ^(a)	110.0 ^(a)
May	109.2 ^(a)	110.0 ^(a)	110.0 ^(a)
June	100.4 ^(a)	110.0 ^(a)	112.0 ^(a)
July	77.0 ^(a)	95.2 ^(a)	110.0 ^(a)
August	47.0 ^(a)	71.0 ^(a)	98.0 ^(a)
September	22.0 ^(a)	42.0 ^(a)	71.8 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-10. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Lower Lindsey Lake (Upper Drum-Spaulding Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	72.0 ^(a)	152.7 ^(a)	247.1 ^(a)
November	77.0 ^(a)	137.0 ^(a)	241.9 ^(a)
December	63.5 ^(a)	177.0 ^(a)	240.2 ^(a)
January	35.8 ^(a)	174.2 ^(a)	259.5 ^(a)
February	41.9 ^(a)	260.0 ^(a)	270.5 ^(a)
March	125.8 ^(a)	272.8 ^(a)	289.2 ^(a)
April	238.6 ^(a)	275.0 ^(a)	296.8 ^(a)
May	275.0 ^(a)	278.0 ^(a)	293.0 ^(a)
June	257.0 ^(a)	275.0 ^(a)	281.3 ^(a)
July	222.0 ^(a)	268.1 ^(a)	275.4 ^(a)
August	177.0 ^(a)	245.5 ^(a)	273.0 ^(a)
September	117.3 ^(a)	206.0 ^(a)	263.0 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-11. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Carr Lake (Upper Drum-Spaulling Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PGE, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	39.3 ^(a)	88.2 ^(a)	134.3 ^(a)
November	18.1 ^(a)	66.3 ^(a)	144.0 ^(a)
December	6.0 ^(a)	69.0 ^(a)	110.4 ^(a)
January	20.7 ^(a)	49.2 ^(a)	64.2 ^(a)
February	19.2 ^(a)	48.6 ^(a)	75.0 ^(a)
March	23.1 ^(a)	86.1 ^(a)	127.2 ^(a)
April	43.4 ^(a)	137.2 ^(a)	150.0 ^(a)
May	77.4 ^(a)	143.9 ^(a)	150.0 ^(a)
June	102.7 ^(a)	150.0 ^(a)	152.0 ^(a)
July	98.6 ^(a)	142.0 ^(a)	150.0 ^(a)
August	82.9 ^(a)	131.0 ^(a)	148.5 ^(a)
September	62.8 ^(a)	112.2 ^(a)	143.9 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-12. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Blue Lake (Upper Drum-Spaulling Project, Spaulling No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	0.0 ^(a)	181.3 ^(a)	619.5 ^(a)
November	0.0 ^(a)	186.4 ^(a)	526.9 ^(a)
December	12.9 ^(a)	148.0 ^(a)	410.7 ^(a)
January	0.0 ^(a)	44.8 ^(a)	1,178.6 ^(a)
February	47.7 ^(a)	175.0 ^(a)	911.9 ^(a)
March	73.5 ^(a)	238.3 ^(a)	601.3 ^(a)
April	85.6 ^(a)	343.4 ^(a)	641.7 ^(a)
May	219.8 ^(a)	470.3 ^(a)	902.0 ^(a)
June	173.7 ^(a)	567.2 ^(a)	1,039.8 ^(a)
July	105.9 ^(a)	529.9 ^(a)	934.4 ^(a)
August	23.4 ^(a)	423.9 ^(a)	832.5 ^(a)
September	0.0 ^(a)	298.0 ^(a)	689.3 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-13. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Meadow Lake (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	0.0 ^(a)	1,117.1 ^(a)	3,309.3 ^(a)
November	0.0 ^(a)	59.6 ^(a)	2,090.5 ^(a)
December	0.0 ^(a)	55.9 ^(a)	1,766.2 ^(a)
January	0.0 ^(a)	223.7 ^(a)	2,440.0 ^(a)
February	0.0 ^(a)	652.8 ^(a)	3,092.5 ^(a)
March	0.0 ^(a)	1,287.2 ^(a)	3,748.6 ^(a)
April	109.9 ^(a)	2,130.8 ^(a)	4,329.6 ^(a)
May	832.0 ^(a)	2,985.4 ^(a)	4,841.0 ^(a)
June	2,460.7 ^(a)	4,162.2 ^(a)	4,841.0 ^(a)
July	2,520.7 ^(a)	4,547.1 ^(a)	4,841.0 ^(a)
August	2,406.2 ^(a)	4,114.1 ^(a)	4,773.7 ^(a)
September	711.3 ^(a)	2,645.2 ^(a)	4,471.9 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-14. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in White Rock Lake (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	0.0 ^(a)	88.3 ^(a)	263.5 ^(a)
November	0.0 ^(a)	24.1 ^(a)	135.1 ^(a)
December	0.0 ^(a)	31.9 ^(a)	180.6 ^(a)
January	0.0 ^(a)	52.6 ^(a)	355.9 ^(a)
February	0.0 ^(a)	125.6 ^(a)	510.2 ^(a)
March	0.0 ^(a)	224.5 ^(a)	570.0 ^(a)
April	0.0 ^(a)	265.5 ^(a)	570.0 ^(a)
May	120.0 ^(a)	513.9 ^(a)	570.0 ^(a)
June	420.6 ^(a)	570.0 ^(a)	570.0 ^(a)
July	230.6 ^(a)	552.0 ^(a)	570.0 ^(a)
August	42.3 ^(a)	462.0 ^(a)	566.6 ^(a)
September	0.0 ^(a)	256.0 ^(a)	442.5 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-15. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Lake Sterling (Upper Drum-Spaulling Project, Spaulling No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	0.0 ^(a)	363.0 ^(a)	1,066.5 ^(a)
November	0.0 ^(a)	22.8 ^(a)	542.6 ^(a)
December	0.0 ^(a)	76.4 ^(a)	790.2 ^(a)
January	6.7 ^(a)	234.3 ^(a)	1,298.7 ^(a)
February	64.0 ^(a)	404.8 ^(a)	1,360.0 ^(a)
March	127.8 ^(a)	629.4 ^(a)	1,672.9 ^(a)
April	470.6 ^(a)	969.9 ^(a)	1,642.0 ^(a)
May	992.2 ^(a)	1,348.8 ^(a)	1,753.6 ^(a)
June	1,374.4 ^(a)	1,620.0 ^(a)	1,757.3 ^(a)
July	1,350.6 ^(a)	1,652.9 ^(a)	1,751.1 ^(a)
August	1,242.3 ^(a)	1,517.7 ^(a)	1,676.5 ^(a)
September	611.0 ^(a)	1,220.1 ^(a)	1,541.6 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-16. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Fordyce Lake (Upper Drum-Spaulling Project, Spaulling No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	3,469.4 ^(a)	9,751.7 ^(a)	24,301.2 ^(a)
November	3,443.5 ^(a)	8,270.8 ^(a)	16,779.6 ^(a)
December	4,406.7 ^(a)	7,695.2 ^(a)	19,028.0 ^(a)
January	5,165.8 ^(a)	8,778.1 ^(a)	34,800.4 ^(a)
February	5,573.9 ^(a)	9,426.8 ^(a)	33,765.1 ^(a)
March	6,193.0 ^(a)	10,977.3 ^(a)	35,256.1 ^(a)
April	7,981.3 ^(a)	17,449.1 ^(a)	36,762.3 ^(a)
May	18,596.2 ^(a)	34,418.3 ^(a)	44,113.8 ^(a)
June	31,922.4 ^(a)	43,119.4 ^(a)	49,037.1 ^(a)
July	17,265.7 ^(a)	36,536.0 ^(a)	46,585.5 ^(a)
August	6,509.2 ^(a)	24,984.9 ^(a)	41,292.5 ^(a)
September	3,892.7 ^(a)	15,705.6 ^(a)	31,634.9 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-17. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Kidd Lake (Upper Drum-Spaulling Project, Spaulling No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	71.0 ^(a)	245.9 ^(a)	618.9 ^(a)
November	32.0 ^(a)	117.1 ^(a)	255.7 ^(a)
December	69.7 ^(a)	169.4 ^(a)	315.8 ^(a)
January	92.8 ^(a)	241.9 ^(a)	526.4 ^(a)
February	146.7 ^(a)	377.3 ^(a)	812.5 ^(a)
March	223.5 ^(a)	583.2 ^(a)	977.9 ^(a)
April	423.0 ^(a)	874.6 ^(a)	1,245.8 ^(a)
May	692.2 ^(a)	1,210.0 ^(a)	1,510.0 ^(a)
June	694.0 ^(a)	1,359.0 ^(a)	1,543.0 ^(a)
July	652.0	1,230.0	1,482.1
August	593.0	907.0	1,376.8
September	209.8 ^(a)	589.0 ^(a)	1,247.0 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-18. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Upper Peak Lake (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	0.0 ^(a)	276.0 ^(a)	917.7 ^(a)
November	0.0 ^(a)	44.0 ^(a)	262.8 ^(a)
December	0.0 ^(a)	76.7 ^(a)	314.5 ^(a)
January	12.8 ^(a)	203.0 ^(a)	847.9 ^(a)
February	87.0 ^(a)	381.2 ^(a)	1,160.0 ^(a)
March	101.1 ^(a)	598.1 ^(a)	1,268.0 ^(a)
April	343.9 ^(a)	923.6 ^(a)	1,619.2 ^(a)
May	830.7 ^(a)	1,374.2 ^(a)	1,736.0 ^(a)
June	1,023.0 ^(a)	1,662.0 ^(a)	1,736.0 ^(a)
July	866.0 ^(a)	1,649.0 ^(a)	1,726.9 ^(a)
August	525.7 ^(a)	1,508.6 ^(a)	1,664.7 ^(a)
September	206.7 ^(a)	944.5 ^(a)	1,571.7 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-19. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Lower Peak Lake (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	0.0 ^(a)	241.0 ^(a)	357.4 ^(a)
November	0.0 ^(a)	63.0 ^(a)	232.0 ^(a)
December	0.0 ^(a)	85.0 ^(a)	161.8 ^(a)
January	95.0 ^(a)	125.0 ^(a)	198.7 ^(a)
February	108.0 ^(a)	182.0 ^(a)	218.6 ^(a)
March	137.3 ^(a)	196.0 ^(a)	347.9 ^(a)
April	225.4 ^(a)	384.0 ^(a)	487.0 ^(a)
May	436.0 ^(a)	490.0 ^(a)	497.0 ^(a)
June	424.0 ^(a)	484.0 ^(a)	494.0 ^(a)
July	364.0 ^(a)	451.0 ^(a)	481.0 ^(a)
August	229.2 ^(a)	415.0 ^(a)	475.0 ^(a)
September	184.0 ^(a)	341.0 ^(a)	414.5 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-20. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Lake Spaulding (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	20,100.0 ^(a)	40,322.0 ^(a)	52,919.8 ^(a)
November	21,686.6 ^(a)	34,987.0 ^(a)	49,331.7 ^(a)
December	18,192.6 ^(a)	28,572.5 ^(a)	47,983.1 ^(a)
January	15,679.8 ^(a)	24,493.0 ^(a)	53,753.9 ^(a)
February	10,246.5 ^(a)	20,643.5 ^(a)	55,757.1 ^(a)
March	10,172.7 ^(a)	25,096.0 ^(a)	58,605.0 ^(a)
April	18,042.3 ^(a)	45,301.0 ^(a)	64,894.3 ^(a)
May	42,067.6 ^(a)	66,633.5 ^(a)	73,496.6 ^(a)
June	58,931.7 ^(a)	70,101.0 ^(a)	74,529.0 ^(a)
July	45,900.0 ^(a)	64,462.0 ^(a)	73,425.2 ^(a)
August	29,911.6 ^(a)	51,459.5 ^(a)	63,518.1 ^(a)
September	18,990.0 ^(a)	40,571.0 ^(a)	56,685.5 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-21. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Lake Valley reservoir (Upper Drum-Spaulling Project, Drum No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	2,887.2 ^(a)	4,287.4 ^(a)	5,808.6 ^(a)
November	2,610.6 ^(a)	3,490.5 ^(a)	5,022.4 ^(a)
December	2,085.9 ^(a)	3,248.3 ^(a)	5,793.8 ^(a)
January	1,637.4 ^(a)	2,997.4 ^(a)	6,785.2 ^(a)
February	1,133.9 ^(a)	3,358.0 ^(a)	6,841.9 ^(a)
March	1,181.3 ^(a)	4,267.9 ^(a)	6,923.4 ^(a)
April	2,322.5 ^(a)	5,354.8 ^(a)	7,362.7 ^(a)
May	4,436.7 ^(a)	7,155.9 ^(a)	7,841.1 ^(a)
June	4,964.4 ^(a)	7,654.7 ^(a)	7,867.6 ^(a)
July	4,584.4 ^(a)	7,256.4 ^(a)	7,753.5 ^(a)
August	3,979.6 ^(a)	6,075.1 ^(a)	7,297.0 ^(a)
September	3,429.1 ^(a)	5,078.3 ^(a)	6,688.2 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-22. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Kelly Lake (Upper Drum-Spauding Project, Drum No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	30.0 ^(a)	177.8 ^(a)	259.5 ^(a)
November	19.0 ^(a)	83.0 ^(a)	249.0 ^(a)
December	34.0 ^(a)	106.7 ^(a)	306.6 ^(a)
January	38.7 ^(a)	145.9 ^(a)	313.3 ^(a)
February	43.0 ^(a)	164.4 ^(a)	315.0 ^(a)
March	91.4 ^(a)	285.0 ^(a)	318.0 ^(a)
April	259.4 ^(a)	315.9 ^(a)	335.6 ^(a)
May	311.0 ^(a)	334.0 ^(a)	339.8 ^(a)
June	313.0 ^(a)	331.1 ^(a)	338.0 ^(a)
July	294.8 ^(a)	311.0 ^(a)	328.1 ^(a)
August	270.4 ^(a)	287.0 ^(a)	306.0 ^(a)
September	67.2 ^(a)	262.7 ^(a)	286.1 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-23. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Drum forebay (Upper Drum-Spaulding Project, Dutch Flat No. 1 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	74.3 ^(a)	223.5 ^(a)	297.4 ^(a)
November	95.6 ^(a)	225.0 ^(a)	297.2 ^(a)
December	108.6 ^(a)	240.0 ^(a)	302.4 ^(a)
January	88.0 ^(a)	228.5 ^(a)	297.5 ^(a)
February	95.0 ^(a)	240.0 ^(a)	309.0 ^(a)
March	99.0 ^(a)	253.0 ^(a)	317.0 ^(a)
April	100.0 ^(a)	242.0 ^(a)	312.2 ^(a)
May	94.0 ^(a)	243.0 ^(a)	311.0 ^(a)
June	80.0 ^(a)	241.5 ^(a)	296.0 ^(a)
July	89.0 ^(a)	233.0 ^(a)	298.9 ^(a)
August	100.0 ^(a)	247.0 ^(a)	311.6 ^(a)
September	86.0 ^(a)	232.0 ^(a)	310.0 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-24. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Halsey forebay (Lower Drum Project, Halsey Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	134.0 ^(a)	192.0 ^(a)	239.7 ^(a)
November	77.0 ^(a)	186.0 ^(a)	233.0 ^(a)
December	149.8 ^(a)	194.0 ^(a)	223.0 ^(a)
January	149.0 ^(a)	191.0 ^(a)	226.0 ^(a)
February	149.0 ^(a)	190.0 ^(a)	221.0 ^(a)
March	149.0 ^(a)	192.0 ^(a)	231.0 ^(a)
April	159.0 ^(a)	200.0 ^(a)	229.0 ^(a)
May	167.0 ^(a)	205.0 ^(a)	230.0 ^(a)
June	168.0 ^(a)	212.1 ^(a)	231.0 ^(a)
July	171.9 ^(a)	213.6 ^(a)	234.1 ^(a)
August	172.0 ^(a)	211.0 ^(a)	235.0 ^(a)
September	174.0 ^(a)	216.4 ^(a)	233.0 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-25. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Halsey afterbay (Lower Drum Project, Wise and Wise No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	4.0 ^(a)	49.0 ^(a)	65.0 ^(a)
November	2.0 ^(a)	49.0 ^(a)	64.0 ^(a)
December	3.0 ^(a)	50.8 ^(a)	64.0 ^(a)
January	4.0 ^(a)	49.0 ^(a)	62.7 ^(a)
February	3.0 ^(a)	49.8 ^(a)	63.1 ^(a)
March	3.0 ^(a)	52.0 ^(a)	62.3 ^(a)
April	2.0 ^(a)	53.6 ^(a)	63.8 ^(a)
May	4.0 ^(a)	57.1 ^(a)	64.8 ^(a)
June	4.0 ^(a)	57.0 ^(a)	64.0 ^(a)
July	4.0 ^(a)	61.8 ^(a)	65.0 ^(a)
August	4.0 ^(a)	61.0 ^(a)	67.8 ^(a)
September	4.0 ^(a)	55.0 ^(a)	67.5 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-26. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Rock Creek reservoir (Lower Drum Project, Wise and Wise No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	123.0 ^(a)	363.0 ^(a)	515.0 ^(a)
November	89.0 ^(a)	275.0 ^(a)	440.0 ^(a)
December	114.8 ^(a)	260.0 ^(a)	526.0 ^(a)
January	118.5 ^(a)	267.0 ^(a)	517.0 ^(a)
February	122.0 ^(a)	252.7 ^(a)	504.0 ^(a)
March	111.0 ^(a)	259.2 ^(a)	520.0 ^(a)
April	132.3 ^(a)	294.0 ^(a)	504.0 ^(a)
May	108.0 ^(a)	310.7 ^(a)	471.0 ^(a)
June	106.5 ^(a)	323.0 ^(a)	439.5 ^(a)
July	108.0 ^(a)	341.9 ^(a)	445.4 ^(a)
August	114.7 ^(a)	354.6 ^(a)	465.0 ^(a)
September	109.4 ^(a)	349.4 ^(a)	471.0 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-27. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Wise forebay (Lower Drum Project, Wise and Wise No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	12.0 ^(a)	23.0 ^(a)	25.0 ^(a)
November	16.0 ^(a)	23.0 ^(a)	25.0 ^(a)
December	21.0 ^(a)	24.0 ^(a)	25.0 ^(a)
January	22.0 ^(a)	24.0 ^(a)	25.0 ^(a)
February	21.0 ^(a)	24.0 ^(a)	25.0 ^(a)
March	22.0 ^(a)	24.0 ^(a)	25.0 ^(a)
April	22.0 ^(a)	24.0 ^(a)	25.0 ^(a)
May	22.0 ^(a)	24.0 ^(a)	25.0 ^(a)
June	22.0 ^(a)	24.0 ^(a)	25.0 ^(a)
July	23.0 ^(a)	24.0 ^(a)	26.0 ^(a)
August	22.0 ^(a)	24.0 ^(a)	25.0 ^(a)
September	22.0 ^(a)	24.0 ^(a)	26.0 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-28. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Texas Creek below Upper Rock Lake dam (Upper Drum-Spaulling Project, Spaulling No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.0	0.0	0.1	No data	No data	No data
November	0.0	0.0	0.5	No data	No data	No data
December	0.0	0.2	0.8	No data	No data	No data
January	0.1	0.3	1.0	No data	No data	No data
February	0.1	0.4	1.2	No data	No data	No data
March	0.4	0.8	2.4	No data	No data	No data
April	0.7	1.7	3.5	No data	No data	No data
May	0.6	2.3	4.7	No data	No data	No data
June	0.0	0.5	3.2	No data	No data	No data
July	0.0	0.0	0.6	No data	No data	No data
August	0.0	0.0	0.0	No data	No data	No data
September	0.0	0.0	0.1	No data	No data	No data

Table 3-29. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Texas Creek below Lower Rock Lake dam (Upper Drum-Spaulling Project, Spaulling No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.3 ^(a)	1.0 ^(a)	1.2 ^(a)	0.0	0.0	0.2
November	0.1 ^(a)	0.3 ^(a)	1.0 ^(a)	0.0	0.1	0.8
December	0.3 ^(a)	0.8 ^(a)	1.0 ^(a)	0.0	0.3	1.4
January	No data	No data	No data	0.1	0.4	1.7
February	No data	No data	No data	0.2	0.7	2.0
March	No data	No data	No data	0.6	1.2	3.9
April	No data	No data	No data	1.2	2.8	5.8
May	0.5 ^(a)	0.6 ^(a)	0.6 ^(a)	1.0	3.8	7.6
June	0.2 ^(a)	0.3 ^(a)	0.7 ^(a)	0.1	0.8	5.1
July	0.2 ^(a)	0.3 ^(a)	0.5 ^(a)	0.0	0.0	0.9
August	0.2 ^(a)	0.3 ^(a)	0.5 ^(a)	0.0	0.0	0.1
September	0.3 ^(a)	0.6 ^(a)	1.1 ^(a)	0.0	0.0	0.1

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-30. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in an unnamed tributary below Culberston Lake dam (Upper Drum-Spaulling Project, Spaulling No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.0 ^(a)	0.9 ^(a)	1.2 ^(a)	0.0	0.0	0.3
November	0.0 ^(a)	0.7 ^(a)	1.1 ^(a)	0.0	0.1	1.4
December	0.4 ^(a)	0.7 ^(a)	0.9 ^(a)	0.1	0.5	2.3
January	No data	No data	No data	0.2	0.7	2.8
February	No data	No data	No data	0.3	1.1	3.3
March	No data	No data	No data	1.0	2.1	6.5
April	0.7 ^(a)	0.8 ^(a)	0.8 ^(a)	2.0	4.6	9.6
May	0.7 ^(a)	0.9 ^(a)	1.2 ^(a)	1.7	6.4	13.0
June	0.7 ^(a)	0.8 ^(a)	1.2 ^(a)	0.1	1.5	8.9
July	0.7 ^(a)	0.9 ^(a)	1.1 ^(a)	0.0	0.1	1.6
August	0.7 ^(a)	0.8 ^(a)	1.0 ^(a)	0.0	0.0	0.1
September	0.5 ^(a)	0.8 ^(a)	1.1 ^(a)	0.0	0.0	0.1

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-31. Exceedance frequency analysis (10, 50, and 90 percent) for regulated and estimated unregulated flow (cfs) in Lindsey Creek below Upper Lindsey Lake dam (Upper Drum-Spaulding Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance	50% Exceedance	10% Exceedance
	Flow (cfs)	Flow (cfs)	Flow (cfs)
	Unregulated	Unregulated	Unregulated
October	0.0	0.0	0.1
November	0.0	0.0	0.4
December	0.0	0.2	0.7
January	0.1	0.2	0.9
February	0.1	0.4	1.1
March	0.3	0.7	2.1
April	0.6	1.6	3.2
May	0.6	2.4	4.7
June	0.0	0.6	3.6
July	0.0	0.0	0.8
August	0.0	0.0	0.0
September	0.0	0.0	0.0

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-32. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Lindsey Creek below Middle Lindsey Lake dam (Upper Drum-Spaulding Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.0 ^(a)	0.3 ^(a)	0.6 ^(a)	0.0	0.0	0.2
November	0.0 ^(a)	0.0 ^(a)	0.4 ^(a)	0.0	0.1	1.1
December	0.0 ^(a)	0.0 ^(a)	0.2 ^(a)	0.1	0.4	1.8
January	0.1 ^(a)	0.4 ^(a)	0.8 ^(a)	0.1	0.6	2.2
February	0.0 ^(a)	0.3 ^(a)	0.5 ^(a)	0.2	0.9	2.6
March	0.2 ^(a)	0.5 ^(a)	0.5 ^(a)	0.8	1.6	5.0
April	0.1 ^(a)	0.3 ^(a)	0.4 ^(a)	1.5	3.7	7.6
May	0.2 ^(a)	0.4 ^(a)	0.7 ^(a)	1.4	5.2	10.5
June	0.3 ^(a)	0.3 ^(a)	0.6 ^(a)	0.1	1.2	7.5
July	0.3 ^(a)	0.3 ^(a)	0.5 ^(a)	0.0	0.1	1.4
August	0.3 ^(a)	0.3 ^(a)	0.4 ^(a)	0.0	0.0	0.1
September	0.0 ^(a)	0.3 ^(a)	0.5 ^(a)	0.0	0.0	0.1

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-33. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Lindsey Creek below Lower Lindsey Lake dam (Upper Drum-Spaulding Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90%	50%	10%	90%	50%	10%
	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.4 ^(a)	0.7 ^(a)	1.0 ^(a)	0.0	0.1	0.5
November	0.4 ^(a)	0.8 ^(a)	1.1 ^(a)	0.1	0.2	2.5
December	0.6 ^(a)	0.7 ^(a)	1.0 ^(a)	0.2	0.9	4.2
January	0.8 ^(a)	0.9 ^(a)	0.9 ^(a)	0.3	1.3	5.1
February	No data	No data	No data	0.5	2.1	6.1
March	No data	No data	No data	1.8	3.8	11.9
April	0.5 ^(a)	0.6 ^(a)	1.0 ^(a)	3.6	8.6	17.9
May	0.4 ^(a)	0.6 ^(a)	1.0 ^(a)	3.2	12.0	24.4
June	0.3 ^(a)	0.7 ^(a)	1.1 ^(a)	0.2	2.8	17.0
July	0.5 ^(a)	0.7 ^(a)	1.1 ^(a)	0.0	0.1	3.2
August	0.5 ^(a)	0.7 ^(a)	1.1 ^(a)	0.0	0.1	0.2
September	0.5 ^(a)	0.7 ^(a)	1.0 ^(a)	0.0	0.1	0.3

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-34. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Lake Creek below Feeley Lake dam (Upper Drum-Spaulding Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.4 ^(a)	0.8 ^(a)	2.2 ^(a)	0.0	0.0	0.2
November	0.5 ^(a)	0.7 ^(a)	1.2 ^(a)	0.0	0.1	1.1
December	0.2 ^(a)	0.6 ^(a)	0.8 ^(a)	0.1	0.4	1.9
January	0.6 ^(a)	0.6 ^(a)	0.7 ^(a)	0.1	0.6	2.4
February	0.0 ^(a)	0.6 ^(a)	0.6 ^(a)	0.2	1.0	2.8
March	0.3 ^(a)	0.6 ^(a)	0.7 ^(a)	0.8	1.8	5.5
April	0.5 ^(a)	0.6 ^(a)	0.8 ^(a)	1.7	4.0	8.3
May	0.3 ^(a)	0.8 ^(a)	1.5 ^(a)	1.5	5.7	11.4
June	0.5 ^(a)	0.7 ^(a)	1.0 ^(a)	0.1	1.4	8.2
July	0.5 ^(a)	0.6 ^(a)	0.9 ^(a)	0.0	0.1	1.6
August	0.5 ^(a)	0.6 ^(a)	0.9 ^(a)	0.0	0.0	0.1
September	0.5 ^(a)	0.7 ^(a)	2.3 ^(a)	0.0	0.0	0.1

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-35. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Lake Creek below Carr Lake dam (Upper Drum-Spaulding Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.7 ^(a)	2.0 ^(a)	4.3 ^(a)	0.0	0.0	0.3
November	0.5 ^(a)	2.2 ^(a)	5.0 ^(a)	0.0	0.1	1.4
December	0.4 ^(a)	0.8 ^(a)	2.1 ^(a)	0.1	0.5	2.3
January	0.3 ^(a)	0.4 ^(a)	1.0 ^(a)	0.2	0.7	2.8
February	0.3 ^(a)	0.4 ^(a)	0.7 ^(a)	0.3	1.1	3.4
March	0.3 ^(a)	0.8 ^(a)	0.9 ^(a)	1.0	2.1	6.6
April	0.5 ^(a)	1.0 ^(a)	414.6 ^(a)	2.0	4.8	9.9
May	0.6 ^(a)	1.2 ^(a)	293.8 ^(a)	1.8	6.8	13.6
June	0.5 ^(a)	1.0 ^(a)	4.9 ^(a)	0.1	1.6	9.6
July	0.5 ^(a)	0.8 ^(a)	2.0 ^(a)	0.0	0.1	1.8
August	0.4 ^(a)	0.7 ^(a)	1.0 ^(a)	0.0	0.0	0.1
September	0.5 ^(a)	1.1 ^(a)	3.2 ^(a)	0.0	0.0	0.1

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-36. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Rucker Creek below Blue Lake dam (Upper Drum-Spaulding Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.0	0.0	0.1
November	No data	No data	No data	0.0	0.1	0.9
December	No data	No data	No data	0.1	0.3	1.4
January	No data	No data	No data	0.1	0.5	1.8
February	No data	No data	No data	0.2	0.7	2.1
March	No data	No data	No data	0.6	1.2	3.6
April	No data	No data	No data	1.0	2.2	4.6
May	No data	No data	No data	0.8	2.9	6.1
June	No data	No data	No data	0.0	0.6	3.7
July	No data	No data	No data	0.0	0.0	0.6
August	No data	No data	No data	0.0	0.0	0.1
September	No data	No data	No data	0.0	0.0	0.1

Table 3-37. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Rucker Creek below Rucker Lake dam (Upper Drum-Spaulding Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.1	0.2	0.9
November	No data	No data	No data	0.2	0.6	6.2
December	No data	No data	No data	0.4	2.1	9.5
January	No data	No data	No data	0.8	3.2	12.2
February	No data	No data	No data	1.3	5.2	14.7
March	No data	No data	No data	4.0	8.6	25.1
April	No data	No data	No data	6.5	15.0	30.8
May	No data	No data	No data	5.1	19.8	41.1
June	No data	No data	No data	0.3	3.8	25.1
July	No data	No data	No data	0.0	0.1	4.3
August	No data	No data	No data	0.1	0.1	0.4
September	No data	No data	No data	0.1	0.1	0.5

Table 3-38. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in an unnamed tributary below Fuller Lake dam (Upper Drum-Spaulling Project, Spaulding No. 3 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.0	0.1	0.3
November	No data	No data	No data	0.1	0.2	2.1
December	No data	No data	No data	0.1	0.7	3.2
January	No data	No data	No data	0.3	1.1	4.2
February	No data	No data	No data	0.4	1.8	5.2
March	No data	No data	No data	1.3	2.9	8.3
April	No data	No data	No data	2.0	4.6	9.5
May	No data	No data	No data	1.6	6.1	12.7
June	No data	No data	No data	0.1	1.1	7.5
July	No data	No data	No data	0.0	0.0	1.3
August	No data	No data	No data	0.0	0.0	0.1
September	No data	No data	No data	0.0	0.0	0.2

Table 3-39. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in an unnamed tributary below Meadow Lake dam (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.1	0.1	0.7
November	No data	No data	No data	0.1	0.3	2.5
December	No data	No data	No data	0.2	1.0	4.6
January	No data	No data	No data	0.4	1.4	5.5
February	No data	No data	No data	0.5	2.0	6.5
March	No data	No data	No data	1.8	4.1	12.5
April	No data	No data	No data	3.7	10.2	22.2
May	No data	No data	No data	6.0	19.8	40.2
June	No data	No data	No data	0.6	6.8	38.3
July	No data	No data	No data	0.1	0.4	9.9
August	No data	No data	No data	0.1	0.1	0.4
September	No data	No data	No data	0.1	0.1	0.4

Table 3-40. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in White Rock Creek below White Rock diversion dam (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.0	0.1	0.6
November	No data	No data	No data	0.1	0.2	1.7
December	No data	No data	No data	0.1	0.6	3.0
January	No data	No data	No data	0.2	0.9	3.8
February	No data	No data	No data	0.4	1.2	4.0
March	No data	No data	No data	1.1	2.6	8.2
April	No data	No data	No data	2.7	8.3	19.5
May	No data	No data	No data	6.1	19.3	39.0
June	No data	No data	No data	0.7	7.6	38.7
July	No data	No data	No data	0.1	0.5	10.6
August	No data	No data	No data	0.0	0.1	0.4
September	No data	No data	No data	0.0	0.1	0.3

Table 3-41. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Bloody Creek below Lake Sterling dam (Upper Drum-Spaulling Project, Spaulling No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.0	0.1	0.5
November	No data	No data	No data	0.1	0.2	2.1
December	No data	No data	No data	0.1	0.8	3.7
January	No data	No data	No data	0.3	1.2	4.6
February	No data	No data	No data	0.4	1.7	5.4
March	No data	No data	No data	1.5	3.4	10.4
April	No data	No data	No data	3.0	8.2	17.6
May	No data	No data	No data	4.4	15.1	30.2
June	No data	No data	No data	0.4	4.9	27.3
July	No data	No data	No data	0.1	0.3	6.8
August	No data	No data	No data	0.0	0.1	0.3
September	No data	No data	No data	0.0	0.1	0.3

Table 3-42. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Fordyce Creek below Fordyce Lake dam (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	5.2	43.0	306.6	1.2	2.7	15.3
November	5.4	20.0	171.1	1.8	6.8	63.6
December	5.3	12.0	80.0	4.1	23.7	111.1
January	5.4	16.0	78.0	8.6	35.2	136.3
February	6.5	18.0	99.8	13.2	52.3	160.0
March	8.8	28.0	176.0	46.2	100.6	311.5
April	13.0	32.0	181.0	91.7	248.0	532.8
May	23.0	44.0	527.0	132.5	454.7	909.1
June	37.0	265.5	633.1	12.3	145.1	805.8
July	36.0	236.0	502.0	2.2	8.5	198.3
August	12.0	128.0	402.8	1.2	2.1	8.4
September	6.7	98.0	332.0	1.2	2.0	8.6

Table 3-43. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Unnamed tributary below Kidd Lake dam (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.0	0.0	0.3
November	No data	No data	No data	0.0	0.1	1.5
December	No data	No data	No data	0.1	0.5	2.5
January	No data	No data	No data	0.2	0.8	3.0
February	No data	No data	No data	0.3	1.2	3.5
March	No data	No data	No data	1.0	2.2	7.0
April	No data	No data	No data	2.1	5.0	10.3
May	No data	No data	No data	1.7	6.7	13.5
June	No data	No data	No data	0.1	1.4	9.0
July	No data	No data	No data	0.0	0.1	1.5
August	No data	No data	No data	0.0	0.0	0.1
September	No data	No data	No data	0.0	0.0	0.1

Table 3-44. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Cascade Creek below Lower Peak Lake dam (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90%	50%	10%	90%	50%	10%
	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.0	0.1	0.5
November	No data	No data	No data	0.1	0.3	2.7
December	No data	No data	No data	0.2	0.9	4.5
January	No data	No data	No data	0.3	1.4	5.5
February	No data	No data	No data	0.5	2.2	6.4
March	No data	No data	No data	1.9	4.0	12.6
April	No data	No data	No data	3.8	9.0	18.6
May	No data	No data	No data	3.1	12.1	24.4
June	No data	No data	No data	0.2	2.6	16.3
July	No data	No data	No data	0.0	0.1	2.7
August	No data	No data	No data	0.0	0.1	0.2
September	No data	No data	No data	0.0	0.1	0.3

Table 3-45. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in South Yuba River below Kidd Lake dam and Lower Peak Lake dam (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90%	50%	10%	90%	50%	10%
	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	5.4	18.9	56.0	2.0	4.4	25.4
November	3.5	15.1	137.1	3.3	12.5	120.7
December	6.6	40.0	200.6	7.6	44.7	208.7
January	12.0	59.4	247.8	15.8	66.1	256.7
February	22.0	94.2	294.1	24.5	102.0	305.2
March	84.0	181.0	563.3	90.1	189.3	578.8
April	160.9	414.0	878.2	169.7	424.4	894.8
May	183.0	651.0	1348.4	190.2	681.3	1366.1
June	14.0	186.7	1052.6	15.1	189.8	1065.0
July	5.8	10.8	228.4	2.6	10.0	241.9
August	4.9	7.9	17.0	2.0	3.0	12.3
September	6.0	12.8	37.3	2.0	3.2	13.9

Table 3-46. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) through Spaulding no. 2 powerhouse (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	1.2 ^(a)	4.2 ^(a)	6.2 ^(a)	4.8	10.3	59.4
November	1.3 ^(a)	4.4 ^(a)	6.2 ^(a)	7.8	29.9	290.1
December	1.2 ^(a)	2.3 ^(a)	6.2 ^(a)	18.3	106.7	493.1
January	1.5 ^(a)	2.4 ^(a)	11.0 ^(a)	37.9	157.5	609.5
February	1.4 ^(a)	2.5 ^(a)	21.0 ^(a)	59.5	244.4	733.1
March	1.1 ^(a)	2.4 ^(a)	34.0 ^(a)	212.3	443.8	1355.8
April	1.2 ^(a)	2.9 ^(a)	39.0 ^(a)	389.0	968.4	2033.5
May	1.6 ^(a)	6.4 ^(a)	42.0 ^(a)	439.6	1562.7	3120.4
June	1.3 ^(a)	5.0 ^(a)	44.1 ^(a)	34.9	437.2	2435.5
July	1.3 ^(a)	3.5 ^(a)	7.6 ^(a)	6.1	23.5	566.4
August	1.3 ^(a)	3.9 ^(a)	6.5 ^(a)	4.7	7.0	28.6
September	1.0 ^(a)	4.0 ^(a)	6.7 ^(a)	4.7	7.3	32.2

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-47. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in the South Yuba River at Lang's Crossing below Rucker Creek (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90%	50%	10%	90%	50%	10%
	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	5.3	6.3	11.0	5.1	11.0	60.9
November	5.4	7.3	17.0	8.5	31.0	299.1
December	5.6	8.4	39.0	19.2	109.5	509.3
January	5.6	12.0	50.8	39.4	161.7	630.6
February	6.0	15.0	68.0	61.5	253.3	753.3
March	7.2	18.0	83.0	218.2	457.7	1389.3
April	5.8	15.0	250.7	403.3	984.0	2066.2
May	5.8	24.0	1320.0	445.5	1585.8	3164.0
June	5.6	9.9	1200.0	35.5	442.0	2460.4
July	5.3	6.6	25.8	6.5	24.2	572.5
August	5.1	6.2	8.1	4.9	7.6	29.7
September	5.3	6.6	9.8	4.9	7.8	33.2

Table 3-48. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in the South Yuba River below Fall Creek (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	5.3	6.3	11.0	5.8	12.7	65.0
November	5.4	7.3	17.0	9.8	33.8	322.7
December	5.6	8.4	39.0	21.4	115.9	548.9
January	5.6	12.0	50.8	42.9	172.6	670.4
February	6.0	15.0	68.0	66.3	274.3	802.4
March	7.2	18.0	83.0	232.7	488.7	1464.5
April	5.8	15.0	250.7	424.9	1034.0	2147.3
May	5.8	24.0	1320.0	463.6	1635.9	3277.3
June	5.6	9.9	1200.0	36.8	453.9	2530.6
July	5.3	6.6	25.8	7.3	25.8	584.0
August	5.1	6.2	8.1	5.4	9.0	32.2
September	5.3	6.6	9.8	5.4	9.1	35.7

Table 3-49. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in the South Yuba River below Canyon Creek (Upper Drum-Spaulding Project, Spaulding No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	6.3	7.8	13.2	6.6	14.6	72.5
November	6.8	9.9	30.7	11.6	38.1	365.6
December	7.5	13.4	69.9	24.4	129.5	607.1
January	8.3	20.9	94.5	48.2	193.3	762.4
February	10.5	27.9	128.2	74.7	310.3	896.5
March	18.0	43.0	160.9	258.6	541.0	1620.8
April	23.2	51.0	286.5	469.2	1138.0	2334.3
May	15.4	80.7	1407.1	497.4	1770.8	3531.6
June	7.8	17.9	1239.0	39.6	483.0	2715.5
July	6.4	8.6	27.9	8.2	27.5	616.4
August	6.1	7.6	10.7	6.1	10.4	35.8
September	6.3	7.8	11.4	6.1	10.7	39.8

Table 3-50. Exceedance frequency analysis (10, 50, and 90 percent) for historical flow (cfs) in South Fork Deer Creek below Deer Creek powerhouse (Deer Creek Project, Deer Creek Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance	50% Exceedance	10% Exceedance
	Flow (cfs)	Flow (cfs)	Flow (cfs)
	Historical	Historical	Historical
October	36.0	54.0	69.8
November	30.0	42.0	65.0
December	30.0	39.0	60.0
January	0.0	39.0	66.0
February	0.0	39.0	71.0
March	0.0	42.0	78.0
April	0.0	0.0	66.0
May	0.0	53.0	86.0
June	30.0	60.0	91.0
July	48.0	62.0	78.0
August	51.2	60.0	78.0
September	42.9	60.0	78.0

Table 3-51. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in the North Fork of the North Fork American River below Lake Valley reservoir dam (Upper Drum-Spaulding Project, Drum No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	3.2 ^(a)	17.0 ^(a)	31.0 ^(a)	0.2	0.4	2.4
November	5.0 ^(a)	18.0 ^(a)	30.0 ^(a)	0.4	1.4	14.3
December	10.1 ^(a)	15.1 ^(a)	27.0 ^(a)	0.9	4.9	22.9
January	7.3 ^(a)	14.5 ^(a)	28.0 ^(a)	1.7	7.5	28.6
February	3.5 ^(a)	16.0 ^(a)	28.0 ^(a)	2.8	11.9	34.0
March	5.0 ^(a)	16.0 ^(a)	30.0 ^(a)	9.8	20.7	63.0
April	1.9 ^(a)	10.0 ^(a)	29.0 ^(a)	17.8	41.6	85.0
May	0.3 ^(a)	12.0 ^(a)	43.0 ^(a)	14.2	55.4	112.6
June	2.9 ^(a)	5.3 ^(a)	29.0 ^(a)	0.8	11.6	72.5
July	1.0 ^(a)	4.2 ^(a)	19.0 ^(a)	0.1	0.4	12.3
August	2.0 ^(a)	6.0 ^(a)	20.0 ^(a)	0.2	0.3	1.0
September	2.0 ^(a)	5.3 ^(a)	22.0 ^(a)	0.2	0.3	1.3

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-52. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Sixmile Creek below Kelly Lake dam (Upper Drum-Spaulling Project, Drum No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90%	50%	10%	90%	50%	10%
	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.0 ^(a)	2.0 ^(a)	3.0 ^(a)	0.0	0.1	0.3
November	0.0 ^(a)	2.5 ^(a)	5.0 ^(a)	0.0	0.2	1.8
December	0.0 ^(a)	1.0 ^(a)	3.5 ^(a)	0.1	0.6	2.8
January	0.0 ^(a)	0.0 ^(a)	2.5 ^(a)	0.2	0.9	3.5
February	0.0 ^(a)	0.0 ^(a)	5.0 ^(a)	0.4	1.5	4.2
March	0.0 ^(a)	1.5 ^(a)	5.0 ^(a)	1.2	2.6	7.7
April	0.0 ^(a)	2.0 ^(a)	5.0 ^(a)	2.2	5.0	10.3
May	0.0 ^(a)	2.1 ^(a)	5.0 ^(a)	1.7	6.7	13.6
June	0.0 ^(a)	0.5 ^(a)	5.6 ^(a)	0.1	1.4	8.7
July	0.0 ^(a)	0.0 ^(a)	1.0 ^(a)	0.0	0.1	1.5
August	0.0 ^(a)	0.0 ^(a)	0.5 ^(a)	0.0	0.0	0.1
September	0.0 ^(a)	0.0 ^(a)	1.0 ^(a)	0.0	0.0	0.2

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-53. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in the North Fork of the North Fork American River below Lake Valley canal diversion dam (Upper Drum-Spaulding Project, Drum No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	1.0 ^(a)	1.4 ^(a)	11.2 ^(a)	0.4	0.9	5.1
November	1.0 ^(a)	1.2 ^(a)	25.9 ^(a)	0.8	3.0	31.9
December	1.0 ^(a)	1.5 ^(a)	118.2 ^(a)	1.9	10.8	49.6
January	1.0 ^(a)	5.4 ^(a)	98.2 ^(a)	3.9	16.5	62.7
February	1.0 ^(a)	5.6 ^(a)	31.3 ^(a)	6.3	26.3	75.0
March	1.1 ^(a)	14.1 ^(a)	71.9 ^(a)	21.1	44.8	133.0
April	1.2 ^(a)	21.5 ^(a)	78.0 ^(a)	36.5	84.5	172.7
May	1.1 ^(a)	33.5 ^(a)	173.6 ^(a)	28.7	111.9	229.4
June	3.0 ^(a)	3.4 ^(a)	59.2 ^(a)	1.5	22.4	144.9
July	3.0 ^(a)	3.2 ^(a)	5.7 ^(a)	0.2	0.8	24.8
August	3.0 ^(a)	3.2 ^(a)	3.9 ^(a)	0.3	0.6	2.0
September	3.0 ^(a)	3.4 ^(a)	8.1 ^(a)	0.4	0.6	2.6

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-54. Exceedance frequency analysis (10, 50, and 90 percent) for historical flow (cfs) from the Bear River below Drum canal spillway gate (Upper Drum-Spaulding Project, Drum No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance	50% Exceedance	10% Exceedance
	Flow (cfs)	Flow (cfs)	Flow (cfs)
	Historical	Historical	Historical
October	0.0 ^(a)	0.0 ^(a)	0.0 ^(a)
November	0.0 ^(a)	0.0 ^(a)	0.0 ^(a)
December	0.0 ^(a)	0.0 ^(a)	75.0 ^(a)
January	0.0 ^(a)	0.0 ^(a)	0.0 ^(a)
February	0.0 ^(a)	0.0 ^(a)	75.0 ^(a)
March	0.0 ^(a)	0.0 ^(a)	194.8 ^(a)
April	0.0 ^(a)	0.0 ^(a)	200.5 ^(a)
May	0.0 ^(a)	50.0 ^(a)	324.5 ^(a)
June	0.0 ^(a)	5.5 ^(a)	185.0 ^(a)
July	0.0 ^(a)	0.0 ^(a)	60.0 ^(a)
August	0.0 ^(a)	0.0 ^(a)	0.0 ^(a)
September	0.0 ^(a)	0.0 ^(a)	0.0 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-55. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Bear River at Highway 20 crossing, between South Yuba canal inflow at gage YB-139 (Upper Drum-Spaulding Project, Drum No. 1 and No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	5.6 ^(a)	7.1 ^(a)	12.4 ^(a)	0.2	0.5	1.0
November	5.8 ^(a)	7.4 ^(a)	20.0 ^(a)	0.4	0.8	4.2
December	5.9 ^(a)	8.3 ^(a)	36.0 ^(a)	0.6	1.7	8.8
January	5.9 ^(a)	9.9 ^(a)	72.5 ^(a)	0.9	2.5	12.5
February	6.6 ^(a)	12.2 ^(a)	127.5 ^(a)	1.3	4.6	14.0
March	8.0 ^(a)	17.0 ^(a)	203.6 ^(a)	3.1	7.4	18.0
April	7.5 ^(a)	19.0 ^(a)	226.3 ^(a)	4.6	9.1	17.2
May	6.4 ^(a)	77.5 ^(a)	264.0 ^(a)	2.6	9.8	20.8
June	6.5 ^(a)	11.7 ^(a)	158.0 ^(a)	0.5	2.3	11.1
July	5.5 ^(a)	7.9 ^(a)	83.1 ^(a)	0.2	0.7	2.7
August	5.6 ^(a)	7.3 ^(a)	25.3 ^(a)	0.2	0.5	0.9
September	5.9 ^(a)	7.4 ^(a)	19.0 ^(a)	0.2	0.4	0.8

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-56. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Canyon Creek below Towle canal diversion dam (Upper Drum-Spaulding Project, Alta Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.0 ^(a)	0.2 ^(a)	1.1 ^(a)	0.3	0.7	1.1
November	0.1 ^(a)	0.4 ^(a)	1.1 ^(a)	0.5	0.9	3.0
December	0.2 ^(a)	0.9 ^(a)	1.2 ^(a)	0.7	1.4	7.3
January	0.3 ^(a)	1.0 ^(a)	1.2 ^(a)	0.8	2.0	11.6
February	0.5 ^(a)	1.1 ^(a)	1.2 ^(a)	1.1	3.7	13.7
March	1.0 ^(a)	1.1 ^(a)	1.2 ^(a)	2.3	5.9	16.2
April	0.9 ^(a)	1.1 ^(a)	1.2 ^(a)	2.6	6.0	13.2
May	0.4 ^(a)	1.0 ^(a)	1.2 ^(a)	1.5	4.4	13.4
June	0.3 ^(a)	1.0 ^(a)	1.2 ^(a)	0.6	1.8	5.7
July	0.1 ^(a)	0.6 ^(a)	1.1 ^(a)	0.3	0.9	2.2
August	0.0 ^(a)	0.3 ^(a)	1.1 ^(a)	0.2	0.6	1.2
September	0.0 ^(a)	0.3 ^(a)	1.2 ^(a)	0.2	0.5	1.0

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-57. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Little Bear River below Alta powerhouse tailrace (Upper Drum-Spaulding Project, Alta Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.0 ^(a)	0.2 ^(a)	0.3 ^(a)	0.3	0.7	1.2
November	0.0 ^(a)	0.2 ^(a)	1.1 ^(a)	0.5	0.9	2.7
December	0.2 ^(a)	0.7 ^(a)	10.0 ^(a)	0.7	1.3	6.8
January	0.2 ^(a)	2.0 ^(a)	20.0 ^(a)	0.8	1.8	11.5
February	0.6 ^(a)	6.7 ^(a)	29.4 ^(a)	1.0	3.4	13.7
March	1.2 ^(a)	6.2 ^(a)	24.0 ^(a)	2.0	5.3	16.2
April	0.2 ^(a)	3.3 ^(a)	22.6 ^(a)	1.5	5.0	12.5
May	0.1 ^(a)	0.4 ^(a)	17.4 ^(a)	1.1	2.8	12.1
June	0.1 ^(a)	0.2 ^(a)	2.1 ^(a)	0.6	1.5	4.1
July	0.0 ^(a)	0.2 ^(a)	0.3 ^(a)	0.3	1.0	2.0
August	0.0 ^(a)	0.2 ^(a)	0.4 ^(a)	0.2	0.7	1.2
September	0.0 ^(a)	0.2 ^(a)	0.4 ^(a)	0.2	0.6	1.0

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-58. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in the Bear River below Drum afterbay (Upper Drum-Spaulding Project, Dutch Flat No. 1 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	5.1 ^(a)	6.0 ^(a)	9.2 ^(a)	2.1	4.8	8.6
November	5.1	5.9	8.0	3.8	7.2	28.3
December	5.1 ^(a)	6.0 ^(a)	7.0 ^(a)	5.6	11.6	59.1
January	5.1 ^(a)	6.0 ^(a)	7.3 ^(a)	6.5	17.6	92.7
February	5.2 ^(a)	6.1 ^(a)	16.5 ^(a)	8.7	31.1	109.0
March	5.5 ^(a)	10.0 ^(a)	46.0 ^(a)	20.4	51.7	128.4
April	5.5 ^(a)	10.0 ^(a)	70.0 ^(a)	24.5	54.8	113.7
May	5.6 ^(a)	10.0 ^(a)	13.0 ^(a)	13.9	47.1	117.1
June	5.4 ^(a)	10.0 ^(a)	13.0 ^(a)	4.6	15.5	57.3
July	5.3 ^(a)	10.0 ^(a)	13.0 ^(a)	2.3	6.5	18.5
August	5.3 ^(a)	10.0 ^(a)	13.0 ^(a)	1.5	4.4	8.3
September	5.3 ^(a)	11.0 ^(a)	13.0 ^(a)	1.6	4.0	7.2

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-59. Exceedance frequency analysis (10, 50, and 90 percent) for historical flow (cfs) in Bear River diversion dam and Bear River canal (Lower Drum Project, Halsey Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance	50% Exceedance	10% Exceedance
	Flow (cfs)	Flow (cfs)	Flow (cfs)
	Historical	Historical	Historical
October	0.0	400.0	476.8
November	2.9	243.0	473.1
December	85.4	398.0	483.0
January	151.0	377.0	480.0
February	118.2	380.0	477.0
March	122.2	412.0	478.0
April	139.5	424.0	483.1
May	274.2	434.0	478.0
June	341.9	435.5	476.0
July	370.0	444.0	470.0
August	374.0	446.0	474.0
September	269.9	442.0	475.1

Table 3-60. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Dry Creek below Halsey afterbay dam (Lower Drum Project, Wise and Wise No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.4	0.9	1.4
November	No data	No data	No data	0.7	1.2	3.3
December	No data	No data	No data	0.9	1.5	8.3
January	No data	No data	No data	1.0	2.2	14.1
February	No data	No data	No data	1.3	4.1	16.8
March	No data	No data	No data	2.4	6.5	19.9
April	No data	No data	No data	1.9	6.1	15.3
May	No data	No data	No data	1.3	3.4	14.9
June	No data	No data	No data	0.8	1.9	5.0
July	No data	No data	No data	0.4	1.2	2.4
August	No data	No data	No data	0.3	0.8	1.5
September	No data	No data	No data	0.3	0.7	1.3

Table 3-61. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Rock Creek below Rock Creek diversion dam (Lower Drum Project, Wise and Wise No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.0 ^(a)	0.2 ^(a)	8.4 ^(a)	0.3	0.6	1.0
November	0.0 ^(a)	0.2 ^(a)	34.9 ^(a)	0.4	0.8	2.2
December	0.0 ^(a)	0.2 ^(a)	30.4 ^(a)	0.6	1.0	5.5
January	0.0 ^(a)	0.1 ^(a)	12.7 ^(a)	0.6	1.5	9.3
February	0.0 ^(a)	0.2 ^(a)	39.1 ^(a)	0.8	2.7	11.1
March	0.1 ^(a)	0.2 ^(a)	9.4 ^(a)	1.6	4.3	13.2
April	0.1 ^(a)	0.2 ^(a)	8.8 ^(a)	1.3	4.0	10.1
May	0.0 ^(a)	0.2 ^(a)	25.0 ^(a)	0.9	2.3	9.9
June	0.0 ^(a)	0.2 ^(a)	25.9 ^(a)	0.5	1.3	3.3
July	0.0 ^(a)	0.3 ^(a)	25.0 ^(a)	0.3	0.8	1.6
August	0.0 ^(a)	0.2 ^(a)	25.0 ^(a)	0.2	0.5	1.0
September	0.0 ^(a)	0.2 ^(a)	19.5 ^(a)	0.2	0.5	0.9

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-62. Exceedance frequency analysis (10, 50, and 90 percent) for historical flow (cfs) in Auburn Ravine (Lower Drum Project, Wise and Wise No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance	50% Exceedance	10% Exceedance
	Flow (cfs)	Flow (cfs)	Flow (cfs)
	Historical	Historical	Historical
October	2.3	159.0	319.0
November	1.2	38.5	331.0
December	15.0	298.0	342.1
January	24.0	290.8	336.0
February	20.8	287.5	339.8
March	46.9 ^(a)	300.2 ^(a)	339.0 ^(a)
April	11.0	239.2	334.0
May	12.0	161.2	255.0
June	13.0	100.0	216.0
July	10.0 ^(a)	34.5 ^(a)	143.0 ^(a)
August	11.0	71.0	168.0
September	13.0	171.0	278.1

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-63. Exceedance frequency analysis (10, 50, and 90 percent) for flow (cfs) through Mormon Ravine (Lower Drum Project, Newcastle Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance	50% Exceedance	10% Exceedance
	Flow (cfs)	Flow (cfs)	Flow (cfs)
	Historical	Historical	Historical
October	0.0 ^(a)	0.0 ^(a)	235.0 ^(a)
November	0.0 ^(a)	0.0 ^(a)	303.0 ^(a)
December	0.0 ^(a)	278.0 ^(a)	321.0 ^(a)
January	0.0 ^(a)	276.1 ^(a)	312.0 ^(a)
February	53.2 ^(a)	272.0 ^(a)	309.0 ^(a)
March	33.8 ^(a)	271.0 ^(a)	306.0 ^(a)
April	0.0 ^(a)	221.0 ^(a)	277.0 ^(a)
May	0.0 ^(a)	125.0 ^(a)	215.0 ^(a)
June	0.0 ^(a)	37.0 ^(a)	177.0 ^(a)
July	0.0 ^(a)	0.0 ^(a)	62.0 ^(a)
August	0.0 ^(a)	0.0 ^(a)	127.0 ^(a)
September	0.0 ^(a)	148.0 ^(a)	209.1 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-64. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Jackson Meadows reservoir (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	19,468.6	39,137.9	50,546.6
November	17,744.7	33,760.1	42,217.2
December	17,936.7	33,377.8	39,860.5
January	18,147.7	34,170.8	53,337.5
February	15,643.1	34,626.0	53,337.5
March	16,301.3	34,902.1	53,530.0
April	24,123.1	38,939.8	54,011.3
May	34,050.6	54,107.7	67,200.7
June	38,460.4	63,047.6	68,130.2
July	33,397.0	62,189.6	67,730.2
August	24,633.7	55,214.0	67,219.8
September	22,895.9	47,470.7	61,523.4

Table 3-65. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Milton diversion dam impoundment (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	157.0	193.0	220.0
November	160.0	177.0	229.0
December	157.0	165.0	221.8
January	157.0	165.0	221.0
February	157.0	166.0	294.0
March	157.0	167.0	295.0
April	157.0	168.0	295.0
May	160.0	192.9	295.0
June	161.0	198.0	295.0
July	161.0	189.0	252.0
August	157.0	193.0	215.0
September	159.0	193.0	220.0

Table 3-66. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Jackson Lake (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	393.2	900.0	1,054.8
November	410.0	882.0	1,030.0
December	414.0	868.0	1,110.0
January	387.0 ^(a)	848.0 ^(a)	1,262.7 ^(a)
February	377.0 ^(a)	866.0 ^(a)	1,330.0 ^(a)
March	387.0 ^(a)	867.0 ^(a)	1,330.0 ^(a)
April	400.0	912.0	1,330.0
May	662.2	1,200.0	1,350.0
June	912.0	1,330.0	1,350.0
July	813.0	1,240.0	1,337.0
August	699.2	1,120.0	1,250.8
September	556.4	1,000.5	1,135.1

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-67. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in French Lake (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	1,743.2	7,100.0	12,011.0
November	1,695.8	6,723.5	11,781.2
December	2,322.6	7,560.0	12,075.0
January	2,843.2	7,864.0	13,840.0
February	2,976.0	8,097.0	13,840.0
March	2,088.2	8,890.0	13,840.0
April	3,721.4	10,920.5	13,840.0
May	7,659.8	13,400.0	14,100.0
June	5,924.3	13,840.0	14,135.9
July	4,177.0	13,600.0	13,900.0
August	2,258.0	12,000.0	13,542.2
September	1,936.8	8,909.5	12,865.3

Table 3-68. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Faucherie Lake (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	965.0	3,721.0	4,005.8
November	783.2 ^(a)	3,230.0 ^(a)	3,997.0 ^(a)
December	1,480.1 ^(a)	3,460.0 ^(a)	3,995.1 ^(a)
January	1,847.1 ^(a)	3,980.0 ^(a)	4,000.9 ^(a)
February	2,328.4 ^(a)	3,989.5 ^(a)	4,010.0 ^(a)
March	2,892.8 ^(a)	3,990.0 ^(a)	4,018.7 ^(a)
April	3,459.4 ^(a)	4,001.1 ^(a)	4,030.9 ^(a)
May	3,910.1 ^(a)	4,022.0 ^(a)	4,060.0 ^(a)
June	3,976.6 ^(a)	4,010.0 ^(a)	4,047.0 ^(a)
July	2,987.0 ^(a)	3,989.0 ^(a)	4,034.0 ^(a)
August	1,434.0	3,980.0	4,023.0
September	954.9	3,975.0	4,020.0

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-69. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Sawmill Lake (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	965.7 ^(a)	2,398.3 ^(a)	3,030.0 ^(a)
November	1,098.1	2,332.4	3,030.0
December	1,469.5	2,860.3	3,030.0
January	1,687.0	3,030.0	3,068.0
February	2,159.4	3,030.0	3,070.0
March	3,030.0	3,030.0	3,080.0
April	3,030.0 ^(a)	3,030.0 ^(a)	3,090.0 ^(a)
May	3,030.0 ^(a)	3,030.0 ^(a)	3,100.0 ^(a)
June	3,030.0 ^(a)	3,030.0 ^(a)	3,080.0 ^(a)
July	2,662.9 ^(a)	3,030.0 ^(a)	3,030.0 ^(a)
August	1,391.1 ^(a)	3,028.2 ^(a)	3,030.0 ^(a)
September	506.8 ^(a)	2,727.7 ^(a)	3,030.0 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-70. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Bowman Lake (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	25,607.7	45,835.3	53,352.5
November	25,024.2	42,368.0	52,464.0
December	26,598.1	37,317.0	51,020.6
January	24,489.7	31,821.1	61,298.3
February	22,665.1	32,475.8	56,384.3
March	22,259.3	34,587.7	57,923.0
April	25,781.4	42,160.5	57,414.1
May	36,335.0	52,841.0	67,862.1
June	42,892.8	64,290.7	69,893.2
July	43,110.7	60,478.0	67,636.5
August	41,083.3	51,958.8	62,488.8
September	30,720.7	45,346.9	57,500.4

Table 3-71. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Dutch Flat afterbay (Yuba-Bear Project, Chicago Park Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	1,556.0 ^(a)	1,807.0 ^(a)	1,974.6 ^(a)
November	1,616.3 ^(a)	1,827.5 ^(a)	1,971.0 ^(a)
December	1,665.8 ^(a)	1,856.0 ^(a)	2,006.0 ^(a)
January	1,700.0 ^(a)	1,863.0 ^(a)	2,074.5 ^(a)
February	1,743.0 ^(a)	1,873.0 ^(a)	2,067.0 ^(a)
March	1,670.0 ^(a)	1,913.0 ^(a)	2,087.0 ^(a)
April	1,734.8 ^(a)	1,971.0 ^(a)	2,085.4 ^(a)
May	1,779.3 ^(a)	1,932.0 ^(a)	2,082.0 ^(a)
June	1,755.8 ^(a)	1,856.0 ^(a)	2,001.0 ^(a)
July	1,760.0 ^(a)	1,854.5 ^(a)	1,979.0 ^(a)
August	1,720.0 ^(a)	1,834.0 ^(a)	1,968.0 ^(a)
September	1,304.0 ^(a)	1,571.0 ^(a)	1,920.6 ^(a)

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-72. Exceedance frequency analysis (10, 50, and 90 percent) for storage (acre-feet) in Rollins reservoir (Yuba-Bear Project, Rollins Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Storage (ac-ft)	50% Exceedance Storage (ac-ft)	10% Exceedance Storage (ac-ft)
October	23,415.6	36,093.0	47,178.2
November	26,671.1	44,960.0	58,757.0
December	30,046.8	47,196.0	59,165.0
January	28,077.6	50,792.0	59,470.0
February	33,323.8	57,147.0	59,671.0
March	42,747.0	59,063.0	59,671.0
April	45,851.1	59,165.0	59,521.3
May	44,809.8	59,050.0	59,369.0
June	40,876.1	58,372.0	59,169.7
July	41,322.4	56,406.0	58,961.0
August	37,627.0	54,347.0	58,175.0
September	33,041.3	48,359.0	56,994.0

Table 3-73. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in the Middle Yuba River below Jackson Meadows dam (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Middle Yuba River below Jackson Meadows Dam						
Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	8.0 ^(a)	144.0 ^(a)	304.0 ^(a)	1.8	5.3	17.1
November	7.9 ^(a)	11.0 ^(a)	283.1 ^(a)	2.2	9.1	60.3
December	4.2 ^(a)	9.3 ^(a)	133.0 ^(a)	6.1	18.3	121.7
January	4.7 ^(a)	9.5 ^(a)	91.5 ^(a)	8.6	30.5	152.1
February	4.8 ^(a)	10.0 ^(a)	182.0 ^(a)	13.5	45.4	144.6
March	6.3 ^(a)	70.0 ^(a)	206.5 ^(a)	33.6	85.3	264.8
April	8.2 ^(a)	76.0 ^(a)	257.0 ^(a)	75.6	202.6	435.9
May	8.8 ^(a)	106.0 ^(a)	389.5 ^(a)	99.6	355.9	770.7
June	5.6 ^(a)	108.0 ^(a)	362.0 ^(a)	16.4	110.3	547.9
July	5.0 ^(a)	104.0 ^(a)	177.8 ^(a)	5.0	13.3	114.3
August	5.0 ^(a)	99.0 ^(a)	159.0 ^(a)	3.4	6.2	13.7
September	6.0 ^(a)	145.5 ^(a)	263.0 ^(a)	1.3	5.3	13.6

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-74. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in the Middle Yuba River below Milton diversion dam (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90%	50%	10%	90%	50%	10%
	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)	Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	3.3	3.8	4.3	1.9	5.7	18.4
November	3.2 ^(a)	3.7 ^(a)	4.2 ^(a)	2.4	9.9	65.2
December	3.2 ^(a)	3.7 ^(a)	4.2 ^(a)	6.7	19.9	132.1
January	3.0 ^(a)	3.6 ^(a)	4.6 ^(a)	9.4	33.3	165.4
February	3.0 ^(a)	3.8 ^(a)	6.0 ^(a)	14.7	49.6	159.2
March	2.6 ^(a)	3.9 ^(a)	5.0 ^(a)	36.6	92.9	284.6
April	2.2 ^(a)	3.8 ^(a)	73.0 ^(a)	81.5	217.1	468.4
May	2.0 ^(a)	4.0 ^(a)	385.2 ^(a)	105.5	378.1	817.2
June	3.2 ^(a)	3.9 ^(a)	276.0 ^(a)	17.2	115.7	578.3
July	3.2 ^(a)	3.8 ^(a)	5.3 ^(a)	5.2	13.7	119.4
August	3.2	3.8	4.5	3.6	6.7	14.7
September	3.4 ^(a)	3.8 ^(a)	4.5 ^(a)	1.4	5.6	14.6

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-75. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Wilson Creek below Wilson Creek diversion dam (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.0	0.1	0.5
November	No data	No data	No data	0.1	0.2	2.5
December	No data	No data	No data	0.1	0.9	4.1
January	No data	No data	No data	0.3	1.3	5.0
February	No data	No data	No data	0.5	2.0	5.9
March	No data	No data	No data	1.7	3.7	11.3
April	No data	No data	No data	3.4	8.0	16.6
May	No data	No data	No data	2.8	10.9	22.0
June	No data	No data	No data	0.2	2.4	14.6
July	No data	No data	No data	0.0	0.1	2.6
August	No data	No data	No data	0.0	0.1	0.2
September	No data	No data	No data	0.0	0.1	0.2

Table 3-76. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Jackson Creek below Jackson Lake dam (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.9 ^(a)	1.2 ^(a)	1.8 ^(a)	0.0	0.1	0.4
November	0.9 ^(a)	1.2 ^(a)	1.8 ^(a)	0.0	0.2	1.7
December	0.9 ^(a)	1.3 ^(a)	1.7 ^(a)	0.1	0.6	2.9
January	0.9 ^(a)	1.3 ^(a)	1.7 ^(a)	0.2	0.9	3.6
February	0.9 ^(a)	1.3 ^(a)	1.7 ^(a)	0.3	1.4	4.2
March	0.9 ^(a)	1.4 ^(a)	1.8 ^(a)	1.3	2.7	8.2
April	0.9 ^(a)	1.3 ^(a)	1.7 ^(a)	2.4	6.1	12.9
May	0.9 ^(a)	1.5 ^(a)	2.0 ^(a)	2.7	9.7	19.5
June	0.9 ^(a)	1.6 ^(a)	2.0 ^(a)	0.2	2.7	15.3
July	1.0 ^(a)	1.6 ^(a)	2.0 ^(a)	0.0	0.1	3.4
August	0.9 ^(a)	1.2 ^(a)	1.9 ^(a)	0.0	0.0	0.2
September	0.9 ^(a)	1.2 ^(a)	1.8 ^(a)	0.0	0.0	0.2

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-77. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Canyon Creek below French Lake dam (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	2.8 ^(a)	3.0 ^(a)	3.2 ^(a)	0.2	0.4	2.4
November	2.9 ^(a)	3.1 ^(a)	3.2 ^(a)	0.3	1.2	11.3
December	2.7 ^(a)	3.1 ^(a)	3.2 ^(a)	0.7	4.1	19.0
January	2.8 ^(a)	3.0 ^(a)	3.2 ^(a)	1.4	6.0	23.3
February	2.8 ^(a)	3.1 ^(a)	3.2 ^(a)	2.2	9.1	27.6
March	2.8 ^(a)	3.2 ^(a)	3.2 ^(a)	8.0	17.3	52.7
April	2.8 ^(a)	3.0 ^(a)	3.2 ^(a)	15.7	40.5	86.0
May	2.9 ^(a)	3.2 ^(a)	3.2 ^(a)	19.3	68.5	136.4
June	2.9 ^(a)	3.2 ^(a)	3.2 ^(a)	1.6	20.1	113.3
July	2.8 ^(a)	3.1 ^(a)	3.2 ^(a)	0.3	1.1	26.5
August	2.8 ^(a)	2.9 ^(a)	3.1 ^(a)	0.2	0.3	1.2
September	2.7 ^(a)	3.0 ^(a)	3.2 ^(a)	0.2	0.3	1.3

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-78. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Canyon Creek below Faucherie Lake dam (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	2.8 ^(a)	2.9 ^(a)	3.2 ^(a)	0.4	0.8	4.7
November	2.9 ^(a)	3.0 ^(a)	3.3 ^(a)	0.6	2.3	22.0
December	2.9 ^(a)	3.0 ^(a)	3.3 ^(a)	1.4	8.0	37.8
January	2.8 ^(a)	3.0 ^(a)	3.3 ^(a)	2.8	11.8	45.9
February	2.8 ^(a)	3.0 ^(a)	3.2 ^(a)	4.4	18.0	54.3
March	2.8 ^(a)	2.9 ^(a)	3.3 ^(a)	16.0	33.9	104.2
April	2.8 ^(a)	2.9 ^(a)	3.3 ^(a)	30.6	78.6	167.3
May	2.7 ^(a)	2.9 ^(a)	3.3 ^(a)	36.1	128.6	257.6
June	2.8 ^(a)	2.9 ^(a)	3.1 ^(a)	3.0	36.8	206.8
July	2.8 ^(a)	2.9 ^(a)	3.2 ^(a)	0.5	2.0	47.4
August	2.8 ^(a)	2.9 ^(a)	3.2 ^(a)	0.4	0.6	2.3
September	1.3 ^(a)	2.9 ^(a)	3.2 ^(a)	0.4	0.6	2.6

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-79. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Canyon Creek below Sawmill Lake dam (Yuba-Bear Project, Bowman Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	3.0 ^(a)	3.6 ^(a)	6.5 ^(a)	0.7	1.5	8.8
November	3.0 ^(a)	3.7 ^(a)	31.0 ^(a)	1.1	4.4	43.3
December	2.9 ^(a)	3.7 ^(a)	57.0 ^(a)	2.7	15.8	73.2
January	2.9 ^(a)	4.0 ^(a)	14.0 ^(a)	5.5	23.5	90.5
February	2.9 ^(a)	4.1 ^(a)	9.5 ^(a)	8.7	36.4	107.7
March	2.9 ^(a)	4.2 ^(a)	8.8 ^(a)	31.7	67.3	207.5
April	2.9 ^(a)	4.0 ^(a)	8.8 ^(a)	61.4	151.7	315.4
May	2.8 ^(a)	3.4 ^(a)	8.2 ^(a)	63.2	231.3	462.6
June	2.9 ^(a)	4.0 ^(a)	6.1 ^(a)	4.7	61.4	352.7
July	2.9 ^(a)	3.5 ^(a)	6.1 ^(a)	0.8	3.0	74.8
August	2.9 ^(a)	4.0 ^(a)	29.0 ^(a)	0.7	1.0	4.1
September	2.9 ^(a)	4.1 ^(a)	36.2 ^(a)	0.7	1.1	4.8

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-80. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Canyon Creek below Bowman-Spaulding diversion dam (Yuba-Bear Project, Dutch Flat No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	2.6	4.4	6.7	1.2	2.6	15.0
November	2.1	4.1	7.3	2.0	7.7	78.4
December	2.2	4.2	10.0	4.9	28.0	129.3
January	2.3	4.7	26.0	9.9	42.2	163.8
February	2.5	5.0	48.0	15.6	66.1	194.8
March	3.0	6.3	117.4	55.7	118.6	361.2
April	3.3	5.5	145.1	105.3	255.2	525.2
May	3.0	5.1	269.2	100.8	379.0	753.0
June	3.2	4.9	230.1	7.0	94.0	549.1
July	2.6	4.5	10.0	1.2	4.4	115.1
August	2.6	4.3	6.6	1.1	1.7	6.7
September	2.7	4.2	6.6	1.2	1.8	8.0

Table 3-81. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Texas Creek at Texas Creek diversion dam (Yuba-Bear Project, Dutch Flat No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.2	0.5	2.9
November	No data	No data	No data	0.4	1.5	16.1
December	No data	No data	No data	1.0	5.6	26.5
January	No data	No data	No data	2.0	8.6	32.5
February	No data	No data	No data	3.1	13.3	38.7
March	No data	No data	No data	11.2	23.8	72.7
April	No data	No data	No data	21.7	51.1	105.4
May	No data	No data	No data	17.9	69.8	140.9
June	No data	No data	No data	1.1	15.4	94.0
July	No data	No data	No data	0.2	0.6	16.9
August	No data	No data	No data	0.2	0.3	1.2
September	No data	No data	No data	0.2	0.3	1.5

Table 3-82. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Clear Creek below Bowman-Spaulding conduit (Yuba-Bear Project, Dutch Flat No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.1	0.2	0.8
November	No data	No data	No data	0.1	0.5	5.6
December	No data	No data	No data	0.3	1.9	8.6
January	No data	No data	No data	0.7	2.9	11.1
February	No data	No data	No data	1.1	4.7	13.3
March	No data	No data	No data	3.6	7.8	22.4
April	No data	No data	No data	5.8	13.3	27.3
May	No data	No data	No data	4.5	17.6	36.6
June	No data	No data	No data	0.2	3.3	22.1
July	No data	No data	No data	0.0	0.1	3.8
August	No data	No data	No data	0.1	0.1	0.3
September	No data	No data	No data	0.1	0.1	0.4

Table 3-83. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Fall Creek below Fall Creek diversion dam (Yuba-Bear Project, Dutch Flat No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	0.7 ^(a)	2.0 ^(a)	4.3 ^(a)	0.0	0.0	0.3
November	0.5 ^(a)	2.2 ^(a)	5.0 ^(a)	0.0	0.1	1.4
December	0.4 ^(a)	0.8 ^(a)	2.1 ^(a)	0.1	0.5	2.3
January	0.3 ^(a)	0.4 ^(a)	1.0 ^(a)	0.2	0.7	2.8
February	0.3 ^(a)	0.4 ^(a)	0.7 ^(a)	0.3	1.1	3.4
March	0.3 ^(a)	0.8 ^(a)	0.9 ^(a)	1.0	2.1	6.6
April	0.5 ^(a)	1.0 ^(a)	414.6 ^(a)	2.0	4.8	9.9
May	0.6 ^(a)	1.2 ^(a)	293.8 ^(a)	1.8	6.8	13.6
June	0.5 ^(a)	1.0 ^(a)	4.9 ^(a)	0.1	1.6	9.6
July	0.5 ^(a)	0.8 ^(a)	2.0 ^(a)	0.0	0.1	1.8
August	0.4 ^(a)	0.7 ^(a)	1.0 ^(a)	0.0	0.0	0.1
September	0.5 ^(a)	1.1 ^(a)	3.2 ^(a)	0.0	0.0	0.1

^(a) Denotes missing data within the given period (statistics will not be completely accurate but are provided for approximate reference).

Table 3-84. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Trap Creek below Bowman-Spaulding conduit (Yuba-Bear Project, Dutch Flat No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.0	0.1	0.3
November	No data	No data	No data	0.1	0.2	2.2
December	No data	No data	No data	0.1	0.8	3.4
January	No data	No data	No data	0.3	1.2	4.5
February	No data	No data	No data	0.5	1.9	5.4
March	No data	No data	No data	1.4	3.1	9.0
April	No data	No data	No data	2.3	5.3	10.8
May	No data	No data	No data	1.8	7.0	14.5
June	No data	No data	No data	0.1	1.3	8.7
July	No data	No data	No data	0.0	0.1	1.5
August	No data	No data	No data	0.0	0.0	0.1
September	No data	No data	No data	0.0	0.0	0.2

Table 3-85. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Rucker Creek below Bowman-Spaulding conduit (Yuba-Bear Project, Dutch Flat No. 2 Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	No data	No data	No data	0.1	0.2	1.0
November	No data	No data	No data	0.2	0.6	6.6
December	No data	No data	No data	0.4	2.2	10.1
January	No data	No data	No data	0.8	3.4	13.0
February	No data	No data	No data	1.3	5.5	15.6
March	No data	No data	No data	4.2	9.1	26.5
April	No data	No data	No data	6.8	15.7	32.4
May	No data	No data	No data	5.4	20.9	43.3
June	No data	No data	No data	0.3	4.0	26.3
July	No data	No data	No data	0.0	0.2	4.5
August	No data	No data	No data	0.1	0.1	0.4
September	No data	No data	No data	0.1	0.1	0.5

Table 3-86. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in Bear River below Dutch Flat afterbay dam (Yuba-Bear Project, Chicago Park Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	9.7	11.0	13.0	3.9	9.0	15.3
November	5.2	6.5	12.0	6.9	12.6	42.6
December	5.2	6.5	13.0	9.9	19.1	99.9
January	5.3	6.5	14.0	11.3	28.1	158.6
February	5.3	6.3	15.8	14.8	51.2	188.4
March	5.4	6.5	70.8	32.3	82.6	222.2
April	5.5	7.1	128.0	36.1	82.9	182.0
May	6.3	11.0	16.0	20.3	62.9	185.4
June	6.3	11.0	12.0	8.4	24.9	80.5
July	6.3	11.0	37.6	4.4	12.1	30.2
August	9.9	11.0	34.0	2.8	8.2	15.6
September	10.0	12.0	45.0	3.0	7.4	13.2

Table 3-87. Exceedance frequency analysis (10, 50, and 90 percent) for historical and estimated unregulated flow (cfs) in the Bear River below Rollins dam (Yuba-Bear Project, Rollins Development) for period of record (WY 1976-2008). (Source: appendix E12 of PG&E, 2011a; NID, 2011a)

Month	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)	90% Exceedance Flow (cfs)	50% Exceedance Flow (cfs)	10% Exceedance Flow (cfs)
	Historical	Historical	Historical	Unregulated	Unregulated	Unregulated
October	65.2	83.0	290.8	18.5	41.4	69.7
November	19.9	27.0	470.0	31.1	56.6	174.8
December	20.0	30.0	734.0	44.5	84.5	448.6
January	19.0	234.0	1,248.0	52.0	132.5	759.5
February	19.0	434.0	1,670.0	70.5	223.7	916.2
March	21.0	576.0	1,650.0	133.5	353.7	1,012.9
April	24.0	584.5	1,400.0	128.9	335.9	775.9
May	78.2	507.0	996.0	75.0	214.3	774.6
June	83.9	407.0	673.0	36.8	103.6	296.7
July	80.0	152.0	458.8	20.3	55.7	125.9
August	83.0	142.0	361.0	12.5	38.1	69.5
September	75.0	100.0	350.0	14.8	35.5	63.7

Table 3-88. NID's water rights associated with the Yuba-Bear Hydroelectric Project. (Source: NID, 2011a)

License, Permit, Application, or Statement No.	Source	Priority Date	Place of Storage or Diversion	Direct Diversion Amount (cfs)	Storage Amount (acre-feet)
S4716	Canyon Creek	1873	Sawmill Lake		
S4717	Canyon Creek	1859	French Lake		
S13330	Middle Yuba River	1854	Milton diversion impoundment		
S1 3800	Canyon Creek	1872	Bowman reservoir		
S1 3801	Canyon Creek	1872	Faucherie Lake		
S13927	South Yuba River	1874	PG&E's South Yuba canal		Not applicable (pre-1914 rights)
S1 3928	South Yuba River	1874	PG&E's Drum canal		
S14354	Bear River	1853	Rollins reservoir		
S14355	Bear River	1853	PG&E's Bear River canal		
S14356	Canyon Creek	1872	Bowman reservoir		
12795 (7/10/1991)	Jackson Creek	5/7/1919	Jackson Lake	---	
	Canyon Creek		Faucherie Lake	---	3980 (1/1-12/31)
	Canyon Creek		Sawmill Lake	---	1221 (1/1-12/31)
	Canyon Creek		Bowman Lake	---	58829 (1/1-12/31)
	Canyon Creek		Bowman-Spaulding conduit	146 (4/15-9/30)	---
	Texas Creek		Bowman-Spaulding conduit	30 (4/15-9/30)	---

Table 3-88. NID's water rights associated with the Yuba-Bear Hydroelectric Project. (Source: NID, 2011a)

License, Permit, Application, or Statement No.	Source	Priority Date	Place of Storage or Diversion	Direct Diversion Amount (cfs)	Storage Amount (acre-feet)
	Fall Creek		Bowman-Spaulding conduit	15 (4/15-9/30)	---
	Trap Creek		Bowman-Spaulding conduit	5 (4/15-9/30)	---
12796 (7/10/1991)	Middle Yuba River	3/25/1921	Jackson Meadows and Bowman reservoirs	---	60,000 (1/1-12/31)
12797 (7/10/1991)	Middle Yuba River	3/25/1921	Jackson Meadows and Bowman reservoirs	---	60,000 (12/1-7/15)
12798 (7/10/1991)	Jackson Creek	6/3/1921	Jackson Lake	---	970 (12/1-7/15)
	Canyon Creek		Faucherie Lake	---	2,993 (12/1-7/15)
	Canyon Creek		Sawmill Lake	---	3,030 (12/1-7/15)
	Canyon Creek		Bowman reservoir	---	47,530 (12/1-7/15)
	Canyon Creek		Bowman-Spaulding conduit	152 (1/1-12/31)	---
	Texas Creek		Bowman-Spaulding conduit	30 (1/1-12/31)	---
	Fall Creek		Bowman-Spaulding conduit	15 (1/1-12/31)	---
	Trap Creek		Bowman-Spaulding conduit	5 (1/1-12/31)	---

Table 3-88. NID's water rights associated with the Yuba-Bear Hydroelectric Project. (Source: NID, 2011a)

License, Permit, Application, or Statement No.	Source	Priority Date	Place of Storage or Diversion	Direct Diversion Amount (cfs)	Storage Amount (acre-feet)
10350 (11/26/1968)	Bear River	11/22/1921	Rollins reservoir	---	6,945 (11/30-6/1)
Permit No. 11626 (Lic. In Progress)	Bear River	11/22/1921	Rollins reservoir	---	65,000 (11/30-6/1)
Permit No. 13770 (Lic. In Progress)	Middle Yuba River	9/8/1926	Jackson Meadows, Milton and Bowman reservoirs	---	50,000 (1/1-6/30, 10/1-12/1)
8809 (1/20/1964)	Bear River	3/26/1929	Bear River canal	120 (4/1-10/31)	---
4544 (2/11/1957)	Middle Yuba River, Canyon Creek & others not listed	11/7/1934	PG&E's Drum canal	135 (1/1-12/31)	---
1707 (12/15/1936)	Middle Yuba River, Canyon Creek & others not listed	11/7/1924	PG&E's South Yuba canal	126 (1/1-12/31)	---
12799 (7/10/1991)	Clear Creek Fall Creek Trap Creek	6/16/1930	Bowman-Spaulding conduit	5 (10/1 - 9/30) 10 (12/1-7/31) 5 (1/1-7/31)	--- --- ---
12800 (7/10/1991)	Clear Creek Fall Creek Trap Creek	6/16/1930	Bowman-Spaulding conduit	5 (4/15-9/30) 10 (4/15-7/31) 5 (4/15-7/31)	--- --- ---

Table 3-88. NID's water rights associated with the Yuba-Bear Hydroelectric Project. (Source: NID, 2011a)

License, Permit, Application, or Statement No.	Source	Priority Date	Place of Storage or Diversion	Direct Diversion Amount (cfs)	Storage Amount (acre-feet)
12802 (7/10/1991)	Texas Creek	11/27/1934	Bowman-Spaulding conduit	68 (1/1-6/30)	---
	Clear Creek			13.6 (1/1-7/31)	---
	Fall Creek			75.7 (12/1-7/31)	---
	Trap Creek			8.6 (4/15-6/30)	---
	Rucker Creek			25 (1/1-12/31)	---
12803 (7/10/1991)	Wilson Creek	11/27/1934	Milton-Bowman conduit	3.5 (1/1-12/31)	---
			Bowman reservoir	---	680 (11/1-6/30)
12801 (7/10/1991)	Wilson Creek	11/27/1934	Milton-Bowman conduit and Bowman Lake	2.7 (1/1-12/31)	680 (11/1-6/30)
Permit No. 5815 (Lic. In Progress)	Clear Creek	11/27/1934	Bowman-Spaulding conduit	30 (1/1-12/31)	6,000 (11/1-6/30)
	Texas Creek			70 (1/1-12/31)	14,000 (11/1-6/30)
	Fall Creek			85 (1/1-12/31)	17,000 (11/1-6/30)
	Trap Creek			15 (1/1-12/31)	3,000 (11/1-6/30)
	Rucker Creek			25 (1/1-12/31)	5,000 (11/1-6/30)
10016 (3/5/1973)	South Yuba River	9/3/1953	PG&E's Lake Spaulding	200 (9/1-6/30)	---
Permit No. 13772 (Lic. In Progress)	South Yuba River	3/6/1961	Rollins reservoir	200 (9/1-6/30)	18,000 (11/1-6/30)

Table 3-88. NID's water rights associated with the Yuba-Bear Hydroelectric Project. (Source: NID, 2011a)

License, Permit, Application, or Statement No.	Source	Priority Date	Place of Storage or Diversion	Direct Diversion Amount (cfs)	Storage Amount (acre-feet)
Permit No. 13773 (Lic. In Progress)	Middle Yuba River	4/6/1961	Jackson Meadows and Bowman reservoirs	---	50,000 (10/1-6/30)
9903 (4/19/1972)	Bear River	2/5/1963	Chicago Park flume	1,056 (1/1-12/31)	---
9902 (4/19/1972)	Bear River	2/5/1963	Dutch Flat no. 2 flume	550 (1/1-12/31)	---
S1 0591 (Riparian Right)	Damfine Spring	1967	Jackson Meadows campground	---	---
S1 0592 (Riparian Right)	Unnamed tributary to Pass Creek	1967	Jackson Meadows Campground	---	---
Permit No. 16953 (Lic. In Progress)	Bear River	1/9/1976	Rollins reservoir	700 (1/1-12/31)	62,080 (11/30-6/1)
Permit No. 19158 (Lic. In Progress)	Canyon Creek	10/22/1982	Bowman reservoir	322 (1/1-12/31)	65,000 (1/1-7/31)

Table 3-89. Summary of water rights held by PG&E related to the Upper Drum-Spaulding, Lower Drum, and Deer Creek Projects. (Source: PG&E, 2011a)

Application No.	License or (Permit) No.	Statement of Water Diversion and Use No.	Priority/ First use	Storage Right (acre-feet)	Direct Diversion Right		Description (Name of Works)	Point of Diversion	Type of Use ^a	Water Right Class
					Amount	Units				
		934	1855	207			Upper Rock Lake	Rock Creek	P,I,D,PS	Pre-1914
		935	1855	48			Lower Rock Lake	Rock Creek	P,I,D,PS	Pre-1914
		936	1852	953			Culbertson Lake	Texas Creek	P,I,D,PS	Pre-1914
		937	1870	18			Upper Lindsey Lake	Lindsey Creek	P,I,D,PS	Pre-1914
		938		110			Middle Lindsey Lake	Lindsey Creek	P,I,D,PS	Pre-1914
		939	1870	293			Lower Lindsey Lake	Lindsey Creek	P,I,D,PS	Pre-1914
		940	1875	739			Feeley Lake	Lake Creek	P,I,D,PS	Pre-1914
		941	1875	150			Carr Lake	Lake Creek	P,I,D,PS	Pre-1914
		9978	1870		20	cfs	Texas Creek feeder	Texas Creek	P,I,J,M,D	Pre-1914
		9979	1870		20	cfs	Lindsey Creek feeder	Lindsey Creek	P,I,J,M,D	Pre-1914
		9980	1870		20	cfs	Clear Creek feeder	Clear Creek	P,I,J,M,D	Pre-1914
		9981	1870		30	cfs	Fall Creek feeder	Fall Creek	P,I,J,M,D	Pre-1914
		10396	1870		30	cfs	Trap Creek diversion	Trap Creek	P	Pre-1914
		942	1870	1163			Blue Lake	Rucker Creek	P,I,D,PS	Pre-1914
		943	1870	648			Rucker Lake	Rucker Creek	P,I,D,PS	Pre-1914
		9982	1870		30	cfs	Rucker Creek feeder	Rucker Creek	P,I,J,M,D	Pre-1914

Table 3-89. Summary of water rights held by PG&E related to the Upper Drum-Spaulding, Lower Drum, and Deer Creek Projects. (Source: PG&E, 2011a)

Application No.	License or (Permit) No.	Statement of Water Diversion and Use No.	Priority/ First use	Storage Right (acre-feet)	Direct Diversion Right		Description (Name of Works)	Point of Diversion	Type of Use ^a	Water Right Class
					Amount	Units				
		9032	1870		70	cfs	Jordan Creek conduit	Jordan Creek	P,I,D,PS	Pre-1914
		945	1864	4935			Meadow Lake	Tributary to Fordyce Creek	P,I,D,PS	Pre-1914
		946	1850	570			White Rock reservoir	White Rock Creek	P,I,D,PS	Pre-1914
		951	1877	1764			Sterling Lake	Sterling Creek	P,I,D,PS	Pre-1914
		9033	1873	20,222			Lake Fordyce near Cisco	Fordyce Creek	P,I,J,M,D	Pre-1914
2750	986		2/9/1 922	26,572			Lake Fordyce	Fordyce Creek	P	License
3550	10867		7/26/1 923	26,662			Lake Fordyce	Fordyce Creek	I,M,J	License
		948	1855	1,505			Kidd Lake	Tributary to South Yuba River	P,I,D,PS	Pre-1914
		949	1855	1,736			Upper Peak Lake	Tributary to South Yuba River	P,I,D,PS	Pre-1914
		950	1860	484			Lower Peak Lake	Tributary to South Yuba River	P,I,D,PS	Pre-1914
		944	1852	74,773			Lake Spaulding	South Yuba River	P,I,D,PS	Pre-1914
		954	1853		165	cfs	South Yuba canal	South Yuba River	P,I,D	Pre-1914

Table 3-89. Summary of water rights held by PG&E related to the Upper Drum-Spaulding, Lower Drum, and Deer Creek Projects. (Source: PG&E, 2011a)

Applica- tion No.	License or (Permit No.	Statement of Water Diversion and Use No.	Priority/ First use	Storage Right (acre- feet)	Direct Diversion Right		Description (Name of Works)	Point of Diversion	Type of Use ^a	Water Right Class
					Amount	Units				
		965	1853		10	cfs	So. Yuba canal feeders sta. 40+08 to 55+83	Tributary to Bear River	P,I	Pre-1914
		970	1853		10	cfs	South Yuba canal feeder - sta. 63 7+20	Tributary to Bear River	P,I	Pre-1914
		953	1865		800	cfs	Drum canal intake	South Yuba River	P,I,D,PS	Pre-1914
4851	1464		9466	300			Kelly Lake	Six Mile Valley	I,D	License
		952	1887	7964			Lake Valley reservoir	Lake Valley Creek	P,I,D,PS	Pre-1914
26517	(P20253)		9/4/1 980		42	cfs	Lake Valley canal	North Fork of the North Fork American River	P	Permit
		955	1853		40	cfs	Lake Valley canal	North Fork of the North Fork American River	P,I,D	Pre-1914
		964	1865		10	cfs	Feeder to Drum canal	Tributary to Bear River	P	Pre-1914
5970	8888		7/5/1928		525	cfs	Dutch Flat 1 intake	Bear River	P	License
2753	987		2/9/1922		100	cfs	Bear River canal intake	Bear River	P	License

Table 3-89. Summary of water rights held by PG&E related to the Upper Drum-Spaulding, Lower Drum, and Deer Creek Projects. (Source: PG&E, 2011a)

Application No.	License or (Permit) No.	Statement of Water Diversion and Use No.	Priority/ First use	Storage Right (acre-feet)	Direct Diversion Right		Description (Name of Works)	Point of Diversion	Type of Use ^a	Water Right Class
					Amount	Units				
6332	1375		6/19/1929		120	cfs	Bear River canal intake	Bear River	P	License
		957	1852		475	cfs	Bear River canal intake	Bear River	P,I,D,PS	Pre-1914
		969	1917		---	cfs	Inflow to Halsey afterbay	Dry Creek	P,I,D	Prescription
		968	1917		---	cfs	Inflow to Rock Creek reservoir	Rock tributary to Bear Creek	P,I,D	Prescription
		960	1863		50	cfs	Towle canal 500 ft below head	Canyon Creek	P,I,D,PS	Pre-1914
		961	1864		60	cfs	Boardman canal below Alta powerhouse	Little Bear River	I,D	Pre-1914

^a Domestic (D); Irrigation (I); Municipal (M); Power (P); Public Service (PS).

Table 3-90. Water quality objectives supporting designated uses in the project areas. (Source: PG&E and NID, 2010a)

Parameter	Basin Plan Objective, California Toxics Rule Criterion, or Benchmark	Reference	Notes
BACTERIA (MUNICIPAL, RECREATION-1)			
Total coliform	< 10,000 MPN per 100 mL < 240 MPN per 100 mL (geometric mean)	U.S. EPA, 2003	Water contact recreation, single day sample; water contact recreation, 30-day geometric mean
Fecal coliform	< 10% of sample > 400 MPN per 100 mL < 200 MPN per 100 mL (geometric mean)	Central Valley Water Board, 1998	Water contact recreation, 30-day geometric mean with individual samples not >400 MPN/100 mL
<i>Escherichia coli</i>	< 235 MPN per 100 mL in any single sample < 126 MPN per 100 mL (geometric mean)	U.S. EPA, 2003	Water contact recreation, 30-day geometric mean
BIOSTIMULATORY SUBSTANCES (COLDWATER HABITAT, SPAWNING)			
Nitrate-Nitrite	---	---	---
Total Kjeldahl Nitrogen	---	---	---
Total Phosphorous	---	---	---
CHEMICAL CONSTITUENTS (AGRICULTURE, COLDWATER HABITAT, MUNICIPAL)			
Alkalinity	None	---	---
Aluminum	1 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Arsenic	0.05 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Cadmium	0.005 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Calcium	None	---	---

Table 3-90. Water quality objectives supporting designated uses in the project areas. (Source: PG&E and NID, 2010a)

Parameter	Basin Plan Objective, California Toxics Rule Criterion, or Benchmark	Reference	Notes
Chloride	250 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Chromium	50 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Specific Conductance	150 μ Siemens/cm	Central Valley Water Board, 1998	Aquatic Life Protection
Copper	1 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Iron	0.3 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Mercury	0.002 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Nickel	100 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Potassium	None	---	---
Selenium	0.05 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Silver	0.1 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Sodium	None	---	---

Table 3-90. Water quality objectives supporting designated uses in the project areas. (Source: PG&E and NID, 2010a)

Parameter	Basin Plan Objective, California Toxics Rule Criterion, or Benchmark	Reference	Notes
Zinc	5 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
DISSOLVED OXYGEN (COLDWATER HABITAT, SPAWNING)			
Dissolved Oxygen	> 7 mg/L (minimum) > 75% saturation in 95% of samples > 85% saturation in 50% of samples	Central Valley Water Board, 1998	Aquatic Life Protection
FLOATING MATERIAL (RECREATION-1, RECREATION-2)			
Floating material	Narrative criteria	Central Valley Water Board, 1998	Aesthetics—absent by visual observation
OIL AND GREASE (RECREATION-1, RECREATION-2)			
Oil and Grease	Narrative	Central Valley Water Board, 1998	Aesthetics—absent by visual observation
Total Petroleum Hydrocarbons	None	---	---
pH (COLDWATER HABITAT, SPAWNING, WILDLIFE)			
pH	6.5-8.5	Central Valley Water Board, 1998	Aquatic Life Protection
SEDIMENT AND SETTLEABLE SOLIDS (RECREATION-2, SPAWNING, WILDLIFE)			
Sediment	Narrative	Central Valley Water Board, 1998	Aquatic Life Protection

Table 3-90. Water quality objectives supporting designated uses in the project areas. (Source: PG&E and NID, 2010a)

Parameter	Basin Plan Objective, California Toxics Rule Criterion, or Benchmark	Reference	Notes
TASTES AND ODORS (MUNICIPAL)			
Chloride	250 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Specific Conductance	900 µSiemens/cm	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Copper	1.3 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Iron	0.3 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Silver	0.1 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
Sodium	30-60 mg/L	U.S. EPA, 2003	Sodium Restricted Diet
Zinc	5 mg/L	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a
TOXICITY (COLDWATER HABITAT, SPAWNING, MUNICIPAL)			
Ammonia as N (pH and temperature dependent) ^b	24.1 mg/L (CMC); 4.2-5.9 mg/L (CCC) 5.6 mg/L (CMC); 1.7-2.4 mg/L (CCC) 0.9 mg/L (CMC); 0.3-0.5 mg/L (CCC)	U.S. EPA, 2000	CTR criteria over 0-20°C assuming pH 7.0 CTR criteria over 0-20°C assuming pH 8.0 CTR criteria over 0-20°C assuming pH 9.0
Aluminum	0.087 mg/L	Marshack, 2003	Ambient Water Quality Criteria; see footnotes in Marshack, 2003

Table 3-90. Water quality objectives supporting designated uses in the project areas. (Source: PG&E and NID, 2010a)

Parameter	Basin Plan Objective, California Toxics Rule Criterion, or Benchmark	Reference	Notes
Arsenic	0.34 mg/L (CMC); 0.15 mg/L (CCC)	U.S. EPA, 2000	CTR criteria
Cadmium (hardness dependent)	0.16 µg/L (CMC); 0.24 µg/L (CCC)	U.S. EPA, 2000	CTR for dissolved sample assuming hardness of 5 mg/L as CaCO ₃
	0.35 µg/L (CMC); 0.41 µg/L (CCC)		CTR for dissolved sample assuming hardness of 10 mg/L as CaCO ₃
	0.54 µg/L (CMC); 0.55 µg/L (CCC)		CTR for dissolved sample assuming hardness of 15 mg/L as CaCO ₃
	0.95 µg/L (CMC); 0.80 µg/L (CCC)		CTR for dissolved sample assuming hardness of 25 mg/L as CaCO ₃
Copper	0.80 µg/L (CMC); 0.69 µg/L (CCC)	U.S. EPA, 2000	CTR for dissolved sample assuming hardness of 5 mg/L as CaCO ₃
	1.54 µg/L (CMC); 1.25 µg/L (CCC)		CTR for dissolved sample assuming hardness of 10 mg/L as CaCO ₃
	2.25 µg/L (CMC); 1.77 µg/L (CCC)		CTR for dissolved sample assuming hardness of 15 mg/L as CaCO ₃
	3.64 µg/L (CMC); 2.74 µg/L (CCC)		CTR for dissolved sample assuming hardness of 25 mg/L as CaCO ₃
Mercury	0.05 µg/L	U.S. EPA, 2000 40 CFR 131.38	CTR/Federal Register 5/18/2000

Table 3-90. Water quality objectives supporting designated uses in the project areas. (Source: PG&E and NID, 2010a)

Parameter	Basin Plan Objective, California Toxics Rule Criterion, or Benchmark	Reference	Notes
Chromium (hardness dependent)	47.19 µg/L (CMC); 15.31 µg/L (CCC)	U.S. EPA, 2000	CTR for dissolved sample assuming hardness of 5 mg/L as CaCO ₃
	83.25 µg/L (CMC); 27.00 µg/L (CCC)		CTR for dissolved sample assuming hardness of 10 mg/L as CaCO ₃
	116.03 µg/L (CMC); 37.64 µg/L (CCC)		CTR for dissolved sample assuming hardness of 15 mg/L as CaCO ₃
	176.31 µg/L (CMC); 57.19 µg/L (CCC)		CTR for dissolved sample assuming hardness of 25 mg/L as CaCO ₃
Iron	1 mg/L	Marshack, 2003	Ambient Water Quality Criteria
Nitrate-Nitrite	10 mg/L (combined total)	CDHS, 2005, as cited in Central Valley Water Board, 1998	Title 22 Primary MCL ^a (“Blue Baby Syndrome”)
Nickel (hardness dependent)	37.21 µg/L (CMC); 4.14 µg/L (CCC)	U.S. EPA, 2000	CTR for dissolved sample assuming hardness of 5 mg/L as CaCO ₃
	66.89 µg/L (CMC); 7.44 µg/L (CCC)		CTR for dissolved sample assuming hardness of 10 mg/L as CaCO ₃
	94.26 µg/L (CMC); 10.46 µg/L (CCC)		CTR for dissolved sample assuming hardness of 15 mg/L as CaCO ₃
	145.21 µg/L (CMC); 16.14 µg/L (CCC)		CTR for dissolved sample assuming hardness of 25 mg/L as CaCO ₃

Table 3-90. Water quality objectives supporting designated uses in the project areas. (Source: PG&E and NID, 2010a)

Parameter	Basin Plan Objective, California Toxics Rule Criterion, or Benchmark	Reference	Notes
Silver (hardness dependent)	0.02 µg/L (CMC) instantaneous	U.S. EPA, 2000	CTR for dissolved sample assuming hardness of 5 mg/L as CaCO ₃
	0.07 µg/L (CMC) instantaneous		CTR for dissolved sample assuming hardness of 10 mg/L as CaCO ₃
	0.13 µg/L (CMC) instantaneous		CTR for dissolved sample assuming hardness of 15 mg/L as CaCO ₃
	0.32 µg/L (CMC) instantaneous		CTR for dissolved sample assuming hardness of 25 mg/L as CaCO ₃
Lead (hardness dependent)	2.0 µg/L (CMC); 0.086 µg/L (CCC)	U.S. EPA, 2000	CTR for dissolved sample assuming hardness of 5 mg/L as CaCO ₃
	5.0 µg/L (CMC); 0.191 µg/L (CCC)		CTR for dissolved sample assuming hardness of 10 mg/L as CaCO ₃
	8.0 µg/L (CMC); 0.303 µg/L (CCC)		CTR for dissolved sample assuming hardness of 15 mg/L as CaCO ₃
	14.0 µg/L (CMC); 0.540 µg/L (CCC)		CTR for dissolved sample assuming hardness of 25 mg/L as CaCO ₃
Zinc (hardness dependent)	9.26 µg/L (CMC); 9.33 µg/L (CCC)	U.S. EPA, 2000	CTR for dissolved sample assuming hardness of 5 mg/L as CaCO ₃
	16.66 µg/L (CMC); 16.79 µg/L (CCC)		CTR for dissolved sample assuming hardness of 10 mg/L as CaCO ₃
	23.48 µg/L (CMC); 23.68 µg/L (CCC)		CTR for dissolved sample assuming hardness of 15 mg/L as CaCO ₃
	36.20 µg/L (CMC); 36.50 µg/L (CCC)		CTR for dissolved sample assuming hardness of 25 mg/L as CaCO ₃

Table 3-90. Water quality objectives supporting designated uses in the project areas. (Source: PG&E and NID, 2010a)

Parameter	Basin Plan Objective, California Toxics Rule Criterion, or Benchmark	Reference	Notes
TEMPERATURE (COLDWATER HABITAT, SPAWNING, WILDLIFE)			
Temperature	20°C (mean daily), > 3-5°C (min)	Elliot 1981; Frost and Brown 1967	See PG&E and NID, 2010b
TURBIDITY (COLDWATER HABITAT, SPAWNING, WILDLIFE)			
Turbidity	Increase < 1 NTU for 1-5 NTU background; Increase < 20% for 5-50 NTU background	Central Valley Water Board, 1998	Aesthetics, disinfection, egg incubation

¹CDHS Title 22 identified as minimum water quality thresholds, but acknowledged as insufficiently protective in some cases (Central Valley Water Board, 1998).

²CTR values listed generally assume dissolved concentrations; values must be adjusted for parameter dependent factors.

Key:

---	not available or not applicable
AGRICULTURE	agricultural supply
°C	degrees Celsius
CaCO ₃	calcium carbonate
CCC	Criterion Continuous Concentration (4-day chronic exposure) for aquatic toxicity as defined by EPA (2000)
CMC	Criterion Maximum Concentration (1-hour acute exposure) for aquatic toxicity as defined by EPA (2000)
COLDWATER HABITAT	cold freshwater habitat
CTR	California Toxics Rule
MCL	maximum contaminant level
mg/L	milligrams per liter
mL	milliliter
MPN	most probable number
MUNICIPAL	municipal and domestic supply
NTU	nephelometric turbidity units
RECREATION-1	water contact recreation
RECREATION-2	water non-contact recreation
SPAWNING	spawning, reproduction, and/or early development
WARM	warm freshwater habitat
WILDLIFE	wildlife habitat
µSiemens/cm	micro-Siemens per centimeter
µg/L	micrograms per liter

Table 3-91. Fishes in the Upper Drum-Spaulding, Lower Drum, Deer Creek, and Yuba-Bear Project area. (Source: staff, based on specifications provided in PG&E and NID, 2010c)

Common Name	Scientific Name	Status^a	Sacramento-San Joaquin Drainage^b
Threadfin shad	<i>Dorosoma petenense</i>	--	Introduced
Cutthroat trout	<i>Oncorhynchus clarki</i>	--	Native
Lahontan cutthroat trout	<i>Oncorhynchus clarki henshawi</i>	FT	Introduced
Rainbow trout	<i>Oncorhynchus mykiss</i>	--	Native
Steelhead trout	<i>Oncorhynchus mykiss</i>	--	Native
Kokanee	<i>Oncorhynchus nerka</i>	--	Introduced
Chinook salmon	<i>Oncorhynchus tshawytscha</i>	--	Native
Mountain whitefish	<i>Prosopium williamsoni</i>	--	Native
Brown trout	<i>Salmo trutta</i>	--	Introduced
Brook trout	<i>Salvelinus fontinalis</i>	--	Introduced
Lake trout	<i>Salvelinus namaycush</i>	--	Introduced
Pond smelt	<i>Hypomesus olidus</i>	--	Introduced
Common carp	<i>Cyprinus carpio</i>	--	Introduced
Tui chub	<i>Gila bicolor</i>	--	Native
Sacramento hitch	<i>Lavinia exilicauda exilicauda</i>	--	Native
California roach	<i>Lavinia symmetricus</i>	--	Native
Hardhead	<i>Mylopharodon conocephalus</i>	CSC	Native
Golden shiner	<i>Notemigonus crysoleucas</i>	--	Introduced
Sacramento pikeminnow	<i>Ptychocheilus grandis</i>	--	Native
Speckled dace	<i>Rhinichthys osculus</i>	--	Native
Lahontan reidside	<i>Richardsonius egregius</i>	--	Native
Sacramento sucker	<i>Catostomus occidentalis</i>	--	Native
White catfish	<i>Ameiurus catus</i>	--	Introduced
Brown bullhead	<i>Ameiurus nebulosus</i>	--	Introduced
Channel catfish	<i>Ictalurus punctatus</i>	--	Introduced
Mosquitofish	<i>Gambusia affinis</i>	--	Introduced
Green sunfish	<i>Lepomis cyanellus</i>	--	Introduced
Pumpkinseed	<i>Lepomis gibbosus</i>	--	Introduced
Bluegill	<i>Lepomis macrochirus</i>	--	Introduced
Redear sunfish	<i>Lepomis microlophus</i>	--	Introduced

Table 3-91. Fishes in the Upper Drum-Spaulding, Lower Drum, Deer Creek, and Yuba-Bear Project area. (Source: staff, based on specifications provided in PG&E and NID, 2010c)

Common Name	Scientific Name	Status^a	Sacramento-San Joaquin Drainage^b
Smallmouth bass	<i>Micropterus dolomieu</i>	--	Introduced
Largemouth bass	<i>Micropterus salmoides</i>	--	Introduced
Crappie	<i>Pomoxis</i> sp.	--	Introduced
Sculpin spp.	<i>Cottus</i> sp.	--	

^a Status: FT – Federally Threatened; CSC – California Fish and Wildlife species of concern.

^b Native or introduced into the Sacramento-San Joaquin Drainage Basin.

Table 3-92. Fish species present in Upper Drum-Spaulding, Lower Drum, and Deer Creek Project reservoirs reported during historical and relicensing studies. (Source: staff, based on specifications provided in PG&E and NID, 2010c)

Common Name	Upper Rock Lake	Lower Rock Lake	Culbertson Lake	Upper Lindsay Lake	Middle Lindsay Lake	Lower Lindsay Lake	Feeley Lake	Carr Lake	Blue Lake	Rucker Lake	Fuller Lake	Meadow Lake	White Rock Lake	Lake Sterling	Fordyce Lake	Kidd Lake	Upper Peak Lake	Lower Peak Lake	Lake Spaulding	Deer Creek Forebay	Drum Forebay	Drum Afterbay	Halsey Forebay	Halsey Afterbay	Rock Creek Reservoir	Wise Forebay	Lake Valley Reservoir	Kelly Lake	Alta Forebay	
Rainbow trout	•	•	•	•	•	•	•	•	•	•	•	•	■	•	◉	•	•	•	•	◉	•	•	•	•	•	•	•	•	•	•
Brown trout										▲					◉				◉											
Brook trout	■	■		•		•	•	▲		•	•	•		•	◉	•			◉	•	•	•	•	•	•	•	•	•	•	•
Cutthroat trout	•	•	•	•	•	•	•	•			•	•	•	•	◉	•	•	•		•		•		•			•	•		
Mountain whitefish									▲										■											
Kokanee				▲								•	▲	▲		■	▲	▲												
Chinook salmon											•								◉								•			
Arctic grayling																					•						•			
Lake trout				▲											•				•											
Common carp																				•	•	•								
Sacramento pikeminnow						•													◉								•	•		
Tui chub															◉															
Lahontan redbside				•	•	•									•				◉					•				•		
Speckled dace										•						•									•					•
Golden shiner										•											•				•					
Sacramento sucker										•									◉											
Largemouth bass																									•					

Table 3-92. Fish species present in Upper Drum-Spaulding, Lower Drum, and Deer Creek Project reservoirs reported during historical and relicensing studies. (Source: staff, based on specifications provided in PG&E and NID, 2010c)

Common Name	Upper Rock Lake	Lower Rock Lake	Culbertson Lake	Upper Lindsay Lake	Middle Lindsay Lake	Lower Lindsay Lake	Feeley Lake	Carr Lake	Blue Lake	Rucker Lake	Fuller Lake	Meadow Lake	White Rock Lake	Lake Sterling	Fordyce Lake	Kidd Lake	Upper Peak Lake	Lower Peak Lake	Lake Spaulding	Deer Creek Forebay	Drum Forebay	Drum Afterbay	Halsey Forebay	Halsey Afterbay	Rock Creek Reservoir	Wise Forebay	Lake Valley Reservoir	Kelly Lake	Alta Forebay
Smallmouth bass										•									○			•		•			•	•	
Crappie										•															•		•	•	
Redear sunfish	•	•		•	•	•	•	•	•	•		•	■			•					•	•			•		•	•	
Green sunfish																					■				•				
Bluegill																				•	•	•	•	•	•	•			■
Pond smelt																				⊙									

Reference: • historical, ○ relicensing studies, ⊙ historical and relicensing studies, ■ current status is uncertain, ▲ historically present but likely extirpated

Note: No historical information on fish populations is available for Wise forebay.

Table 3-93. Fish species present in Yuba-Bear Project reservoirs reported during historical and relicensing studies. (Source: staff, based on specifications provided in PG&E and NID, 2010c)

Common Name	Jackson Meadows Reservoir	Milton Diversion Impoundment	Jackson Lake	French Lake	Faucherie Lake	Sawmill Lake	Bowman Lake	Dutch Flat Forebay	Dutch Flat Afterbay	Chicago Park Forebay	Rollins Reservoir
Rainbow trout	◉	●	●	●	●	●	◉				◉
Brown trout	◉	●					◉				◉
Brook trout	◉	●		●	●	●					
Cutthroat trout	◉				●	●					
Kokanee		●					◉				●
Arctic grayling	▲										
Lake trout						▲					
Common carp											●
Sacramento pikeminnow											○
Tui chub	◉	●	●	●	●	●					●
Lahontan redbreast	◉	●			●		◉				
Speckled dace	◉						○				●
Golden shiner							●				◉
Sacramento sucker											○
Largemouth bass											◉
Crappie											◉
Redear sunfish		●				●					◉
Green sunfish							●				◉
Bluegill											◉
Brown bullhead	●										◉

Table 3-93. Fish species present in Yuba-Bear Project reservoirs reported during historical and relicensing studies. (Source: staff, based on specifications provided in PG&E and NID, 2010c)

Common Name	Jackson Meadows Reservoir	Milton Diversion Impoundment	Jackson Lake	French Lake	Faucherie Lake	Sawmill Lake	Bowman Lake	Dutch Flat Forebay	Dutch Flat Afterbay	Chicago Park Forebay	Rollins Reservoir
Channel catfish											◉
White catfish											○
Threadfin shad											●
Pond smelt											◉

Reference: ● historical, ○ relicensing studies, ◉ historical and relicensing studies, ▲ historically present but likely extirpated.

Note: No historical information on fish populations is available for Dutch flat forebay, Dutch flat afterbay, and Chicago Park forebay.

Table 3-94. Fish planted in Upper Drum-Spaulding, Lower Drum, Deer Creek, and Yuba-Bear Project reservoirs from 2002-2009. (Source: staff, based on specifications provided in PG&E and NID, 2010c)

Reservoir	Rainbow trout	Brown trout	Brook trout	Eagle Lake rainbow trout	Kokanee	Chinook salmon
Jackson Meadow Reservoir	•	•	•	•		
French Lake	•					
Faucherie Lake	•	•		•		
Sawmill Lake	•					
Bowman Lake	•			•	•	
Rollins Reservoir	•	•			•	
Upper Rock	•					
Lower Rock Lake	•					
Culbertson Lake	•					
Upper Lindsey Lake	•					
Lower Lindsey Lake	•	•				
Halsey Forebay	•			•		
Lake Valley Reservoir	•			•		•
Fuller Lake	•	•		•		
Fordyce Lake	•					
Lake Spaulding						•

Table 3-95. Number and composition of fish captured in the Upper Drum-Spaulding, Lower Drum, Deer Creek, and Yuba-Bear Project reservoirs, June to November 2009. (Source: NID and PG&E, 2010a)

Species	Jackson Meadow Reservoir		Bowman Lake		Rollins Reservoir		Lake Spaulding		Fordyce Lake	
	N	%	N	%	N	%	N	%	N	%
Lahontan cutthroat trout	2	0.2							1	2.0
Rainbow trout	92	7.4	16	2.9	1	0.2	10	3.0	17	34.7
Kokanee			23	4.1						
Chinook salmon							6	1.8		
Brown trout	37	3.0	123	22.2	54	9.2	32	9.8	16	32.7
Brook trout	6	0.5					1	0.3	2	4.1
Pond smelt					31	5.3	69	21.0		
Tui chub	1	0.1							13	26.5
Golden shiner					3	0.5				
Sacramento pikeminnow					52	8.8	192	58.5		
Speckled dace	60	4.8	51	9.2						
Lahontan redbreast	1,050	84.1	342	61.6			9	2.7		
Sacramento sucker					6	1.0	1	0.3		
White catfish					6	1.0				
Brown bullhead					2	0.3				
Channel catfish					20	3.4				
Green sunfish					6	1.0				
Bluegill					114	19.4				
Redear sunfish					2	0.3				
Smallmouth bass					264	44.8	7	2.1		
Largemouth bass					24	4.1				
Black Crappie					1	0.2				
Centrarchid sp.					3	0.5				
Unidentified species	1	0.1					1	0.3		
Total (number captured)	1,249		555		589		328		49	

Table 3-96a. Fish species present in the Upper Drum-Spaulding, Lower Drum, Deer Creek, and Yuba-Bear Projects stream reaches reported during historical and relicensing studies. (Source: staff, based on specifications provided in PG&E and NID, 2010d)

Common Name	Middle Yuba River Sub-basin			Deer Creek Sub-basin	Canyon Creek Sub-basin							Texas Creek Sub-basin						Fall Creek Sub-basin				Rucker Creek Sub-basin					
	Jackson Meadows Dam Reach	Milton Diversion Dam Reach	Wilson Creek Diversion Reach	Deer Creek Powerhouse Reach	Jackson Lake Dam Reach	French Lake Dam Reach	Faucherie Lake Dam Reach	Sawmill Lake Dam Reach	Bowman-Spaulding Diversion Dam Reach	Canyon Creek below Texas Creek Confluence Reach	Upper Rock Lake Dam Reach	Lower Rock Lake Dam Reach #1 and #2	Texas Creek Diversion Dam Reach	Culbertson Lake Dam Reach	Upper Lindsey Lake Dam Reach	Middle Lindsey Lake Dam Reach	Lower Lindsey Lake Dam Reach	Clear Creek Diversion Reach	Feeley Lake Dam Reach	Carr Lake Dam Reach #1	Carr Lake Dam Reach #2	Fall Creek Diversion Dam Reach	Trap Creek Diversion Reach	Blue Lake Dam Reach	Rucker Lake Dam Reach	Rucker Creek Diversion Reach	
Rainbow trout	○	●		■	○	○	●	●	○	■	○	●	▲	●	▲	●	●	○	▲	●	●	●	●	●	▲	○	▲
Brook trout	▲	●			○	▲	▲	▲		■	▲	●	▲	●	▲	▲	●										
Brown trout	○	●		■	○	▲	○	●	○	■		●	▲	▲	▲		○		○	●	●	●	●	▲	○	▲	
Cutthroat trout	▲	▲																									
Lahontan Cutthroat		■																									
Steelhead																											
Chinook salmon																											
Sculpin spp.																											
Sucker spp.																											
Sacramento sucker		●		●																							
Sacramento pikeminnow		●																									
California Roach																											
Lahontan Redside	○																										
Golden shiner																●											
Speckled Dace																											
Hardhead		●																									
Mosquitofish																											
Hitch																											
Channel Catfish																											
Brown Bullhead																											
Largemouth bass		▲																									▲
Smallmouth bass		●																									▲
Green sunfish																											○
Pumpkinseed Sunfish																											
Bluegill																											

Reference: ● indicates historical, ○ indicates relicensing studies, ● indicates historical and relicensing studies, ■ indicates current status is uncertain, and ▲ indicates historically present but likely extirpated

Note: No historical information on fish populations is available for Wise forebay.

Table 3-96a. Fish species present in the Upper Drum-Spaulding, Lower Drum, Deer Creek, and Yuba-Bear Projects stream reaches reported during historical and relicensing studies. (Source: staff, based on specifications provided in PG&E and NID, 2010d)

Common Name	South Yuba River Sub-basin								Bear River Sub-basin							North Fork of the North Fork American River Sub-basin				Mormon Ravine Sub-basin	Coon Creek Sub-basin	Dry Creek Sub-basin	Auburn Ravine Sub-basin		
	Fuller Lake Dam Reach	Jordan Creek Diversion Reach	Meadow Lake Dam Reach	White Rock Lake Dam Reaches #1 and 2	Lake Sterling Dam Reach	Fordyce Lake Dam Reach	Kidd Lake Dam Reach	Upper South Yuba Reaches #1 and #2	South Yuba River Below Spaulding No. 2 Powerhouse Reach	South Yuba Reaches #1 through #6	Bear River Reach #1 and #2	Drum Afterbay Dam Reach	Dutch Flat Afterbay Dam Reach	Chicago Park Powerhouse Reach	Bear River Canal Diversion Dam Reach	Alta Powerhouse Reach	Lake Valley Reservoir Dam Reach	Lake Valley Canal Diversion Dam Reach	Kelly Lake Dam Reach	Canyon Creek Above Towle Canal Diversion Dam Reach	Towle Canal Diversion Dam Reach	Mormon Ravine Reach	Rock Creek Dam Reach	Halsey Afterbay Dam Reach	Wise Powerhouse Overflow Reach
Rainbow trout	◉	●	▲	◉	▲	◉	▲	▲	○	◉	◉	○		◉	▲	◉	◉	▲	○	○	○	○	▲	○	◉
Brook trout	▲	▲	▲	◉	○	▲	▲	▲	▲	▲	▲	○				▲	▲	▲					▲		◉
Brown trout	▲	▲	▲		▲	◉	▲	○	○	○	◉	○	○	◉	▲	◉	◉			○		▲	○		●
Cutthroat trout			▲																						
Lahontan Cutthroat																									
Steelhead																									
Chinook salmon																									◉
Sculpin spp.																					○				◉
Sucker spp.						●																			
Sacramento sucker							○		◉				○	○		○									●
Sacramento pikeminnow	▲							▲	◉	▲		○	○	▲											●
California Roach					○											○									●
Lahontan Redside					○		○																		●
Golden shiner														▲									○		●
Speckled Dace							○					○	○												○
Hardhead									●																●
Mosquitofish																						○	○		●
Hitch																									●
Channel Catfish														●		●	●					▲			▲
Brown Bullhead							○																		▲
Largemouth bass						▲								▲	▲							●			●
Smallmouth bass									○			○	▲	▲								▲			▲
Green sunfish									◉	▲		○	○	○		●	●	○					○		●
Pumpkinseed Sunfish																						○			●
Bluegill																							○		●

Reference: ● indicates historical, ○ indicates relicensing studies, ◉ indicates historical and relicensing studies, ■ indicates current status is uncertain, and ▲ indicates historically present but likely extirpated
 Note: No historical information on fish populations is available for Wise forebay.

Table 3-96b. Estimated fish abundance and biomass at Level II quantitative fish population monitoring sites in the Upper Drum-Spaulding, Lower Drum, and Yuba-Bear Project-affected reaches during 2008 and 2009.

Stream	Stream Reach	Site	Date Sampled	Rainbow Trout			Brown Trout			Sacramento Sucker			Sacramento Pikeminnow			Other Species ^a		
				Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m
MIDDLE YUBA RIVER SUB-BASIN (YUBA-BEAR PROJECT)																		
Middle Yuba River	Jackson Meadows Dam Reach	RM 46.4	8/19/08	49	1,013	34	115	1,424	1	--	--	--	--	--	--	2	6	0
			8/18/08	44	252	29	63	1,716	0	--	--	--	--	--	--	0	0	25
	Milton Diversion Dam Reach	RM 43.6 (Upper)	8/4/08	85	2,247	205	103	3,235	0	--	--	--	--	--	--	--	--	--
			7/13/09 ^b	39	942	43	14	365	17	--	--	--	--	--	--	--	--	--
		RM 26.6 (Middle)	8/5/08 ^b	208	3,671	76	--	--	--	15	288	11	--	--	--	--	--	--
			7/14/09 ^b	243	5,776	172	--	--	--	210	9,246	3998	--	--	--	--	--	--
RM 13.6 (Lower)	8/22/08	--	--	23	--	--	--	--	--	20	--	--	--	4	--	--		
	7/23/09	--	--	17	--	--	--	--	--	117	--	--	--	0	--	--		
CANYON CREEK SUB-BASIN (YUBA-BEAR AND UPPER DRUM-SPAULDING PROJECT)																		
Canyon Creek	Bowman-Spaulding Diversion Dam Reach	RM 7.9 (Upper)	8/13/08	137	2,217	--	57	1,320	--	--	--	--	--	--	--	--	--	
			6/29/09	52	1,398	--	14	608	--	--	--	--	--	--	--	--	--	
		RM 1.3 (Lower)	7/28/08 ^b	127	1,967	224	--	--	--	--	--	--	--	--	--	--	--	
			6/30/09 ^b	130	3,592	161	--	--	--	--	--	--	--	--	--	--	--	
Texas Creek	Lower Rock Lake Dam Reach #2	RM 1.6	7/28/09	77	2,050	--	72	2,989	--	--	--	--	--	--	--	--		
FALL CREEK SUB-BASIN (YUBA-BEAR PROJECT)																		
Fall Creek	Carr Lake Dam Reach #2	RM 2.1	7/27/09	121	1,638	--	26	1,088	--	--	--	--	--	--	--	--	--	
		RM 1.9	7/27/09	26	461	--	--	--	--	--	--	--	--	--	--	--	--	
RUCKER CREEK SUB-BASIN (UPPER DRUM-SPAULDING PROJECT)																		
Rucker Creek	Rucker Lake Dam Reach	RM 1.4	7/28/09	13	407	--	9	371	--	--	--	--	--	--	--	--		
SOUTH YUBA RIVER SUB-BASIN (UPPER DRUM-SPAULDING PROJECT)																		
Fordyce Creek	Fordyce Lake Dam Reach	RM 10.1 (Upper)	8/8/08 ^b	23	464	4	2	371	4	--	--	--	--	--	--	2	7	0
			8/6/09 ^b	30	768	22	3	161	4	--	--	--	--	--	--	0	0	0

Table 3-96b. Estimated fish abundance and biomass at Level II quantitative fish population monitoring sites in the Upper Drum-Spaulding, Lower Drum, and Yuba-Bear Project-affected reaches during 2008 and 2009.

Stream	Stream Reach	Site	Date Sampled	Rainbow Trout		Brown Trout			Sacramento Sucker			Sacramento Pikeminnow			Other Species ^a					
				Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m		
South Yuba River	South Yuba River below Spaulding No. 2 Powerhouse Reach	RM 6.2 (Middle)	8/12/08 ^b	86	2,727	0	4	661	0	--	--	--	--	--	--	--	--	--	--	
			8/7/09 ^b	82	2,750	1	4	507	1	--	--	--	--	--	--	--	--	--	--	--
		RM 2.7 (Lower)	8/11/08 ^b	54	770	11	8	345	2	--	--	--	--	--	--	--	--	--	--	--
			8/5/09 ^b	56	904	13	345	546	2	--	--	--	--	--	--	--	--	--	--	--
		RM 40.3	7/29/09 ^b	23	251	13	1	138	3	--	--	--	--	--	--	--	--	--	--	--
		South Yuba Reaches #1 to #6	RM 39.5 (#1)	8/18/08 ^b	86	2,148	81	0	0	0	--	--	--	--	--	--	--	--	--	--
			7/24/09 ^b	54	1,558	120	3	107	3	--	--	--	--	--	--	--	--	--	--	--
		RM 27.6 (#5)	8/6/08 ^b	81	2,002	238	--	--	--	--	5	289	2	--	--	--	--	--	--	--
			7/15/09 ^b	57	1,733	262	--	--	--	--	30	461	549	--	--	--	--	--	--	--
		RM 14.9 (#6)	8/7/08	--	--	22	--	--	--	--	--	--	2	--	--	88	--	--	--	--
			7/16/09	--	--	18	--	--	--	--	--	--	24	--	--	5	--	--	--	--
		RM 0.8	7/30/09	--	--	1	--	--	--	--	--	--	--	--	--	7	--	--	--	--

EF=Electrofishing; SN=Snorkeling. EF and SN abundance estimates were made independently for each section.

^aOther species include those captured or observed in small numbers (i.e. less than 5% of the total catch by site). Represented species include: bluegill, California roach, golden shiner, green sunfish, mosquitofish, smallmouth bass, speckled dace, and spotted bass.

^bFor combined electrofishing and snorkel survey sites the snorkel section estimates are for a single deep pool, whereas electrofishing section estimates are for multiple representative habitat types excluding pools too deep to electrofish.

Table 96b. Estimated fish abundance and biomass at Level II quantitative fish population monitoring sites in the Upper Drum-Spaulding, Lower Drum, and Yuba-Bear Project-affected reaches during 2008 and 2009.

Stream	Stream Reach	Site	Date Sampled	Rainbow Trout		Brown Trout			Sacramento Sucker			Sacramento Pikeminnow			Other Species ^a				
				Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	
BEAR RIVER SUB-BASIN (UPPER DRUM-SPAULDING AND YUBA-BEAR PROJECT)																			
Bear River	Bear River Reach #2	RM 32.9 (Upper)	7/22/08	1	110	--	201	4,512	--	--	--	--	--	--	--	--	--	--	
			7/1/09	1	2	--	252	5,292	--	--	--	--	--	--	--	--	--	--	--
		RM 30.7 (Middle)	7/22/08	116	2,848	--	32	1,741	--	--	--	--	--	--	--	--	--	--	--
			7/17/09	133	2,846	--	38	2,058	--	--	--	--	--	--	--	--	--	--	--
		RM 28.5 (Lower)	7/30/08	88	1,942	--	20	977	--	--	--	--	--	--	--	--	--	--	--
			7/2/09	50	1,355	--	8	340	--	--	--	--	--	--	--	--	--	--	--
	Drum Afterbay Dam Reach	RM 25.4	7/31/08	68	1,204	--	1	420	--	--	--	--	--	--	--	--	--	--	--
			8/3/09	81	1,616	--	0	0	--	--	--	--	--	--	--	--	--	--	--
	Dutch Flat Afterbay Dam Reach	RM 20.8 (Upper)	7/21/08	75	1,525	7	0	0	--	--	--	--	--	--	--	--	5	--	--
			8/11/09	102	787	206	1	30	--	--	--	--	--	--	--	--	10	13	0
		RM 19.3 (Lower)	7/24/08	7	141	--	--	--	--	--	--	--	--	--	--	--	7	16	0
			8/12/09	41	119	--	--	--	--	--	--	--	--	--	--	--	53	128	--
	Chicago Park Powerhouse Reach	RM 15.4	9/24/09	--	--	--	--	28	--	14	69	--	1	3	--	2	9	--	
	Bear River Canal Diversion Dam Reach	RM 8 (Upper)	8/14/08	6	58	--	67	254	--	23	198	--	10	91	--	0	0	--	
			8/17/09	72	125	--	23	111	--	26	149	--	7	44	--	93	521	--	
		RM 3.4 (Lower)	8/17/08	--	--	5	--	--	2	--	--	--	2	--	--	1	--	--	--
8/13/09			--	--	11	--	--	6	--	--	--	595	--	--	1	--	--	--	

Table 96b. Estimated fish abundance and biomass at Level II quantitative fish population monitoring sites in the Upper Drum-Spaulding, Lower Drum, and Yuba-Bear Project-affected reaches during 2008 and 2009.

Stream	Stream Reach	Site	Date Sampled	Rainbow Trout		Brown Trout			Sacramento Sucker			Sacramento Pikeminnow			Other Species ^a			
				Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m	Abundance (EF) fish/100m	Biomass (EF) g/100m	Abundance (SN) fish/100m
NORTH FORK AMERICAN RIVER SUB-BASIN (UPPER DRUM-SPAULDING PROJECT)																		
North Fork of North Fork American River	Lake Valley Reservoir Dam Reach	RM 14.3	7/30/08	35	810	--	49	1,381	--	--	--	--	--	--	--	--	--	--
			8/4/09	30	603	--	74	1,816	--	--	--	--	--	--	--	--	--	--
	Lake Valley Canal Diversion Dam Reach	RM 11.8 (Upper)	7/23/08	23	558	--	94	3,445	--	--	--	--	--	--	--	--	--	--
			8/10/09	35	967	--	92	3,682	--	--	--	--	--	--	--	--	--	--
		RM 10.3 (Lower)	7/23/08	55	1,379	118	17	212	11	--	--	--	--	--	--	--	--	--
		8/10/09	50	1,421	139	17	456	22	--	--	--	--	--	--	--	--	--	
COON CREEK SUB-BASIN (LOWER DRUM PROJECT)																		
Dry Creek	Halsey Afterbay Dam Reach	RM 1.7	8/14/09	--	--	--	69	1,292	--	--	--	--	--	--	--	9	191	--
NORTH YUBA RIVER SUB-BASIN (NON-PROJECT)																		
North Yuba River	North Yuba River	RM 55.2 (Upper)	7/29/08	259	5,882	--	1	35	--	--	--	--	--	--	--	--	--	--
			7/20/08	268	5,620	--	10	396	--	--	--	--	--	--	--	--	--	--
		RM 51.4 (Middle)	8/20/08	372	6,667	--	14	3,173	--	--	--	--	--	--	--	--	--	--
			7/21/09	195	3,734	--	6	267	--	--	--	--	--	--	--	--	--	--
		RM 22.3 (Lower)	8/21/08	--	--	105	--	--	--	--	--	29	--	--	147	--	--	--
	7/22/09	--	--	94	--	--	--	--	--	167	--	--	29	--	--	--		

EF=Electrofishing; SN=Snorkeling. EF and SN abundance estimates were made independently for each section.

^aOther species include those captured or observed in small numbers (i.e. less than 5% of the total catch by site). Represented species include: bluegill, California roach, golden shiner, green sunfish, mosquitofish, smallmouth bass, speckled dace, and spotted bass.

^bFor combined electrofishing and snorkel survey sites the snorkel section estimates are for a single deep pool, whereas electrofishing section estimates are for multiple representative habitat types excluding pools too deep to electrofish.

Table 3-97. Characterization of aquatic macroinvertebrate community biological condition in sampled reaches of Yuba-Bear, Upper Drum-Spaulding, and Lower Drum Projects during relicensing studies. (Source: staff, based on specifications provided in PG&E and NID, 2010e)

Sub-basin	Study Reach	MMI Score	MMI Condition Category	IBI Score	IBI Condition Category
North Yuba River	North Yuba reach—upper (Yuba-Bear)	62	Fair	66	Fair
	North Yuba reach —lower (Yuba-Bear)	74	Good	61	Fair
Middle Yuba River	Milton diversion dam reach—upper (Yuba-Bear)	48	Fair	26	Poor
	Milton diversion dam reach—middle (Yuba-Bear)	88	Good	84	Good
	Milton diversion dam reach—lower (Yuba-Bear)	68	Good	56	Fair
Canyon Creek	Bowman-Spaulding diversion dam reach (Yuba-Bear)	64	Fair	61	Fair
	Canyon Creek below Texas Creek confluence reach (Yuba-Bear)	68	Good	50	Fair
Texas Creek	Lower Rock Lake dam reach (Upper Drum-Spaulding)	62	Fair	47	Fair
	Texas Creek diversion dam reach (Yuba-Bear)	54	Fair	53	Fair
South Yuba River	Upper South Yuba River reach no. 2 (Upper Drum-Spaulding)	66	Fair	44	Fair
	South Yuba below Spaulding no. 2 powerhouse (Upper Drum-Spaulding)	68	Good	76	Good
	South Yuba River reach no. 1 (Upper Drum-Spaulding)	22	Poor	17	Poor

Table 3-97. Characterization of aquatic macroinvertebrate community biological condition in sampled reaches of Yuba-Bear, Upper Drum-Spaulding, and Lower Drum Projects during relicensing studies. (Source: staff, based on specifications provided in PG&E and NID, 2010e)

Sub-basin	Study Reach	MMI Score	MMI Condition Category	IBI Score	IBI Condition Category
	South Yuba River reach no. 5 (Upper Drum-Spaulding)	58	Fair	44	Fair
	South Yuba River reach no. 6 (Upper Drum-Spaulding)	56	Fair	40	Fair
Fordyce Creek	Fordyce Lake dam reach (Upper Drum-Spaulding)	44	Fair	50	Fair
Bear River	Bear River reach no. 1 (Upper Drum-Spaulding)	84	Good	74	Good
	Bear River reach no. 2 (Upper Drum-Spaulding)	80	Good	60	Fair
	Drum afterbay dam reach (Upper Drum-Spaulding)	70	Good	67	Good
	Dutch Flat afterbay dam reach (Yuba-Bear)	46	Fair	43	Fair
	Bear River canal diversion dam reach—upper (Lower Drum)	26	Poor	36	Fair
	Bear River canal diversion dam reach—lower (Lower Drum)	50	Fair	51	Fair
North Fork of the North Fork American River	Lake Valley reservoir dam reach (Upper Drum-Spaulding)	58	Fair	50	Fair
	Lake Valley canal diversion dam reach (Upper Drum-Spaulding)	62	Fair	54	Fair
Auburn Ravine	Wise powerhouse overflow reach (Lower Drum)	32	Poor	33	Fair
Rock Creek	Rock Creek dam reach (Lower Drum)	36	Fair	34	Fair
Dry Creek	Halsey afterbay dam reach (Lower Drum)	24	Poor	21	Poor

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Appendix A-2

Aquatic Resources Tables: Environmental Effects

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Table 3-98. Water year types for the Upper Drum-Spaulding, Lower Drum, and Yuba-Bear Projects. (Source: adapted by staff, from PG&E 2011a; NID 2011a)

Water Year Type	DWR Forecast of Total Unimpaired Runoff in the Yuba River at Smartville in Thousand Acre-Feet or DWR Full Natural Flow Near Smartville for the Water Year in Thousand Acre-Feet¹
Extreme Critically Dry	Equal to or Less than 615
Critically Dry	616 to 900
Dry	901 to 1,460
Below Normal	1,461 to 2,190
Above Normal	2,191 to 3,240
Wet	Greater than 3,240

¹ DWR rounds the Bulletin 120 forecast to the nearest 1,000 acre-feet. The Full Natural Flow is provided to the nearest acre-foot, and Licensee will round DWR's Full Natural Flow to the nearest 1,000 acre-feet.

Table 3-99. Determination of water year type proposed by Reclamation for setting minimum streamflows in Mormon Ravine upstream of Folsom Lake. (Source: adapted by staff, from BOR, 2012)

Period/Exceedance	Unregulated Index/Forecast	Minimum Flow Schedule
January 1 Sacramento River Unregulated Index at 75 Percent Exceedance (million acre-feet)	Between 12.5 and 10.2	Dry Year Schedule
	Between 10.2 and 8.1	Critical Year Schedule
	Less than 8.1	Extreme Critical Year Schedule
Yuba April to July Unregulated Forecast at 90 Percent Exceedance (thousand acre-feet)	Between 800 and 525	Dry Year Schedule
	Between 525 and 300	Critical Year Schedule
	Below 300	Extreme Critical Year Schedule

Table 3-100. Required releases to the Middle Yuba River, South Yuba River, Canyon Creek, Fall Creek, Rucker Creek, and Bear River under the existing license. (Source: adapted by staff, from PG&E and NID, 2011a)

Sub-Basin	Reservoir	Development	Gage Location (USGS/PG&E No.)	Date	Required Minimum Flow (cfs)	Water Year Type
Canyon Creek	Upper Rock Lake	Spaulding No. 3	Downstream of Upper Rock Lake	7/1 to 9/30	0.1	All ^a
	Lower Rock Lake	Spaulding No. 3	Downstream of Lower Rock Lake (11416610/YB-202)	7/1 to 9/30	0.1	All ^a
	Culbertson Lake	Spaulding No. 3	Downstream of Culbertson Lake (11416620/YB-203)	Year- Round	0.3	All ^a
	Middle Lindsey Lake	Spaulding No. 3	Downstream of Middle Lindsey Lake	7/1 to 9/30	0.1	All ^a
	Lower Lindsey Lake	Spaulding No. 3	Downstream of Lower Lindsey Lake	Year- Round	0.2	All ^a
Fall Creek	Feeley Lake	Spaulding No. 3	Downstream of Feeley Lake (11414350/YB-207)	Year- Round	0.2	All ^a
	Carr Lake	Spaulding No. 3	Downstream of Carr Lake (11414360/YB-208)	Year- Round	0.2	All ^a
Rucker Creek	Blue Lake	Spaulding No. 3	No Gage	Year Round	0.2	All ^a
	Rucker Lake	Spaulding No. 3	No Gage	Year Round	0.2	All ^a
South Yuba River	Fordyce Lake	Spaulding No. 1 and No. 2	Downstream of Fordyce Lake	Year- Round ^b	5	All
	Lake Spaulding	Spaulding No. 1 and No. 2	No Gage (At or adjacent to Spaulding Powerhouse No. 2)	Year- Round	1	All

Table 3-100. Required releases to the Middle Yuba River, South Yuba River, Canyon Creek, Fall Creek, Rucker Creek, and Bear River under the existing license. (Source: adapted by staff, from PG&E and NID, 2011a)

Sub-Basin	Reservoir	Development	Gage Location (USGS/PG&E No.)	Date	Required Minimum Flow (cfs)	Water Year Type
	Lake Spaulding	Spaulding No. 1 and No. 2	No Gage (Downstream of Spaulding Powerhouse No. 2 at Langs Crossing)	Year-Round	5	All
Bear River	Drum Forebay	Drum No. 1 and No. 2	Towle Canal Diversion Dam (11426196/YB-282)	Year-Round	1 ^d	All
	Drum Afterbay	Dutch Flat No. 1	Downstream of Drum Afterbay (11421770/YB-44)	3/1 to 9/30	10	Normal
				10/1 to 2/28-29	5	Normal
Mormon Ravine	Newcastle Powerhouse Header Box	Newcastle	Mormon Ravine (11425418/YB-292)	Year-round	5	All

^a During dry years, these flows shall be adjusted according to the following formula between July 1 and October 31:

$(0.80 * (\text{storage}_{\text{July 1}}) * 0.504) / (123)$, where 0.80 is used to account for evaporation in the lake; 0.504 is the conversion from acre-feet to cfs; and 123 is the number of days from July 1 through October 31.

^b Year-round provided that sufficient lake storage shall be reserved at the time of outlet adjustment for unattended winter operation to insure an initial flow of 5 cfs and not less than 3 cfs at lake level maximum winter drawdown.

^c Dry year conditions are deemed to exist in the month following whenever the accumulated seasonal precipitation at Lake Spaulding commencing with October 1, is equal to or less than: 29 inches as of January 31; 35 inches as of February 28-29; 40 inches as of March 31; 45 inches as of April 30, provided that if total precipitation by April 30 is 45 inches or less. Dry year conditions are deemed to exist for the remainder of the year.

^d The required minimum flow is 1 cfs or natural streamflow, whichever is less.

^e Upper Boardman Canal was taken out of service by the April 11, 1994, amendment to the license.

Table 3-101. Average wetted perimeter and depth at the respective channel flow response transects downstream of Upper Drum-Spaulding Project and Lower Drum Project facilities where minimum streamflows are proposed, based on PG&E's proposed minimum streamflows, as amended, with buffer flows. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Minimum streamflow	Transect 1		Transect 2		Transect 3	
	Wetted Perimeter (ft)	Average Depth (ft)	Wetted Perimeter (ft)	Average Depth (ft)	Wetted Perimeter (ft)	Average Depth (ft)
Little Bear River Below Alta Powerhouse Tailrace (Upper Drum-Spaulding Project)						
0.5 cfs (0.75 cfs with buffer)	7.84	0.27	7.46	0.28	6.75	0.61
1 cfs (1.25 cfs with buffer)	8.25	0.34	7.74	0.35	7.56	0.61
2 cfs (2.25 cfs with buffer)	8.72	0.43	8.18	0.42	8.07	0.67
3 cfs (3.25 cfs with buffer)	9.21	0.48	8.54	0.47	8.33	0.72
4 cfs (4.25 cfs with buffer)	10.12	0.49	8.83	0.51	8.65	0.75
Rock Creek Below Rock Creek Dam (Lower Drum Project)						
1 cfs (1.25 cfs with buffer)	4.87	0.31	11.3	0.89	9.47	0.43
2 cfs (2.25 cfs with buffer)	6.28	0.34	11.55	0.97	10.47	0.52
3 cfs (3.25 cfs with buffer)	8.45	0.32	11.69	1.02	10.75	0.59
Dry Creek Below Halsey Afterbay (Lower Drum Project)						
1 cfs (1.25 cfs with buffer)	7.41	0.5	6.09	0.14	10.63	1.16

Table 3-101. Average wetted perimeter and depth at the respective channel flow response transects downstream of Upper Drum-Spaulling Project and Lower Drum Project facilities where minimum streamflows are proposed, based on PG&E's proposed minimum streamflows, as amended, with buffer flows. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Minimum streamflow	Transect 1		Transect 2		Transect 3	
	Wetted Perimeter (ft)	Average Depth (ft)	Wetted Perimeter (ft)	Average Depth (ft)	Wetted Perimeter (ft)	Average Depth (ft)
Texas Creek Below Lower rocker Lake #1 (Upper Drum-Spaulling Project)						
0.1 cfs	1.72	0.11	2.40	0.12	1.45	0.04
0.25 cfs	4.30	0.27	6.01	0.31	3.63	0.10
Texas Creek Below Lower Rock Lake #2 (Upper Drum-Spaulling Project)						
0.1 cfs	1.58	0.05	1.38	0.03	1.40	0.12
0.25 cfs	3.94	0.13	3.44	0.07	3.49	0.29
Unnamed Tributary Below Culbertson Lake (Upper Drum-Spaulling Project)						
0.3 cfs	4.73	0.28	5.14	0.38	5.37	0.11
0.75 cfs	6.36	0.43	6.75	0.55	7.22	0.19
1 cfs	6.61	0.45	7.21	0.56	7.44	0.21
1.5 cfs	7.75	0.46	7.38	0.62	7.62	0.28
Lindsey Creek Below Middle Lindsey Lake (Upper Drum-Spaulling Project)						
0.1 cfs	2.19	0.06	3.39	0.35	3.06	0.10
0.2 cfs	4.38	0.11	6.77	0.70	6.12	0.20
Lindsey Creek Below Lower Lindsey Lake (Upper Drum-Spaulling Project)						
0.2 cfs	6.06	0.49	5.01	0.09	4.37	0.15
0.5 cfs	12.60	1.04	10.71	0.21	9.48	0.31
0.7 cfs	12.98	1.09	11.50	0.24	10.33	0.34
Lake Creek Below Carr Lake Dam (Reach #1) (Upper Drum-Spaulling Project)						
0.2 cfs	5.70	0.21	4.55	0.17	7.68	0.66
0.5 cfs	7.75	0.30	6.65	0.26	9.13	0.80
1 cfs	8.25	0.40	7.00	0.38	9.30	0.85
Lake Creek Below Carr Lake Dam (Reach #2) (Upper Drum-Spaulling Project)						
0.2 cfs	4.87	0.05	7.36	0.27	10.92	0.52
0.5 cfs	8.29	0.11	10.85	0.34	14.14	0.64
1 cfs	9.78	0.18	13.46	0.37	15.68	0.65

Table 3-101. Average wetted perimeter and depth at the respective channel flow response transects downstream of Upper Drum-Spaulling Project and Lower Drum Project facilities where minimum streamflows are proposed, based on PG&E’s proposed minimum streamflows, as amended, with buffer flows. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Minimum streamflow	Transect 1		Transect 2		Transect 3	
	Wetted Perimeter (ft)	Average Depth (ft)	Wetted Perimeter (ft)	Average Depth (ft)	Wetted Perimeter (ft)	Average Depth (ft)
Rucker Creek Below Blue Lake Dam (Upper Drum-Spaulling Project)						
0.2 cfs	11.60	0.72	6.25	0.18	4.34	0.17
0.3 cfs	14.02	0.88	7.54	0.24	5.70	0.21
0.5 cfs	14.28	0.93	7.65	0.28	7.54	0.24
Rucker Creek Below Lake Dam (Upper Drum-Spaulling Project)						
0.2 cfs	7.93	0.17	10.16	0.22	12.59	0.77
0.5 cfs	10.04	0.24	12.63	0.29	14.27	0.93
0.75 cfs	10.82	0.26	13.30	0.32	14.45	0.97
1 cfs	11.03	0.30	13.76	0.34	14.58	1.00
1.5 cfs	11.20	0.36	14.46	0.37	14.75	1.05
Jordan Creek Below Jordan Creek Diversion Dam (Upper Drum-Spaulling Project)						
0.25 cfs	6.66	0.32	6.63	0.16	7.58	0.46
Unnamed Tributary Below Meadow Lake Dam (Upper Drum-Spaulling Project)						
1 cfs	16.35	1.15	9.96	0.19	16.71	0.58
5 cfs	19.56	1.19	11.80	0.45	18.74	0.78
11 cfs	21.12	1.31	12.97	0.68	20.60	0.90
White Rock Creek Below White Rock Lake Dam (Reach #1 and #2) (Upper Drum-Spaulling Project)						
0.5 cfs	12.41	1.22	8.05	0.4	7.39	0.62
1 cfs	12.52	1.25	8.77	0.48	7.82	0.71
Unnamed Tributary Below Kidd Lake Dam (Upper Drum-Spaulling Project)						
0.5 cfs	5.31	0.29	5.12	0.12	4.14	0.16
0.75 cfs	5.39	0.33	5.45	0.15	4.39	0.19
1 cfs	5.46	0.36	5.7	0.18	5.06	0.19

Table 3-101. Average wetted perimeter and depth at the respective channel flow response transects downstream of Upper Drum-Spaulding Project and Lower Drum Project facilities where minimum streamflows are proposed, based on PG&E’s proposed minimum streamflows, as amended, with buffer flows. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Minimum streamflow	Transect 1		Transect 2		Transect 3	
	Wetted Perimeter (ft)	Average Depth (ft)	Wetted Perimeter (ft)	Average Depth (ft)	Wetted Perimeter (ft)	Average Depth (ft)
Cascade Creek Below Lower Peak Lake Dam (Upper Drum-Spaulding Project)						
0.5 cfs	3.96	0.15	3.72	0.05	4	0.26
0.75 cfs	5.94	0.22	5.58	0.08	6	0.39
1 cfs	7.92	0.29	7.44	0.11	8	0.53
Sixmile Creek Below Kelly Lake Dam (Upper Drum-Spaulding Project)						
0.2 cfs	3.22	0.09	12.36	0.9	7.95	0.39
0.5 cfs	4.79	0.14	12.58	0.97	9.11	0.45

Table 3-102. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulling Project – Texas Creek below Upper Rock Lake dam (Compliance Point: YB-201) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.1	0.1	0.25	0.25	0.25	0.25
November	0.1	0.1	0.25	0.25	0.25	0.25
December	0.1	0.1	0.25	0.25	0.25	0.25
January	0.1	0.1	0.25	0.25	0.25	0.25
February	0.1	0.1	0.25	0.25	0.25	0.25
March	0.1	0.1	0.25	0.25	0.25	0.25
April	0.1	0.1	0.25	0.25	0.25	0.25
May	0.1	0.1	0.25	0.25	0.25	0.25
June	0.1	0.1	0.25	0.25	0.25	0.25
July	0.1	0.1	0.25	0.25	0.25	0.25
August	0.1	0.1	0.25	0.25	0.25	0.25
September	0.1	0.1	0.25	0.25	0.25	0.25

Table 3-103. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulling Project – Texas Creek below Lower Rock Lake dam (Compliance Point: YB-202) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.1	0.1	0.25	0.25	0.25	0.25
November	0.1	0.1	0.25	0.25	0.25	0.25
December	0.1	0.1	0.25	0.25	0.25	0.25
January	0.1	0.1	0.25	0.25	0.25	0.25
February	0.1	0.1	0.25	0.25	0.25	0.25
March	0.1	0.1	0.25	0.25	0.25	0.25
April	0.1	0.1	0.25	0.25	0.25	0.25
May	0.1	0.1	0.25	0.25	0.25	0.25
June	0.1	0.1	0.25	0.25	0.25	0.25
July	0.1	0.1	0.25	0.25	0.25	0.25
August	0.1	0.1	0.25	0.25	0.25	0.25
September	0.1	0.1	0.25	0.25	0.25	0.25

Table 3-104. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulding Project – unnamed tributary – below Culbertson Lake dam (Compliance Point: YB-203) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.3	0.3	0.75	0.75	1.5	1.5
November	0.3	0.3	0.75	0.75	1	1
December	0.3	0.3	0.75	0.75	1	1
January	0.3	0.3	0.75	0.75	1	1
February	0.3	0.3	0.75	0.75	1	1
March	0.3	0.3	0.75	0.75	1	1
April	0.3	0.3	0.75	0.75	1	1
May	0.3	0.3	0.75	0.75	1	1
June	0.3	0.3	0.75	0.75	1.5	1.5
July	0.3	0.3	0.75	0.75	1.5	1.5
August	0.3	0.3	0.75	0.75	1.5	1.5
September	0.3	0.3	0.75	0.75	1.5	1.5

Table 3-105. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulling Project – Lindsey Creek below Middle Lindsey Lake dam (Compliance Point: YB 205) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.1	0.1	0.1	0.2	0.2	0.2
November	0.1	0.1	0.1	0.2	0.2	0.2
December	0.1	0.1	0.1	0.2	0.2	0.2
January	0.1	0.1	0.1	0.2	0.2	0.2
February	0.1	0.1	0.1	0.2	0.2	0.2
March	0.1	0.1	0.1	0.2	0.2	0.2
April	0.1	0.1	0.1	0.2	0.2	0.2
May	0.1	0.1	0.1	0.2	0.2	0.2
June	0.1	0.1	0.1	0.2	0.2	0.2
July	0.1	0.1	0.1	0.2	0.2	0.2
August	0.1	0.1	0.1	0.2	0.2	0.2
September	0.1	0.1	0.1	0.2	0.2	0.2

Table 3-106. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulling Project – Lindsey Creek below Lower Lindsey Lake dam (Compliance Point: YB 206B) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.2	0.2	0.5	0.7	0.7	0.7
November	0.2	0.2	0.5	0.7	0.7	0.7
December	0.2	0.2	0.5	0.7	0.7	0.7
January	0.2	0.2	0.5	0.7	0.7	0.7
February	0.2	0.2	0.5	0.7	0.7	0.7
March	0.2	0.2	0.5	0.7	0.7	0.7
April	0.2	0.2	0.5	0.7	0.7	0.7
May	0.2	0.2	0.5	0.7	0.7	0.7
June	0.2	0.2	0.5	0.7	0.7	0.7
July	0.2	0.2	0.5	0.7	0.7	0.7
August	0.2	0.2	0.5	0.7	0.7	0.7
September	0.2	0.2	0.5	0.7	0.7	0.7

Table 3-107. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulling Project – Lake Creek below Feeley Lake dam (Compliance Point: YB-207) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.2	0.2	0.5	1	1	1
November	0.2	0.2	0.5	1	1	1
December	0.2	0.2	0.5	1	1	1
January	0.2	0.2	0.5	1	1	1
February	0.2	0.2	0.5	1	1	1
March	0.2	0.2	0.5	1	1	1
April	0.2	0.2	0.5	1	1	1
May	0.2	0.2	0.5	1	1	1
June	0.2	0.2	0.5	1	1	1
July	0.2	0.2	0.5	1	1	1
August	0.2	0.2	0.5	1	1	1
September	0.2	0.2	0.5	1	1	1

Table 3-108. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulding Project – Lake Creek below Carr Lake dam (Compliance Point: YB-208) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.2	0.2	0.5	1	1	1
November	0.2	0.2	0.5	1	1	1
December	0.2	0.2	0.5	1	1	1
January	0.2	0.2	0.5	1	1	1
February	0.2	0.2	0.5	1	1	1
March	0.2	0.2	0.5	1	1	1
April	0.2	0.2	0.5	1	1	1
May	0.2	0.2	0.5	1	1	1
June	0.2	0.2	0.5	1	1	1
July	0.2	0.2	0.5	1	1	1
August	0.2	0.2	0.5	1	1	1
September	0.2	0.2	0.5	1	1	1

Table 3-109. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulling Project – Rucker Creek below Blue Lake dam (Compliance Point: YB-209) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.2	0.2	0.3	0.5	0.5	0.5
November	0.2	0.2	0.3	0.5	0.5	0.5
December	0.2	0.2	0.3	0.5	0.5	0.5
January	0.2	0.2	0.3	0.5	0.5	0.5
February	0.2	0.2	0.3	0.5	0.5	0.5
March	0.2	0.2	0.3	0.5	0.5	0.5
April	0.2	0.2	0.3	0.5	0.5	0.5
May	0.2	0.2	0.3	0.5	0.5	0.5
June	0.2	0.2	0.3	0.5	0.5	0.5
July	0.2	0.2	0.3	0.5	0.5	0.5
August	0.2	0.2	0.3	0.5	0.5	0.5
September	0.2	0.2	0.3	0.5	0.5	0.5

Table 3-110. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulling Project – Rucker Creek below Rucker Lake dam (Compliance Point: YB-210) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.2	0.2	0.5	0.75	1	1.5
November	0.2	0.2	0.5	0.75	1	1.5
December	0.2	0.2	0.5	0.75	1	1.5
January	0.2	0.2	0.5	0.75	1	1.5
February	0.2	0.2	0.5	0.75	1	1.5
March	0.2	0.2	0.5	0.75	1	1.5
April	0.2	0.2	0.5	0.75	1	1.5
May	0.2	0.2	0.5	0.75	1	1.5
June	0.2	0.2	0.5	0.75	1	1.5
July	0.2	0.2	0.5	0.75	1	1.5
August	0.2	0.2	0.5	0.75	1	1.5
September	0.2	0.2	0.5	0.75	1	1.5

Table 3-111. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulling Project – unnamed tributary below Fuller Lake dam (Compliance Point: YB-211) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.25	0.25	0.25	0.25	0.25	0.25
November	0.25	0.25	0.25	0.25	0.25	0.25
December	0.25	0.25	0.25	0.25	0.25	0.25
January	0.25	0.25	0.25	0.25	0.25	0.25
February	0.25	0.25	0.25	0.25	0.25	0.25
March	0.25	0.25	0.25	0.25	0.25	0.25
April	0.25	0.25	0.25	0.25	0.25	0.25
May	0.25	0.25	0.25	0.25	0.25	0.25
June	0.25	0.25	0.25	0.25	0.25	0.25
July	0.25	0.25	0.25	0.25	0.25	0.25
August	0.25	0.25	0.25	0.25	0.25	0.25
September	0.25	0.25	0.25	0.25	0.25	0.25

Table 3-112. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulling Project – unnamed tributary below Meadow Lake dam (Compliance Point: YB 217) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	1	1	1	1
November	1	1	1	1	1	1
December	1	1	1	1	1	1
January	1	1	1	1	1	1
February	1	1	1	1	1	1
March	1	1	1	1	1	1
April	1	1	1	1	1	1
May	1	1	1	1	1	1
June	1	1	1	1	1	1
July 1-8	5	5	5	5	5	5
July 9-17	11	11	11	11	11	11
July 18-31	5	5	5	5	5	5
August	1	1	1	1	1	1
September	1	1	1	1	1	1

Table 3-113. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulling Project – White Rock Creek below White Rock diversion dam (Compliance Point: YB-218) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.5	0.5	0.5	0.5	1	1
November	0.5	0.5	0.5	0.5	1	1
December	0.5	0.5	0.5	0.5	1	1
January	0.5	0.5	0.5	0.5	1	1
February	0.5	0.5	0.5	0.5	1	1
March	0.5	0.5	0.5	0.5	1	1
April	0.5	0.5	0.5	0.5	1	1
May	0.5	0.5	0.5	0.5	1	1
June	0.5	0.5	0.5	0.5	1	1
July	0.5	0.5	0.5	0.5	1	1
August	0.5	0.5	0.5	0.5	1	1
September	0.5	0.5	0.5	0.5	1	1

Table 3-114. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulling Project – Bloody Creek below Lake Sterling dam (Compliance Point: low level outlet works at Lake Sterling dam) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.5	0.5	0.5	0.5	1	1.5
November	0.5	0.5	0.5	0.5	1	1
December	0.5	0.5	0.5	0.5	1	1
January	0.5	0.5	0.5	0.5	1	1
February	0.5	0.5	0.5	0.5	1	1
March	0.5	0.5	0.5	0.5	1	1
April	0.5	0.5	0.5	0.5	1	1
May	0.5	0.5	0.5	0.5	1	1
June	0.5	0.5	0.5	0.5	1	1.5
July	0.5	0.5	0.5	0.5	1	1.5
August	0.5	0.5	0.5	0.5	1	1.5
September	0.5	0.5	0.5	0.5	1	1.5

Table 3-115. Minimum streamflows (cfs) proposed by PG&E for the Upper Drum-Spaulding Project – Fordyce Creek below Fordyce Lake Dam (Compliance Point: YB-200) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	20	20	20	25	25	25
November	15	15	15	20	25	25
December	15	15	15	20	25	25
January	15	15	15	20	25	25
February	15	15	15	20	25	25
March	15	15	15	20	25	25
April	15	15	15	20	25	25
May	40	40	40	40	45	45
June	30	30	30	30	45	45
July	25	25	25	25	30	30
August	20	20	20	25	25	25
September	20	20	20	25	25	25

Table 3-116. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in Fordyce Creek below Fordyce Lake dam that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	78%	78%	78%	85%	85%	85%
November	69%	69%	69%	78%	85%	85%
December	69%	69%	69%	78%	85%	85%
January	69%	69%	69%	78%	85%	85%
February	69%	69%	69%	78%	85%	85%
March	69%	69%	69%	78%	85%	85%
April	69%	69%	69%	78%	85%	85%
May	96%	96%	96%	96%	97%	97%
June	90%	90%	90%	90%	97%	97%
July	85%	85%	85%	85%	90%	90%
August	78%	78%	78%	85%	85%	85%
September	78%	78%	78%	85%	85%	85%
JUVENILE RAINBOW TROUT^b						
October	95%	95%	95%	98%	98%	98%
November	87%	87%	87%	95%	98%	98%
December	87%	87%	87%	95%	98%	98%
January	87%	87%	87%	95%	98%	98%
February	87%	87%	87%	95%	98%	98%
March	87%	87%	87%	95%	98%	98%
April	87%	87%	87%	95%	98%	98%
98%May	99%	99%	99%	99%	98%	98%
June	100%	100%	100%	100%	98%	98%
July	98%	98%	98%	98%	100%	100%
August	95%	95%	95%	98%	98%	98%
September	95%	95%	95%	98%	98%	98%

Table 3-116. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in Fordyce Creek below Fordyce Lake dam that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	66%	66%	66%	79%	88%	88%
May	100%	100%	100%	100%	100%	100%
June	94%	94%	94%	94%	100%	100%

^a The maximum habitat for adult rainbow trout (14,235 square feet WUA per 1,000 linear feet of stream) occurs at 70 cfs (figure 6.3.1-20 on page E6.3- 40 of the final license application).

^b The maximum habitat for juvenile rainbow trout (15,969 square feet WUA per 1,000 linear feet of stream) occurs at 35 cfs figure 6.3.1-20 on page E6.3-40 of the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach. The maximum habitat for spawning rainbow trout (4,203 square feet WUA per 1,000 linear feet of stream) occurs at 45 cfs (figure 6.3.1-20 on page E6.3-40 of the final license application).

Table 3-117. Reductions in average summertime reservoir elevations in Fordyce Lake under PG&E's minimum streamflows, as amended (with buffer flows) as compared to conditions under the existing license. Fordyce Lake's normal maximum surface water elevation is 6,405.1 feet.^a (Source: HEC-ResSim Water Balance/Operations Model in PG&E's Supplement No. 2)

Water Year Type	Median Reservoir Water Surface Elevation (ft)						
	Jul 1	Jul 15	Aug 1	Aug 15	Sep 1	Sep 15	Sep 30
NO-ACTION ALTERNATIVE (Elevation)							
Critically Dry & Extreme Critically Dry	6,377.6	6,374.3	6,359.3	6,349.2	6,335.4	6,322.8	6,321.8
Dry	6,395.2	6,388.8	6,369.4	6,360.4	6,348.4	6,338.8	6,338.5
Below Normal	6,404.4	6,393.8	6,374.4	6,365.8	6,354.4	6,345.8	6,346.5
Above Normal	6,404.7	6,398.8	6,379.4	6,371.2	6,360.5	6,353.5	6,353.0
Wet	6,405.1	6,403.9	6,386.5	6,378.8	6,368.7	6,362.7	6,353.0
PG&E's AMENDED MINIMUM STREAMFLOWS (Elevation)							
Critically Dry & Extreme Critically Dry	6,361.0	6,355.4	6,347.7	6,341.3	6,334.5	6,328.0	6,324.9
Dry	6,368.2	6,362.7	6,355.5	6,349.4	6,342.9	6,335.1	6,332.7
Below Normal	6,382.7	6,371.0	6,364.4	6,358.7	6,352.9	6,346.2	6,338.9
Above Normal	6,395.2	6,392.9	6,376.2	6,369.4	6,364.3	6,358.4	6,353.3
Wet	6,404.9	6,396.3	6,380.8	6,371.6	6,366.4	6,360.7	6,356.6
PG&E's AMENDED MINIMUM STREAMFLOWS (Change in Elevation from No-Action Alternative)							
Critically Dry & Extreme Critically Dry	-16.6	-18.9	-11.6	-7.9	-0.9	5.2	3.1
Dry	-27.0	-26.1	-13.9	-11.0	-5.5	-3.7	-5.8
Below Normal	-21.7	-22.8	-10.0	-7.1	-1.5	0.3	-7.7

Table 3-118. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulding Project – unnamed tributary below Kidd Lake dam (Compliance Point: YB-220) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.5	0.5	0.5	0.5	0.5	0.5
November	0.5	0.5	0.5	0.5	0.5	0.5
December	0.5	0.5	0.5	0.5	0.5	0.5
January	0.5	0.5	0.5	0.5	0.5	0.5
February	0.5	0.5	0.5	0.5	0.5	0.5
March	0.5	0.5	0.5	0.5	0.5	0.5
April	0.5	0.5	0.5	0.5	0.5	0.5
May	0.5	0.5	0.5	0.5	0.5	0.5
June	0.5	0.5	0.5	0.75	1	1
July	0.5	0.5	0.5	0.5	0.5	0.5
August	0.5	0.5	0.5	0.5	0.5	0.5
September	0.5	0.5	0.5	0.5	0.5	0.5

Table 3-119. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulling Project – Cascade Creek below Lower Peak Lake dam (Compliance Point: YB-222) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.5	0.5	0.5	0.5	0.5	0.5
November	0.5	0.5	0.5	0.5	0.5	0.5
December	0.5	0.5	0.5	0.5	0.5	0.5
January	0.5	0.5	0.5	0.5	0.5	0.5
February	0.5	0.5	0.5	0.5	0.5	0.5
March	0.5	0.5	0.5	0.5	0.5	0.5
April	0.5	0.5	0.5	0.5	0.5	0.5
May	0.5	0.5	0.5	0.5	0.5	0.5
June	0.5	0.5	0.5	0.75	1	1
July	0.5	0.5	0.5	0.5	0.5	0.5
August	0.5	0.5	0.5	0.5	0.5	0.5
September	0.5	0.5	0.5	0.5	0.5	0.5

Table 3-120. Minimum streamflows (cfs) proposed by PG&E for the Upper Drum-Spaulding Project – South Yuba River below the confluence of unnamed tributary below Kidd Lake and Cascade Creek (Compliance Point: YB-316) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	5	5	5	5	5	5
November	5	5	5	5	5	5
December	5	5	5	5	5	5
January	5	5	5	5	5	5
February	5	5	5	5	5	5
March	5	5	5	5	5	5
April	5	5	5	5	5	5
May	5	5	5	5	5	5
June	5	5	5	5	5	5
July	5	5	5	5	5	5
August	5	5	5	5	5	5
September	5	5	5	5	5	5

Table 3-121. Minimum streamflows (cfs) proposed by PG&E for the Upper Drum-Spaulling Project – South Yuba River below Lake Spaulding dam (Compliance Point: YB 29) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	10/20*	20	20	25	25	30
November	10/20*	20	20	25	25	30
December	10/20*	20	20	25	25	30
January	10/20*	20	20	25	25	30
February	10/20*	25	25	35	40	50
March	10/20*	25	30	40	55	75
April	10/20*	30	40	60	80	90
May	10/20*	40	60	90	90	90
June	10/20*	35	40	50	90	90
July	10/20*	25	30	35	40	40
August	10/20*	20	23	25	40	40
September 1-15	10/20*	20	23	25	40	40
September 16-30	10/20*	20	20	25	28	30

*As of the date of this FEIS, there was still a difference of opinion among some Relicensing Participants regarding how to balance potential ecological impacts and water supply impacts during back-to-back CD or ECD for the South Yuba River below Lake Spaulding Dam. From a power generation impact perspective, PG&E has stated that it can live with any flow in the proposed range (10-20 cfs). For the purpose of the application, PG&E modeled the agency group's 20 cfs alternative.

Table 3-122. NMFS’ proposal for release or spill from Lake Spaulding dam; flows sufficient to achieve continuous minimum flows (in cubic feet per second) in the South Yuba River, measured at USGS Gage 1 14142 10.^a (Source: NMFS, July 31, 2012)

Jan	Feb	Mar	Apr	May^b	Jun^b	Jul^c	Aug^c	Sep^c	Oct^c	Nov^c	Dec^c
25	25	25	25	75	75	50	50	50	50	50	50

^a The above flow conditions are to be met in all water year types, based on the California Department of Water Resources’ water year forecast of unimpaired year-round runoff in the Yuba River at Smartville, as set forth in the Department’s “Bulletin 120 Water Year Conditions in California.” An exception is that in extreme cases, water supplies may not be available to meet the flow requirements above; when the May Bulletin 120 forecasts year-round unimpaired runoff in the Yuba River at Smartville below 615,000 acre-feet, the licensees should conference with FERC (as the lead), NMFS, USACE, and the other entities and agencies implementing (prospective) spring-run Chinook salmon and/or steelhead reintroduction, and this contingency should be evaluated under NMFS’ recommended condition for adaptive management, described below.

^b Flows in May and June were designed to aid Spring-run Chinook volitional migration from Englebright reservoir to the primary holding reaches above the confluence with Poorman Creek, at approximately RM 28. If it is determined that the preferred method of reintroduction involves transport of the fish by truck to the holding reaches, the flows should be lowered to the values below:

- 25 and 50 cfs for May and June respectively, downstream of Spaulding dam, measured at USGS Gage 11414210.
- 15 and 30 cfs for May and June respectively, downstream of Bowman Dam, measured at USGS Gage 11416500.

^c Additional flows July-Dec may be required to maintain suitable water temperatures for holding and spawning/incubation downstream to the Poorman Creek Confluence, at approximately RM 28. NMFS recommends the funding, installation, operation and maintenance of telemetered water temperature and flow gages at this location; the installation of gages, their rating, and the determination of flows and temperatures should occur under the supervision of, or in cooperation with, the United States Geological Survey.

July 1- September 15: From Bowman and Spaulding dams, release or spill the greater of:

The flows sufficient to maintain water temperatures in the South Yuba River above the confluence with Poorman Creek (RM 28) below 19°C, measured as the running average of the previous 7 days’ daily average water temperature, or the flows to maintain a minimum instantaneous flow of 50 cfs in the South Yuba River (measured at USGS Gage 11414210 below Spaulding dam) and a minimum instantaneous flow of 30 cfs in Canyon Creek (measured at USGS Gage 11416500 below Bowman dam).

Table 3-123. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the South Yuba River below Jordan Creek and below Canyon Creek that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	40%	40%	40%	48%	48%	55%
November	40%	40%	40%	48%	48%	55%
December	40%	40%	40%	48%	48%	55%
January	40%	40%	40%	48%	48%	55%
February	40%	48%	48%	61%	67%	76%
March	40%	48%	55%	67%	79%	89%
April	40%	55%	67%	82%	91%	94%
May	40%	67%	82%	94%	94%	94%
June	40%	61%	67%	76%	94%	94%
July	40%	48%	55%	61%	67%	67%
August	40%	40%	45%	48%	67%	67%
September 1-15	40%	40%	45%	48%	67%	67%
September 16-30	40%	40%	40%	48%	52%	55%
JUVENILE RAINBOW TROUT^b						
October	90%	90%	90%	95%	95%	98%
November	90%	90%	90%	95%	95%	98%
December	90%	90%	90%	95%	95%	98%
January	90%	90%	90%	95%	95%	98%
February	90%	95%	95%	99%	100%	99%
March	90%	95%	98%	100%	99%	95%
April	90%	98%	100%	98%	93%	91%
May	90%	100%	98%	91%	91%	91%
June	90%	99%	100%	99%	91%	91%
July	90%	95%	98%	99%	100%	100%
August	90%	90%	93%	95%	100%	100%

Table 3-123. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the South Yuba River below Jordan Creek and below Canyon Creek that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
September 1-15	90%	90%	93%	95%	100%	100%
September 16-30	90%	90%	90%	95%	96%	98%
SPAWNING RAINBOW TROUT^c						
April	53%	64%	71%	81%	85%	86%
May	53%	71%	81%	86%	86%	86%
June	53%	67%	71%	77%	86%	86%

^a The maximum habitat for adult rainbow trout (20,367 square feet WUA per 1,000 linear feet of stream) occurs at 150 cfs (figure 6.3.1-21 on page E6.3-41 of the final license application).

^b The maximum habitat for juvenile rainbow trout (23,660 square feet WUA per 1,000 linear feet of stream) occurs at 40 cfs (figure 6.3.1-21 on page E6.3-41 of the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach. The maximum habitat for spawning rainbow trout (6.5 13 square feet WUA per 1,000 linear feet of stream) occurs at 300 cfs (figure 6.3.1-21 on page E6.3-41 of the final license application).

Table 3-124. Percent of WUA for foothill yellow-legged frog eggs and tadpole life stages^a at the foothill yellow-legged frog 2D Site on the South Yuba River upstream of Canyon Creek that corresponds to PG&E's proposed minimum streamflows, as amended (without buffer flows). (Source: adapted by staff from Technical Memorandum 3-7, *Special-Status Amphibians - Foothill Yellow-Legged Frog Habitat Model*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
EGGS						
May	98%	91%	85%	74%	74%	74%
June	98%	93%	91%	88%	74%	74%
TADPOLES						
July	93%	91%	90%	88%	86%	86%
August	93%	93%	92%	91%	86%	86%
September 1- 15	93%	93%	92%	91%	86%	86%
September 16- 30	93%	93%	93%	91%	90%	90%

^a Foothill yellow-legged frog eggs are expected to be present in May and June and foothill yellow-legged frog tadpoles in July, August, and September.

Table 3-125. Minimum streamflows (cfs) proposed by PG&E for the Deer Creek Project – South Fork Deer Creek below Deer Creek powerhouse (Compliance Point YB-34 in South Yuba Canal) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	5	5	5	5	5	5
November	5	5	5	5	5	5
December	5	5	5	5	5	5
January	5	5	5	5	5	5
February	5	5	5	5	5	5
March	5	5	5	5	5	5
April	5	5	5	5	5	5
May	5	5	5	5	5	5
June	5	5	5	5	5	5
July	5	5	5	5	5	5
August	5	5	5	5	5	5
September	5	5	5	5	5	5

Table 3-126. Minimum streamflows (cfs) proposed by PG&E for the Upper Drum-Spaulding Project – North Fork of the North Fork American River below Lake Valley Reservoir dam (Compliance Point: YB-104) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	2	2	3	3	3	4
November	2	2	3	3	3	4
December	2	2	3	3	3	4
January	2	2	3	3	3	4
February	2	2	3	3	3	4
March	2	2	3	3	3	4
April	2	4	4	6	8	10
May	2	6	6	9	11	15
June	2	5	5	6	8	10
July	2	3	3.5	5	5.5	6
August	2	3	3.5	5	5.5	6
September	2	3	3.5	5	5.5	6

Table 3-127. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Lake Valley Reservoir dam reach of the North Fork of the North Fork American River that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	64%	64%	74%	74%	74%	84%
November	64%	64%	74%	74%	74%	84%
December	64%	64%	74%	74%	74%	84%
January	64%	64%	74%	74%	74%	84%
February	64%	64%	74%	74%	74%	84%
March	64%	64%	74%	74%	74%	84%
April	64%	84%	84%	94%	99%	100%
May	64%	94%	94%	99%	100%	97%
June	64%	89%	89%	94%	99%	100%
July	64%	74%	79%	89%	91%	94%
August	64%	74%	79%	89%	91%	94%
September	64%	74%	79%	89%	91%	94%
JUVENILE RAINBOW TROUT^b						
October	79%	79%	87%	87%	87%	95%
November	79%	79%	87%	87%	87%	95%
December	79%	79%	87%	87%	87%	95%
January	79%	79%	87%	87%	87%	95%
February	79%	79%	87%	87%	87%	95%
March	79%	79%	87%	87%	87%	95%
April	79%	95%	95%	100%	100%	98%
May	79%	100%	100%	99%	97%	90%
June	79%	97%	97%	100%	100%	98%
July	79%	87%	91%	97%	98%	100%
August	79%	87%	91%	97%	98%	100%
September	79%	87%	91%	97%	98%	100%

Table 3-127. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Lake Valley Reservoir dam reach of the North Fork of the North Fork American River that corresponds to PG&E’s proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	23%	41%	41%	57%	70%	80%
May	23%	57%	57%	75%	84%	95%
June	23%	41%	41%	57%	70%	80%

^a The maximum habitat for adult rainbow trout (8,600 square feet WUA per 1,000 linear feet of stream) occurs at 10 cfs (figure 6.3.1-27 on page E6.3- 44 of the final license application).

^b The maximum habitat for juvenile rainbow trout (8,773 square feet WUA per 1,000 linear feet of stream) occurs at 8 cfs (figure 6.3.1-27 on page E6.3- 44 of the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach. The maximum habitat for spawning rainbow trout (5,632 square feet WUA per 1,000 linear feet of stream) occurs at 25 cfs (figure 6.3.1-27 on page E6.3-44 of the final license application).

Table 3-128. Flow setting streamflows (cfs) proposed by PG&E for Upper Drum-Spaulding Project – Sixmile Creek below Kelly Lake dam (Compliance Point: YB-226) under measure DS-AQR1, Part 3. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.2	0.2	0.2	0.5	0.5	0.5
November	0.2	0.2	0.2	0.5	0.5	0.5
December	0.2	0.2	0.2	0.5	0.5	0.5
January	0.2	0.2	0.2	0.5	0.5	0.5
February	0.2	0.2	0.2	0.5	0.5	0.5
March	0.2	0.2	0.2	0.5	0.5	0.5
April	0.2	0.2	0.2	0.5	0.5	0.5
May	0.2	0.2	0.2	0.5	0.5	0.5
June	0.2	0.2	0.2	0.5	0.5	0.5
July	0.2	0.2	0.2	0.5	0.5	0.5
August	0.2	0.2	0.2	0.5	0.5	0.5
September	0.2	0.2	0.2	0.5	0.5	0.5

Table 3-129. Minimum streamflows (cfs) proposed by PG&E for the Upper Drum-Spaulding Project – North Fork of the North Fork American River below Lake Valley canal diversion dam (Compliance Point: YB-236) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	2.2	2.2	3.2	3.5	3.5	4.5
November	2.2	2.2	3.2	3.5	3.5	4.5
December	2.2	2.2	3.2	3.5	3.5	4.5
January	2.2	2.2	3.2	3.5	3.5	4.5
February	2.2	2.2	3.2	3.5	3.5	4.5
March	2.2	2.2	3.2	3.5	3.5	4.5
April	2.2	4.2	4.2	6.5	8.5	10.5
May	2.2	6.2	6.2	9.5	11.5	15.5
June	2.2	5.2	5.2	6.5	8.5	10.5
July	2.2	3.2	3.7	5.5	6	6.5
August	2.2	3.2	3.7	5.5	6	6.5
September	2.2	3.2	3.7	5.5	6	6.5

Table 3-130. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the North Fork of the North Fork American River below Lake Valley canal diversion dam that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	28%	28%	32%	33%	33%	37%
November	28%	28%	32%	33%	33%	37%
December	28%	28%	32%	33%	33%	37%
January	28%	28%	32%	33%	33%	37%
February	28%	28%	32%	33%	33%	37%
March	28%	28%	32%	33%	33%	37%
April	28%	36%	36%	44%	49%	53%
May	28%	43%	43%	51%	54%	59%
June	28%	40%	40%	44%	49%	53%
July	28%	32%	34%	41%	42%	44%
August	28%	32%	34%	41%	42%	44%
September	28%	32%	34%	41%	42%	44%
JUVENILE RAINBOW TROUT^b						
October	42%	42%	46%	47%	47%	51%
November	42%	42%	46%	47%	47%	51%
December	42%	42%	46%	47%	47%	51%
January	42%	42%	46%	47%	47%	51%
February	42%	42%	46%	47%	47%	51%
March	42%	42%	46%	47%	47%	51%
April	42%	50%	50%	58%	62%	65%
May	42%	57%	57%	64%	66%	68%
June	42%	54%	54%	58%	62%	65%
July	42%	46%	48%	55%	42%	58%
August	42%	46%	48%	55%	57%	58%
September	42%	46%	48%	55%	57%	58%

Table 3-130. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the North Fork of the North Fork American River below Lake Valley canal diversion dam that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	22%	36%	36%	49%	58%	66%
May	22%	48%	48%	62%	69%	80%
June	22%	43%	43%	49%	58%	66%

^a The maximum habitat for adult rainbow trout (8,515 square feet WUA per 1,000 linear feet of stream) occurs at 280 cfs (figure 6.3.1-28 on page E6.3- 44 of the final license application).

^b The maximum habitat for juvenile rainbow trout (10882 square feet WUA per 1,000 linear feet of stream) occurs at 280 cfs (figure 6.3.1-28 on page E6.3-44 of the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach. The maximum habitat for spawning rainbow trout (2,093 square feet WUA per 1,000 linear feet of stream) occurs at 70 cfs (figure 6.3.1-28 on page E6.3-44 of the final license application).

Table 3-131. Percent of WUA for foothill yellow-legged frog eggs and tadpole life stages^a at the foothill yellow-legged frog 2D Site on the North Fork of the North Fork American River below Lake Valley canal diversion dam that corresponds to PG&E's proposed minimum streamflows, as amended. (Source: adapted by staff from Technical Memorandum 3-7, *Special-Status Amphibians - Foothill Yellow-Legged Frog Habitat Model*, NID and PG&E 2010).

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
EGGS						
May	46%	46%	100%	100%	100%	100%
June	46%	46%	100%	100%	100%	100%
TADPOLES						
July	46%	67%	77%	99%	99%	99%
August	46%	67%	77%	99%	99%	99%
September	46%	67%	77%	99%	99%	99%

^a Foothill yellow-legged frog eggs are expected to be present in May and June and foothill yellow-legged frog tadpoles in July, August and September.

Table 3-132. Resident trout WUA associated with the minimum streamflow in Bear River below Drum canal spillway gate at gage YB-137 agreed to by PG&E and the relicensing stakeholders. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Life Stage	EC	CD	D	BN	AN	W
Oct	Adult	59%	59%	59%	77%	77%	77%
Nov	Adult	59%	59%	59%	77%	77%	77%
Dec	Adult	59%	59%	59%	77%	77%	77%
Jan	Adult	59%	59%	59%	77%	77%	77%
Feb	Adult	59%	59%	59%	77%	77%	77%
Mar	Adult	59%	59%	59%	77%	77%	77%
Apr	Adult	59%	59%	59%	77%	77%	77%
May	Adult	59%	59%	59%	77%	77%	77%
Jun	Adult	59%	59%	59%	77%	77%	77%
Jul	Adult	59%	59%	59%	77%	77%	77%
Aug	Adult	59%	59%	59%	77%	77%	77%
Sep	Adult	59%	59%	59%	77%	77%	77%

Table 3-133. Minimum streamflows (cfs) proposed by PG&E for the Upper Drum-Spaulling Project – Bear River at Highway 20 crossing, between South Yuba canal inflow at gage YB-139 and gage YB-198 (Compliance Point: YB-198) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	5	5	5	5	5	5
November	5	5	5	5	5	5
December	5	5	5	5	5	5
January	5	5	5	5	5	5
February	5	5	5	5	5	5
March	5	5	5	5	5	5
April	13	13	13	13	13	13
May	13	13	13	13	13	13
June	13	13	13	13	13	13
July	8	8	8	8	8	8
August	8	8	8	8	8	8
September	8	8	8	8	8	8

Table 3-134. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Bear River at Highway 20 crossing, between South Yuba canal inflow at gage YB-139 and gage YB-198, Meadow Sub-reach that corresponds to PG&E’s proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	89%	89%	89%	89%	89%	89%
November	89%	89%	89%	89%	89%	89%
December	89%	89%	89%	89%	89%	89%
January	89%	89%	89%	89%	89%	89%
February	89%	89%	89%	89%	89%	89%
March	89%	89%	89%	89%	89%	89%
April	100%	100%	100%	100%	100%	100%
May	100%	100%	100%	100%	100%	100%
June	100%	100%	100%	100%	100%	100%
July	97%	97%	97%	97%	97%	97%
August	97%	97%	97%	97%	97%	97%
September	97%	97%	97%	97%	97%	97%
JUVENILE RAINBOW TROUT^b						
October	97%	97%	97%	97%	97%	97%
November	97%	97%	97%	97%	97%	97%
December	97%	97%	97%	97%	97%	97%
January	97%	97%	97%	97%	97%	97%
February	97%	97%	97%	97%	97%	97%
March	97%	97%	97%	97%	97%	97%
April	98%	98%	98%	98%	98%	98%
May	98%	98%	98%	98%	98%	98%
June	98%	98%	98%	98%	98%	98%
July	100%	100%	100%	100%	100%	100%
August	100%	100%	100%	100%	100%	100%
September	100%	100%	100%	100%	100%	100%

Table 3-134. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Bear River at Highway 20 crossing, between South Yuba canal inflow at gage YB-139 and gage YB-198, Meadow Sub-reach that corresponds to PG&E’s proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	82%	82%	82%	82%	82%	82%
May	82%	82%	82%	82%	82%	82%
June	82%	82%	82%	82%	82%	82%

^a The maximum habitat for adult rainbow trout (11,057 square feet WUA per 1,000 linear feet of stream) occurs at 12.5 cfs (figure 6.3.1-24 on page E6.3-42 of the final license application).

^b The maximum habitat for juvenile rainbow trout (10,155 square feet WUA per 1,000 linear feet of stream) occurs at 8 cfs (figure 6.3.1-24 on page E6.3-42 of the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach. The maximum habitat for spawning rainbow trout (3,974 square feet WUA per 1,000 linear feet of stream) occurs at 25 cfs (figure 6.3.1 -24 on page E6.3-42 of the final license application).

Table 3-135. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Bear River at Highway 20 crossing, between South Yuba canal inflow at gage YB-139 and gage YB-198, Boardman Sub-reach that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	85%	85%	85%	85%	85%	85%
November	85%	85%	85%	85%	85%	85%
December	85%	85%	85%	85%	85%	85%
January	85%	85%	85%	85%	85%	85%
February	85%	85%	85%	85%	85%	85%
March	85%	85%	85%	85%	85%	85%
April	100%	100%	100%	100%	100%	100%
May	100%	100%	100%	100%	100%	100%
June	100%	100%	100%	100%	100%	100%
July	95%	95%	95%	95%	95%	95%
August	95%	95%	95%	95%	95%	95%
September	95%	95%	95%	95%	95%	95%
JUVENILE RAINBOW TROUT^b						
October	93%	93%	93%	93%	93%	93%
November	93%	93%	93%	93%	93%	93%
December	93%	93%	93%	93%	93%	93%
January	93%	93%	93%	93%	93%	93%
February	93%	93%	93%	93%	93%	93%
March	93%	93%	93%	93%	93%	93%
April	99%	99%	99%	99%	99%	99%
May	99%	99%	99%	99%	99%	99%
June	99%	99%	99%	99%	99%	99%
July	99%	99%	99%	99%	99%	99%
August	99%	99%	99%	99%	99%	99%
September	99%	99%	99%	99%	99%	99%

Table 3-135. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Bear River at Highway 20 crossing, between South Yuba canal inflow at gage YB-139 and gage YB-198, Boardman Sub-reach that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	49%	49%	49%	49%	49%	49%
May	49%	49%	49%	49%	49%	49%
June	49%	49%	49%	49%	49%	49%

^a The maximum habitat for adult rainbow trout (9,861 square feet WUA per 1,000 linear feet of stream) occurs at 15cfs (figure 6.3.1-25 on page E6.3-43 of the final license application).

^b The maximum habitat for juvenile rainbow trout (10,099 square feet WUA per 1,000 linear feet of stream) occurs at 10 cfs (figure 6.3.1-25 on page E6.3-43 of the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach. The maximum habitat for spawning rainbow trout (1,511 square feet WUA per 1,000 linear feet of stream) occurs at 105 cfs (figure 6.3.1-25 on page E6.3-43 of the final license application).

Table 3-136. Minimum streamflows (cfs) proposed by PG&E for the Upper Drum-Spaulding Project – Canyon Creek below Towle canal diversion dam (Compliance Point: YB-282) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	1	1	1	1
November	1	1	1	1	1	1
December	1	1	1	1	1	1
January	1	1	1	1	1	1
February	1	1	1	1	2	2
March	1	2	2	2 or NF*	2 or NF*	3 or NF*
April	1	2	2	2 or NF*	2 or NF*	3 or NF*
May	1	1	1	2	2	3
June	1	1	1	2	2	2
July	1	1	1	1	2	2
August	1	1	1	1	2	2
September	1	1	1	1	2	2

*NF means 2 or 3 cfs (depending on the water year type) or natural flow, whichever is greater.

Table 3-137. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in Canyon Creek below Towle canal diversion dam at gage YB 282 that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	59%	59%	59%	59%	59%	59%
November	59%	59%	59%	59%	59%	59%
December	59%	59%	59%	59%	59%	59%
January	59%	59%	59%	59%	59%	59%
February	59%	59%	59%	59%	76%	76%
March	59%	76%	76%	76%	76%	85%
April	59%	76%	76%	76%	76%	85%
May	59%	59%	59%	76%	76%	85%
June	59%	59%	59%	76%	76%	76%
July	59%	59%	59%	59%	76%	76%
August	59%	59%	59%	59%	76%	76%
September	59%	59%	59%	59%	76%	76%
JUVENILE RAINBOW TROUT^b						
October	73%	73%	73%	73%	73%	73%
November	73%	73%	73%	73%	73%	73%
December	73%	73%	73%	73%	73%	73%
January	73%	73%	73%	73%	73%	73%
February	73%	73%	73%	73%	86%	86%
March	73%	86%	86%	86%	86%	92%
April	73%	86%	86%	86%	86%	92%
May	73%	73%	73%	86%	86%	92%
June	73%	73%	73%	86%	86%	86%
July	73%	73%	73%	73%	86%	86%
August	73%	73%	73%	73%	86%	86%
September	73%	73%	73%	73%	86%	86%

Table 3-137. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in Canyon Creek below Towle canal diversion dam at gage YB 282 that corresponds to PG&E’s proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	25%	43%	43%	43%	43%	57%
May	25%	25%	25%	43%	43%	57%
June	25%	25%	25%	43%	43%	43%

^a The maximum habitat for adult rainbow trout (3,018 square feet WUA per 1,000 linear feet of stream) occurs at 9 cfs (figure 6.3.1-30 on page E6.3-45 of the final license application).

^b The maximum habitat for juvenile rainbow trout (3,151 square feet WUA per 1,000 linear feet of stream) occurs at 8 cfs (figure 6.3.1-30 on page E6.3- 45 of the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach. The maximum habitat for spawning rainbow trout (1,906 square feet WUA per 1,000 linear feet of stream) occurs at 15 cfs (figure 6.3.1-3 0 on page E6.3-45 of the final license application).

Table 3-138. Percent of WUA for foothill yellow-legged frog eggs and tadpole life stages^a at the foothill yellow-legged frog 1D Site on Canyon Creek below Towle canal diversion dam that corresponds to PG&E's proposed minimum streamflows, as amended (without buffer flows). (Source: adapted by staff Technical Memorandum 3-7, *Special-Status Amphibians - Foothill Yellow-Legged Frog Habitat Model*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
EGGS						
May	96%	96%	96%	100%	100%	96%
June	96%	96%	96%	100%	100%	100%
TADPOLES						
July	93%	93%	93%	93%	93%	93%
August	93%	93%	93%	93%	93%	93%
September	93%	93%	93%	93%	93%	93%

^a Foothill yellow-legged frog eggs are expected to be present in May and June and foothill yellow-legged frog tadpoles in July, August and September.

Table 3-139. Minimum streamflows (cfs) proposed by PG&E for the Upper Drum-Spaulding Project – Little Bear River below Alta powerhouse tailrace (Compliance Point: YB-98) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.5	1	1	1	1	1
November	0.5	1	1	1	1	1
December	0.5	1	1	1	1	1
January	0.5	1	1	1	1	1
February	0.5	1	1	2	3	3
March	0.5	1	2	3	4	4
April	0.5	1	1	2	3	3
May	0.5	1	1	1	2	2
June	0.5	1	1	1	1	1
July	0.5	1	1	1	1	1
August	0.5	1	1	1	1	1
September	0.5	1	1	1	1	1

Table 3-140. Minimum streamflows (cfs) proposed by PG&E for the Upper Drum-Spaulding Project – Bear River below Drum afterbay dam (Compliance Point: YB-44) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	10	10	12	13	13	13
November	10	10	12	13	13	13
December	10	10	12	13	13	13
January	10	10	12	13	13	13
February	10	10	12	13	13	13
March	14	14	14	14	14	14
April	16	16	16	16	16	16
May	15	15	16	16	16	16
June	10	10	15	16	16	16
July	10	10	12	14	16	16
August	10	10	12	12	12	15
September	10	10	12	12	12	15

Table 3-141. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Bear River below Drum afterbay dam that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	73%	73%	79%	81%	81%	81%
November	73%	73%	79%	81%	81%	81%
December	73%	73%	79%	81%	81%	81%
January	73%	73%	79%	81%	81%	81%
February	73%	73%	79%	81%	81%	81%
March	84%	84%	84%	84%	84%	84%
April	87%	87%	87%	87%	87%	87%
May	86%	86%	87%	87%	87%	87%
June	73%	73%	86%	87%	87%	87%
July	73%	73%	79%	84%	87%	87%
August	73%	73%	79%	79%	79%	86%
September	73%	73%	79%	79%	79%	86%
JUVENILE RAINBOW TROUT^b						
October	97%	97%	12/99%	99%	99%	99%
November	97%	97%	99%	99%	99%	99%
December	97%	97%	99%	99%	99%	99%
January	97%	97%	99%	99%	99%	99%
February	97%	97%	99%	99%	99%	99%
March	100%	100%	100%	100%	100%	100%
99%April	99%	99%	99%	99%	99%	99%
May	100%	100%	99%	99%	99%	99%
June	97%	97%	100%	99%	99%	99%
July	97%	97%	99%	100%	99%	99%
August	97%	97%	99%	99%	99%	100%
September	97%	97%	99%	99%	99%	100%

Table 3-141. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Bear River below Drum afterbay dam that corresponds to PG&E’s proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	73%	73%	73%	73%	73%	73%
May	70%	70%	73%	73%	73%	73%
June	54%	54%	70%	73%	73%	73%

^a The maximum habitat for adult rainbow trout (6,513 square feet WUA per 1,000 linear feet of stream) occurs at 35 cfs (figure 6.3.1-26 on page E6.3- 43 of the final license application).

^b The maximum habitat for juvenile rainbow trout (9,428 square feet WUA per 1,000 linear feet of stream) occurs at 15 cfs (figure 6.3.1-26 on page E6.3-43 of the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach. The maximum habitat for spawning rainbow trout (1,857 square feet WUA per 1,000 linear feet of stream) occurs at 60 cfs (figure 6.3.1-26 on page E6.3-43 of the final license application).

Table 3-142. Minimum streamflows (cfs) proposed by PG&E for the Lower Drum Project – Dry Creek below Halsey afterbay dam (Compliance Point: YB-62A) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	1	1	1	1
November	1	1	1	1	1	1
December	1	1	1	1	1	1
January	1	1	1	1	1	1
February	1	1	1	1	1	1
March	1	1	1	1	1	1
April	1	1	1	1	1	1
May	1	1	1	1	1	1
June	1	1	1	1	1	1
July	1	1	1	1	1	1
August	1	1	1	1	1	1
September	1	1	1	1	1	1

Table 3-143. Minimum streamflows (cfs) proposed by PG&E for the Lower Drum Project – Rock Creek below Rock Creek reservoir dam (Compliance Point: YB 86) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	1	1	2	3
November	1	1	1	1	2	3
December	1	1	1	1	2	3
January	1	1	1	1	2	3
February	1	1	1	1	2	3
March	3	3	3	3	3	3
April	1	1	1	1	2	3
May	1	1	1	1	2	3
June	1	1	1	1	2	3
July	1	1	1	1	2	3
August	1	1	1	1	2	3
September	1	1	1	1	2	3

Table 3-144. Minimum Streamflows in cubic feet per second (cfs) for Auburn Ravine South canal release point by month and water year type. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
AUBURN RAVINE						
(COMPLIANCE POINT(S): As close to South Canal as Reasonably Possible)						
October	2	2	4	4	4	4
November	2	2	4	4	4	4
December	2	2	4	4	4	4
January	2	2	4	4	4	4
February	2	2	4	4	4	4
March	2	4	6	6	13	18
April	2	4	6	6	13	18
May	2	2	4	4	4	4
June	2	2	4	4	4	4
July	2	2	4	4	4	4
August	2	2	4	4	4	4
September	2	2	4	4	4	4

- Minimum Streamflows may be temporarily modified for short periods upon consultation with CDFG and the SWRCB and notification to FERC.
- Minimum Streamflows may be temporarily modified due to an emergency. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. If the Minimum Streamflows are so modified, Licensee shall notify FERC, CDFG and the SWRCB as soon as reasonably possible, but no later than the end of the next business day (business days do not include weekends and federal or state holidays) after such modification.

Table 3-145. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in Auburn Ravine below Wise No.1 and No. 2 powerhouses that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	68%	68%	85%	85%	85%	85%
November	68%	68%	85%	85%	85%	85%
December	68%	68%	85%	85%	85%	85%
January	68%	68%	85%	85%	85%	85%
February	68%	68%	85%	85%	85%	85%
March	68%	85%	95%	95%	100%	96%
April	68%	85%	95%	95%	100%	96%
May	68%	68%	85%	85%	85%	85%
June	68%	68%	85%	85%	85%	85%
July	68%	68%	85%	85%	85%	85%
August	68%	68%	85%	85%	85%	85%
September	68%	68%	85%	85%	85%	85%
JUVENILE RAINBOW TROUT^b						
October	76%	76%	91%	91%	91%	91%
November	76%	76%	91%	91%	91%	91%
December	76%	76%	91%	91%	91%	91%
January	76%	76%	91%	91%	91%	91%
February	76%	76%	91%	91%	91%	91%
March	76%	91%	98%	98%	98%	91%
April	76%	91%	98%	98%	98%	91%
May	76%	76%	91%	91%	91%	91%
June	76%	76%	91%	91%	91%	91%
July	76%	76%	91%	91%	91%	91%
August	76%	76%	91%	91%	91%	91%
September	76%	76%	91%	91%	91%	91%

Table 3-145. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in Auburn Ravine below Wise No.1 and No. 2 powerhouses that corresponds to PG&E's proposed Minimum Streamflows, as amended, for the reach. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	29%	54%	72%	72%	89%	95%
May	29%	29%	54%	54%	54%	54%
June	29%	29%	54%	54%	54%	54%

^a The maximum habitat for adult rainbow trout (6,738 square feet WUA per 1,000 linear feet of stream) occurs at 10 cfs (figure 6.3.1-31 on page E6.3- 46of the final license application).

^b The maximum habitat for juvenile rainbow trout (6,995 square feet WUA per 1,000 linear feet of stream) occurs at 8 cfs (figure 6.3.1-31 on page E6.3- 46 of the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach. The maximum habitat for spawning rainbow trout (3,059 square feet WUA per 1,000 linear feet of stream) occurs at 15 cfs (figure 6.3.1-31 on page E6.3-46 of the final license application).

Table 3-146. Minimum streamflows (cfs) proposed by PG&E for the Lower Drum Project – Mormon Ravine below Newcastle powerhouse header box (Compliance Point: YB-292) under measure DS-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1 or 5 ^a	5	5	5	5	5
November	1 or 5 ^a	5	5	5	5	5
December	1 or 5 ^a	5	5	5	5	5
January	1 or 5 ^a	5	5	5	5	5
February	1 or 5 ^a	5	5	5	5	5
March	1 or 5 ^a	5	5	5	5	5
April	1 or 5 ^a	5	5	5	5	5
May	1 or 5 ^a	5	5	5	5	5
June	1 or 5 ^a	5	5	5	5	5
July	1 or 5 ^a	5	5	5	5	5
August	1 or 5 ^a	5	5	5	5	5
September	1 or 5 ^a	5	5	5	5	5

^a 1 cfs if Newcastle powerhouse not operating; 5 cfs if Newcastle powerhouse is operating.

Table 3-147. Monthly minimum streamflows (cfs) by water year type recommended by Reclamation for Mormon Ravine below the Newcastle powerhouse header box. (Source: adapted by staff from Reclamation, July 31, 2012)

Water Year Type	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total in acre-feet	Change from Historical
ECD				50	100	150	100						23,851	NA
CD				150	150	150	100	50					35,876	(40,165)
D				150	200	200	150	100					47,802	(41,237)
BN														
AN														
W														

Table 3-148. Required releases to the Middle Yuba River, South Yuba River, Canyon Creek, Fall Creek, Rucker Creek, and Bear River under the existing license. (Source: adapted by staff, from PG&E and NID, 2011a)

Sub-Basin	Reservoir	Development	Gage Location (USGS/PG&E No.)	Date	Required Minimum Flow (cfs)	Water Year Type
Middle Yuba River	Jackson Meadows	Bowman	Jackson Meadows Dam (11407815/YB-301)	Year- Round	5	All
	Milton Diversion Impoundment	Bowman	Milton Diversion Dam (11408500/YB-304)	Year- Round	3	All
Canyon Creek	Jackson Lake	Bowman	Jackson Lake Dam (11414700/YB-312)	Year- Round	0.75	All
	French Lake	Bowman	French Lake Dam (11414410/YB-306)	Year- Round	2.5	All
	Bowman- Spaulding Diversion Impoundment	Bowman	Downstream of Bowman-Spaulding Diversion Dam (11416500/YB-315)	4/1 to 10/31 11/1 to 3/31	3 2	All

Table 3-148. Required releases to the Middle Yuba River, South Yuba River, Canyon Creek, Fall Creek, Rucker Creek, and Bear River under the existing license. (Source: adapted by staff, from PG&E and NID, 2011a)

Sub-Basin	Reservoir	Development	Gage Location (USGS/PG&E No.)	Date	Required Minimum Flow (cfs)	Water Year Type
Bear River	Dutch Flat Afterbay	Chicago Park	Dutch Flat Afterbay Dam (11421790/YB-197)	5/1 to 10/31 11/1 to 4/30	10 5	All
	---	---	No Gage (Downstream of Upper Boardman Canal)	Year- Round	1	All
	Rollins	Rollins	Rollins Dam (11421900/YB-279)	5/1 to 10/31 11/1 to 4/30	75 20	Normal
				5/1 to 10/31 11/1 to 4/30	40 15	Less than Normal

Table 3-149. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Middle Yuba River below Jackson Meadows reservoir dam (Compliance Point: USGS Streamflow Gage 11407815) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	11	11	13	15	20	35
November	11	11	13	15	20	35
December	11	11	13	15	20	35
January	11	11	13	15	20	35
February	11	11	13	15	25	40
March	11	11	16	25	35	60
April	30	30	30	50	60	100
May	60	60	75	90	110	120
June	21	21	30	50	75	100
July	11	11	16	25	35	60
August	11	11	13	15	25	40
September	11	11	13	15	25	40

Table 3-150. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Middle Yuba River below Jackson Meadows reservoir dam that corresponds to NID's proposed minimum flow, as amended, from Jackson Meadows reservoir dam. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	80%	80%	83%	88%	94%	100%
November	80%	80%	83%	88%	94%	100%
December	80%	80%	83%	88%	94%	100%
January	80%	80%	83%	88%	94%	100%
February	80%	80%	83%	88%	97%	100%
March	80%	80%	89%	97%	100%	98%
April	99%	99%	99%	99%	98%	94%
May	98%	98%	97%	96%	93%	92%
June	95%	95%	99%	99%	97%	94%
July	80%	80%	89%	97%	100%	98%
August	80%	80%	83%	88%	97%	100%
September	80%	80%	83%	88%	97%	100%
JUVENILE RAINBOW TROUT^b						
October	96%	96%	97%	99%	100%	97%
November	96%	96%	97%	99%	100%	97%
December	96%	96%	97%	99%	100%	97%
January	96%	96%	97%	99%	100%	97%
February	96%	96%	97%	99%	99%	95%
March	96%	96%	100%	99%	97%	89%
April	99%	99%	99%	92%	89%	79%
May	89%	89%	85%	81%	78%	75%
June	100%	100%	99%	92%	85%	79%
July	96%	96%	100%	99%	97%	89%
August	96%	96%	97%	99%	99%	95%
September	96%	96%	97%	99%	99%	95%

Table 3-150. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Middle Yuba River below Jackson Meadows reservoir dam that corresponds to NID's proposed minimum flow, as amended, from Jackson Meadows reservoir dam. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	45%	45%	45%	69%	79%	99%
May	79%	79%	89%	97%	100%	100%
June	33%	33%	45%	69%	89%	99%

^a The maximum habitat for adult rainbow trout (12,493 square feet WUA per 1,000 linear feet of stream) occurs at 40 cfs (figure 6.3.1-2 in the final license application).

^b The maximum habitat for juvenile rainbow trout (13,025 square feet WUA per 1,000 linear feet of stream) occurs at 20 cfs (figure 6.3.1-2 in the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach (table 2.1-9 in Technical Memorandum 3-2, *Instream Flow*). The maximum habitat for spawning rainbow trout (5,738 square feet WUA per 1,000 linear feet of stream) occurs at 120 cfs (figure 6.3.1-2 in the final license application).

Table 3-151. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Middle Yuba River below Milton diversion dam (Compliance Point: USGS Streamflow Gage 11408550) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	4	6	6	10	10	15
November	4	6	6	10	10	10 or 15 ^a
December	4	6	6	10	10	10 or 15 ^a
January	4	6	6	10	10	10 or 15 ^a
February	4	6	6	10	15	15
March	4	6	6	20	25	30
April	6	10	15	30	35	40
May	6	20	30	50	60	70
June	6	15	20	30	35	40
July	4	6	10	15	20	20
August	4	6	6	10	15	15
September	4	6	6	10	15	15

^a In wet water years the minimum streamflow should be 15 cfs unless the precipitation measured at Bowman Lake from the previous July 1 up to but not including the first day of the month is equal to or less than 75 percent of the annual average precipitation for the same period for the most recent 30 years. In that case the minimum streamflow should be 10 cfs.

Table 3-152. NMFS proposed release or spill from Milton diversion dam; flows sufficient to achieve continuous minimum flows (in cubic feet per second), measured at USGS Gage 11408550 in the Middle Yuba River.^a (Source: Adapted by staff from NMFS, July 31, 2012)

Jan	Feb	Mar	Apr	May	Jun ^{b,c,d}	Jul ^e	Aug ^e	Sep ^e	Oct ^e	Nov ^e	Dec ^e
10	10	10	10	10	40-200	40	40	30	30	30	30

^a The above flow conditions are to be met in all water year types, based on the California Department of Water Resources' water year forecast of unimpaired year-round runoff in the Yuba River at Smartville, as set forth in the Department's "Bulletin 120 Water Year Conditions in California." An exception is that in extreme cases, water supplies may not be available to meet the flow requirements above. When the May Bulletin 120 forecasts year-round unimpaired runoff in the Yuba River at Smartville below 615,000 acre-feet, the licensees should conference with FERC (as the lead), NMFS, USACE, and the other entities and agencies implementing (prospective) spring-run Chinook salmon and/or steelhead reintroduction, and this contingency should be evaluated under NMFS' recommended condition for adaptive management, described below.

^b June 1-7: Flow releases from Milton dam sufficient to achieve a continuous 200 cfs discharge in the Middle Yuba River, measured at USGS Gage 11408550 (below Milton Dam).

^c June 8-14: Flow release(s) from Milton dam sufficient to achieve a continuous 100 cfs discharge in the Middle Yuba River, measured at USGS Gage 11408550.

^d June 15-30: Flow release(s) from Milton Dam to mimic the natural snowmelt recession: 4 days continuous release of 80 cfs, followed by 4 days of 60cfs, 4 days of 50cfs, 4 days of 40cfs, measured at USGS Gage 11408550.

^e Additional flows July-Dec may be required to maintain suitable water temperatures for holding and spawning downstream to the Plumbago Road crossing, at approximately river mile 25. NMFS recommends the funding, installation, operation and maintenance of telemetered water temperature and flow gages at this location; the installation of gages, their rating, and the determination of flows and temperatures should occur under the supervision of, or in cooperation with, the USGS.

July 1- September 15: From Milton dam, release or spill the greater of:

The flows sufficient to maintain water temperatures in the Middle Yuba River at the Plumbago Road crossing (RM 25) below 19°C, measured as the running average of the previous 7 days' daily average water temperature, or the flows to maintain a minimum instantaneous flow of 40 cfs in the Middle Yuba River, measured at USGS Gage 11408550 below Milton dam.

September 16- December 31: From Milton dam, release or spill the greater of:

The flows sufficient to maintain water temperatures in the Middle Yuba River at the Plumbago Road crossing (RM 25) below 14.4°C, measured as the running average of the previous 7 days' daily average water temperature, or the flows sufficient to maintain a minimum instantaneous flow of 30 cfs in the Middle Yuba River, measured at USGS Gage 11408550 below Milton dam.

Table 3-153. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Middle Yuba River below Milton diversion dam that corresponds to NID's proposed minimum flow releases, as amended, from Milton diversion dam. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	39%	48%	48%	62%	62%	74%
November	39%	48%	48%	62%	62%	74%
December	39%	48%	48%	62%	62%	74%
January	39%	48%	48%	62%	62%	74%
February	39%	48%	48%	62%	74%	74%
March	39%	48%	48%	82%	86%	91%
April	48%	48%	48%	91%	93%	96%
May	48%	48%	48%	99%	100%	100%
June	48%	48%	48%	91%	93%	96%
July	39%	48%	48%	74%	82%	82%
August	39%	48%	48%	62%	74%	74%
September	39%	48%	48%	62%	74%	74%
JUVENILE RAINBOW TROUT^b						
October	56%	65%	65%	77%	77%	86%
November	56%	65%	65%	77%	77%	86%
December	56%	65%	65%	77%	77%	86%
January	56%	65%	65%	77%	77%	86%
February	56%	65%	65%	77%	86%	86%
March	56%	65%	65%	92%	95%	99%
April	65%	77%	86%	99%	99%	100%
May	65%	92%	99%	100%	99%	97%
June	65%	86%	92%	99%	99%	100%
July	56%	65%	77%	86%	92%	92%
August	56%	65%	65%	77%	86%	86%
September	56%	65%	65%	77%	86%	86%

Table 3-153. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Middle Yuba River below Milton diversion dam that corresponds to NID’s proposed minimum flow releases, as amended, from Milton diversion dam. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	27%	35%	44%	66%	70%	74%
May	27%	52%	66%	76%	76%	74%
June	27%	44%	52%	66%	70%	74%

^a The maximum habitat for adult rainbow trout (10,994 square feet WUA per 1,000 linear feet of stream) occurs at 70 cfs (figure 6.3.1-3 in the final license application).

^b The maximum WUA for juvenile rainbow trout (13,124 square feet WUA per 1,000 linear feet of stream) occurs at 50 cfs (figure 6.3.1-3 in the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach (table 2.1-9 in *Instream Flow Technical Memorandum 3-2*). The spawning rainbow trout WUA curve has a dual peak; the curve first peaks at 1,423 square feet WUA per 1,000 linear feet of stream at 49 cfs and then the curve dips and continues to increase to 1,879 square feet WUA at 1,136 cfs. (figure 6.3.1-3 in the final license application).

Table 3-154. Percent of WUA for foothill yellow-legged frog eggs and tadpole life stages^a at the foothill yellow-legged frog 2D site in Middle Yuba River below the Milton diversion dam that corresponds to NID's proposed minimum flow releases, as amended (without buffer flows) from Milton diversion dam. (Source: adapted by staff from Technical Memorandum 3-7, *Special-Status Amphibians - Foothill Yellow-Legged Frog Habitat Modeling*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
EGGS						
May	100%	99%	99%	92%	81%	77%
June	100%	100%	99%	99%	97%	95%
TADPOLES						
July	100%	100%	100%	98%	96%	96%
August	100%	100%	100%	100%	98%	98%
September	100%	100%	100%	100%	98%	98%

^a Foothill yellow-legged frog eggs are expected to be present in May and June and foothill yellow-legged frog tadpoles in July, August and September.

Table 3-155. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Wilson Creek below Wilson Creek diversion dam (Compliance Point: Act of Setting Outlet Works) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.25 or NF ^a	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF
November	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF
December	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF
January	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF
February	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF
March	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF
April	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF
May	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF
June	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF
July	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF
August	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF
September	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF	0.25 or NF

^a NF = natural flow entering Wilson Creek diversion dam from upstream.

Table 3-156. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Jackson Creek below Jackson Lake dam (Compliance Point: USGS Streamflow Gage11414700) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.5	0.5	0.75	0.75	1	2
November	0.5	0.5	0.75	0.75	0.75	0.75
December	0.5	0.5	0.75	0.75	0.75	0.75
January	0.5	0.5	0.75	0.75	0.75	0.75
February	0.5	0.5	0.75	0.75	0.75	0.75
March	0.5	0.5	0.75	0.75	0.75	0.75
April	0.5	0.5	0.75	0.75	0.75	0.75
May	0.5	0.5	0.75	0.75	0.75	0.75
June	0.5	0.5	1	1	2	3
July	0.5	0.5	0.75	0.75	1	2
August	0.5	0.5	0.75	0.75	1	2
September	0.5	0.5	0.75	0.75	1	2

Table 3-157. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Canyon Creek below French Lake dam (Compliance Point: USGS Streamflow Gage 11414410) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	5	5	6	9	9	9
November	5	5	6	9	9	9
December	5	5	6	9	9	9
January	5	5	6	9	9	9
February	5	5	6	9	14	18
March	5	5	6	9	14	18
April	5	5	6	9	14	18
May	5	5	6	9	14	18
June	5	5	6	9	14	18
July	5	5	6	9	14	18
August	5	5	6	9	14	18
September	5	5	6	9	14	18

Table 3-158. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout that corresponds to NID's proposed minimum flow releases, as amended (without buffer flows), in Canyon Creek below French Lake dam. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	73%	73%	78%	90%	90%	90%
November	73%	73%	78%	90%	90%	90%
December	73%	73%	78%	90%	90%	90%
January	73%	73%	78%	90%	90%	90%
February	73%	73%	78%	90%	98%	100%
March	73%	73%	78%	90%	98%	100%
April	73%	73%	78%	90%	98%	100%
May	73%	73%	78%	90%	98%	100%
June	73%	73%	78%	90%	98%	100%
July	73%	73%	78%	90%	98%	100%
August	73%	73%	78%	90%	98%	100%
September	73%	73%	78%	90%	98%	100%
JUVENILE RAINBOW TROUT^b						
October	88%	88%	92%	98%	98%	98%
November	88%	88%	92%	98%	98%	98%
December	88%	88%	92%	98%	98%	98%
January	88%	88%	92%	98%	98%	98%
February	88%	88%	92%	98%	100%	97%
March	88%	88%	92%	98%	100%	97%
April	88%	88%	92%	98%	100%	97%
May	88%	88%	92%	98%	100%	97%
June	88%	88%	92%	98%	100%	97%
July	88%	88%	92%	98%	100%	97%
August	88%	88%	92%	98%	100%	97%
September	88%	88%	92%	98%	100%	97%

Table 3-158. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout that corresponds to NID’s proposed minimum flow releases, as amended (without buffer flows), in Canyon Creek below French Lake dam. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	70%	70%	80%	94%	100%	100%
May	70%	70%	80%	94%	100%	100%
June	70%	70%	80%	94%	100%	100%

^a The maximum habitat for adult rainbow trout (5,141 square feet WUA per 1,000 linear feet of stream) occurs at 18 cfs (figure 6.3.1-9 in the final license application).

^b The maximum WUA for juvenile rainbow trout (6,549 square feet WUA per 1,000 linear feet of stream) occurs at 12 cfs (figure 6.3.1-9 in the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach (Table 2.1-9 in *Instream Flow* Technical Memorandum 3- 2). The maximum WUA for spawning rainbow trout (299 square feet WUA per 1,000 linear feet of stream) occurs at 14 cfs (figure 6.3.1-9 in the final license application).

Table 3-159. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Canyon Creek below Faucherie Lake dam (Compliance Point: USGS Streamflow Gage 11414450) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	5	5	6	9	9	9
November	5	5	6	9	9	9
December	5	5	6	9	9	9
January	5	5	6	9	9	9
February	5	5	6	9	14	18
March	5	5	6	9	14	18
April	5	5	6	9	14	18
May	5	5	6	9	14	18
June	5	5	6	9	14	18
July	5	5	6	9	14	18
August	5	5	6	9	14	18
September	5	5	6	9	14	18

Table 3-160. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout that corresponds to NID's minimum flow releases, as amended, without buffer flows in Canyon Creek below Faucherie Lake dam. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	89%	89%	91%	97%	97%	97%
November	89%	89%	91%	97%	97%	97%
December	89%	89%	91%	97%	97%	97%
January	89%	89%	91%	97%	97%	97%
February	89%	89%	91%	97%	100%	99%
March	89%	89%	91%	97%	100%	99%
April	89%	89%	91%	97%	100%	99%
May	89%	89%	91%	97%	100%	99%
June	89%	89%	91%	97%	100%	99%
July	89%	89%	91%	97%	100%	99%
August	89%	89%	91%	97%	100%	99%
September	89%	89%	91%	97%	100%	99%
JUVENILE RAINBOW TROUT^b						
October	98%	98%	99%	100%	100%	100%
November	98%	98%	99%	100%	100%	100%
December	98%	98%	99%	100%	100%	100%
January	98%	98%	99%	100%	100%	100%
February	98%	98%	99%	100%	98%	94%
March	98%	98%	99%	100%	98%	94%
April	98%	98%	99%	100%	98%	94%
May	98%	98%	99%	100%	98%	94%
June	98%	98%	99%	100%	98%	94%
July	98%	98%	99%	100%	98%	94%
August	98%	98%	99%	100%	98%	94%
September	98%	98%	99%	100%	98%	94%

Table 3-160. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout that corresponds to NID’s minimum flow releases, as amended, without buffer flows in Canyon Creek below Faucherie Lake dam. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	47%	47%	53%	70%	83%	90%
May	47%	47%	53%	70%	83%	90%
June	47%	47%	53%	70%	83%	90%

^a The maximum habitat for adult rainbow trout (13,218 square feet WUA per 1,000 linear feet of stream) occurs at 15 cfs (figure 6.3.1-10 in the final license application).

^b The maximum WUA for juvenile rainbow trout (12,169 square feet WUA per 1,000 linear feet of stream) occurs at 7.5 cfs (figure 6.3.1-10 in the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach (table 2.1-9 in *Instream Flow Technical Memorandum 3- 2*). The maximum WUA for spawning rainbow trout (2,023 square feet WUA per 1,000 linear feet of stream) occurs at 40 cfs (figure 6.3.1-10 in the final license application).

Table 3-161. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Canyon Creek below Sawmill Lake dam (Compliance Point: USGS Streamflow Gage 11414470) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	5	5	6	9	14	18
November	5	5	6	9	14	18
December	5	5	6	9	14	18
January	5	5	6	9	14	18
February	5	5	6	9	14	18
March	5	5	6	9	14	18
April	5	5	6	9	14	18
May	5	5	6	9	14	18
June	5	5	6	9	14	18
July	5	5	6	9	14	18
August	5	5	6	9	14	18
September	5	5	6	9	14	18

Table 3-162. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout that corresponds to NID’s proposed minimum flow releases, as amended, (without buffer flows) in Canyon Creek below Sawmill Lake dam. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	42%	42%	47%	59%	73%	80%
November	42%	42%	47%	59%	73%	80%
December	42%	42%	47%	59%	73%	80%
January	42%	42%	47%	59%	73%	80%
February	42%	42%	47%	59%	73%	80%
March	42%	42%	47%	59%	73%	80%
April	42%	42%	47%	59%	73%	80%
May	42%	42%	47%	59%	73%	80%
June	42%	42%	47%	59%	73%	80%
July	42%	42%	47%	59%	73%	80%
August	42%	42%	47%	59%	73%	80%
September	42%	42%	47%	59%	73%	80%
JUVENILE RAINBOW TROUT^b						
October	65%	65%	70%	81%	91%	95%
November	65%	65%	70%	81%	91%	95%
December	65%	65%	70%	81%	91%	95%
January	65%	65%	70%	81%	91%	95%
February	65%	65%	70%	81%	91%	95%
March	65%	65%	70%	81%	91%	95%
April	65%	65%	70%	81%	91%	95%
May	65%	65%	70%	81%	91%	95%
June	65%	65%	70%	81%	91%	95%
July	65%	65%	70%	81%	91%	95%
August	65%	65%	70%	81%	91%	95%
September	65%	65%	70%	81%	91%	95%

Table 3-162. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout that corresponds to NID’s proposed minimum flow releases, as amended, (without buffer flows) in Canyon Creek below Sawmill Lake dam. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
May	28%	28%	31%	42%	55%	62%
June	28%	28%	31%	42%	55%	62%
July	28%	28%	31%	42%	55%	62%

^a The maximum habitat for adult rainbow trout (11,820 square feet WUA per 1,000 linear feet of stream) occurs at 56 cfs (figure 6.3.1-11 in the final license application).

^b The maximum WUA for juvenile rainbow trout (15,156 square feet WUA per 1,000 linear feet of stream) occurs at 30 cfs (figure 6.3.1-11 in the final license application).

^c Rainbow trout spawning is expected to occur from May through July in this reach (table 2.1-9 in *Instream Flow Technical Memorandum 3-2*). The maximum WUA for spawning rainbow trout (643 square feet WUA per 1,000 linear feet of stream) occurs at 70 cfs (figure 6.3.1-11 in the final license application).

Table 3-163. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Canyon Creek below Bowman-Spaulding diversion dam (Compliance Point: USGS Streamflow Gage 11416500) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	4	6	10	10	10	15
November	4	6	10	10	10	15
December	4	6	10	10	10	15
January	4	6	10	10	10	15 or 20
February	4	6	10	15	20	25
March	4	6	10	15	20	25
April	6	13	15	30	35	40
May	6	15	20	40	50	60
June	6	13	15	30	35	40
July	4	10	15	15	25	30
August	4	10	15	15	20	20
September	4	10	15	15	20	20

Table 3-164. NMFS proposal for release or spill from Bowman dam; flows sufficient to achieve continuous minimum flows (in cubic feet per second) in Canyon Creek below Bowman-Spaulding diversion dam, measured at USGS Gage 1 1416500.^a (Source: adapted by staff from NMFS, July 31, 2012)

Jan	Feb	Mar	Apr	May^b	Jun^b	Jul^c	Aug^c	Sep^c	Oct^c	Nov^c	Dec^c
15	15	15	15	75	75	30	30	30	30	30	30

^a The above flow conditions are to be met in all water year types, based on the California Department of Water Resources’ water year forecast of unimpaired year-round runoff in the Yuba River at Smartville, as set forth in the Department’s “Bulletin 120 Water Year Conditions in California.” An exception is that in extreme cases, water supplies may not be available to meet the flow requirements above; when the May Bulletin 120 forecasts year-round unimpaired runoff in the Yuba River at Smartville below 615,000 acre-feet, the licensees should conference with FERC (as the lead), NMFS, USACE, and the other entities and agencies implementing (prospective) spring-run Chinook salmon and/or steelhead reintroduction, and this contingency should be evaluated under NMFS’ recommended condition for adaptive management, described below.

^b Flows in May and June were designed to aid Spring-run Chinook volitional migration from Englebright Reservoir to the primary holding reaches above the confluence with Poorman Creek, at approximately river mile 28. If it is determined that the preferred method of reintroduction involves transport of the fish by truck to the holding reaches, the flows should be lowered to the values below:

- 25 and 50 cfs for May and June respectively, downstream of Spaulding Dam, measured at USGS Gage 11414210.
- 15 and 30 cfs for May and June respectively, downstream of Bowman dam, measured at USGS Gage 11416500.

^c Additional flows July-Dec may be required to maintain suitable water temperatures for holding and spawning/incubation downstream to the Poorman Creek Confluence, at approximately RM 28. NMFS recommends the funding, installation, operation and maintenance of telemetered water temperature and flow gages at this location; the installation of gages, their rating, and the determination of flows and temperatures should occur under the supervision of, or in cooperation with, USGS.

July 1- September 15: From Bowman and Spaulding dams, release or spill the greater of:

The flows sufficient to maintain water temperatures in the South Yuba River above the confluence with Poorman Creek (RM 28) below 19°C, measured as the running average of the previous 7 days’ daily average water temperature, or the flows to maintain a minimum instantaneous flow of 50 cfs in the South Yuba River (measured at USGS Gage 11414210 below Spaulding dam) and a minimum instantaneous flow of 30 cfs in Canyon Creek (measured at USGS Gage 11416500 below Bowman dam).

Table 3-165. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout that corresponds to NID's proposed minimum flow releases, as amended (without buffer flows) in Canyon Creek below Bowman-Spaulding diversion dam. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Years	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	40%	50%	66%	66%	66%	66%
November	40%	50%	66%	66%	66%	66%
December	40%	50%	66%	66%	66%	66%
January	40%	50%	66%	66%	66%	66%
February	40%	50%	66%	79%	87%	79%
March	40%	50%	66%	79%	87%	92%
April	50%	50%	66%	95%	97%	98%
May	50%	50%	66%	98%	98%	99%
June	50%	50%	66%	95%	97%	98%
July	50%	50%	66%	79%	92%	95%
August	40%	50%	66%	79%	87%	87%
September	40%	50%	66%	79%	87%	87%
JUVENILE RAINBOW TROUT^b						
October	64%	75%	89%	89%	89%	97%
November	64%	75%	89%	89%	89%	97%
December	64%	75%	89%	89%	89%	97%
January	64%	75%	89%	89%	89%	100%
February	64%	75%	89%	97%	100%	100%
March	64%	75%	89%	97%	100%	100%
April	75%	94%	97%	99%	98%	96%
May	75%	97%	100%	96%	92%	89%
June	75%	94%	97%	99%	98%	96%
July	75%	89%	97%	97%	100%	99%
August	64%	89%	97%	97%	100%	100%
September	64%	89%	97%	97%	100%	100%

Table 3-165. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout that corresponds to NID's proposed minimum flow releases, as amended (without buffer flows) in Canyon Creek below Bowman-Spaulding diversion dam. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Years	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
May	39%	75%	86%	100%	100%	100%
June	39%	68%	75%	97%	99%	100%
July	28%	59%	75%	75%	94%	97%

^a The maximum habitat for adult rainbow trout (10,982 square feet WUA per 1,000 linear feet of stream) occurs at 80 cfs (figure 6.3.1-12 in the final license application).

^b The maximum WUA for juvenile rainbow trout (14,431 square feet WUA per 1,000 linear feet of stream) occurs at 25 cfs (figure 6.3.1-12 in the final license application).

^c Rainbow trout spawning is expected to occur from May through July in this reach (table 2.1-9 in *Instream Flow Technical Memorandum 3-2*). The maximum WUA for spawning rainbow trout (2,181 square feet WUA per 1,000 linear feet of stream) occurs at 40 cfs (figure 6.3.1-12 in the final license application).

Table 3-166. Percent of WUA for foothill yellow-legged frog eggs and tadpole life stages at the foothill yellow-legged frog 2D Site in Canyon Creek below Bowman-Spaulding diversion dam that corresponds to NID’s proposed minimum flows, as amended (without buffer flows), from Bowman-Spaulding diversion dam. (Source: adapted by staff from Technical Memorandum 3-7, *Special-Status Amphibians - Foothill Yellow-Legged Frog Habitat Modeling*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
EGGS						
May	100%	96%	92%	83%	80%	77%
June	100%	97%	96%	86%	84%	83%
TADPOLES						
July	100%	100%	89%	89%	69%	64%
August	100%	100%	89%	89%	79%	79%
September	100%	100%	89%	89%	79%	79%

^a Foothill yellow-legged frog eggs are expected to be present in May and June and foothill yellow-legged frog tadpoles in July, August and September.

Table 3-167. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Texas Creek below Texas Creek diversion dam at the Bowman-Spaulding diversion conduit (Compliance Point: New Streamflow Gage to be Constructed) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.6	1	1	2	3	3
November	0.6	1	1	2	3	3
December	0.6	1	1	2	3	3
January	0.6	1	1	2	3	3
February	0.6	1	1	2	3	3
March	0.6	1	1	2	3	3
April	0.6	1	1	2	3	3
May	0.6	1	1	2	3	3
June	0.6	1	1	2	3	3
July	0.6	1	1	2	3	3
August	0.6	1	1	2	3	3
September	0.6	1	1	2	3	3

Table 3-168. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Clear Creek below Bowman-Spaulding conduit (Compliance Point: New Streamflow Gage to be Constructed) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	1	1	2	2
November	1	1	1	1	2	2
December	1	1	1	1	2	2
January	1	1	1	1	2	2
February	1	1	1	1	2	2
March	1	1	1	1	2	2
April	1	1	1	2	3	3
May	1	1	1	2	4	6
June	1	1	1	2	3	3
July	1	1	1	1	2	2
August	1	1	1	1	2	2
September	1	1	1	1	2	2

Table 3-169. NID’s proposed minimum streamflows (cfs), as amended, in Clear Creek below Bowman-Spaulding Conduit.^a (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	1	1	2	2
November	1	1	1	1	2	2
December	1	1	1	1	2	2
January	1	1	1	1	2	2
February	1	1	1	1	2	2
March	1	1	1	1	2	2
April	1	1	1	2	3	3
May	1	1	1	2	4	6
June	1	1	1	2	3	3
July	1	1	1	1	2	2
August	1	1	1	1	2	2
September	1	1	1	1	2	2
Total Acre-Feet ^b	724	724	724	905	1,691	1,813

^a Refer to Measure YB-AQR1, Part 3, in Amended Appendix E3 of NID’s Amended Application regarding minimum streamflows in Clear Creek downstream of the Bowman-Spaulding conduit during Bowman-Spaulding conduit outages.

^b There is currently no required minimum flow at Clear Creek diversion dam. NID’s proposed minimum flow releases, as amended, represents an increase over existing conditions from 724 acre-feet in Extreme Critically Dry water years to 1,813 acre-feet in Wet water years.

Table 3-170. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Fall Creek below Fall Creek diversion dam at the Bowman-Spaulding conduit (Compliance Point: New Streamflow Gage to be Constructed) under measure YB-AQR1, Part 2. (Source: Forest Service, *Preliminary Conditions and Recommendations*; August 2, 2012)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	2	3	4 or In = Out	4 or In = Out
November	1	1	2	3	4 or In = Out	4 or In = Out
December	1	1	2	3	4 or In = Out	4 or In = Out
January	1	1	2	3	4 or In = Out	4 or In = Out
February	1	1	2	3	4	4
March	1	1	2	3	4	4
April	1	1	2	3	4	4
May	12.5 or In = Out	12.5 or In = Out	15 or In = Out	20 or In = Out	20 or In = Out	20 or In = Out
June	5 or In = Out	5 or In = Out	6 or In = Out	7 or In = Out	8 or In = Out	9 or In = Out
July	1	1	2	3	4	4
August	1	1	2	3	4	4
September	1	1	2	3	4	4

Table 3-171. Minimum streamflows (cfs) proposed by Forest Service (condition 29) and California Fish and Wildlife (recommendation 2.2) for Yuba-Bear Project – Fall Creek below Fall Creek diversion dam at Bowman-Spaulding conduit (compliance point: new streamflow gage to be constructed). (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	2	2	2	4	6	8
November	2	2	2	4	6	8
December	2	2	2	4	6	8
January	2	2	2	4	6	8
February	2	2	2	4	6	8
March	2	2	2	8	10	10
April	10	10	10	15	20	20
May	12.5	12.5	15	20	30	30
June	4	4	10	15	20	25
July	2	2	2	6	8	10
August	2	2	2	6	6	8
September	2	2	2	6	6	8

Table 3-172. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in Fall Creek below Fall Creek diversion dam at the Bowman-Spaulding conduit that corresponds to NID's proposed minimum flow releases, as amended, (without buffer flows).^a (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Years	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^b						
October	63%	63%	80%	90%	90%	90%
November	63%	63%	80%	90%	90%	90%
December	63%	63%	80%	90%	90%	90%
January	63%	63%	80%	90%	90%	90%
February	63%	63%	80%	90%	95%	95%
March	63%	63%	80%	90%	95%	95%
April	63%	63%	80%	90%	95%	95%
May	--	--	--	--	--	--
June	--	--	--	--	--	--
July	63%	63%	80%	90%	90%	90%
August	63%	63%	80%	90%	90%	90%
September	63%	63%	80%	90%	90%	90%
JUVENILE RAINBOW TROUT^c						
October	71%	71%	87%	94%	94%	94%
November	71%	71%	87%	94%	94%	94%
December	71%	71%	87%	94%	94%	94%
January	71%	71%	87%	94%	94%	94%
February	71%	71%	87%	94%	98%	98%
March	71%	71%	87%	94%	98%	98%
April	71%	71%	87%	94%	98%	98%
May	--	--	--	--	--	--
June	--	--	--	--	--	--
July	71%	71%	87%	94%	98%	98%
August	71%	71%	87%	94%	98%	98%
September	71%	71%	87%	94%	98%	98%

Table 3-172. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in Fall Creek below Fall Creek diversion dam at the Bowman-Spaulling conduit that corresponds to NID's proposed minimum flow releases, as amended, (without buffer flows).^a (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Years	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^d						
May	--	--	--	--	--	--
June	--	--	--	--	--	--
July	15%	15%	27%	38%	46%	46%

^a Due to the channel geometry in Fall Creek and the limits of NID's ability to make releases into the creek during the Instream Flow Study, the WUA curves for adult and juvenile rainbow trout continue to increase past the hydraulic extrapolation limit (163 cfs). Therefore, for the above table, NID truncated the analysis at a maximum flow of 163 cfs..

^b The maximum habitat for adult rainbow trout (3,147 square feet WUA per 1,000 linear feet of stream) occurs at 8 cfs (figure 6.3.1-14 in the final license application).

^c The maximum WUA for juvenile rainbow trout (3,545 square feet WUA per 1,000 linear feet of stream) occurs at 6 cfs (figure 6.3.1-14 in the final license application).

^d Rainbow trout spawning is expected to occur from May through July in this reach (table 2.1-9 in *Instream Flow Technical Memorandum 3-2*). The maximum WUA for spawning rainbow trout (6,663 square feet WUA per 1,000 linear feet of stream) occurs at 30 cfs (figure 6.3.1-14 in the final license application).

Table 3-173. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Trap Creek below Bowman-Spaulding conduit (Compliance Point: New Streamflow Gage to be Constructed) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.25	0.25	0.5	0.5	1	1.5
November	0.25	0.25	0.5	0.5	1	1.5
December	0.25	0.25	0.5	0.5	1	1.5
January	0.25	0.25	0.5	0.5	1	1.5
February	0.25	0.25	0.5	0.5	1	1.5
March	0.25	0.25	0.5	1	1.5	1.5
April	0.25	0.75	0.75	2	3	3
May	0.25	0.75	0.75	3	3	3
June	0.25	0.75	0.75	2	3	3
July	0.25	0.25	0.5	0.5	1	1.5
August	0.25	0.25	0.5	0.5	1	1.5
September	0.25	0.25	0.5	0.5	1	1.5

Table 3-174. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Rucker Creek below Bowman-Spaulding conduit (Compliance Point: New Streamflow Gage to be Constructed) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	0.3	0.3	0.5	2	2	2
November	0.3	0.3	0.5	2	2	2
December	0.3	0.3	0.5	2	2	2
January	0.3	0.3	0.5	2	2	2
February	0.3	0.3	0.5	2	2	2
March	0.3	0.3	0.5	2	2	2
April	0.3	0.3	0.5	2	2	2
May	0.3	0.3	0.5	2	3	3
June	0.3	0.3	0.5	2	2	2
July	0.3	0.3	0.5	2	2	2
August	0.3	0.3	0.5	2	2	2
September	0.3	0.3	0.5	2	2	2

Table 3-175. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Bear River below Dutch Flat afterbay dam (Compliance Point: USGS Streamflow Gage 11421790) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	7	7	8	10	13	13
November	7	7	8	10	13	13
December	7	7	8	10	13	13
January	7	7	8	10	13	13
February	10	10	15	20	22	30
March	15	15	20	25	30	40
April	20	20	25	30	35	45
May	15	15	20	25	30	40
June	10	10	15	20	22	30
July	10	10	10	10	12	15
August	10	10	10	10	12	15
September	10	10	10	10	12	15

Table 3-176. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in Bear River below Dutch Flat afterbay dam that corresponds to NID’s proposed minimum flow releases, as amended, (without buffer flows).^a (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Years	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^b						
October	82%	82%	86%	92%	97%	97%
November	82%	82%	86%	92%	97%	97%
December	82%	82%	86%	92%	97%	97%
January	82%	82%	86%	92%	97%	97%
February	92%	92%	100%	100%	99%	97%
March	100%	100%	100%	98%	97%	93%
April	100%	100%	98%	97%	95%	91%
May	100%	100%	100%	98%	97%	97%
June	92%	92%	100%	100%	99%	97%
July	92%	92%	92%	92%	95%	100%
August	92%	92%	92%	92%	95%	100%
September	92%	92%	92%	92%	95%	100%
JUVENILE RAINBOW TROUT^c						
October	90%	90%	93%	97%	99%	99%
November	90%	90%	93%	97%	99%	99%
December	90%	90%	93%	97%	99%	99%
January	90%	90%	93%	97%	99%	99%
February	97%	97%	100%	97%	96%	91%
March	100%	100%	97%	94%	91%	85%
April	97%	97%	94%	91%	88%	84%
May	100%	100%	97%	94%	91%	85%
June	97%	97%	100%	97%	96%	91%
July	97%	97%	97%	97%	98%	100%
August	97%	97%	97%	97%	98%	100%
September	97%	97%	97%	97%	98%	100%

Table 3-176. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in Bear River below Dutch Flat afterbay dam that corresponds to NID’s proposed minimum flow releases, as amended, (without buffer flows).^a (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*, NID and PG&E 2010)

Month	Extreme Critically Dry Water Years	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^d						
April	79%	79%	86%	92%	96%	100%
May	69%	69%	79%	86%	92%	99%
June	52%	52%	69%	79%	82%	92%

^a Due to the geometry of the reach, the WUA curves for most of the adult rainbow trout life stages have two maximum peaks. The first peak occurs at a flow of less than about 20 cfs, and then the curve dips and continues to increase to the maximum extrapolated value. This is due primarily to the altered state of the reach (i.e., flood plain with hydraulic mining debris). For the above table, NID truncated the analysis at 160 cfs.

^b The maximum habitat for adult rainbow trout (3,819 square feet WUA per 1,000 linear feet of stream) occurs at 20 cfs (figure 6.3.1-15 in the final license application).

^c The maximum WUA for juvenile rainbow trout (7,437 square feet WUA per 1,000 linear feet of stream) occurs at 15 cfs (figure 6.3.1-15 in the final license application).

^d Rainbow trout spawning is expected to occur from April through June in this reach (table 2.1-9 in *Instream Flow Technical Memorandum 3- 2*). The maximum WUA for spawning rainbow trout (4,410 square feet WUA per 1,000 linear feet of stream) occurs at 50 cfs (figure 6.3.1-15 in the final license application).

Table 3-177. Percent of WUA for foothill yellow-legged frog eggs and tadpole life stages^a at the foothill yellow-legged frog 2D Site in Bear River below Dutch Flat afterbay dam that corresponds to NID’s proposed minimum flows, as amended (without buffer flows), from the Dutch Flat afterbay dam. (Source: adapted by staff from Technical Memorandum 3-7, *Special-Status Amphibians – Foothill Yellow-Legged Frog Habitat Modeling*; NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
EGGS						
May	98%	98%	15%	20%	22%	30%
June	98%	98%	98%	98%	12%	15%
TADPOLES						
July	100%	100%	100%	100%	99%	95%
August	100%	100%	100%	100%	99%	95%
September	100%	100%	100%	100%	99%	95%

^a Foothill yellow-legged frog eggs are expected to be present in May and June and foothill yellow-legged frog tadpoles in July, August, and September.

Table 3-178. Minimum streamflows (cfs) proposed by NID for Yuba-Bear Project – Bear River below Rollins dam (Compliance Point: USGS Streamflow Gage 11422500) under measure YB-AQR1, Part 2. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	20	40	40	55	65	65
November	15	20	23	30	40	50
December	15	20	23	30	40	50
January	15	20	23	30	40	50
February	15	20	23	30	40	50
March	15	20	25	30	40	50
April	15	40	40	50	75	75
May	20	45	45	65	100	100
June	20	50	50	65	125	125
July	20	50	50	70	109	125
August	20	50	50	70	109	125
September	20	50	50	70	80	80

Table 3-179. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Bear River below Rollins dam that corresponds to NID's proposed minimum flow releases, as amended. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
ADULT RAINBOW TROUT^a						
October	35%	63%	63%	77%	83%	83%
November	26%	35%	40%	51%	63%	73%
December	26%	35%	40%	51%	63%	73%
January	26%	35%	40%	51%	63%	73%
February	26%	35%	40%	51%	63%	73%
March	26%	35%	43%	51%	63%	73%
April	26%	63%	63%	73%	89%	89%
May	35%	68%	68%	83%	97%	97%
June	35%	73%	73%	83%	100%	100%
July	35%	73%	73%	86%	98%	100%
August	35%	73%	73%	86%	98%	100%
September	35%	73%	73%	86%	91%	91%
JUVENILE RAINBOW TROUT^b						
October	83%	98%	98%	100%	99%	99%
November	74%	83%	86%	93%	98%	100%
December	74%	83%	86%	93%	98%	100%
January	74%	83%	86%	93%	98%	100%
February	74%	83%	86%	93%	98%	100%
March	74%	83%	89%	93%	98%	100%
April	74%	98%	98%	100%	98%	98%
May	83%	99%	99%	99%	94%	94%
June	83%	100%	100%	99%	90%	90%
July	83%	100%	100%	99%	93%	90%
August	83%	100%	100%	99%	93%	90%
September	83%	100%	100%	99%	98%	98%

Table 3-179. Percent of maximum WUA for adult, juvenile, and spawning rainbow trout in the Bear River below Rollins dam that corresponds to NID's proposed minimum flow releases, as amended. (Source: adapted by staff from Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SPAWNING RAINBOW TROUT^c						
April	37%	65%	65%	70%	79%	79%
May	45%	67%	67%	75%	87%	87%
June	45%	70%	70%	75%	93%	93%

^a The maximum habitat for adult rainbow trout (17,777 square feet WUA per 1,000 linear feet of stream) occurs at 150 cfs (figure 6.3.1-16 in the final license application).

^b The maximum WUA for juvenile rainbow trout (23,237 square feet WUA per 1,000 linear feet of stream) occurs at 50 cfs (figure 6.3.1-16 in the final license application).

^c Rainbow trout spawning is expected to occur from April through May in this reach (table 2.1-9 in *Instream Flow Technical Memorandum 3-2*). The maximum WUA for spawning rainbow trout (14,146 square feet WUA per 1,000 linear feet of stream) occurs at 225 cfs (figure 6.3.1-16 in the final license application).

Table 3-180. Percent of WUA for foothill yellow-legged frog eggs and tadpole life stages^a at the foothill yellow-legged frog 2D model site in the Bear River below Rollins dam that corresponds to NID's proposed minimum flows, as amended, (without buffer flows), below Rollins dam and powerhouse. (Source: adapted by staff from Technical Memorandum 3-7, *Special- Status Amphibians - Foothill Yellow-Legged Frog Habitat Modeling* ; NID and PG&E 2010)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
EGGS						
May	99%	93%	93%	90%	85%	85%
June	99%	92%	92%	90%	80%	78%
TADPOLES						
July	100%	100%	100%	99%	89%	85%
August	100%	100%	100%	99%	89%	85%
September	100%	100%	100%	99%	96%	96%

^a Foothill yellow-legged frog eggs are expected to be present in May and June and foothill yellow-legged frog tadpoles in July, August and September.

Table 3-181. Locations in Upper Drum-Spaulding, Lower Drum, and Yuba-Bear Projects where canal outages affect minimum streamflows. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Location (Stream – Facility)	Typical historical outage period/duration	Minimum Streamflows During Annual Planned Outages, Non- Routine Planned Outages and Emergency Outages
Bear River – YB-198 (Upper Drum-Spaulding Project)	Approximately 2 weeks in late September and early October (Drum Canal) or approximately 2 weeks from late March to early April (South Yuba Canal)	In the event that the total flow in the Drum Canal upstream of YB137 and South Yuba Canal upstream of YB-139 is less than required for the Minimum Streamflow at YB-198, the Minimum Streamflow shall be no less than the natural flow in Bear River at YB-198, and Licensee shall also release as much water as is available in the two canals to meet as much of the Minimum Streamflow as set forth in Part 2 of this Measure as possible.
Bear River below Drum afterbay – YB-44 (Upper Drum-Spaulding Project)	Approximately 2 weeks in late September and early October (Drum Canal) or approximately 2 weeks from late March to early April (South Yuba Canal)	In the event that the total flow in the Drum Canal upstream of YB137, the South Yuba Canal upstream of YB-139 and natural flow in the Bear River upstream of Drum Afterbay is less than required for the Minimum Streamflow at YB-44, the Minimum Streamflow shall be the natural inflow to Drum Afterbay and shall be complied with by Licensee not diverting water from Drum Afterbay.
Canyon Creek below Towle canal diversion – YB-282 (Upper Drum-Spaulding Project)	Approximately 2 weeks in late September and early October (Drum Canal)	When the Drum Canal is out of service, the Minimum Streamflow below Towle Canal Diversion Dam (YB-282) shall be no less than the natural flow in Canyon Creek as measured at YB-280.
Little Bear River below Alta powerhouse – YB-98 (Upper Drum-Spaulding Project)	Approximately 2 weeks in late September and early October (Drum Canal) or approximately 2 weeks in mid-May (Towle Canal)	When the Alta Powerhouse relays off-line, the Drum Canal or the Towle Canal is out of service, the Minimum Streamflow in the Little Bear River below Lower Boardman Canal shall be 0.25 cfs. Licensee shall not divert natural flow from the Little Bear River during these outages.
Dry Creek below Halsey afterbay dam – YB-62A (Lower Drum Project)	Approximately 3 weeks in late October and early November (Bear River Canal)	When Bear River Canal is out of service, the Minimum Streamflows shall be no less than leakage from Halsey Afterbay Dam as measured at YB-62A.

Table 3-181. Locations in Upper Drum-Spaulding, Lower Drum, and Yuba-Bear Projects where canal outages affect minimum streamflows. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Location (Stream – Facility)	Typical historical outage period/duration	Minimum Streamflows During Annual Planned Outages, Non- Routine Planned Outages and Emergency Outages
Rock Creek below Rock Creek reservoir – YB-86 (Lower Drum Project)	Approximately 3 weeks in late October and early November (Bear River Canal) or approximately 1 week in mid- November (Wise Canal) or any other portion of the lower Drum Canal system (approximately 5 weeks from mid- October to late November)	When Bear River Canal or Upper Wise Canal is out of service, the Minimum Streamflow shall be 0.50 cfs.
Mormon ravine below Newcastle powerhouse header box - YB- 292 (Lower Drum Project)	Approximately 3 weeks in late October and early November (Bear River Canal) or approximately 1 week in late November (Wise Canal) or approximately 1 week in mid- November (South Canal)	When the Bear River Canal, Upper Wise Canal, Lower Wise Canal or South Canal are out of service, no Minimum Streamflows shall be required at YB-292.
South Yuba canal above Deer Creek forebay – YB-34 (Upper Drum-Spaulding Project)	Approximately 2 weeks in late March to early April (South Yuba Canal and/or Chalk Bluff Canal)	When the South Yuba Canal or Chalk Bluff Canal are out of service, no Minimum Streamflows shall be required at YB-34.
Auburn Ravine near South Canal (gage or gages to be determined) (Lower Drum Project)	Approximately 3 weeks in late October and early November (Bear River Canal) or approximately 1 week in late November (Wise Canal)	When the Bear River Canal, Upper Wise Canal or Lower Wise Canal are out of service, the Minimum Streamflows at the gage or gages to be determined shall be no less than the natural flow in Auburn Ravine as measured at the gaging location or locations near South Canal (TBD).

Table 3-181. Locations in Upper Drum-Spaulding, Lower Drum, and Yuba-Bear Projects where canal outages affect minimum streamflows. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Location (Stream – Facility)	Typical historical outage period/duration	Minimum Streamflows During Annual Planned Outages, Non- Routine Planned Outages and Emergency Outages
Texas Creek – Below Texas Creek Diversion Dam (Yuba-Bear Project)	--	Flow in Texas Creek downstream of the Texas Creek Diversion Dam shall equal flow in Texas Creek upstream of the Texas Creek Diversion Dam. Licensee shall comply with this requirement by not diverting any water from Texas Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring streamflow upstream in Texas Creek upstream of Texas Creek Diversion Dam during the outage shall not be required).
Clear Creek – Below Bowman-Spaulding Diversion Conduit (Yuba-Bear Project)	--	Flow in Clear Creek below the Bowman-Spaulding Conduit shall equal flow in Clear Creek upstream of the Bowman-Spaulding Conduit. Licensee shall comply with this requirement by not diverting any water from Clear Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring of the streamflow in Clear Creek upstream of Bowman-Spaulding Conduit during the outage shall not be required).
Trap Creek – Below Bowman-Spaulding Diversion Conduit (Yuba-Bear Project)	--	Flow in Trap Creek below the Bowman-Spaulding Conduit shall equal flow in Trap Creek upstream of the Bowman-Spaulding Conduit. Licensee shall comply with this requirement by not diverting any water from Trap Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring of the streamflow in Trap Creek upstream of Bowman-Spaulding Conduit during the outage shall not be required).
Rucker Creek – Below Bowman-Spaulding Diversion Conduit (Yuba-Bear Project)	--	Flow in Rucker Creek below the Bowman-Spaulding Conduit shall equal flow in Rucker Creek upstream of the Bowman-Spaulding Conduit. Licensee shall comply with this requirement by not diverting any water from Rucker Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring of the streamflow in Rucker Creek upstream of Bowman-Spaulding Conduit during the outage shall not be required).

Table 3-181. Locations in Upper Drum-Spaulding, Lower Drum, and Yuba-Bear Projects where canal outages affect minimum streamflows. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Location (Stream – Facility)	Typical historical outage period/duration	Minimum Streamflows During Annual Planned Outages, Non- Routine Planned Outages and Emergency Outages
Fall Creek – Below Fall Creek Diversion Dam (Yuba-Bear Project)	--	During outages of the Bowman-Spaulding Conduit that affect Minimum Streamflows in Fall Creek as described in Table 1 of this measure, flow in Fall Creek downstream of the Fall Creek Diversion Dam shall equal flow in Fall Creek upstream of the Fall Creek Diversion Dam. Licensee shall comply with this requirement by not diverting any water from Fall Creek into the Bowman-Spaulding Conduit during the outage (i.e., monitoring streamflow upstream in Fall Creek upstream of Fall Creek during the outage shall not be required).

Table 3-182. Higher flow spill cessation schedule in the South Yuba River below Lake Spaulding dam. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Water Year Type:	Wet	Above Normal	Below Normal	Dry
Target Flow	Target Number of Days to Hold Target Flows			
250- 420 cfs	No less than 6 consecutive days	No less than 4 consecutive days	No less than 2 consecutive days	--

Table 3-183. Lower flow spill cessation schedule in the South Yuba River below Lake Spaulding dam. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Target Flow, +/-20%^a	Target Number of Days to Hold Target Flows
250 cfs	1 days
200 cfs	2 days
150 cfs	2 days
125 cfs	3 days
100 cfs	3 days
75 cfs	4 days
60 cfs	4 days
50 cfs ^b	2 days

^a Once the facility modifications (discussed later in this measure) are completed, Target Flows at or below 75 cfs will be $\pm 10\%$.

^b If the Minimum Streamflow in Part 2 of this measure is greater than 50 cfs, the spill cessation will stop at the Minimum Streamflow.

Table 3-184. Spill cessation schedule in the Middle Yuba River below Milton diversion dam after May 1.^a (Source: adapted by staff from PG&E 2011a and NID 2011a)

Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11408550
6 Days	300 cfs
3 Days	225 cfs
3 Days	150 cfs
3 Days	100 cfs
3 Days	80 cfs
2 Days	60 cfs
2 Days	50cfs

^a If the peak of the spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of spill flow is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the spill cessation schedule continuing until Target Flows are 50 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Part 2 of this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Table 3-185. Spill cessation schedule in the Canyon Creek below Bowman-Spaulding diversion dam after April 1.^a (Source: adapted by staff from PG&E 2011a and NID 2011a)

Target Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11416500
1 day	275 cfs
1 day	230 cfs
1 day	200 cfs
2 days	160 cfs
2 days	130 cfs
2 days	100 cfs
2 days	85 cfs
3 days	70 cfs
3 days	55 cfs
4 days	45 cfs

^a If the peak of the spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of spill flow is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the spill cessation schedule continuing until Target Flows are 45 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Part 2 of this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Table 3-186. Spill cessation schedule in the Bear River below Dutch Flat afterbay dam for spills at Dutch Flat afterbay lasting 3 days or less.^a (Source: adapted by staff from PG&E 2011a and NID 2011a)

Target Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11421770
1 day	75 cfs
1 day	50 cfs
1 day	25 cfs

^a If the peak of the licensee-caused spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of spill flow is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the spill cessation schedule continuing until Target Flows are 25 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Part 2 of this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Table 3-187. Spill cessation schedule in the Bear River below Dutch Flat afterbay dam for licensee-caused spills at Dutch Flat afterbay lasting longer than 3 days.^a (Source: adapted by staff from PG&E 2011a and NID 2011a)

Target Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11421770
7 days	75 cfs
7 days	50 cfs
7 days	25 cfs

^a If the peak of the licensee-caused spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of the licensee-caused spill is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the licensee-caused spill cessation schedule continuing until Target Flows are 25 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Part 2 of this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Table 3-188. New gages or existing gages for monitoring compliance with minimum streamflows in the Upper Drum-Spaulding Project that require modification for DS-AQR1, Streamflows. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Location	USGS Gage No.	Licensee Gage No	Existing or New Gage	Latitude (North)	Longitude (West)	Elevation (feet)
South Yuba River – below Lake Spaulding dam (at Langs Crossing)	11414250	YB-29	Existing - needs modification	39°19'07"	120°39'24"	4,460 (Approx.)
North Fork of the North Fork American River – below Lake Valley reservoir	--	YB-104	Existing – needs modification	39°17'57"	120°35'53"	5,730 (Approx.)
North Fork of the North Fork American River – below Lake Valley canal diversion dam	--	YB-236	Existing – needs modification	39°17'54"	120°36'10"	5,730 (Approx.)
Canyon Creek – below Towle canal diversion dam	11426196	YB-282	Existing – needs modification	39°14'31"	120°45'03"	4,480 (Approx.)
Little Bear River – below Alta powerhouse tailrace (below Lower Boardman canal diversion dam)	--	YB-98	Existing – needs modification	39°12'57"	120°48'13"	3,590 (Approx.)
Lake Creek – below Feeley Lake dam	11414350	YB-207	Existing - needs modification	39°24'01"	120°38'14"	6,710 (Approx.)
Rucker Creek – below Rucker Lake dam	11414280	YB-210	Existing - needs modifications	39°21'20"	120°39'55"	5,350 (Approx.)
Unnamed tributary – below Meadow Lake dam	--	YB-217	New	39°24'6"	120°29'49"	7,200 (Approx.)
White Rock Creek – below White Rock Lake dam	--	YB-218	New	39°25'04"	120°23'13"	7,820 (Approx.)

Table 3-188. New gages or existing gages for monitoring compliance with minimum streamflows in the Upper Drum-Spaulding Project that require modification for DS-AQR1, Streamflows. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Location	USGS Gage No.	Licensee Gage No	Existing or New Gage	Latitude (North)	Longitude (West)	Elevation (feet)
Sixmile Creek – below Kelley Lake dam	--	YB-226	Existing – needs modification	39°18'42"	120°34'55"	5,880 (Approx.)

Table 3-189. Minimum streamflow compliance monitoring locations for the Yuba-Bear Hydroelectric Project. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Location	USGS Gage No.	Licensee Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (feet)
Middle Yuba River – below Jackson Meadows dam	11407815	YB-301	Middle Yuba River Controlled Release at Jackson Meadows dam, near Sierra City, CA	39°30'36"	120°33'15"	5,800
Middle Yuba River – below Milton diversion dam	11408550	YB-304	Middle Yuba River below Milton dam, near Sierra City, CA	39°31'19"	120°34'57"	5,690
Jackson Creek – below Jackson dam	11414700	YB-312	Jackson Creek below Jackson Lake, near Sierra City, CA	39°27'53"	120°33'46"	6,570
Canyon Creek – below French dam	11414410	YB-306	Canyon Creek below French Lake, near Cisco, CA	39°25'16"	120°32'30"	6,590
Canyon Creek – below Faucherie dam	11414450	YB-308	Canyon Creek below Faucherie Lake, near Cisco, CA	39°25'46"	120°34'06"	6,080
Canyon Creek – below Sawmill dam	11414470	YB-310	Canyon Creek below Sawmill Lake, near Graniteville, CA	39°26'44"	120°36'05"	5,790
Canyon Creek – below Bowman-Spaulding diversion dam	11416500	YB-315	Canyon Creek below Bowman Lake, CA	39°26'23"	120°39'37"	5,300
Texas Creek – below Texas Creek diversion dam	--	Proposed YB-317	--	39°21'20" ^a	120°39'52" ^a	5,400 ^a

Table 3-189. Minimum streamflow compliance monitoring locations for the Yuba-Bear Hydroelectric Project. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Location	USGS Gage No.	Licensee Gage No.	Gage Name	Location (Latitude and Longitude)		Elevation (feet)
Clear Creek – below Bowman-Spaulding diversion conduit	--	Proposed YB-318	--	39°22'51" ¹	120°40'52" ¹	5,350 ¹
Fall Creek – below Fall Creek diversion dam	--	Proposed YB-319	--	39°22'51" ¹	120°40'52"	5,350 ¹
Trap Creek – below Bowman-Spaulding diversion conduit	--	Proposed YB-320	--	39°21'57" ¹	120°40'48"	5,350 ¹
Rucker Creek – below Rucker Creek diversion gate	--	Proposed YB-321	--	39°24'17"	120°40'32"	5,300 ¹
Bear River – below Dutch Flat afterbay dam	11421770	YB-197	Bear River below Dutch Flat afterbay near Dutch Flat, CA	39°12'49"	120°50'39"	2,600
Bear River – below Rollins dam	11422500	YB-196	Bear River below Rollins dam Near Cisco, CA	39°08'3"	120°57'11"	1,975

^a This is an estimate of where the proposed gage will be located.

Table 3-190. Remote project-affected stream reaches where flow setting measures are proposed for compliance with minimum streamflows. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Affected stream reach	Development	Non-winter frequency
Upper Drum-Spaulding Project		
Texas Cr. below Upper Rock Lake dam	Spaulding No. 3	Twice each week, about 3-day intervals; compliance is act of resetting
Texas Cr. below Lower Rock Lake dam	Spaulding No. 3	Twice each week, about 3-day intervals; compliance is act of resetting
Unnamed trib below Culbertson Lake dam	Spaulding No. 3	Twice each week, about 3-day intervals; compliance is act of resetting
Lindsey Cr below Middle Lindsey Lake dam	Spaulding No. 3	Twice each week, about 3-day intervals; compliance is act of resetting
Lindsey Cr below Lower Lindsey Lake dam	Spaulding No. 3	Twice each week, about 3-day intervals; compliance is act of resetting
Lake Cr. below Feeley Lake dam	Spaulding No. 3	Twice each week, about 3-day intervals; compliance is act of resetting
Lake Cr. below Carr Lake dam	Spaulding No. 3	Twice each week, about 3-day intervals; compliance is act of resetting
Rucker Cr. below Blue Lake dam	Spaulding No. 3	Twice each week, about 3-day intervals; compliance is act of resetting
Rucker Cr. below Rucker Lake dam	Spaulding No. 3	Twice each week, about 3-day intervals; compliance is act of resetting
Unnamed trib. below Fuller Lake dam	Spaulding No. 3	Check and reset as necessary with compliance at gage YB-211
Unnamed trib. below Meadow Lake dam	Spaulding No. 1 and No. 2	Twice each week, about 3-day intervals; compliance is act of resetting
White Rock Cr. below White Rock Lake	Spaulding No. 1 and No. 2	Twice each week, about 3-day intervals; compliance is act of resetting
Bloody Cr. below Lake Sterling dam	Spaulding No. 1 and No. 2	At 2-week intervals; compliance is act of resetting
Unnamed trib. below Kidd Lake dam	Spaulding No. 1 and No. 2	Twice each week, about 3-day intervals; compliance is act of resetting
Cascade Cr. below Lower Peak Lake dam	Spaulding No. 1 and No. 2	Twice each week, about 3-day intervals; compliance is act of resetting
Sixmile Cr. Below Kelly Lake Dam	Drum	Twice each week, about 3-day intervals; compliance is act of resetting
Yuba-Bear Project		
Wilson Cr. below Wilson Lake dam	Bowman	Weekly; compliance is act of resetting

For below Lake Sterling Dam, from the time PG&E first accesses the outlet works each year, until PG&E makes the Winter Setting the same year, PG&E shall check the outlet works for each location twice every 30 days approximately two weeks apart and, if needed, reset the outlet works to make the flow release for that location for that month as set forth in Table 2.2-3. During this time period each year (approximately late spring or early summer until Licensee makes the Winter Setting the same year), PG&E's compliance requirement is the act of setting the low-level outlet works at Lake Sterling Dam twice each month consistent with the flows for that month as set forth in Table 3-114, using a determined theoretical valve set-point reference (head verses flow calibration curve) and PG&E does not have any additional flow release or flow-setting requirements at Lake Sterling Dam.

For below Fuller Lake Dam, when PG&E is able to safely access the low-level outlet (typically in the late spring or early summer), PG&E shall, as needed, reset the outlet works to release the flow for that location for that month. From approximately late spring or early summer until Licensee makes the Winter Setting the same year, PG&E shall comply with the Minimum Streamflows for below Fuller Lake Dam as set forth in Table 2.2-3 of this measure as measured at a continuously measured recording gage, YB-211, downstream of the dam. Minimum Streamflows below Fuller Lake Dam in this measure shall have the same meaning and shall be applied as described and defined in Part 2 of this measure.

Table 3-191. Assumptions included in operations model runs for existing license conditions and proposed project under recent and projected (year 2062) water demands. (Source: adapted by staff from PG&E’s Supplement No. 2 and NID’s Supplement No.; PG&E 2011a and NID 2011a)

Model Scenario	Description
Existing License conditions (no-action alternative)	<ul style="list-style-type: none"> • Minimum instream flows and reservoir elevation requirements as described in the existing Yuba-Bear Hydroelectric Project license and the existing Drum-Spaulding Project license; • Additional buffer flows above minimum instream flow requirements; • Water delivery requirements to NID and PCWA based on average water delivery during WY 2001 to 2009; • The retirement of Alta powerhouse unit no. 2 (Drum-Spaulding Project); • Re-operation of Dutch Flat no. 1 and no. 2; • PG&E’s winter/spring operating plan; and • Updated reservoir bathymetry at several project reservoirs.
Proposed Project – Recent Water Delivery Demands	<ul style="list-style-type: none"> • All assumptions of the no-action alternative; • Proposed water year types under part 1 of measures DS-AQR1 and YB-AQR1; • Proposed minimum streamflows under part 2 of measures DS-AQR1 and YB-AQR1; • Additional buffer flows above proposed minimum streamflows; • Spill cessation schedules for Lake Spaulding dam, Milton diversion dam, Bowman-Spaulding diversion dam, and Dutch Flat afterbay under part 7 of measures DS-AQR1 and YB-AQR1; • Supplemental boating flows for whitewater boating below French Lake dam, Milton diversion dam, and Bowman-Spaulding diversion dam under part 7 of measure YB-AQR1; • Fordyce Lake drawdown schedule under part 5 of measure DS-AQR1; and • Minimum reservoir elevations to meet proposed minimum streamflows;
Proposed Project – Projected Water Delivery Demands	<ul style="list-style-type: none"> • All assumptions of the proposed project using recent water delivery demands except this scenario uses 2062 projected water delivery demands.

Table 3-192. Model-estimated power generation (GWh/year) by powerhouse under the existing license and proposed project assuming water demand at recent levels and projected demand in 2062. (Source: adapted by staff from PG&E's Supplement No. 2 and NID's Supplement No. 1 PG&E 2011a and NID 2011a)

Project	Powerhouse	No-Action Alternative	Proposed Project- Recent Water Demand	Proposed Project- Projected Water Demand
Upper Drum-Spaulding	Spaulding no. 3	34.8	30.7	31.3
	Spaulding no. 1	32.4	10.5	29.2
	Spaulding no. 2	10.9	29.3	11.7
	Drum no. 1	93.2	78.8	69.1
	Drum no. 2	266.2	241.4	234.5
	Alta	5.1	5.1	6
	Dutch Flat no. 1	128.8	115.1	113.4
	Total	571.4	510.9	495.2
Lower Drum	Halsey	51.3	48.4	46.1
	Wise	69.2	64.3	61.5
	Wise no. 2	7.6	6.5	6.9
	Newcastle	27.4	23.1	16.1
	Total	155.5	142.3	130.6
Deer Creek	Deer Creek	22.6	22.4	25.7
Yuba-Bear	Bowman	12.1	10.8	11.2
	Dutch Flat no. 2	48.4	41.1	37.7
	Chicago Park	139.5	122.7	117.8
	Rollins	66.2	61.6	57.9
	Rollins no. 2	NA	16.7	15.7
	Total	266.2	252.9	240.3

Table 3-193. Streamflows in South Yuba River below Lake Spaulding dam as measured at YB-29 including required Minimum Streamflows, range of Supplemental Flow and total minimum flow. (Source: adapted by staff from Forest Service Preliminary Conditions and Recommendations; August 23, 2012)

Period	Minimum Streamflow (cfs)	Supplemental Flow Range (cfs)	Total Minimum Flow Range (cfs)
CRITICALLY DRY WATER YEARS			
June 15 -30	35	--	35
July	25	0-5	25-30
August	20	0-10	20-30
September 1 - 15	20	0-10	20-30
DRY WATER YEARS			
June 15 -30	40	--	40
July	30	--	30
August	23	0-7	23-30
September 1 - 15	23	0-7	23-30
BELOW NORMAL WATER YEARS			
June 15 - 30	50	--	50
July	35	--	35
August	25	0-5	25-30
September 1 - 15	25	0-5	25-30

Table 3-194. Power generation and percent change compared to existing license conditions with implementation of four flow scenarios including the Supplemental Flow (SF) or Block Flow (BF) proposals for the South Yuba River (SYR) below Lake Spaulding dam and Block Flow proposal for the Middle Yuba River (MYR) below Milton diversion dam. (Source: adapted by staff from Additional Information Regarding Water Temperature and Modeling Results; NID, January 23, 2013)

	Percent change			
	SF in SYR	BF in MYR, SF in SYR	BF in MYR and SYR	BF in SYR
YUBA-BEAR				
Generation	236 GWh/yr	235 GWh/yr	233 GWh/yr	234 GWh/yr
Annual average	-11.4	-11.8	-12.3	-11.9
By Water Year				
extreme critical and critical dry	-15.6	-16.7	-17.2	-16.2
dry	-10.6	-11	-11.7	-11.3
below normal	-9.6	-10.1	-10.5	-10.1
above normal	-13.1	-13.6	-14.1	-13.7
wet	-10.8	-11	-11.4	-11.2
UPPER DRUM-SPAULDING				
Generation	510 GWh/yr	507 GWh/yr	506 GWh/yr	508 GWh/yr
Annual average	-10.8	-11.2	-11.5	-11.1
By Water Year				
extreme critical and critical dry	-14.1	-15.4	-15.9	-14.7
dry	-11.1	-11.4	-12	-11.7
below normal	-9.3	-9.7	-9.9	-9.6
above normal	-11.9	-12.4	-12.6	-12
wet	-8.1	8.4	-8.6	-8.2
LOWER DRUM				
Generation	142 GWh/yr	142 GWh/yr	141 GWh/yr	142 GWh/yr
Annual average	-8.6	-8.9	-9.3	-8.8
DEER CREEK				
Generation	22.4 GWh/yr	22.4 GWh/yr	22.4 GWh/yr	22.4 GWh/yr

Annual average

-1.0

-1.1

-1.1

-1

Table 3-195. Percent of target water delivery available to NID and PCWA with implementation of four flow scenarios including the Supplemental Flow (SF) or Block Flow (BF) proposals for the South Yuba River (SYR) below Lake Spaulding dam and Block Flow proposal for the Middle Yuba River (MYR) below Milton diversion dam. (Source: adapted by staff from Additional Information Regarding Water Temperature and Modeling Results; NID, January 23, 2013)

		Scenario 1	Scenario 2	Scenario 3	Scenario 4
Water Year Type		SF in SYR	BF in MYR, SF in SYR	BF in MYR and SYR	BF in SYR
NID					
1976	critical dry	98	98	97	97
1977	extreme critical dry	46	46	44	46
1978	above normal	91	91	90	91
1989	above normal	100	100	94	99
PCWA					
1976	critical dry	100	100	100	100
1977	extreme critical dry	63	63	62	62
1978	above normal	90	90	91	90
1989	above normal	100	100	100	100

NOTE: All other water years between 1976 and 2008 would have met 100 percent of water delivery target

Table 3-196. Upper Drum-Spaulding, Lower Drum, and Deer Creek Project canals included in Fish Protection and Management during Canal Outages Plan. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Canal	Development	Facility Description
Lake Valley canal (Upper Drum-Spaulding)	Drum No. 1 and No.2	Lake Valley Canal diverts water from Lake Valley Canal Diversion Dam 2.41 miles (mi) to Drum Canal. The canal includes 0.96 mi of open ditch, 0.56 mi of flume, and 0.89 mi of pipe. The canal is 8.7 feet (ft) wide and 3.5 ft deep, and it has a maximum flow capacity of 36 cubic feet per second (cfs). The open sections of the canal are at an elevation of about 5,400 ft.
Drum canal (Upper Drum-Spaulding)	Drum No. 1 and No.2	Drum Canal, situated between the Bear River and Highway 80, diverts water from Lake Spaulding 9.11 mi to Drum Forebay. The canal includes 7.14 mi of open ditch, 0.97 mi of flume, 0.65 mi of tunnel, and 0.35 mi of pipe. The width of the canal is 25 to 32 ft and depths are between 7.8 and 10 ft. The canal has a maximum flow capacity of 840 cfs. The canal has a maximum elevation of 4,800 ft and a minimum elevation of 4,750 ft.
Towle canal (Upper Drum-Spaulding)	Alta	Towle Canal diverts water from Canyon Creek, a tributary to North Fork American River, 3.88 mi to Alta Forebay. The canal includes an open ditch section that is 6 ft wide, 4.5 ft deep, and 3.28 mi long and a flume section that is 0.02 mi long. The system has a maximum flow capacity of 42 cfs. The elevation of the canal is about 3,550 ft.
South Yuba canal/Chalk Bluff (Deer Creek)	Deer Creek	The South Yuba Canal receives the water discharged from Spaulding No. 2 Powerhouse at the base of Lake Spaulding 15.71 mi to Big Tunnel. The canal includes 8.68 mi of open ditch, 5.56 mi of flume, 0.71 mi of tunnel, and 0.76 mi of pipe. The Chalk Bluff portion of the canal connects the downstream end of Big Tunnel 3.24 mi to Deer Creek Forebay and consists of 2.99 mi of open ditch, 0.20 mi of flume, and 0.05 mi of pipe. The maximum flow capacity of the system is 146-cfs at the upper end of the South Yuba Canal, dropping to 126-cfs below the Bear River spill gate. The Chalk Bluff portion of the system has a maximum flow capacity of 126 cfs and drops to 107 cfs at its terminus. The system has a maximum elevation of 4,900 ft and a minimum elevation of 4,470 ft.
Bear River canal (Lower Drum)	Halsey	The Bear River Canal diverts water from the Bear River Canal Diversion Dam 22.72 mi to Halsey Forebay. The canal includes 20.73 mi of open ditch, 0.67 mi of flume, and 1.32 mi of tunnel. The canal is 20 ft wide and 9 ft deep. The system has a maximum flow capacity of 490 cfs. The canal has a maximum elevation of 1,940 ft and a minimum elevation of 1,800 ft.

Table 3-196. Upper Drum-Spaulding, Lower Drum, and Deer Creek Project canals included in Fish Protection and Management during Canal Outages Plan. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Canal	Development	Facility Description
Upper Wise canal (Lower Drum)	Wise and Wise No.2	The Upper Wise Canal diverts water from Halsey Afterbay 2.18 mi to Rock Creek Reservoir. The canal includes 1.95 mi of open ditch, 0.06 mi of flume, and 0.17 mi of natural waterway. The canal is 22 ft wide and 8 ft deep. The system has a maximum flow capacity of 488 cfs. The canal has a maximum elevation of 1,820 ft and a minimum elevation of 1,440 ft.
Lower Wise canal (Lower Drum)	Wise and Wise No.2	The Lower Wise Canal diverts water from Rock Creek Reservoir 3.76 mi to Wise Forebay. The canal includes 3 mi of open ditch and 0.76 mi of tunnel. The canal is 22 ft wide and 8 ft deep. Its maximum flow capacity is 488 cfs. The canal has a maximum elevation of 1,430 ft and a minimum elevation of 1,390 ft.
South canal (Lower Drum)	Newcastle	The South Canal diverts water from Wise Powerhouse 5.35 mi to Newcastle Powerhouse. The canal includes 2.78 mi of open ditch, 0.40 mi of concrete box flume, and 1.04 mi of tunnel. The canal is 16 to 21 ft wide and 6 ft deep. The system has a maximum flow capacity of 450 cfs. The canal has a maximum elevation of 930 ft and a minimum elevation of 470 ft.

Table 3-197. Yuba-Bear Project canals included in Fish Protection and Management during Canal Outages Plan. (Source: adapted by staff from PG&E 2011a and NID 2011a)

Canal	Development	Facility Description
Milton Bowman conduit	Bowman	Milton-Bowman conduit is totally enclosed and mostly underground, therefore, fish rescue prior to dewatering is not practical. The four penstocks are rarely dewatered, so fish rescue is not needed.
Bowman Spaulding conduit	Spaulding No. 3	Bowman-Spaulding Conduit conveys a maximum of 300 cubic feet per second (cfs) of water approximately 10.74 mile (mi) from the Bowman-Spaulding Diversion Dam at elevation 5,394 feet (ft) to Pacific Gas and Electric Company's (PG&E) Upper Drum-Spaulding Project's Fuller Lake at elevation 5,342 ft, then southeast to the conduit's terminus at Spaulding No. 3 Powerhouse Penstock header box at elevation 5,325 ft. The conduit includes eight canal segments, one canal and flume segment, eight tunnels and one inverted siphon. The canal and flume segments total 6.74 mi (63%) of the total length of the conduit.
Dutch Flat no. 2 conduit	Dutch Flat No. 2	Dutch Flat No. 2 conduit is a combination of tunnel, flume, inverted siphon, and canal that diverts a maximum of 610 cfs of water from PG&E's Upper Drum-Spaulding Project's Drum Afterbay approximately 4.68 mi to the Yuba-Bear Hydroelectric Project's Dutch Flat No. 2 Forebay. The conduit follows the Bear River along the north side of the Bear River canyon and generally maintains an elevation of approximately 3,330 ft. The conduit includes one flume segment and one canal segment. The canal and flume segments total 4.31 mi (92%) of the total length of the conduit.
Chicago Park conduit	Chicago Park	Chicago Park conduit diverts a maximum of 1,100 cfs of water from the Dutch Flat Afterbay 4.11 mi to the Chicago Park Forebay. The conduit parallels the Bear River along the north side of the canyon and generally maintains an elevation of approximately 2,780 ft. The conduit includes a concrete box bench flume segment and a gunite-lined canal. The canal and flume segments total 3.59 mi (87%) of the total length of the conduit.

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Appendix B

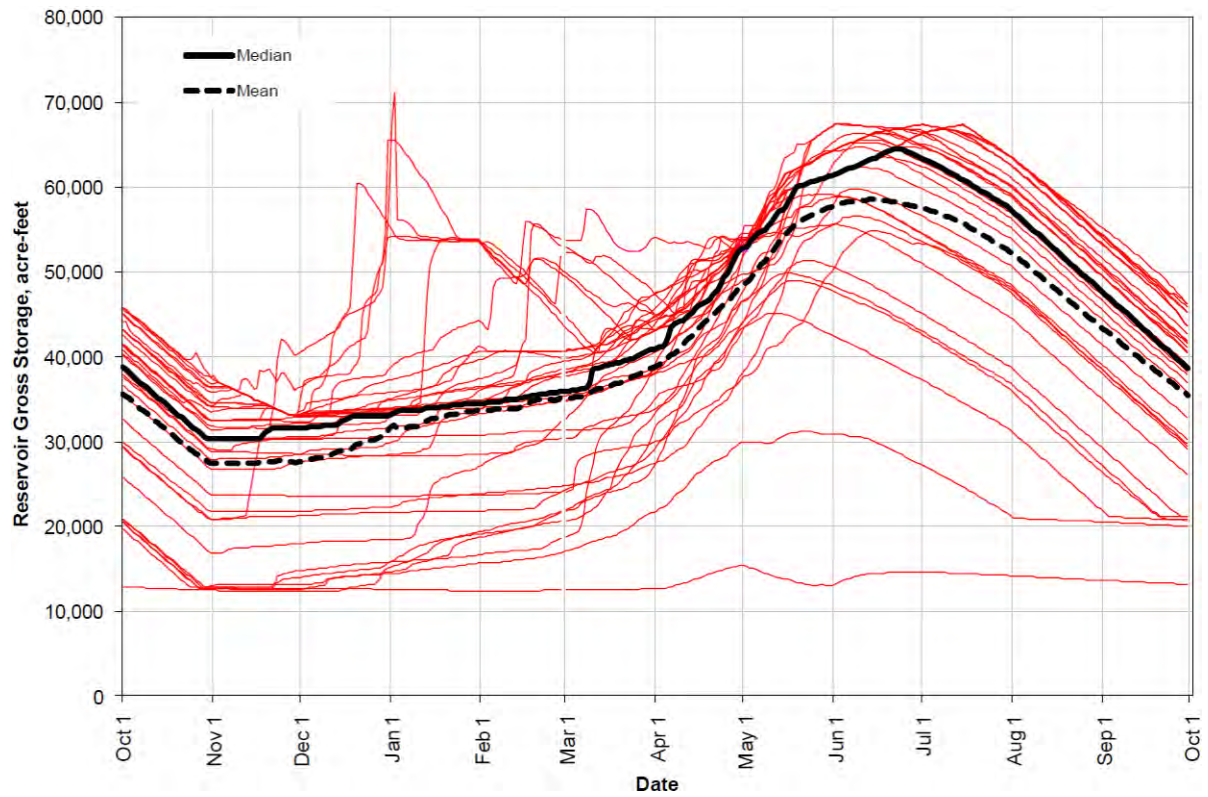
Aquatic Resources Figures

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Appendix B-1

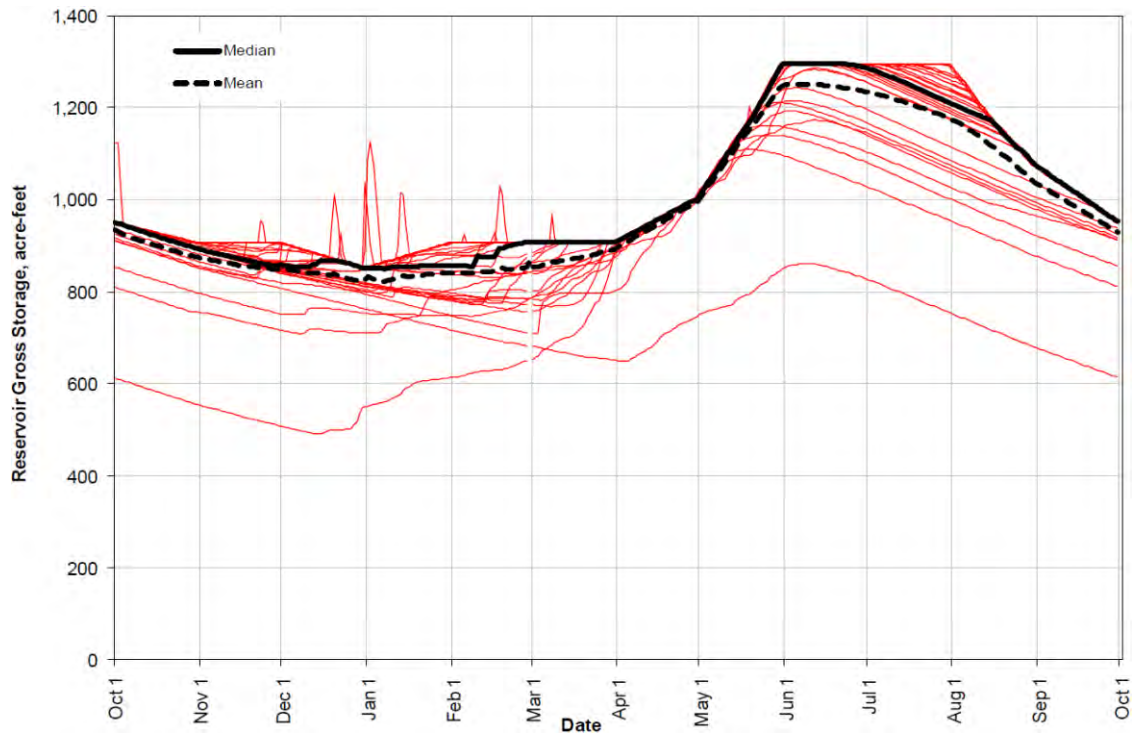
Aquatic Resources Figures: Affected Environment

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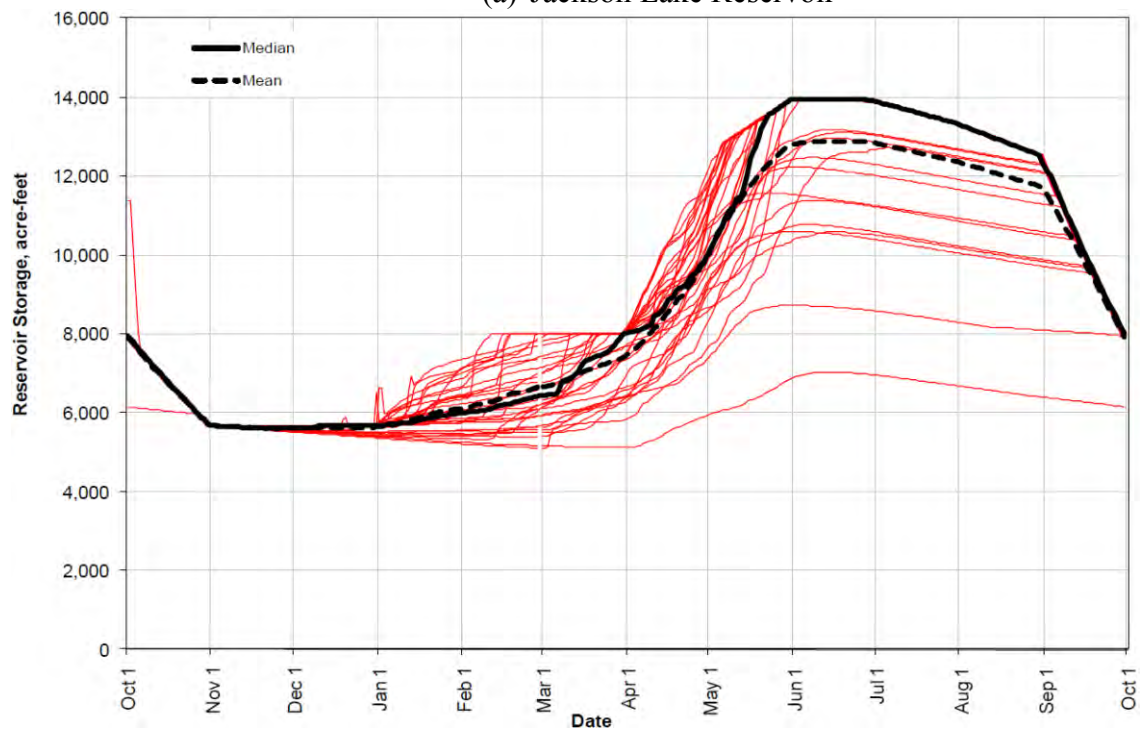


(a) Jackson Meadows Reservoir

Figure 3-3. Historic trends in seasonal reservoir storage – Middle Yuba River Sub-Basin. (Source: NID 2011a)

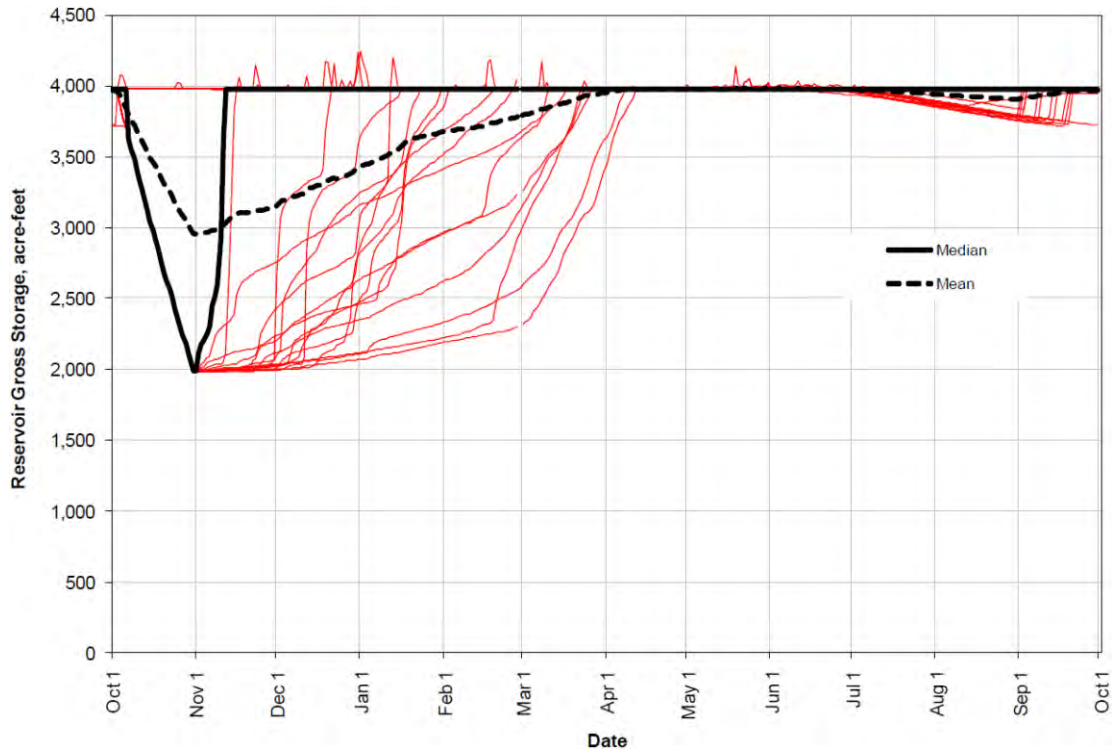


(a) Jackson Lake Reservoir

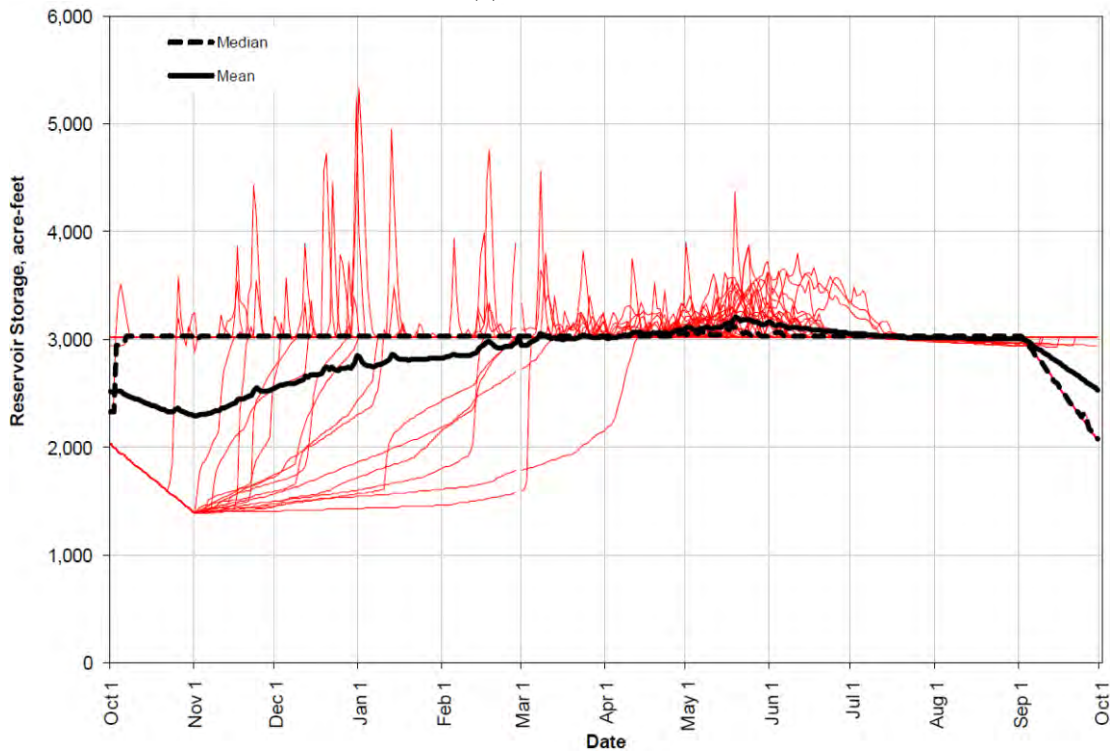


(b) French Lake Reservoir

Figure 3-4. Historic trends in seasonal reservoir storage – Canyon Creek Sub-Basin. (Source: PG&E 2011a; NID 2011a)

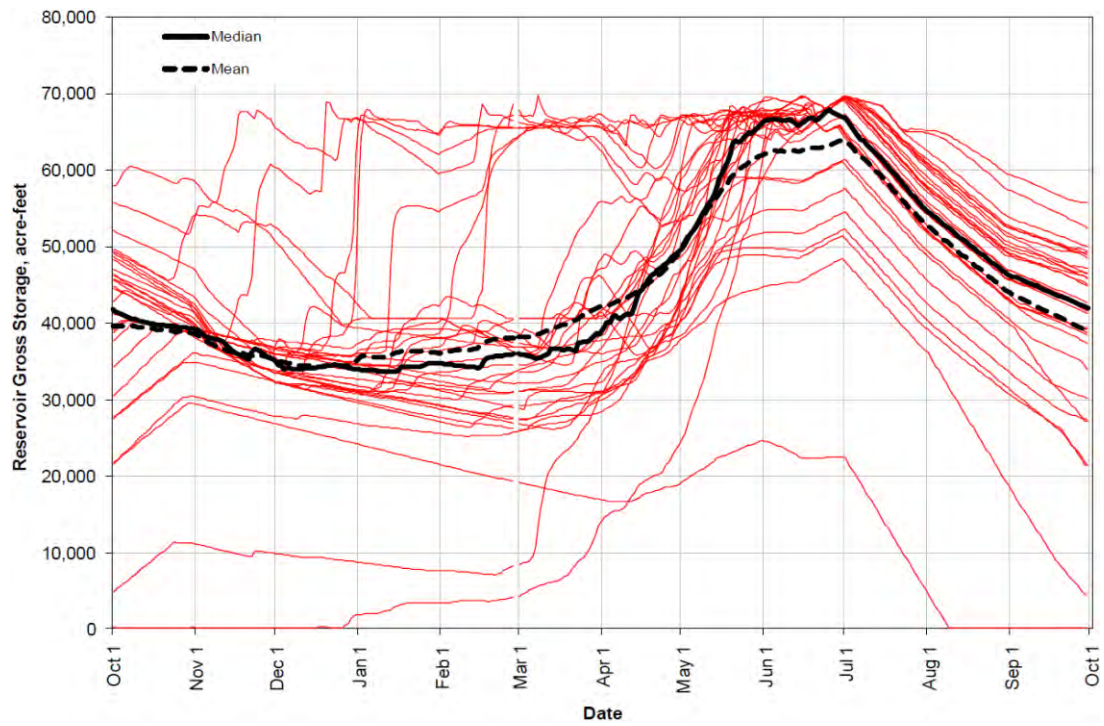


(a) Faucherie Lake Reservoir

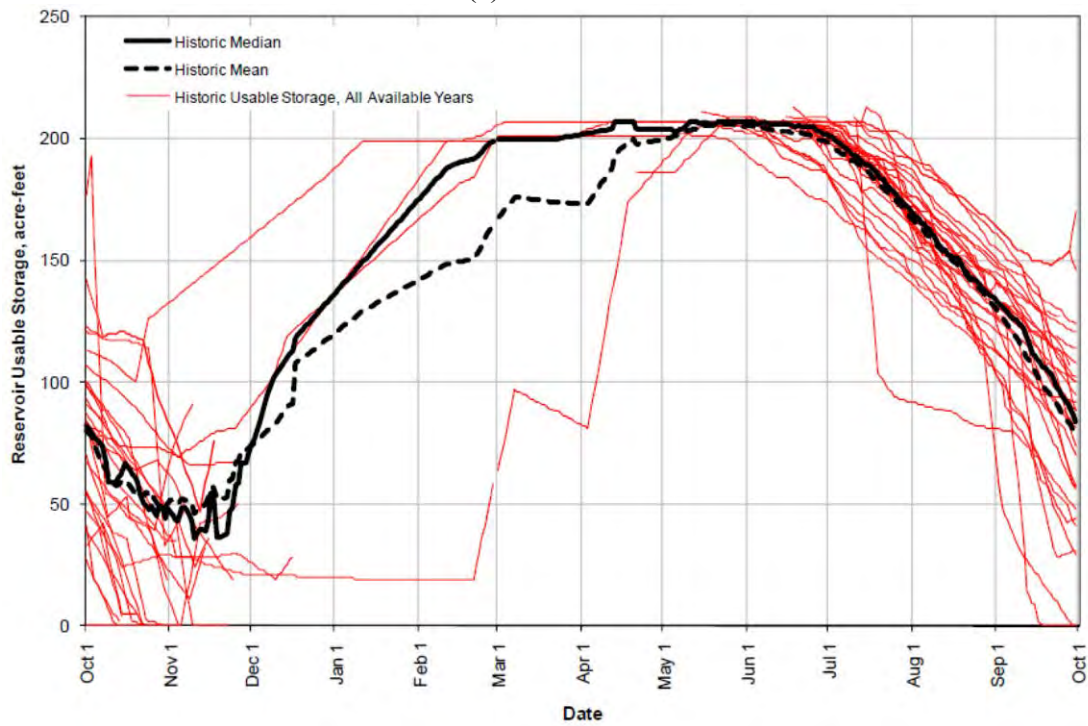


(b) Sawmill Lake Reservoir

Figure 3-5. Historic trends in seasonal reservoir storage – Canyon Creek Sub-Basin. (Source: PG&E 2011a; NID 2011a)

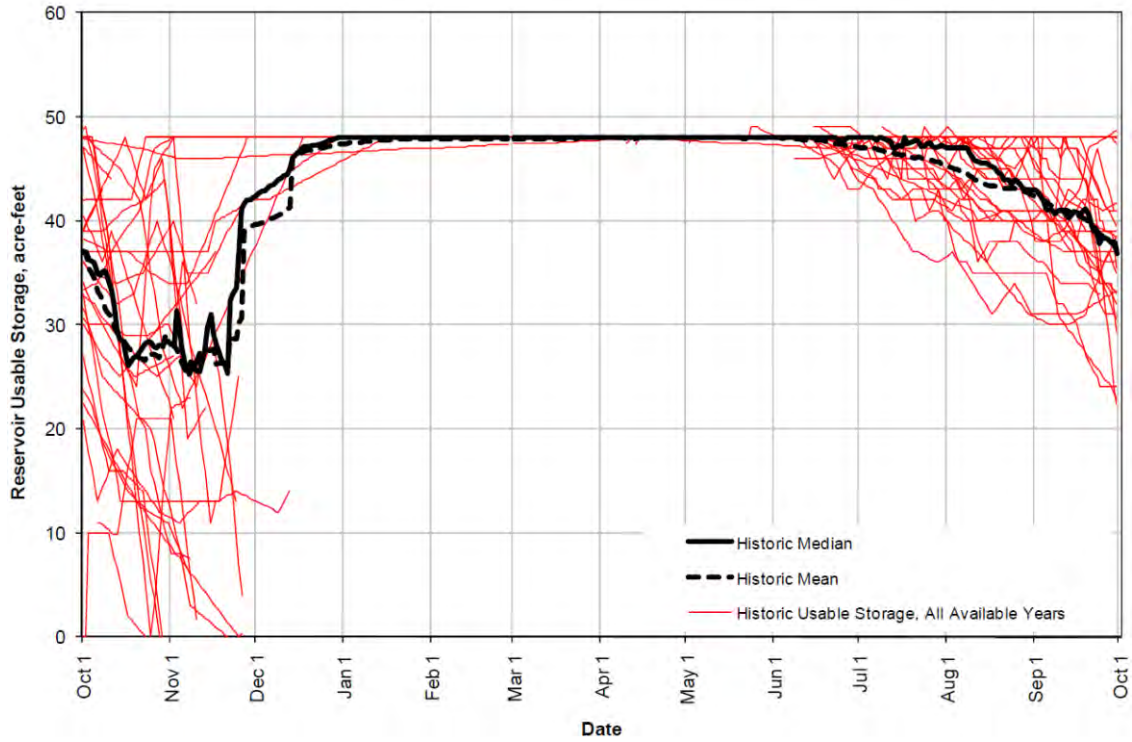


(a) Bowman Lake Reservoir

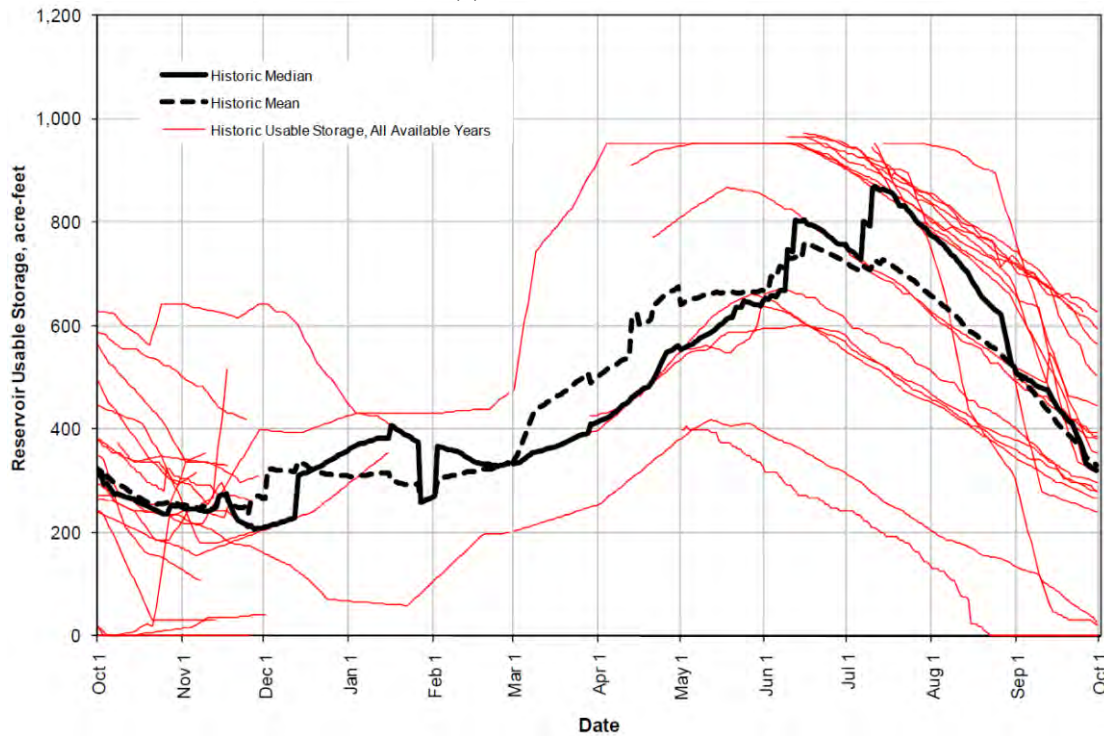


(b) Upper Rock Lake Reservoir

Figure 3-6. Historic trends in seasonal reservoir storage – Canyon Creek Sub-Basin. (Source: PG&E 2011a; NID 2011a)

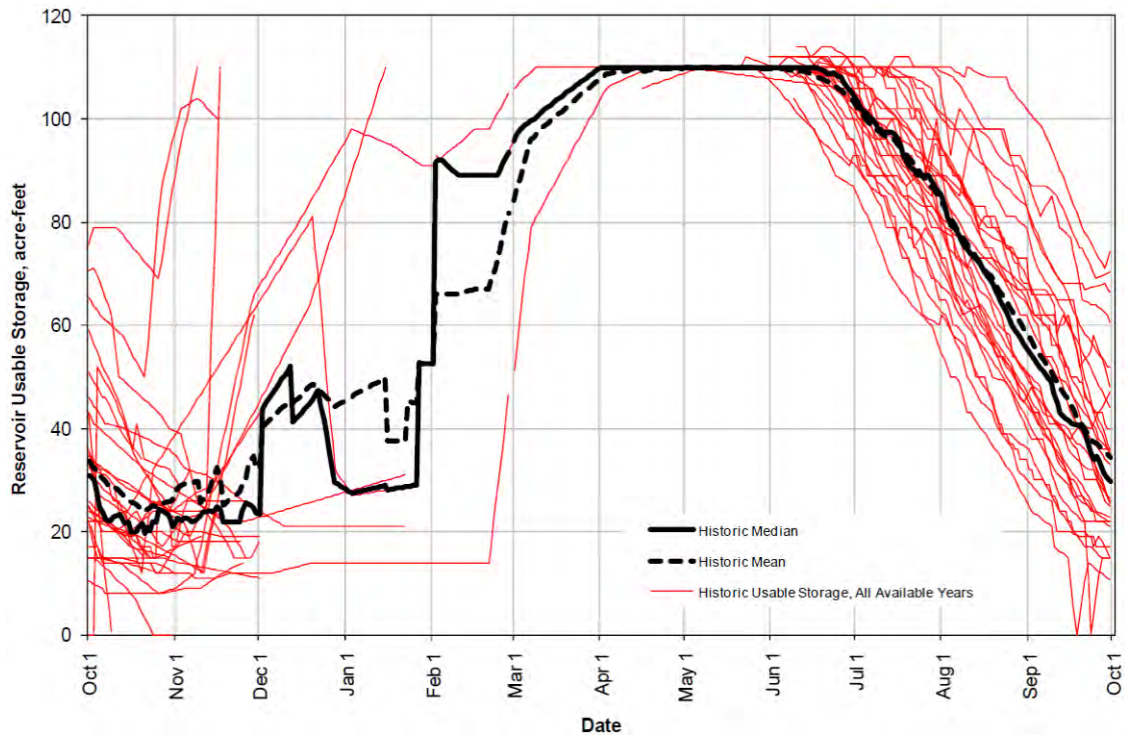


(a) Lower Rock Lake Reservoir

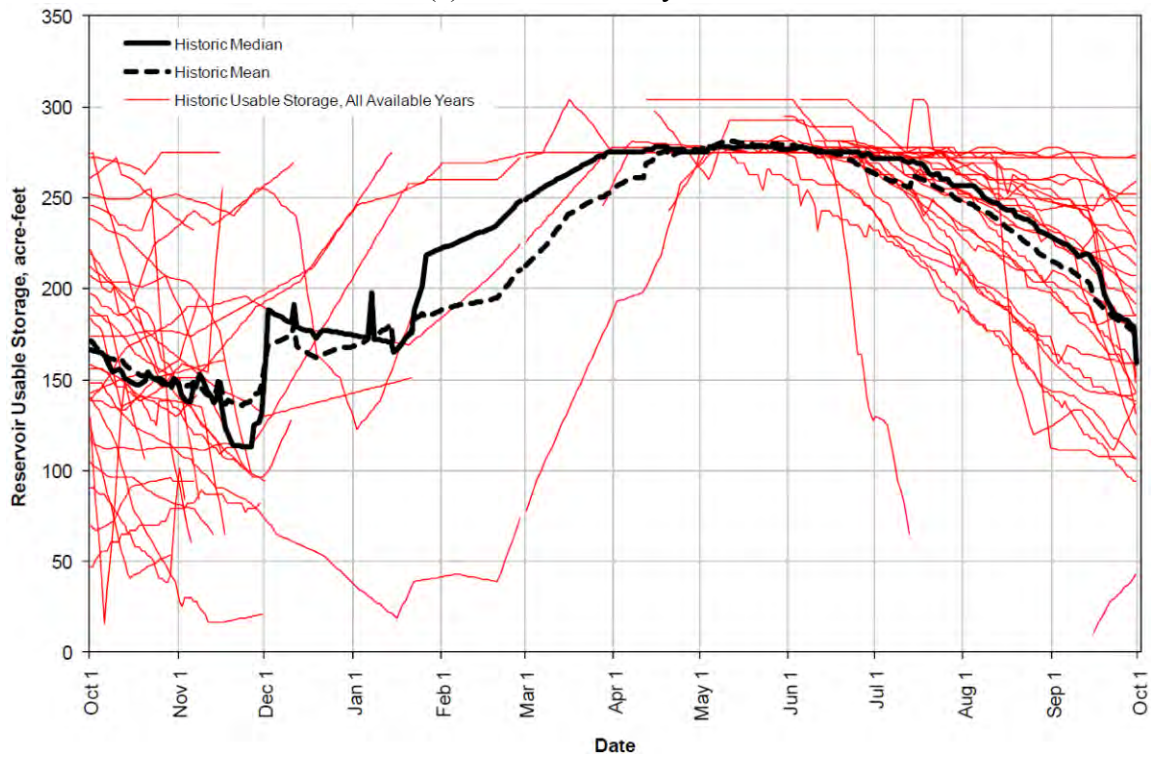


(b) Culberston Lake Reservoir

Figure 3-7. Historic trends in seasonal reservoir storage – Canyon Creek Sub-Basin. (Source: PG&E 2011a; NID 2011a)

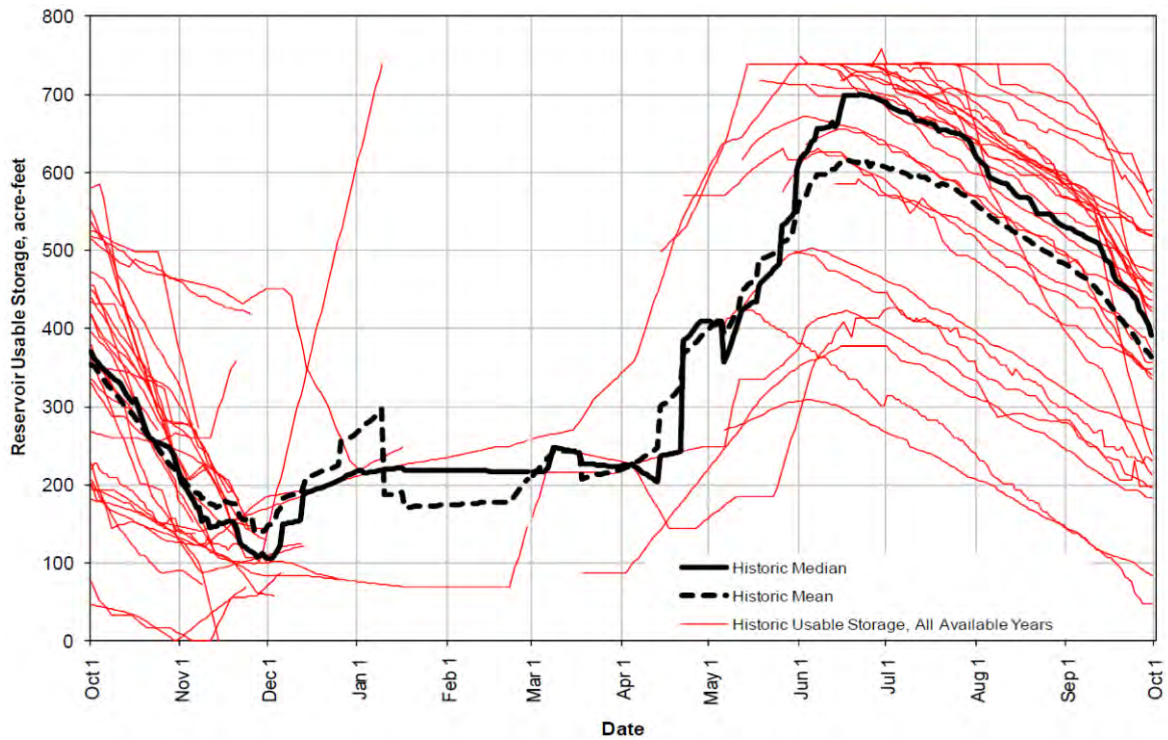


(a) Middle Lindsey Lake Reservoir

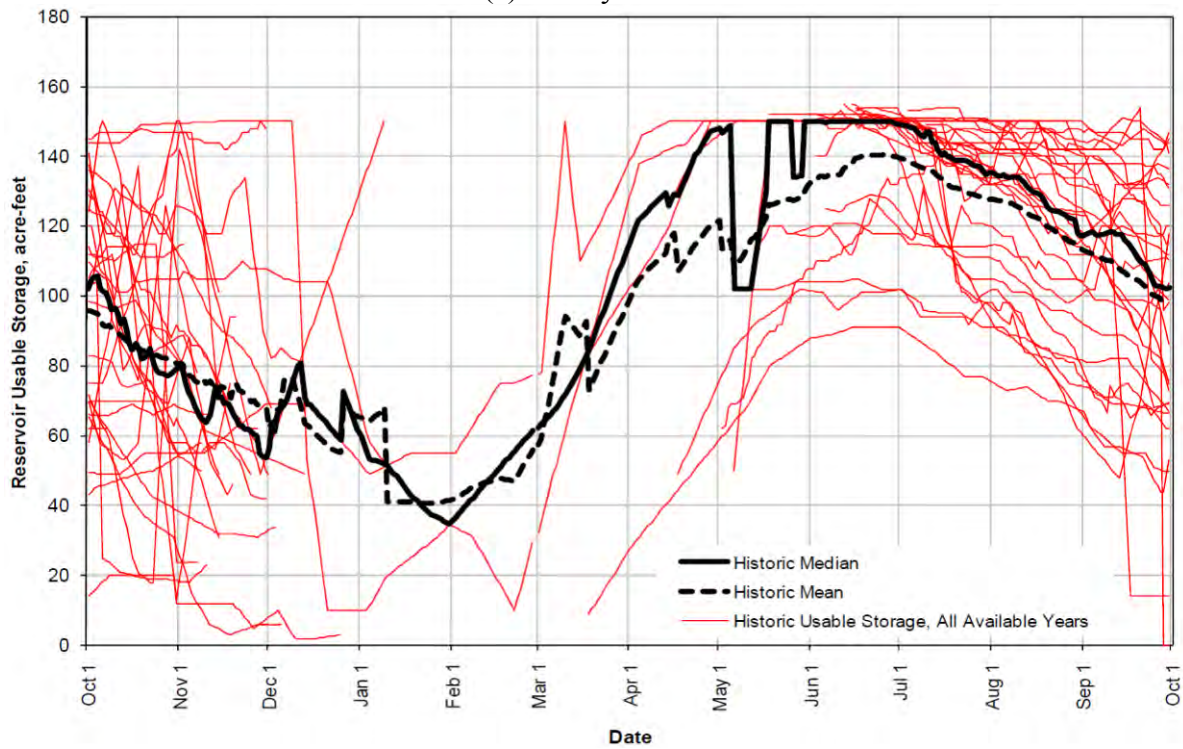


(b) Lower Lindsey Lake Reservoir

Figure 3-8. Historic trends in seasonal reservoir storage – Canyon Creek Sub-Basin. (Source: PG&E 2011a; NID 2011a)

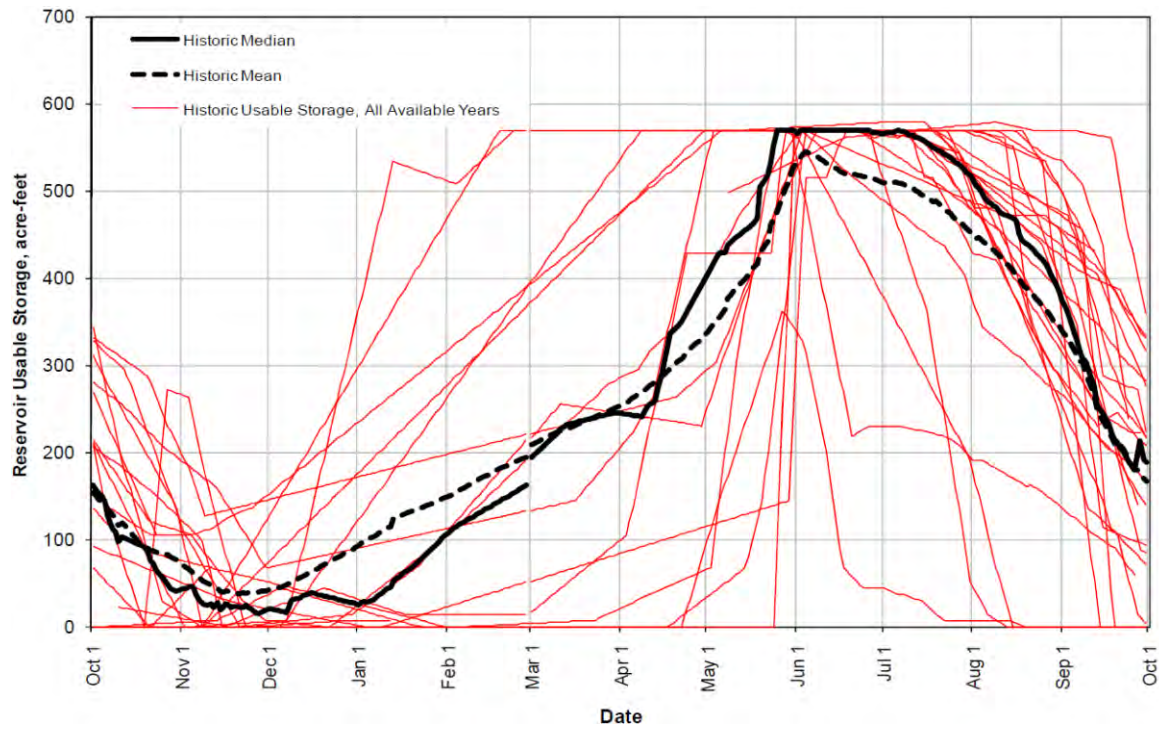


(a) Feeley Lake Reservoir

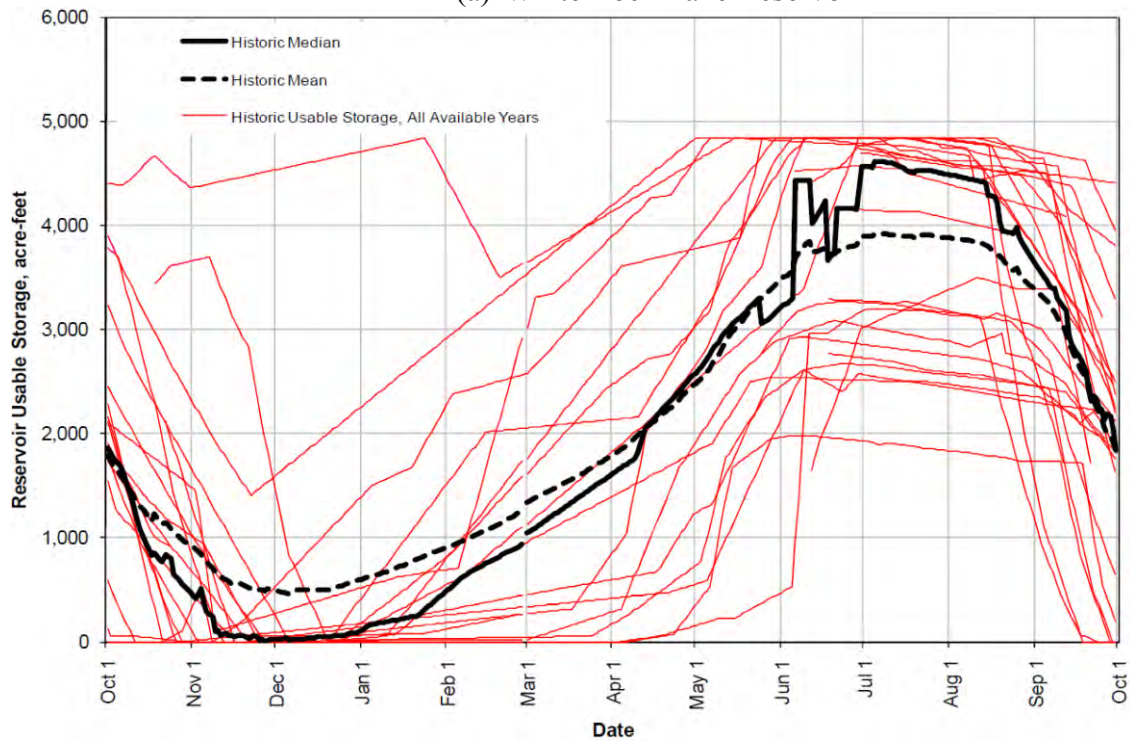


(b) Carr Lake Reservoir

Figure 3-9. Historic trends in seasonal reservoir storage – Fall Creek Sub-Basin. (Source: PG&E 2011a; NID 2011a)

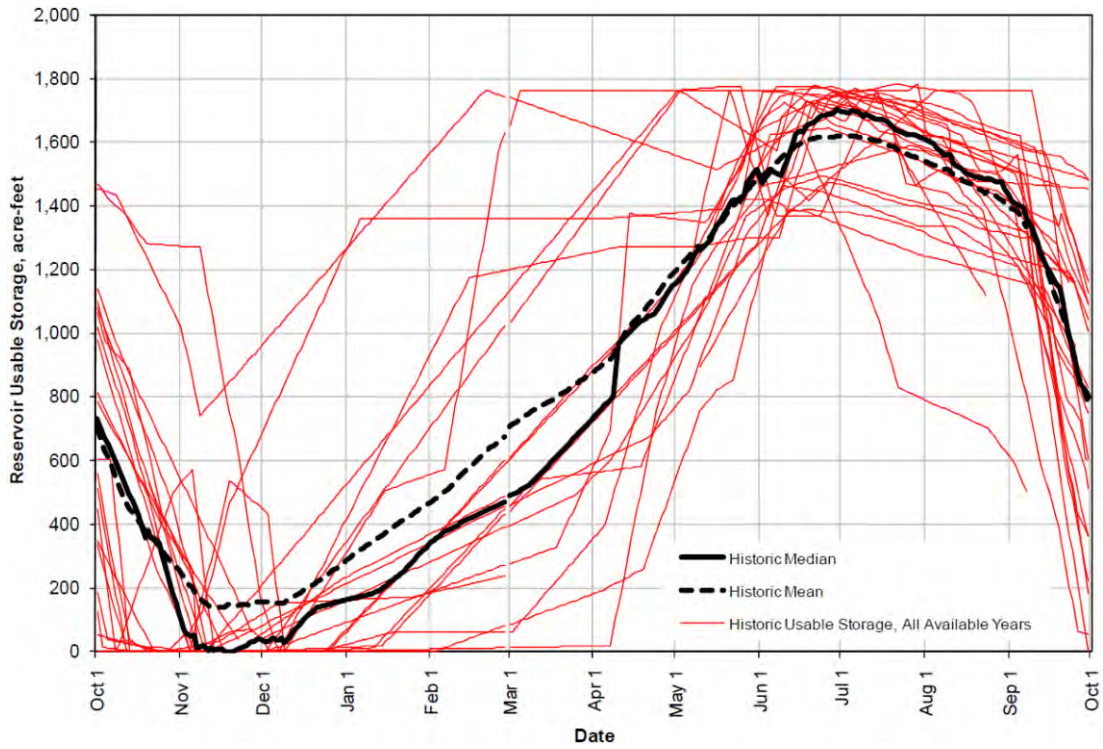


(a) White Rock Lake Reservoir

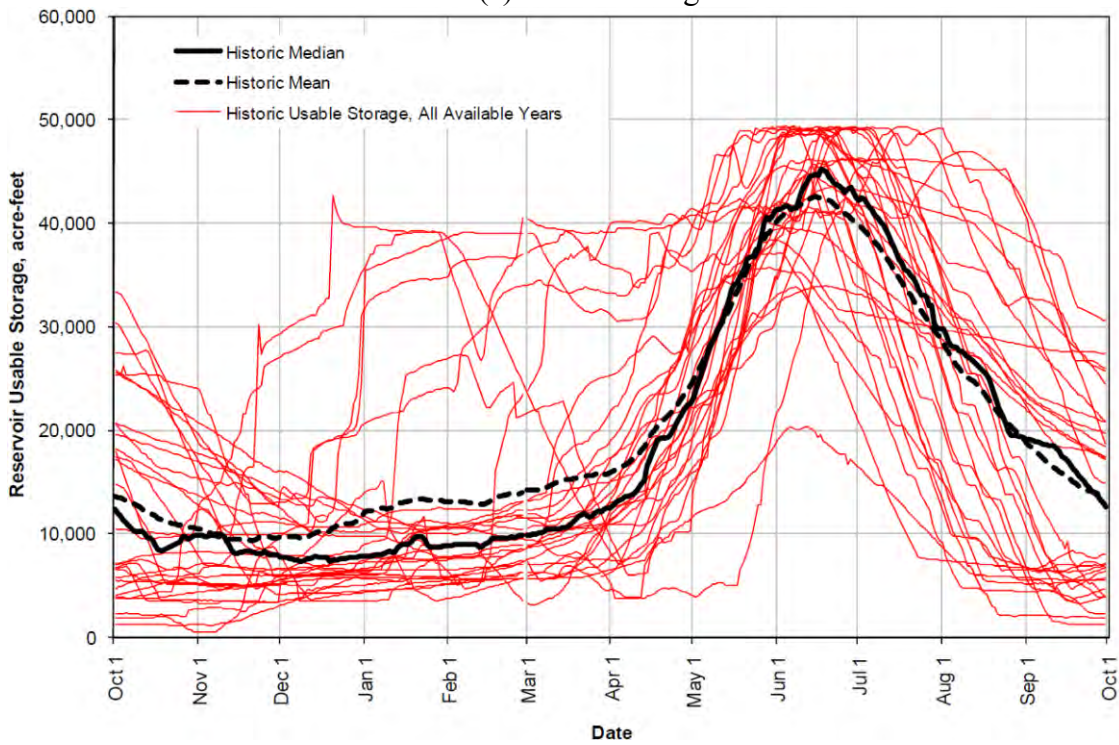


(b) Meadow Lake Reservoir

Figure 3-10. Historic trends in seasonal reservoir storage – South Yuba River Sub-Basin. (Source: PG&E 2011a; NID 2011a)

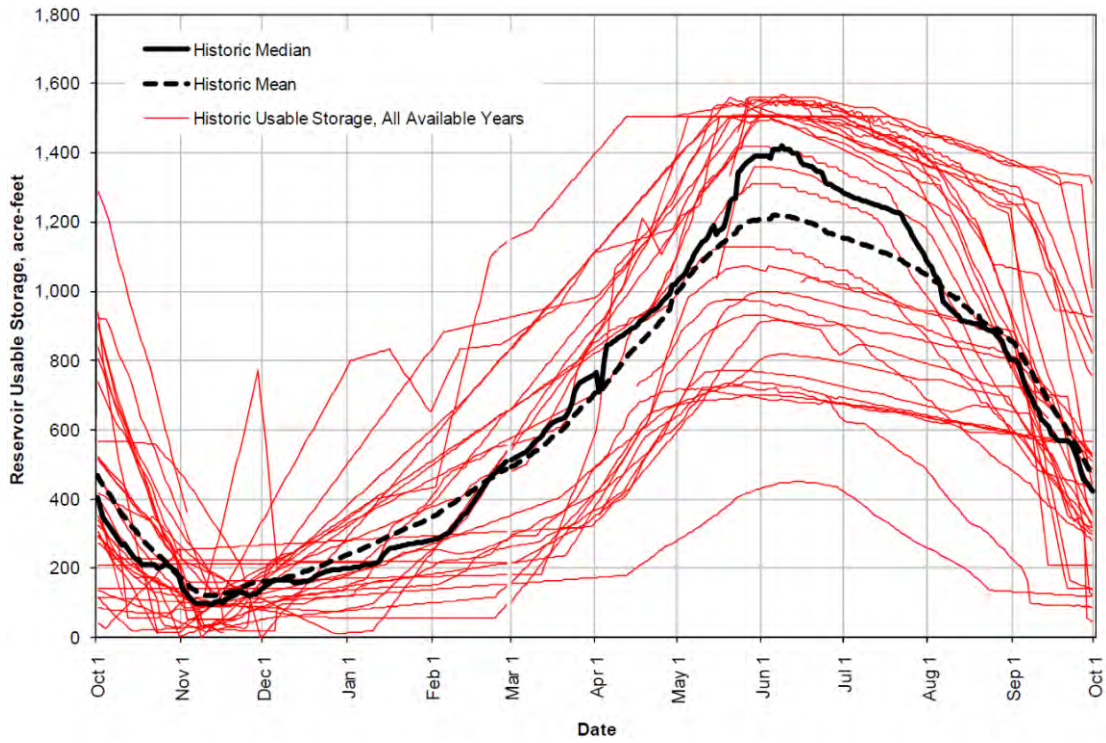


(a) Lake Sterling Reservoir

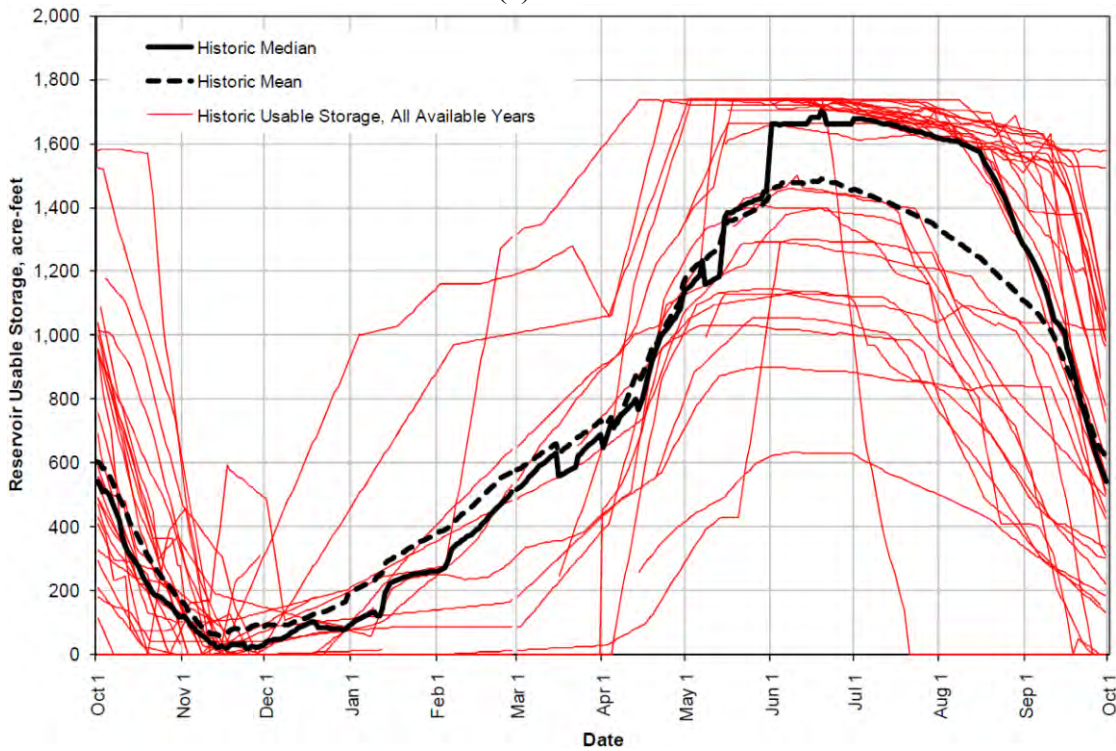


(b) Fordyce Lake Reservoir

Figure 3-11. Historic trends in seasonal reservoir storage – South Yuba River Sub-Basin. (Source: PG&E 2011a; NID 2011a)

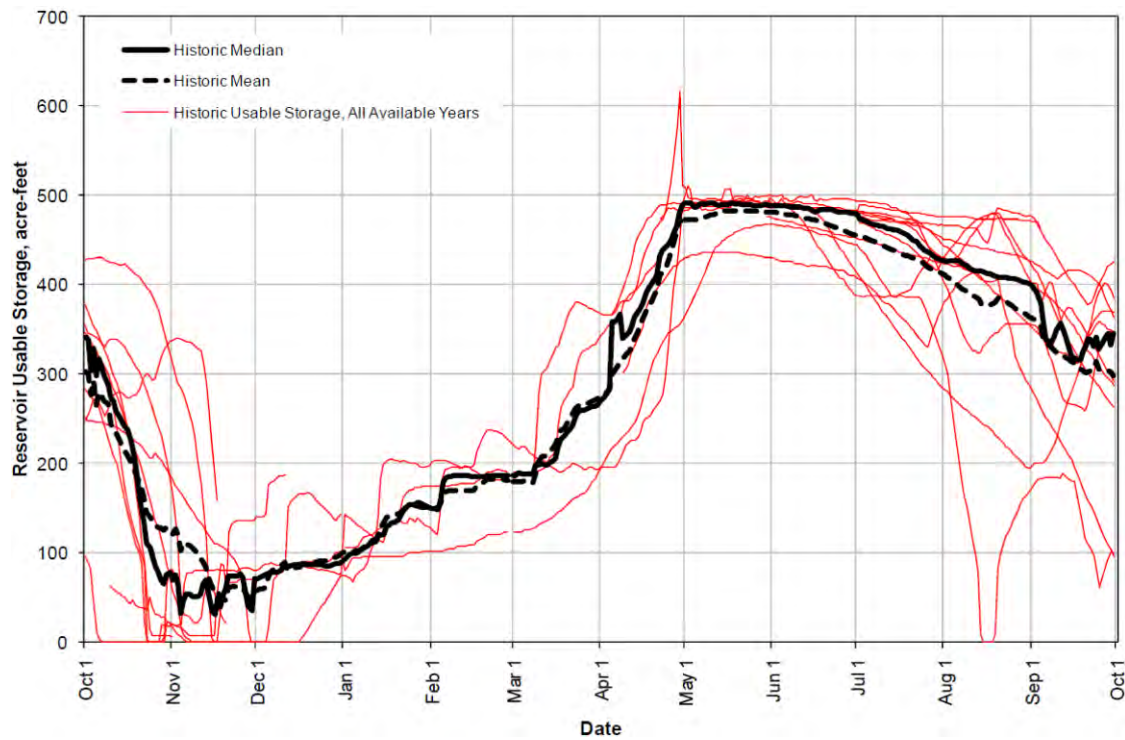


(a) Kidd Lake Reservoir

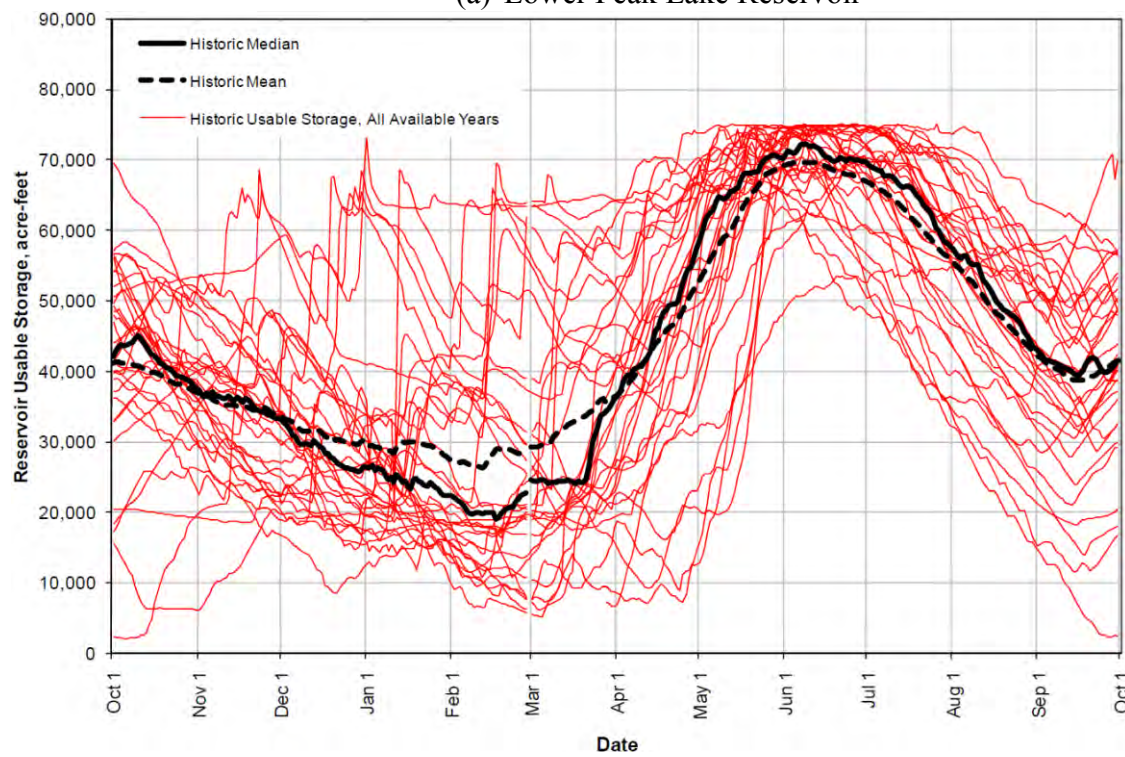


(b) Upper Peak Lake Reservoir

Figure 3-12. Historic trends in seasonal reservoir storage – South Yuba River Sub-Basin. (Source: PG&E 2011a; NID 2011a)

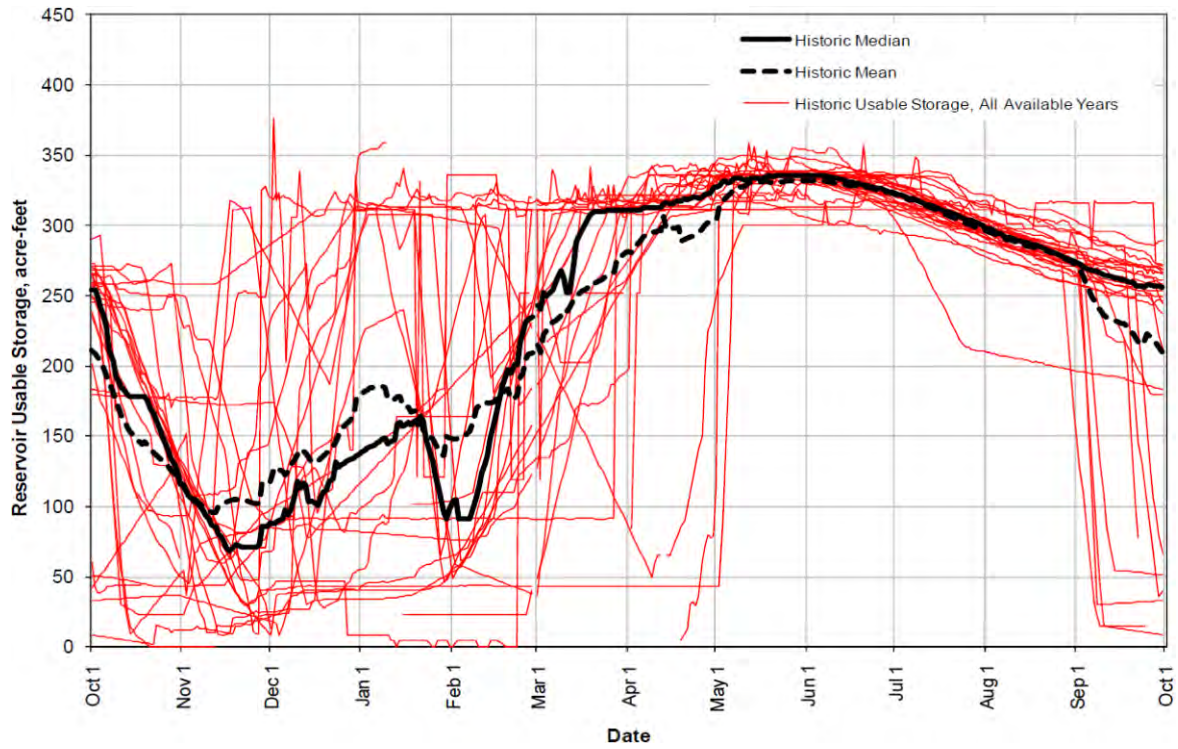


(a) Lower Peak Lake Reservoir

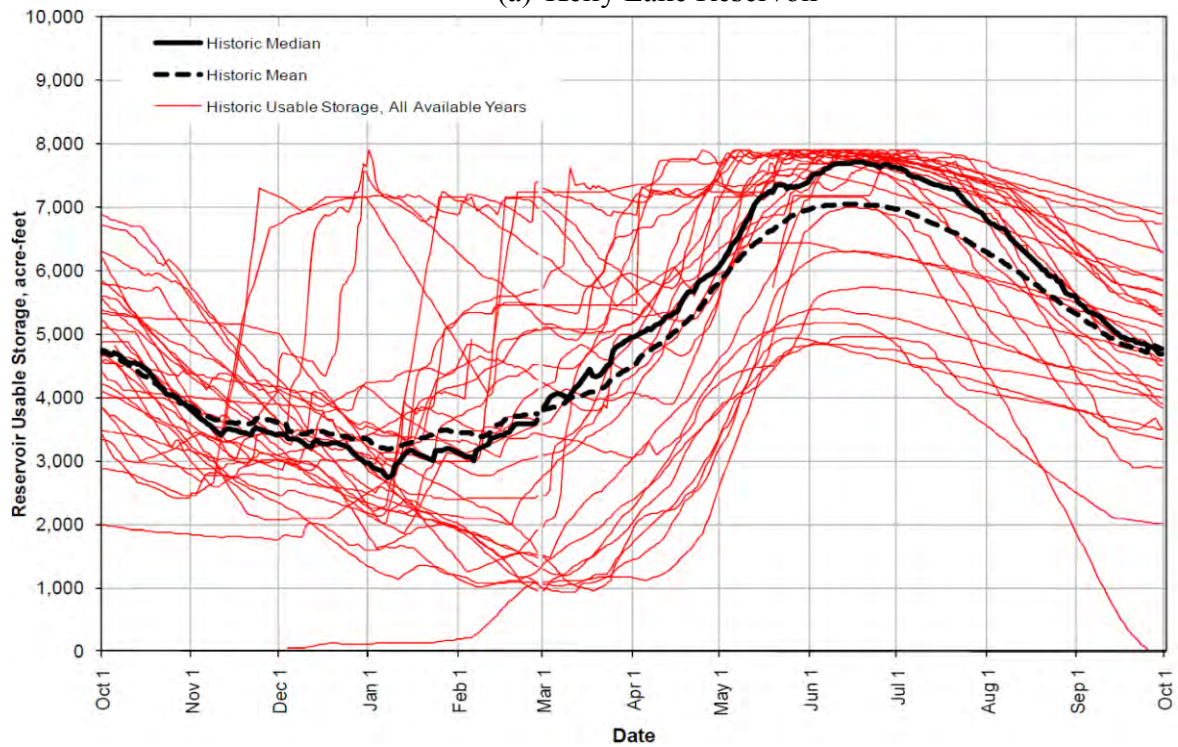


(b) Lake Spaulding Reservoir

Figure 3-13. Historic trends in seasonal reservoir storage – South Yuba River Sub-Basin. (Source: PG&E 2011a; NID 2011a)

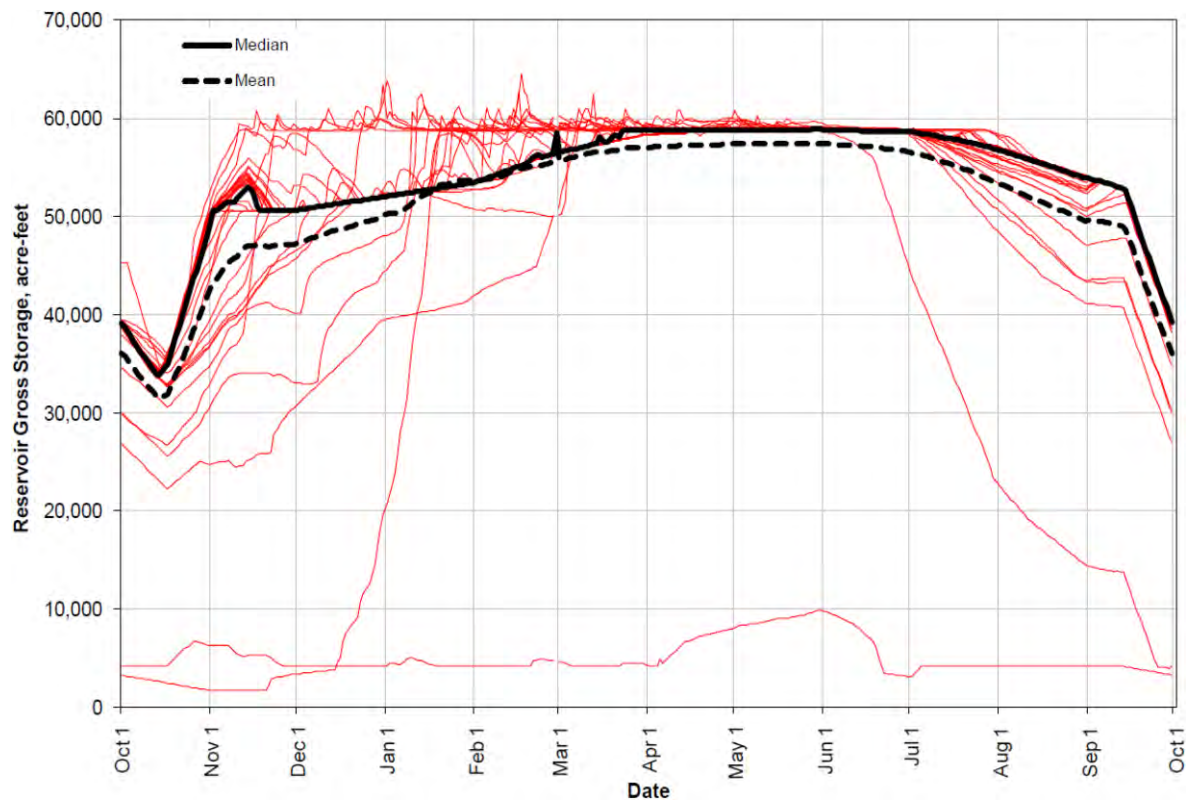


(a) Kelly Lake Reservoir



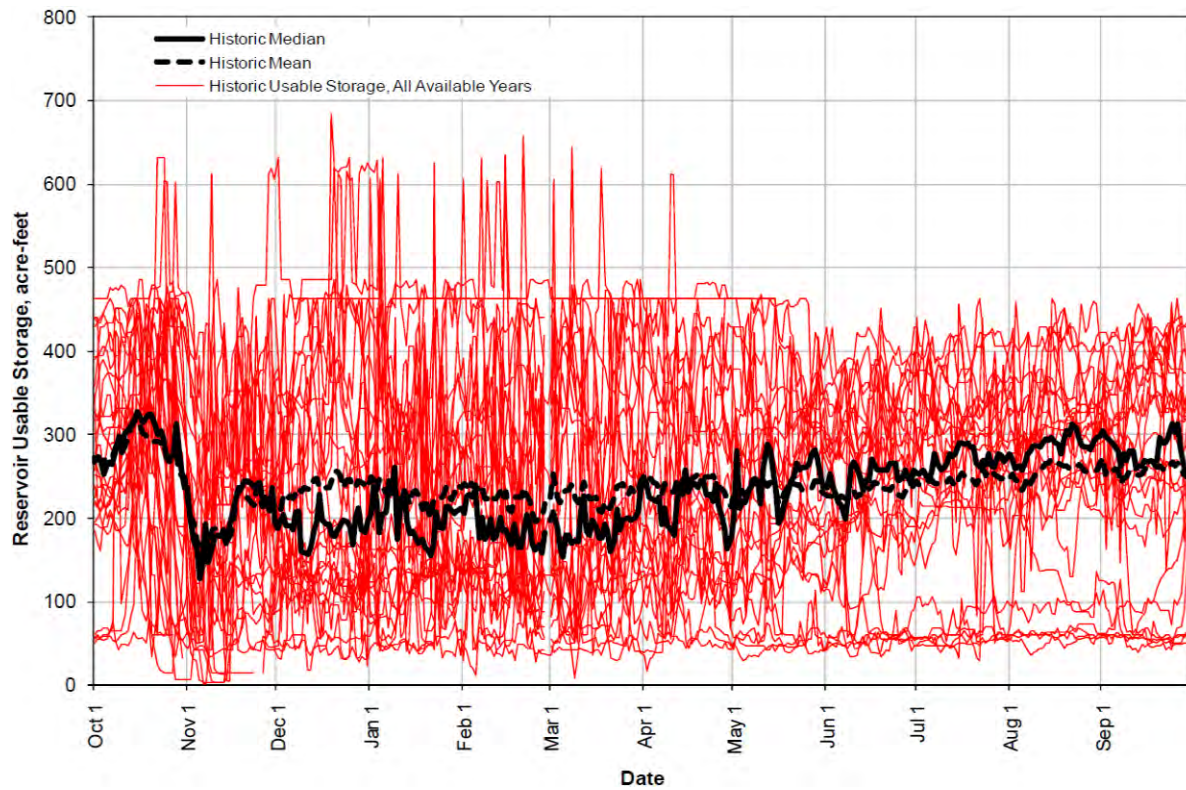
(b) Lake Valley Reservoir

Figure 3-14. Historic trends in seasonal reservoir storage – North Fork of American River Sub-Basin. (Source: PG&E 2011a; NID 2011a)



(a) Rollins Reservoir

Figure 3-15. Historic trends in seasonal reservoir storage – Bear River Sub-Basin. (Source: PG&E 2011a; NID 2011a)



(a) Rock Creek Reservoir

Figure 3-16. Historic trends in seasonal reservoir storage – Mormon Ravine Sub-Basin. (Source: PG&E 2011a; NID 2011a)

Appendix B-2

Aquatic Resources Figures: Environmental Effects

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CFR Study - Culbertson Lake Dam Reach
Average Wetted Perimeter vs. Discharge

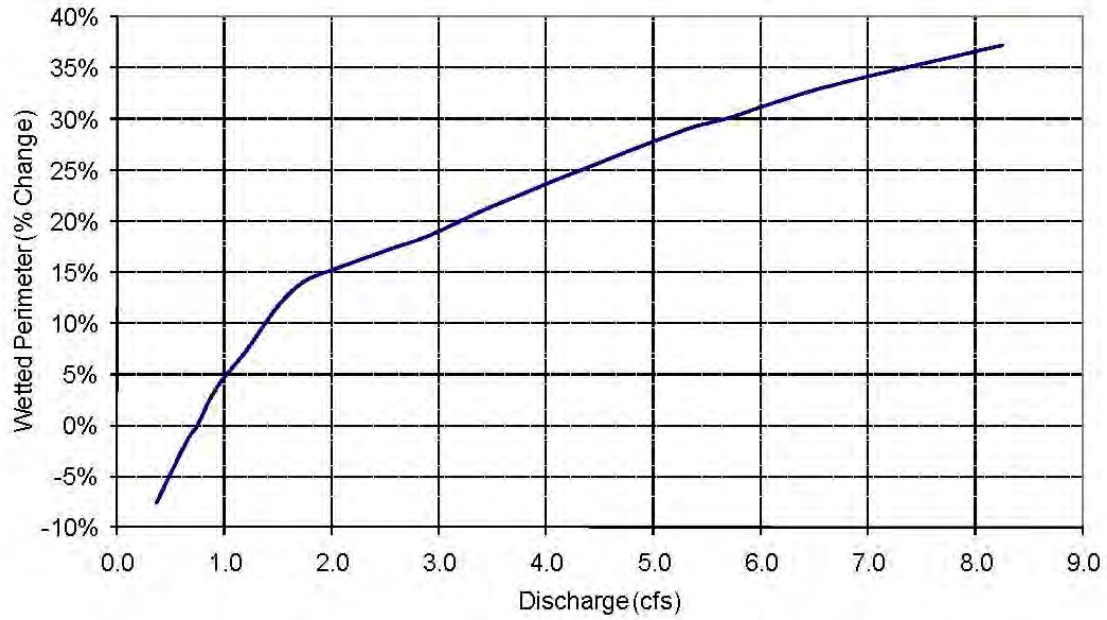


Figure 3-17. Percent change in wetted perimeter as a function of discharge in unnamed tributary below Culbertson Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

CFR Study - Middle Lindsey Lake Dam Reach
Average Wetted Perimeter vs. Discharge

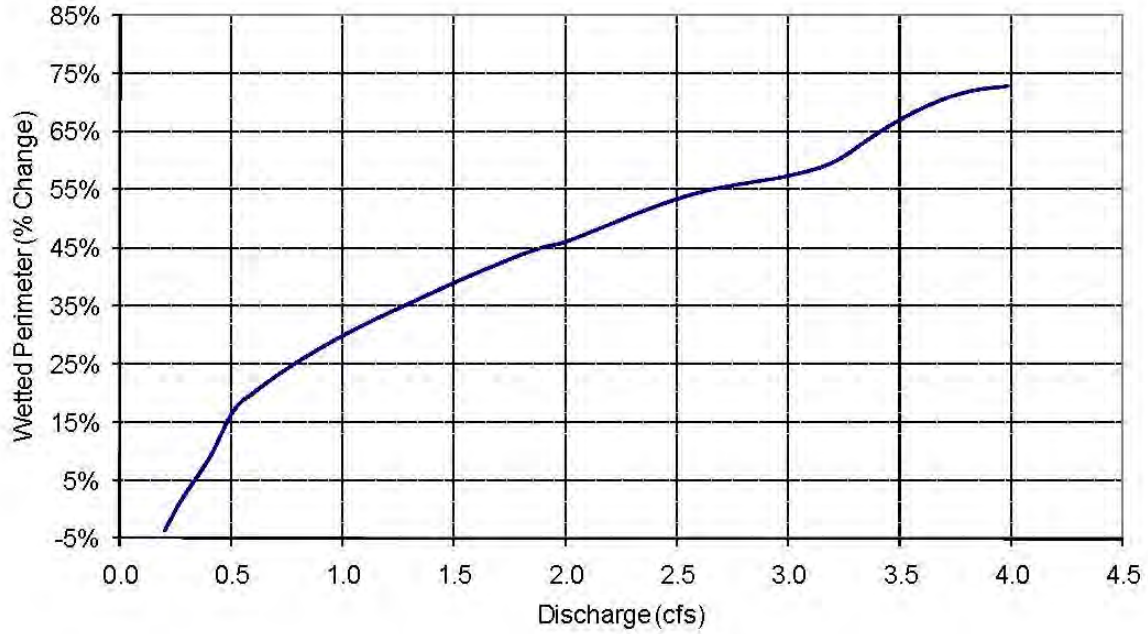


Figure 3-18. Percent change in wetted perimeter as a function of discharge in Lindsey Creek below Middle Lindsey Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

CFR Study - Lower Lindsey Lake Dam Reach
Average Wetted Perimeter vs. Discharge

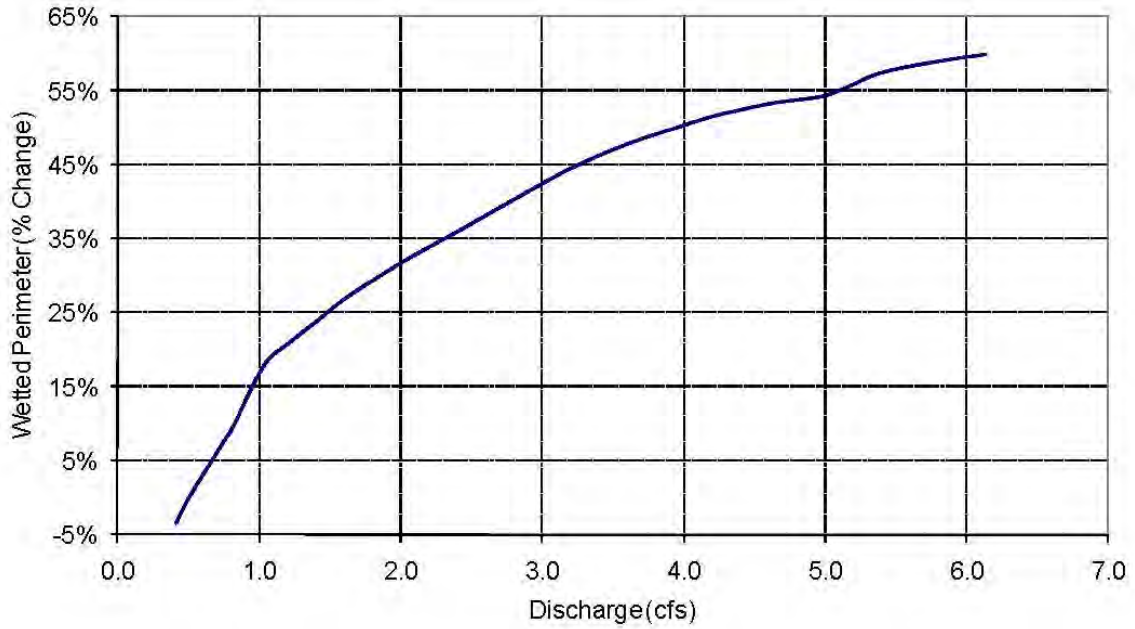


Figure 3-19. Percent change in wetted perimeter as a function of discharge in Lindsey Creek below Lower Lindsey Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

CFR Study - Carr Lake Dam Reach #1
Average Wetted Perimeter vs. Discharge

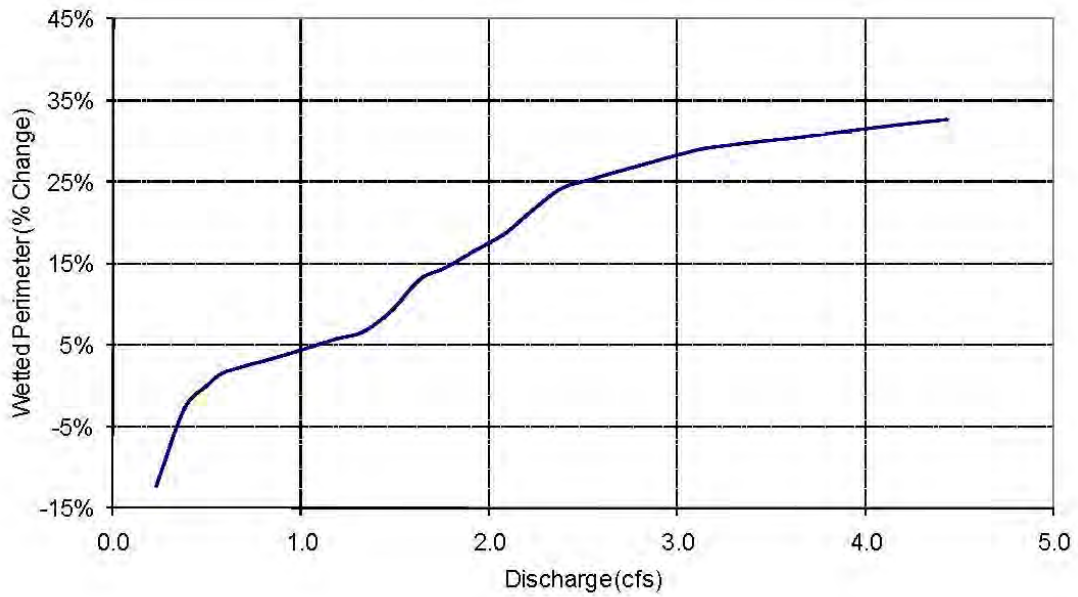


Figure 3-20. Percent change in wetted perimeter as a function of discharge in Lake Creek study stream reach #1 below Carr Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

CFR Study - Carr Lake Dam Reach #2
Average Wetted Perimeter vs. Discharge

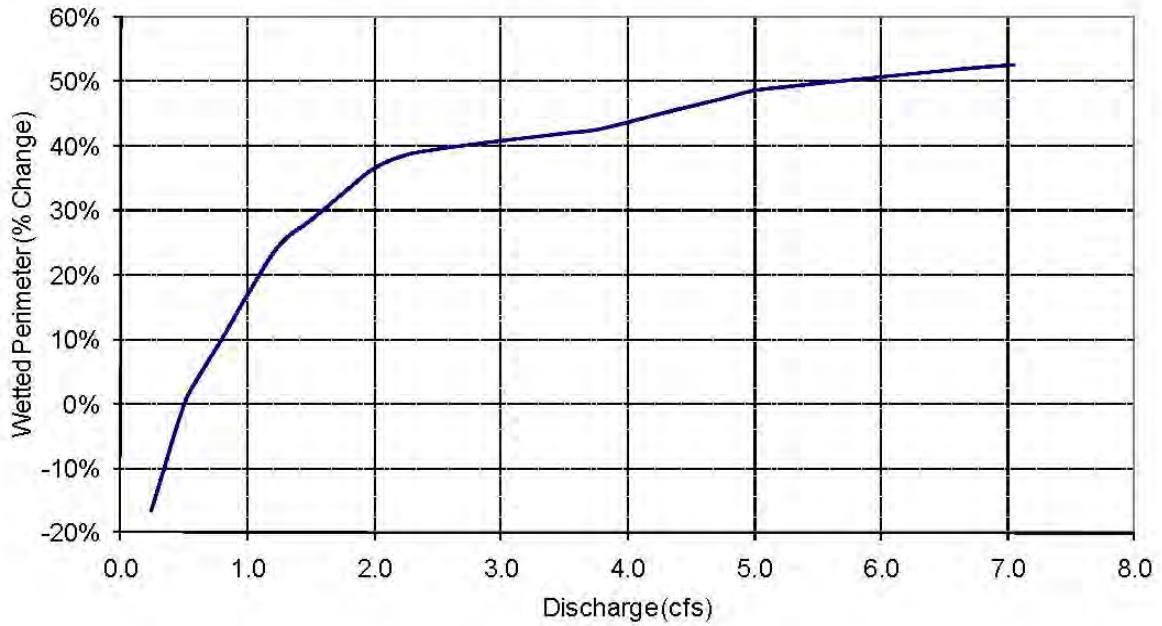


Figure 3-21. Percent change in wetted perimeter as a function of discharge in Lake Creek study stream reach #2 below Carr Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

CFR Study - Blue Lake Dam Reach
Average Wetted Perimeter vs. Discharge

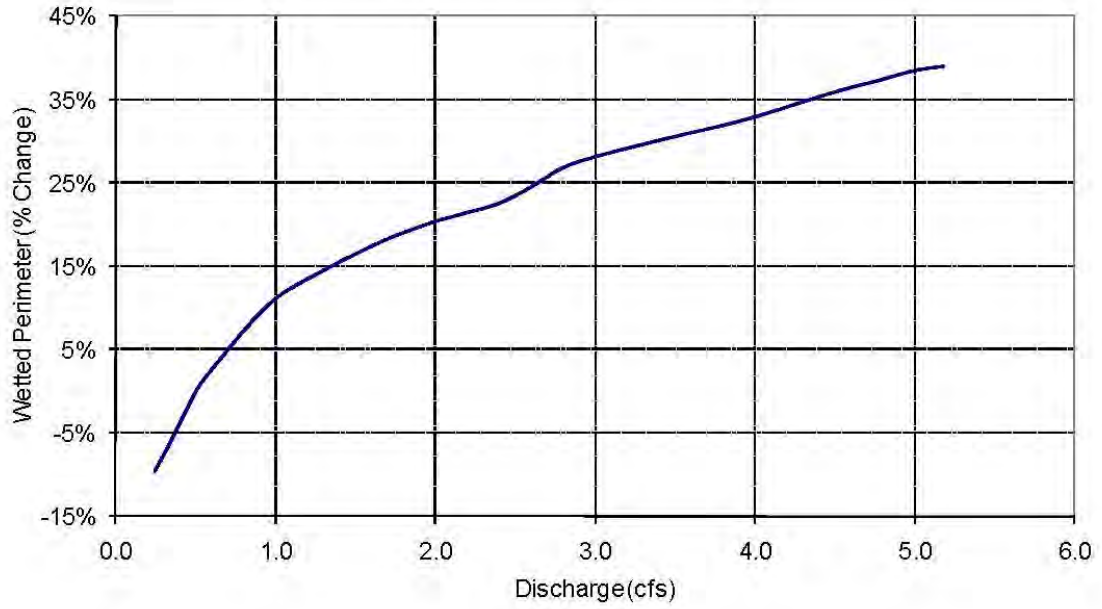


Figure 3-22. Percent change in wetted perimeter as a function of discharge in Rucker Creek below Blue Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

CFR Study - Rucker Lake Dam Reach
Average Wetted Perimeter vs. Discharge

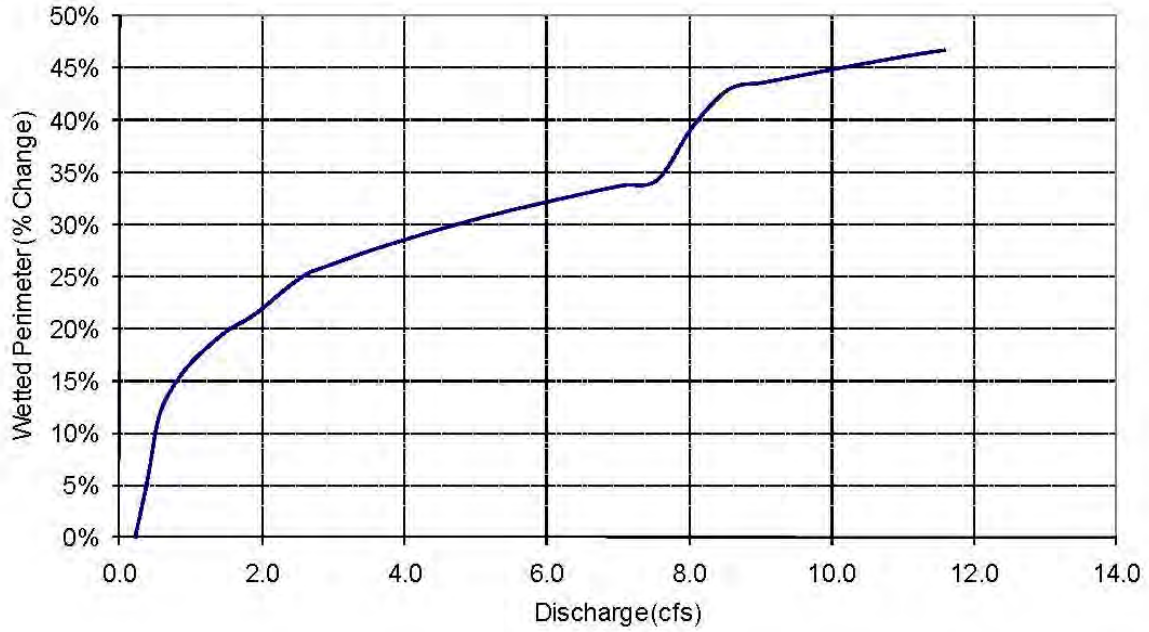


Figure 3-23. Percent change in wetted perimeter as a function of discharge in Rucker Creek below Rucker Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

CFR Study - Fuller Lake Dam Reach
Average Wetted Perimeter vs. Discharge

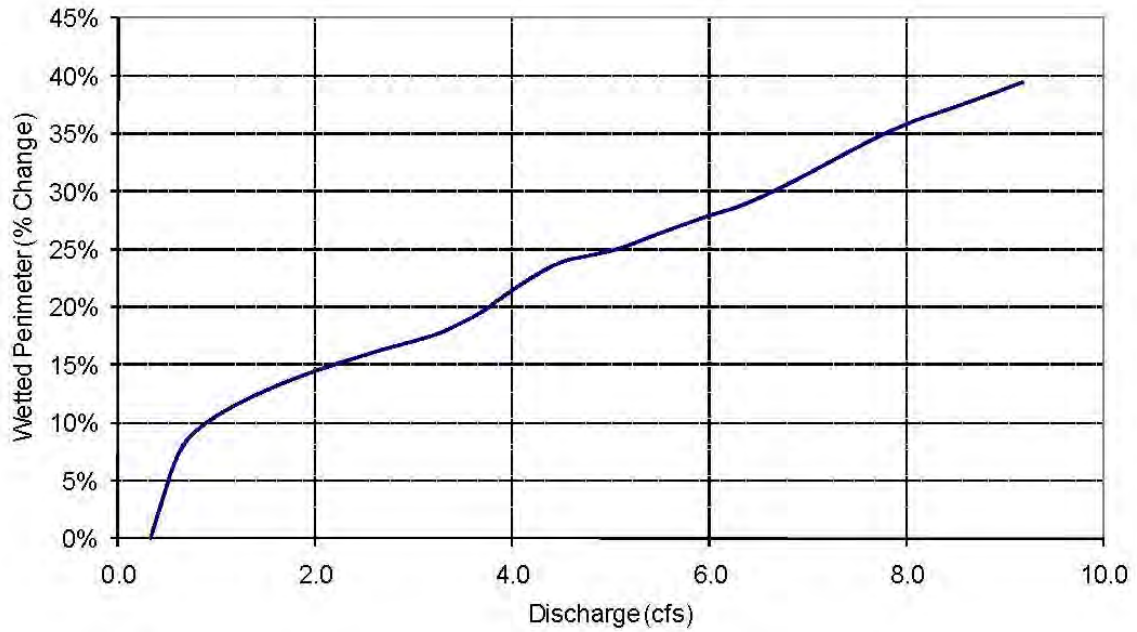


Figure 3-24. Percent change in wetted perimeter as a function of discharge in unnamed tributary below Fuller Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

DFA Study - Meadow Lake Dam Reach
Average Wetted Perimeter vs. Discharge

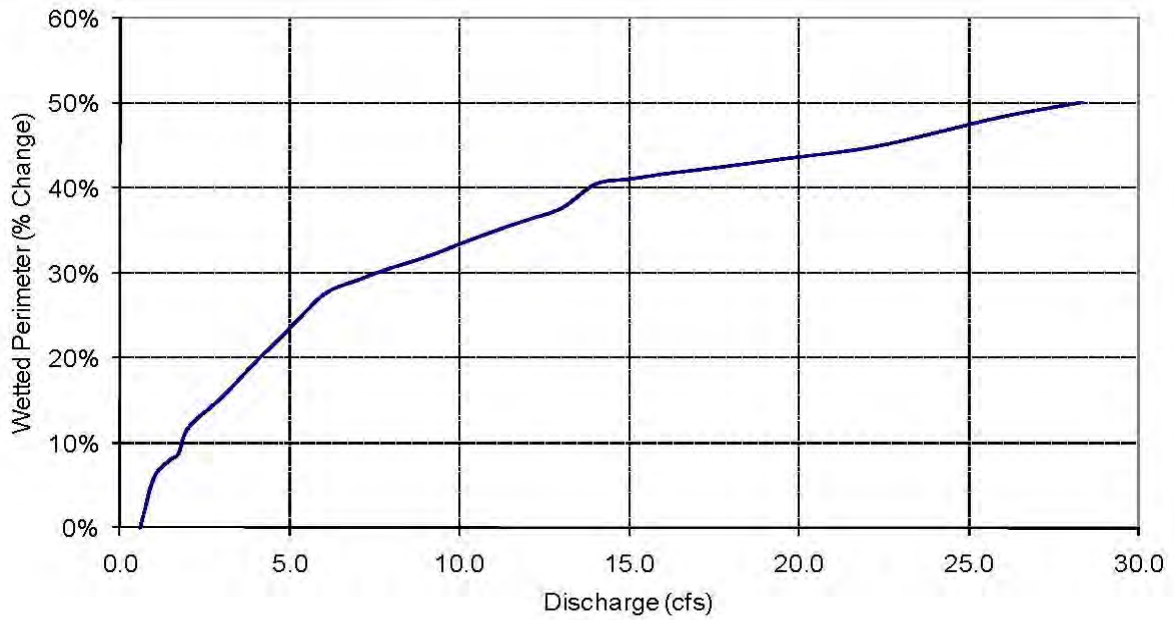


Figure 3-25. Percent change in wetted perimeter as a function of discharge in unnamed tributary below Meadow Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

CFR Study - White Rock Lake Dam Reach #1 & #2

Average Wetted Perimeter vs. Discharge

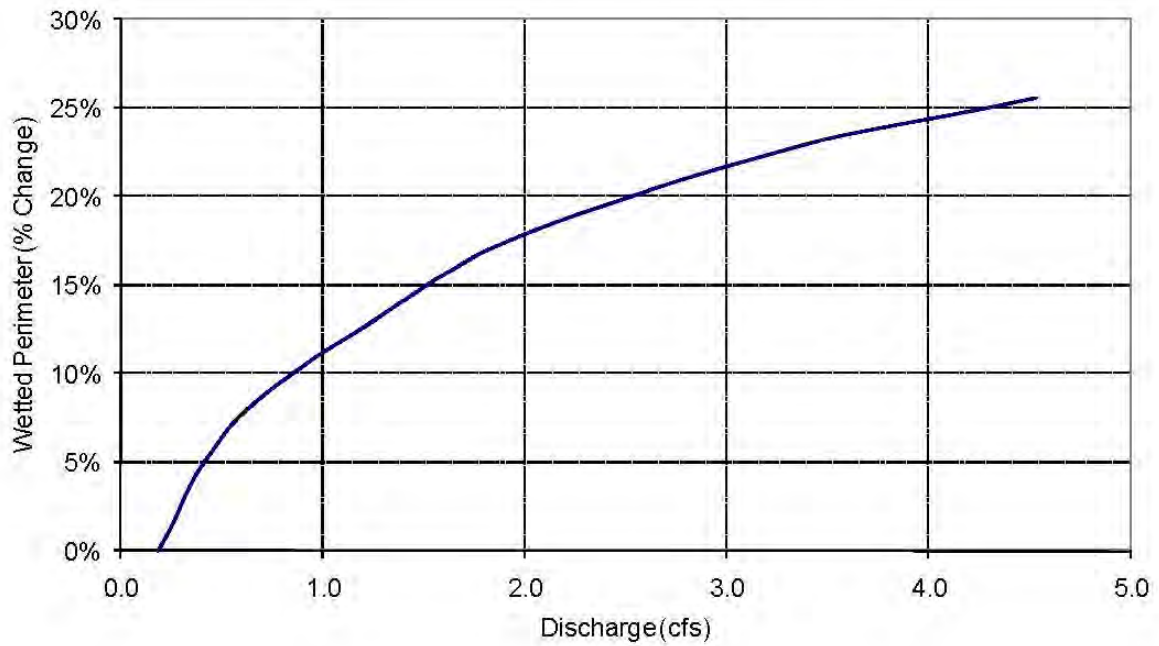


Figure 3-26. Percent change in wetted perimeter as a function of discharge in White Rock Creek below White Rock Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

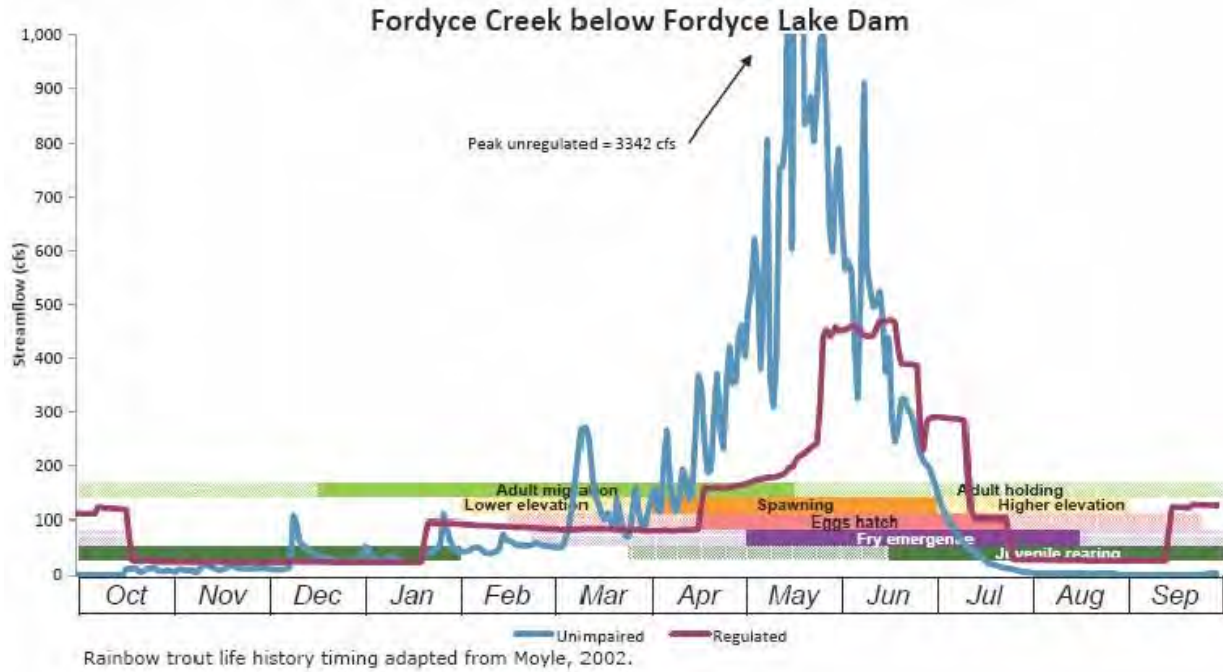


Figure 3-27. Rainbow trout lifestage periodicity and the regulated and estimated unregulated (unimpaired) hydrographs for Fordyce Creek below Fordyce Lake dam. (Source: California Fish and Wildlife *Motion to Intervene and 10(j) and 10(a) Recommendations*, July 30, 2012)

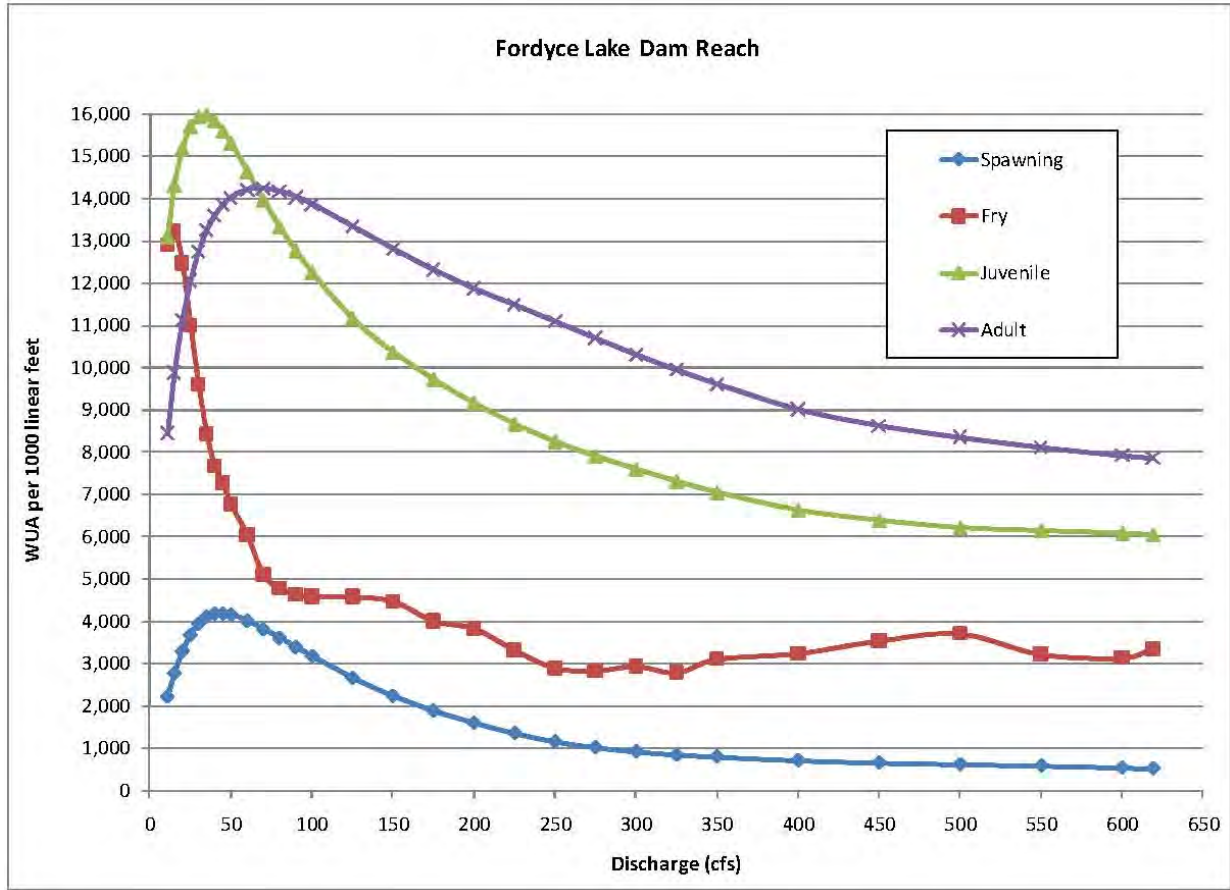


Figure 3-28. WUA for rainbow trout, Fordyce Creek below Fordyce Lake dam. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

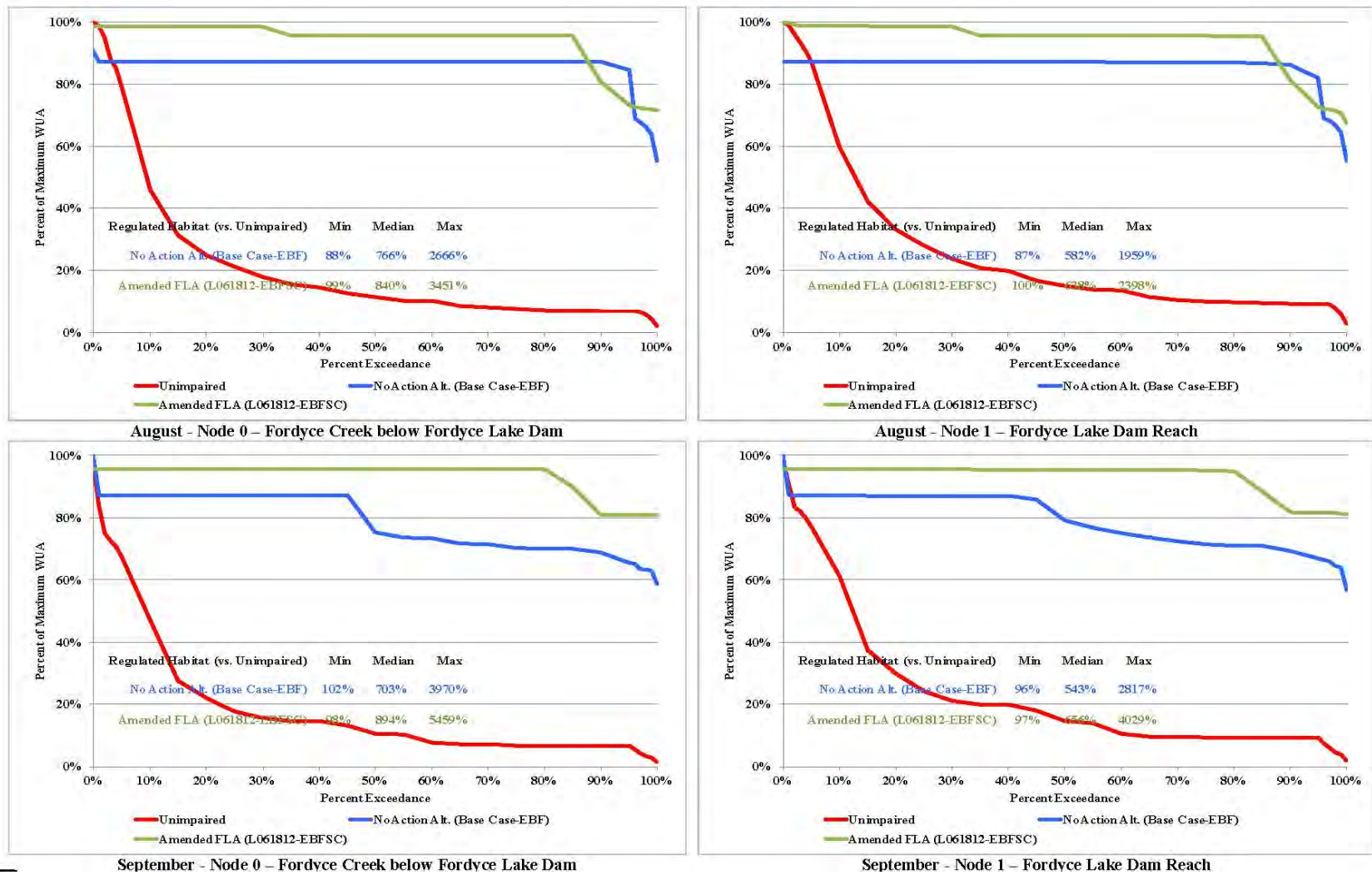


Figure 3-29. HEA for adult rainbow trout during August and September in Fordyce Creek below Fordyce Lake dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])

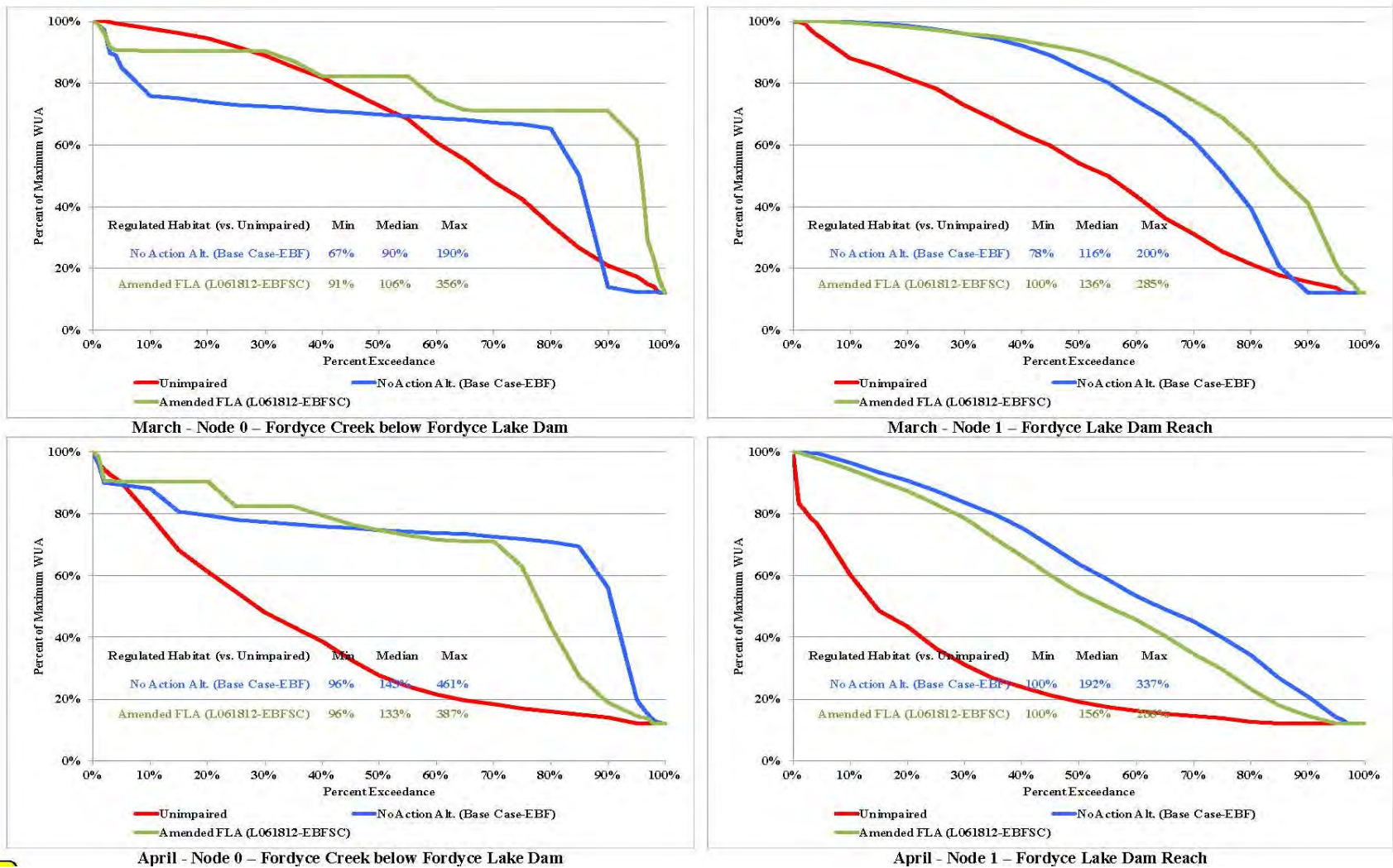


Figure 3-30. HEA for rainbow trout spawning during March and April in Fordyce Creek below Fordyce Lake dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])

CFR Study - Kidd Lake Dam Reach
Average Wetted Perimeter vs. Discharge

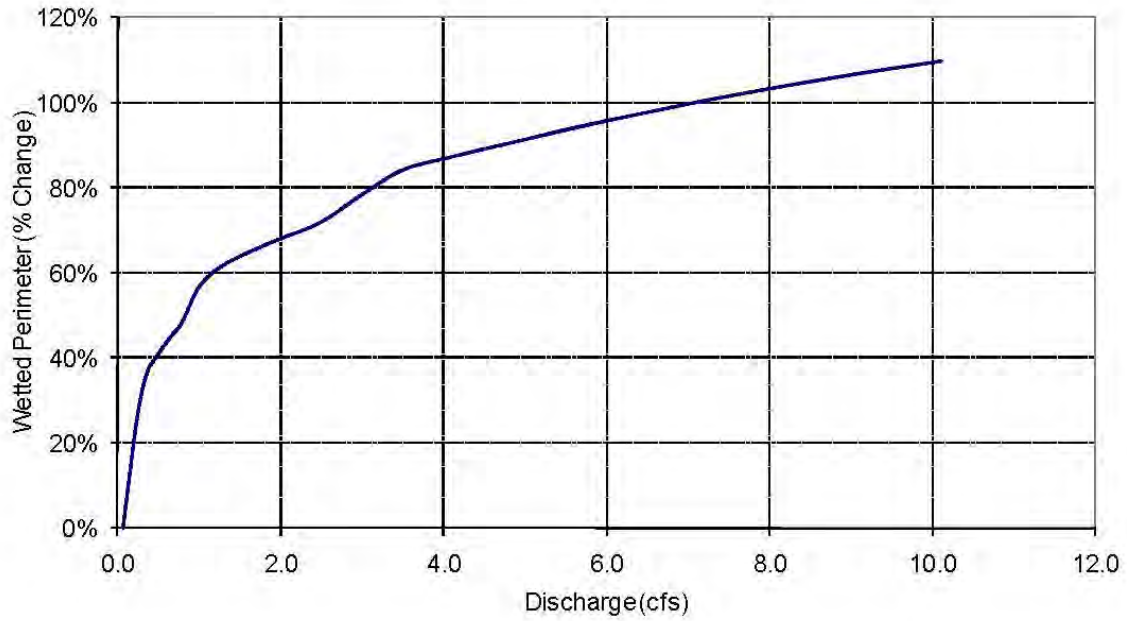


Figure 3-31. Percent change in wetted perimeter as a function of discharge in unnamed tributary below Kidd Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

CFR Study - Upper South Yuba Reach #1

Average Wetted Perimeter vs. Discharge

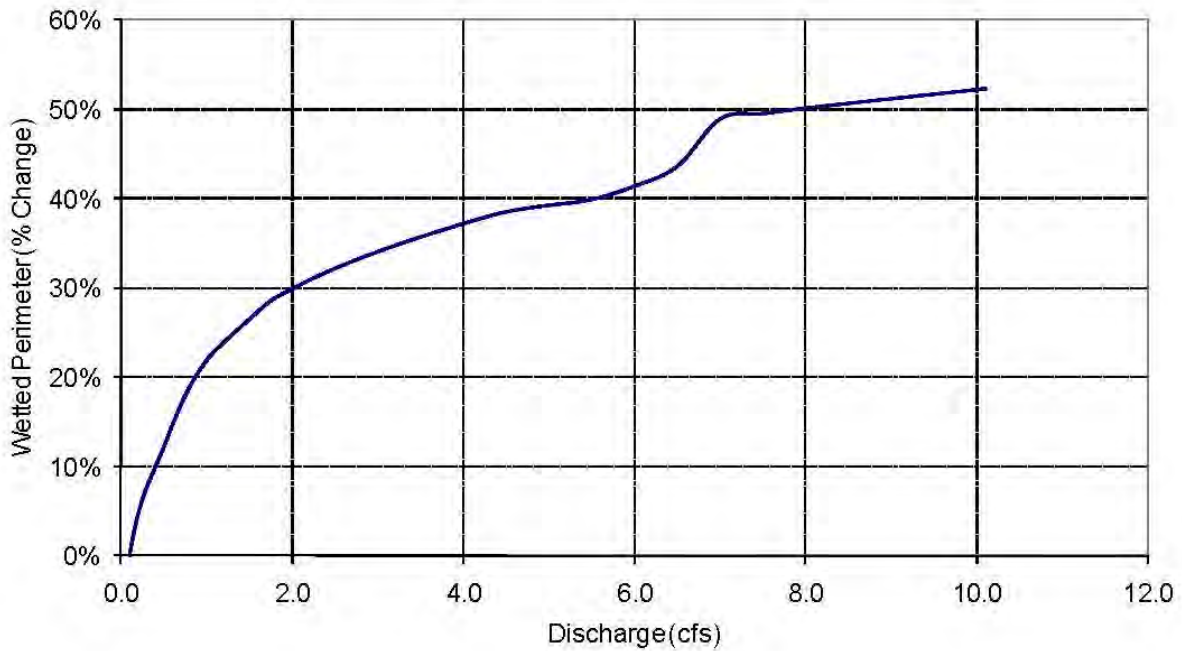


Figure 3-32. Percent change in wetted perimeter as a function of discharge in South Yuba River below the confluence of unnamed tributary below Kidd Lake and Cascade Creek, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

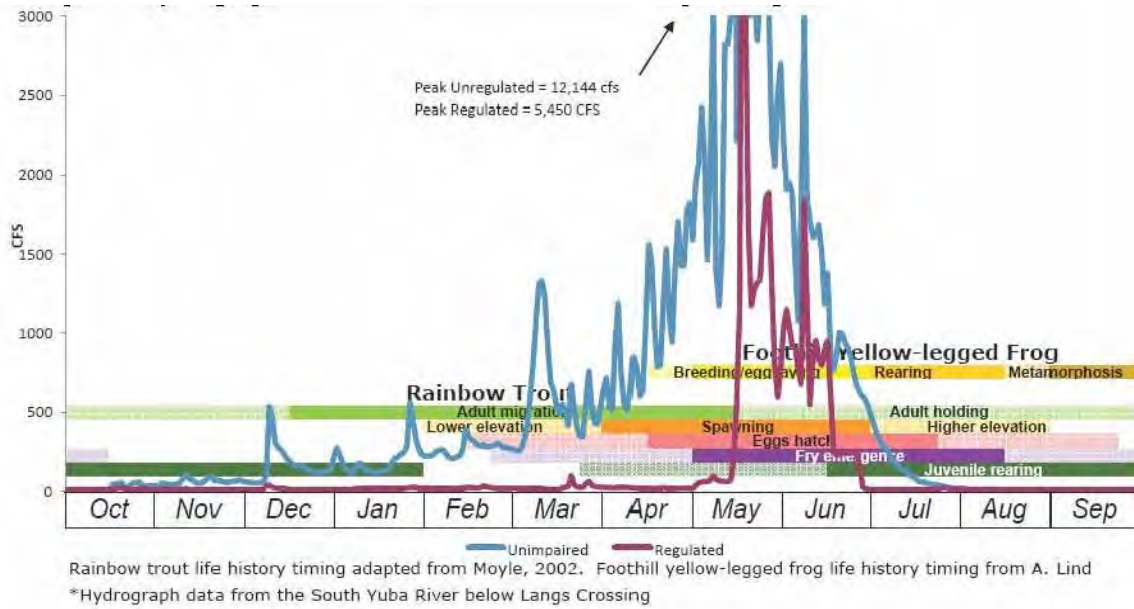


Figure 3-33. Rainbow trout and yellow-legged frog lifestage periodicity and the regulated and estimated unregulated (unimpaired) hydrographs for the South Yuba River below Spaulding dam. (Source: California Fish and Wildlife *Motion to Intervene and 10(j) and 10(a) Recommendations*, July 30, 2012)

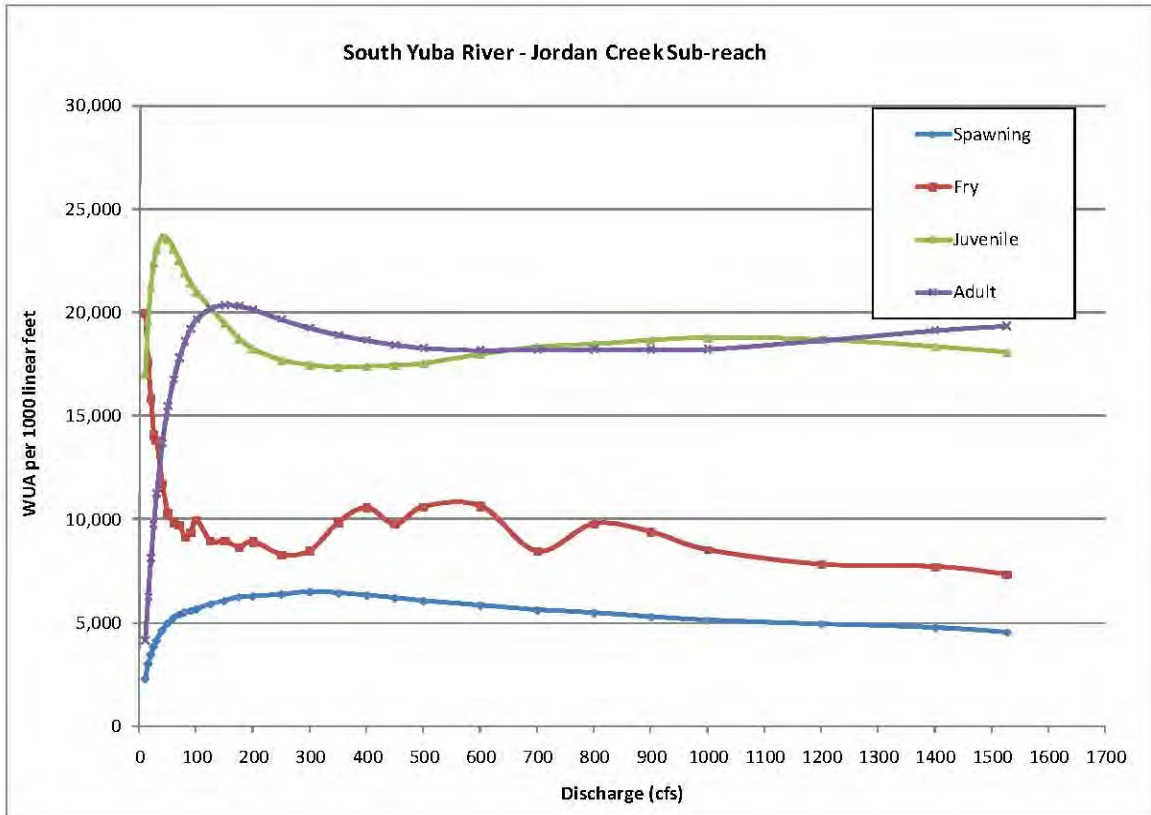


Figure 3-34. WUA for rainbow trout, South Yuba River below Jordan Creek. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

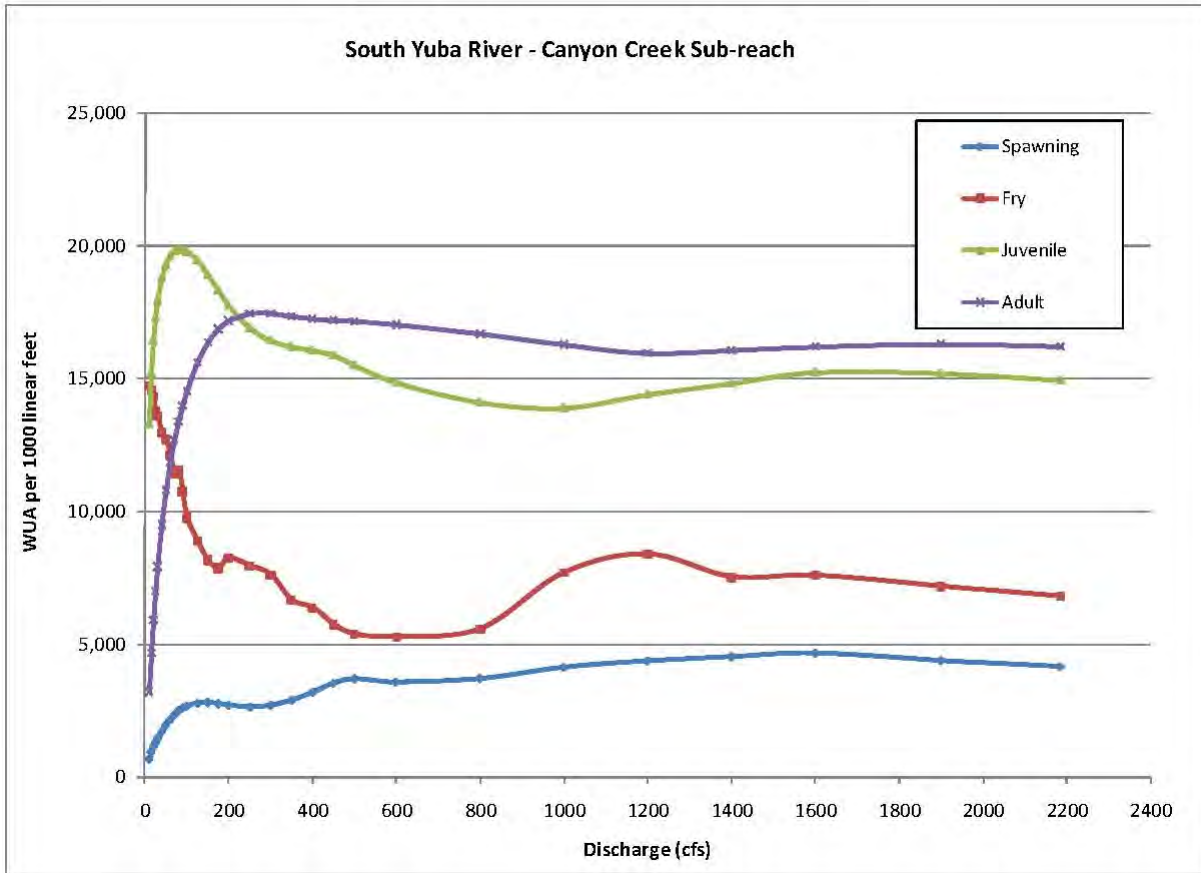


Figure 3-35. WUA for rainbow trout, South Yuba River below Canyon Creek. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

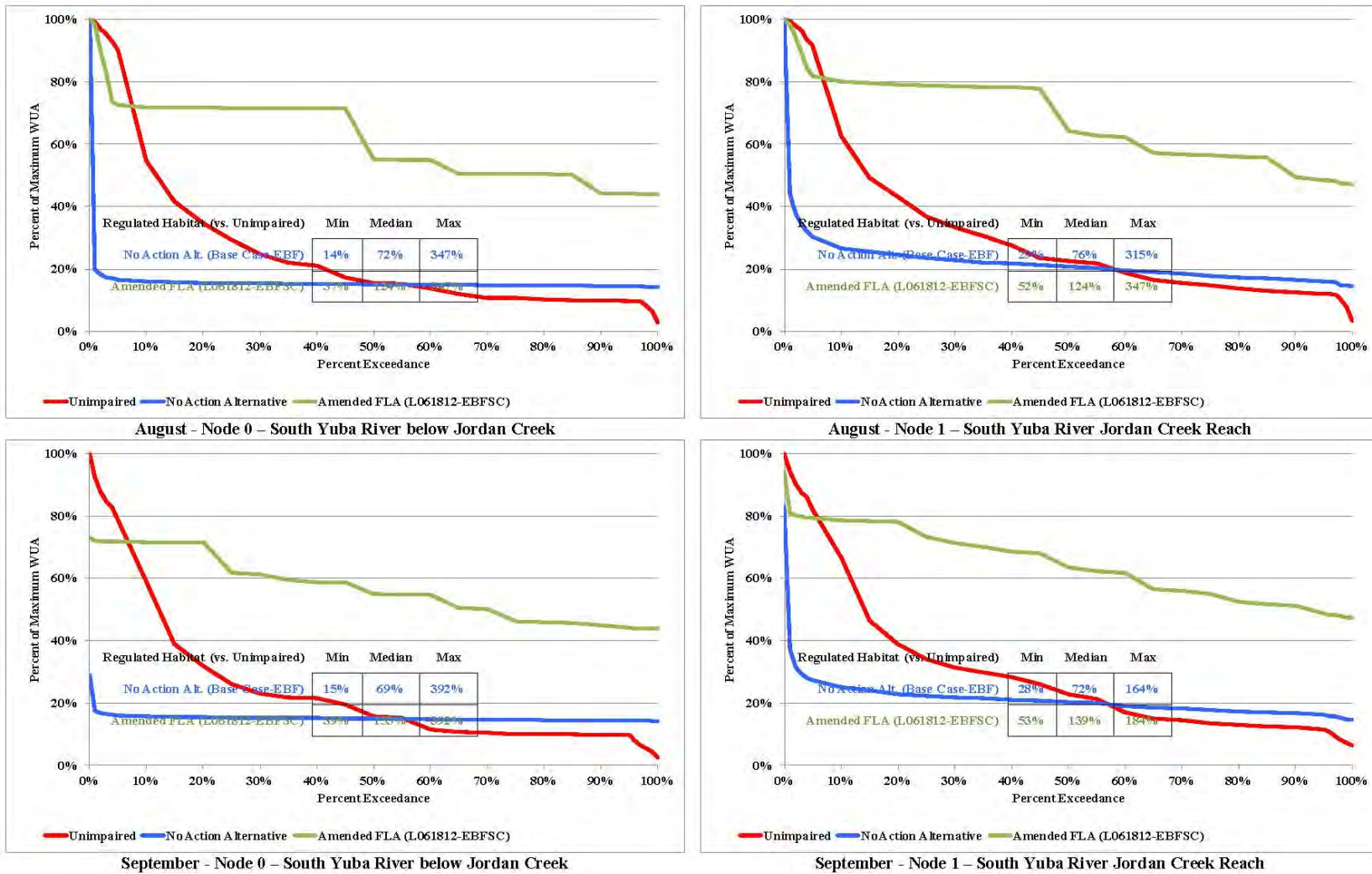
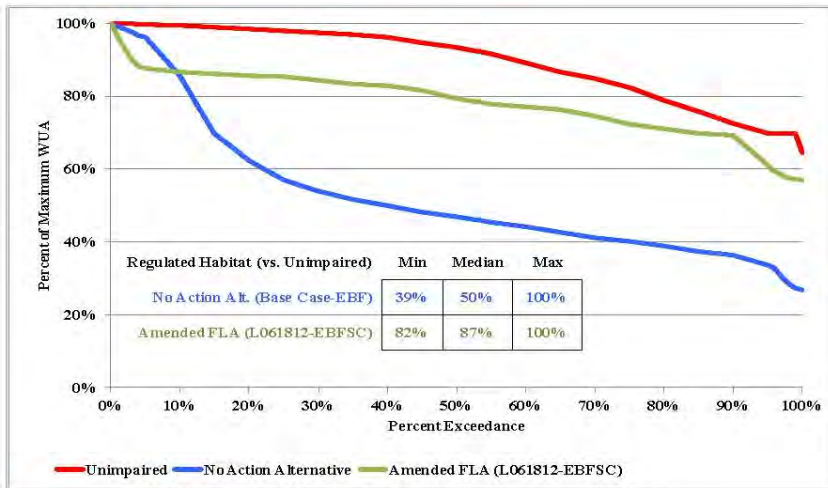
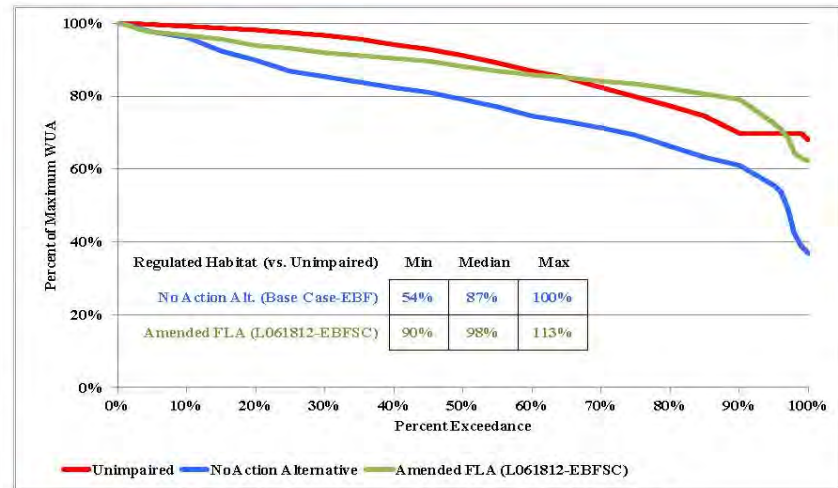


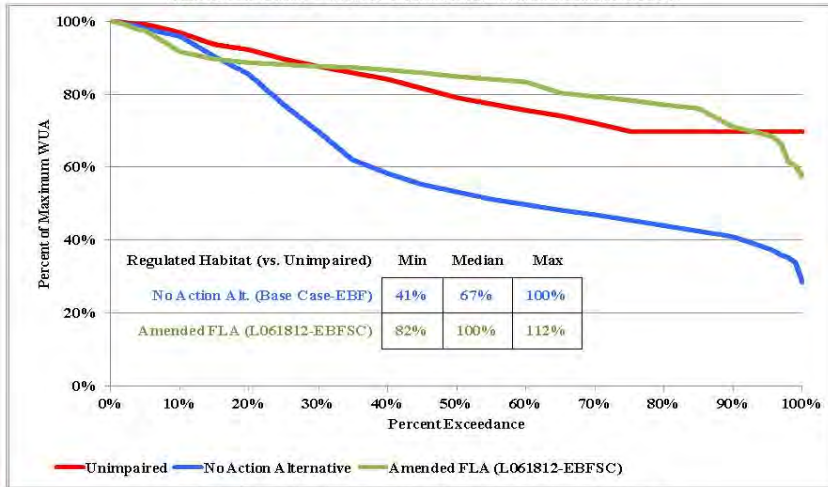
Figure 3-36. HEA for adult rainbow trout during the months of August (k) and September (l) in South Yuba River below Lake Spaulding dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])



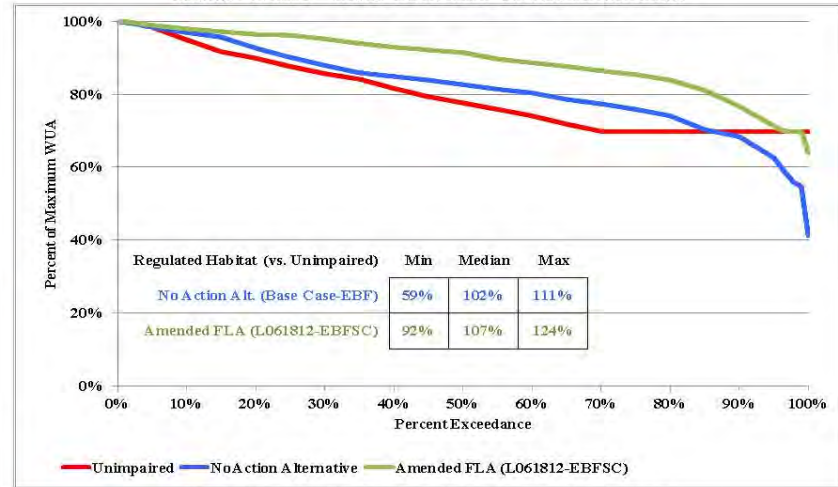
March - Node 0 - South Yuba River below Jordan Creek



March - Node 1 - South Yuba River Jordan Creek Reach



April - Node 0 - South Yuba River below Jordan Creek



April - Node 1 - South Yuba River Jordan Creek Reach

Figures 3-37. HEA for spawning rainbow trout during the months of March (a) and April (b) in South Yuba River below Lake Spaulding dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])

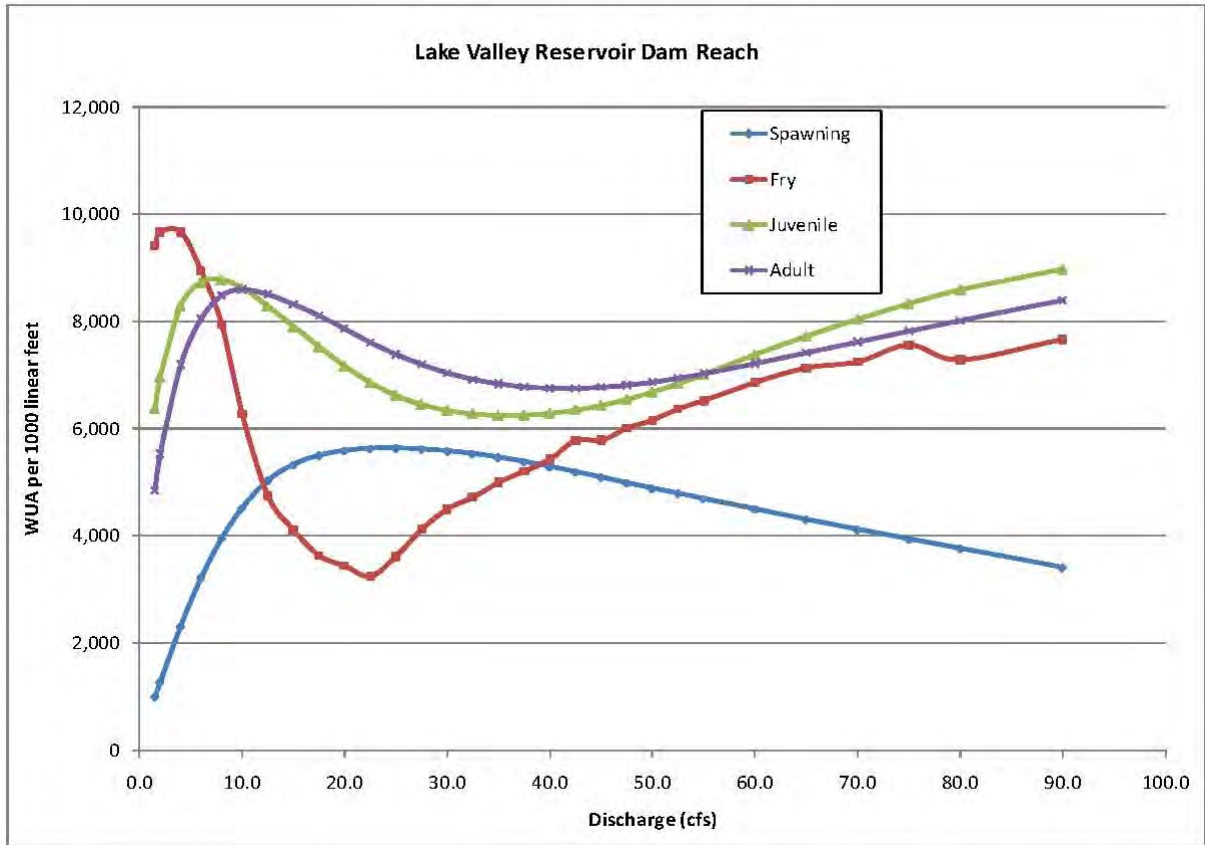
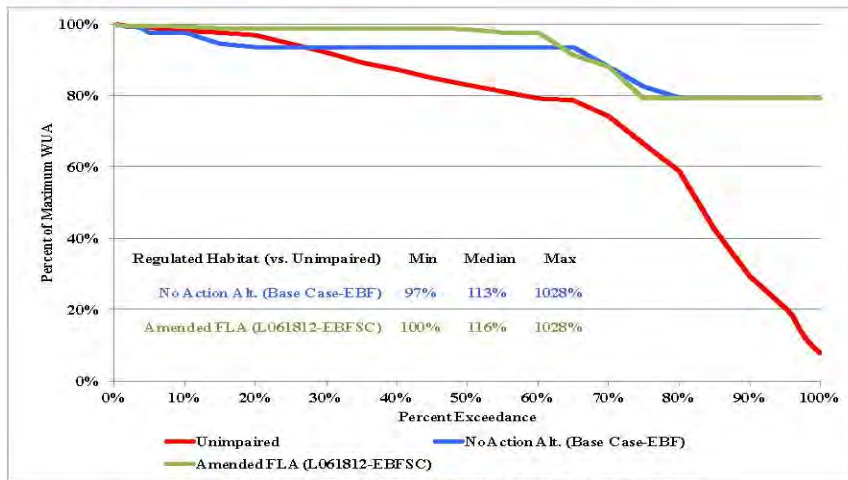
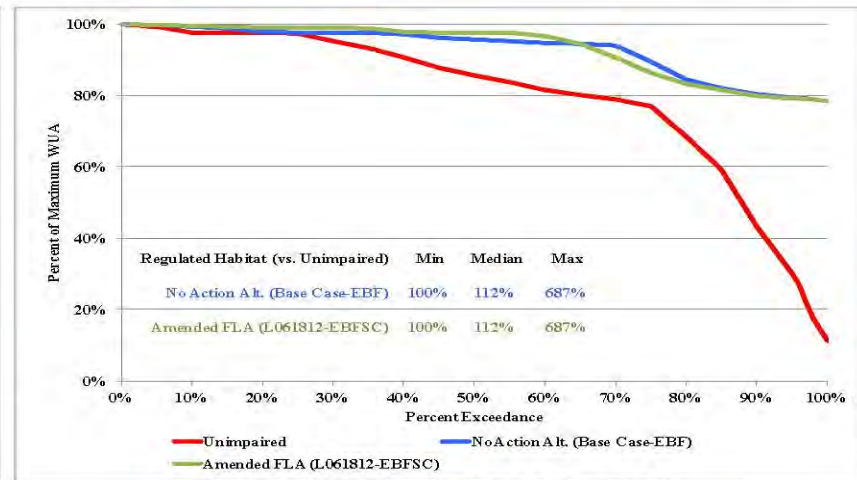


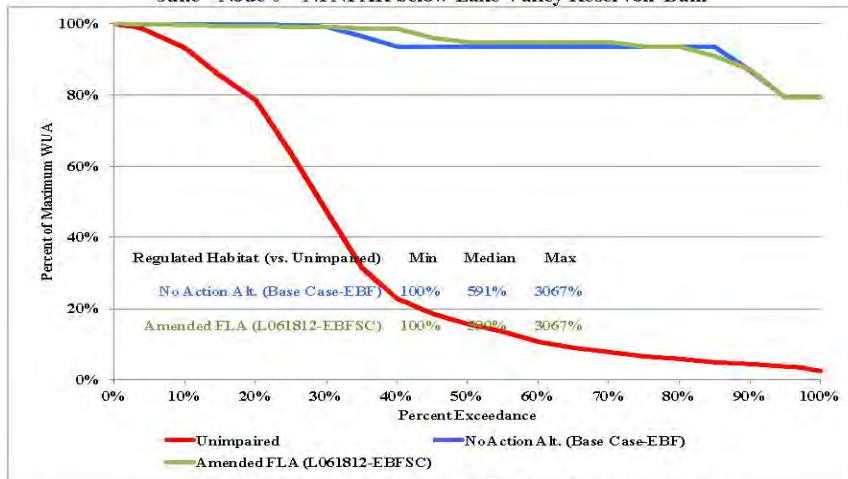
Figure 3-38. WUA for rainbow trout, North Fork of the North Fork American River below Lake Valley reservoir dam. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)



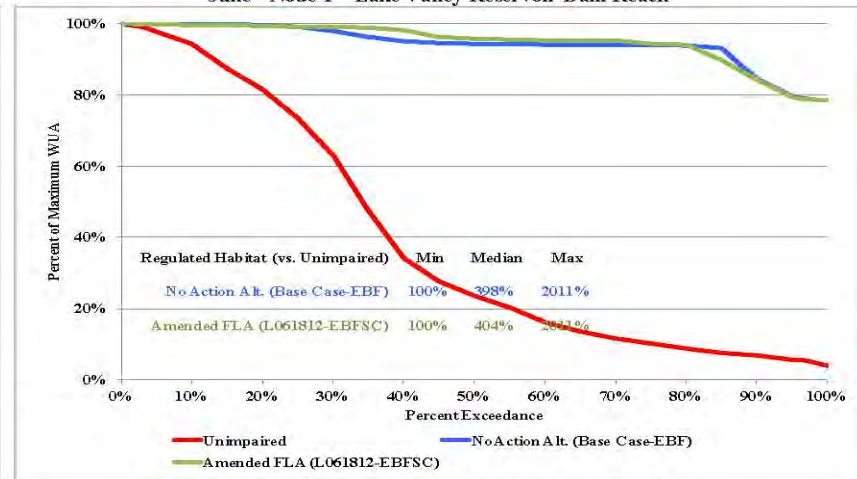
June - Node 0 – NFN FAR below Lake Valley Reservoir Dam



June - Node 1 – Lake Valley Reservoir Dam Reach

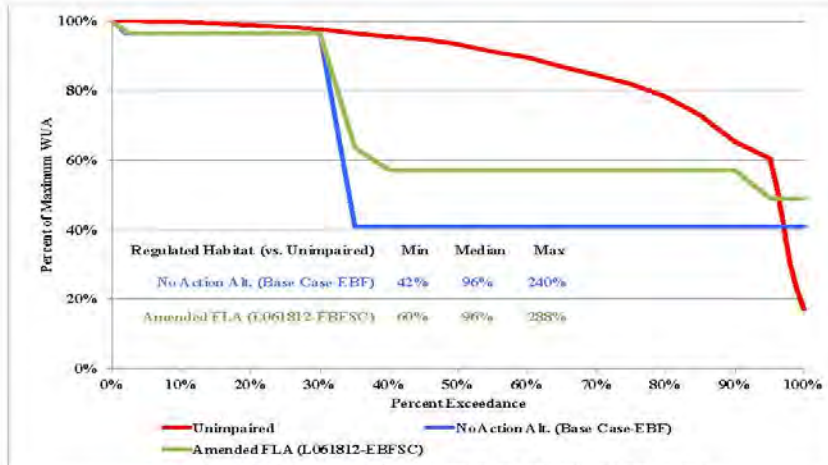


July - Node 0 – NFN FAR below Lake Valley Reservoir Dam

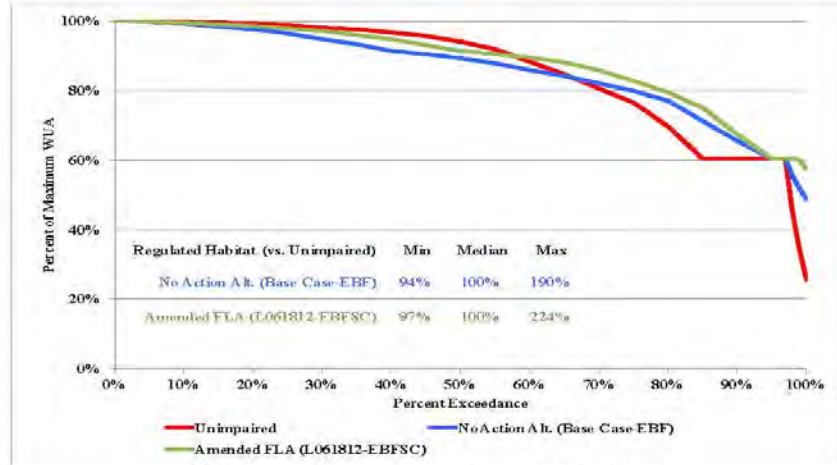


July - Node 1 – Lake Valley Reservoir Dam Reach

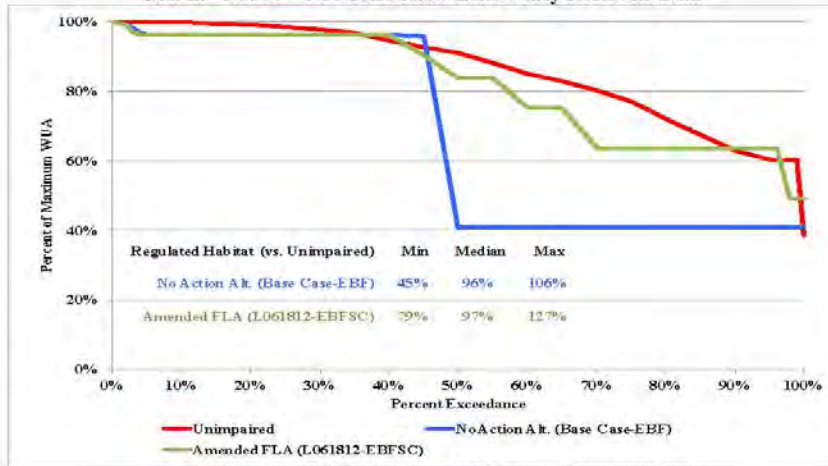
Figures 3-39. HEA for adult rainbow trout during the month of June (i) and adult rainbow trout during the month of July (j) in North Fork of the North Fork American River below Lake Valley reservoir dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])



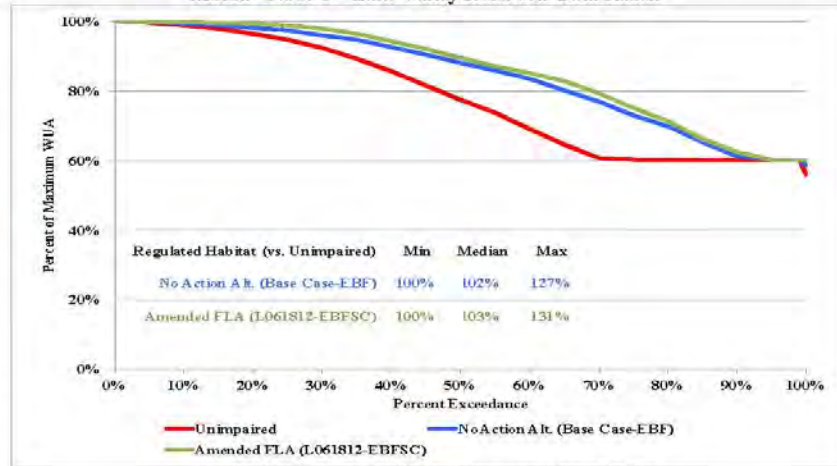
March - Node 0 - NFN FAR below Lake Valley Reservoir Dam



March - Node 1 - Lake Valley Reservoir Dam Reach



April - Node 0 - NFN FAR below Lake Valley Reservoir Dam



April - Node 1 - Lake Valley Reservoir Dam Reach

Figures 3-40. HEA for spawning rainbow trout during the months of March (a) and April (b) in the North Fork of the North Fork American River below Lake Valley reservoir dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])

CFR Study - Kelly Lake Dam Reach
Average Wetted Perimeter vs. Discharge

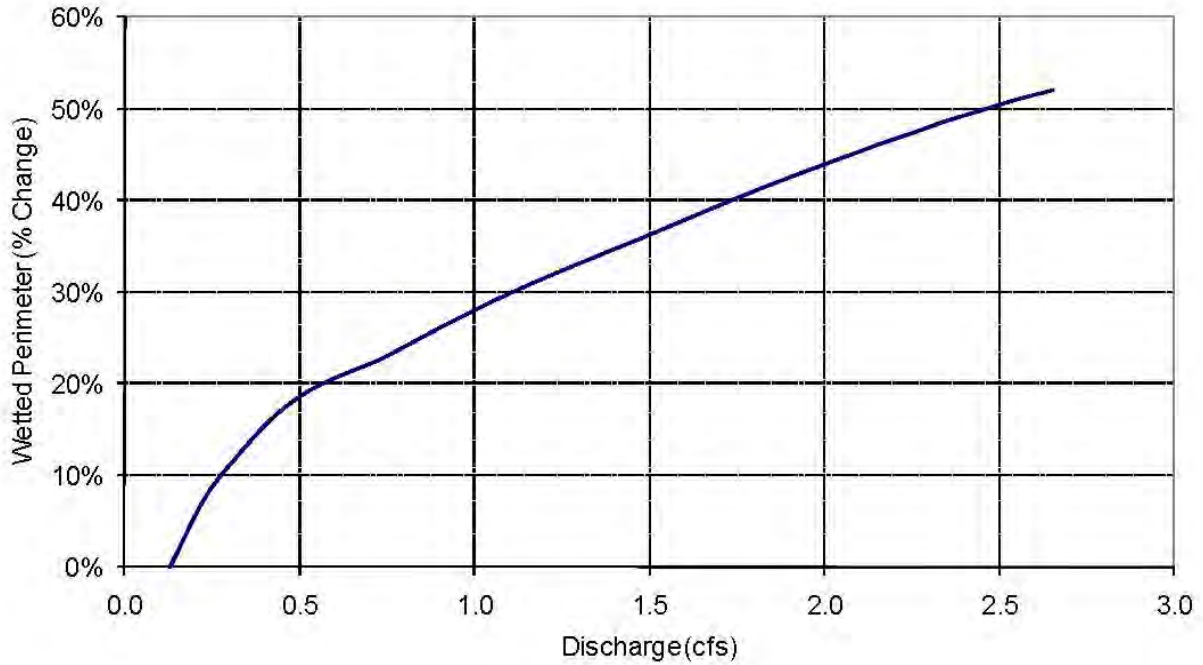


Figure 3-41. Percent change in wetted perimeter as a function of discharge in Sixmile Creek below Kelly Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

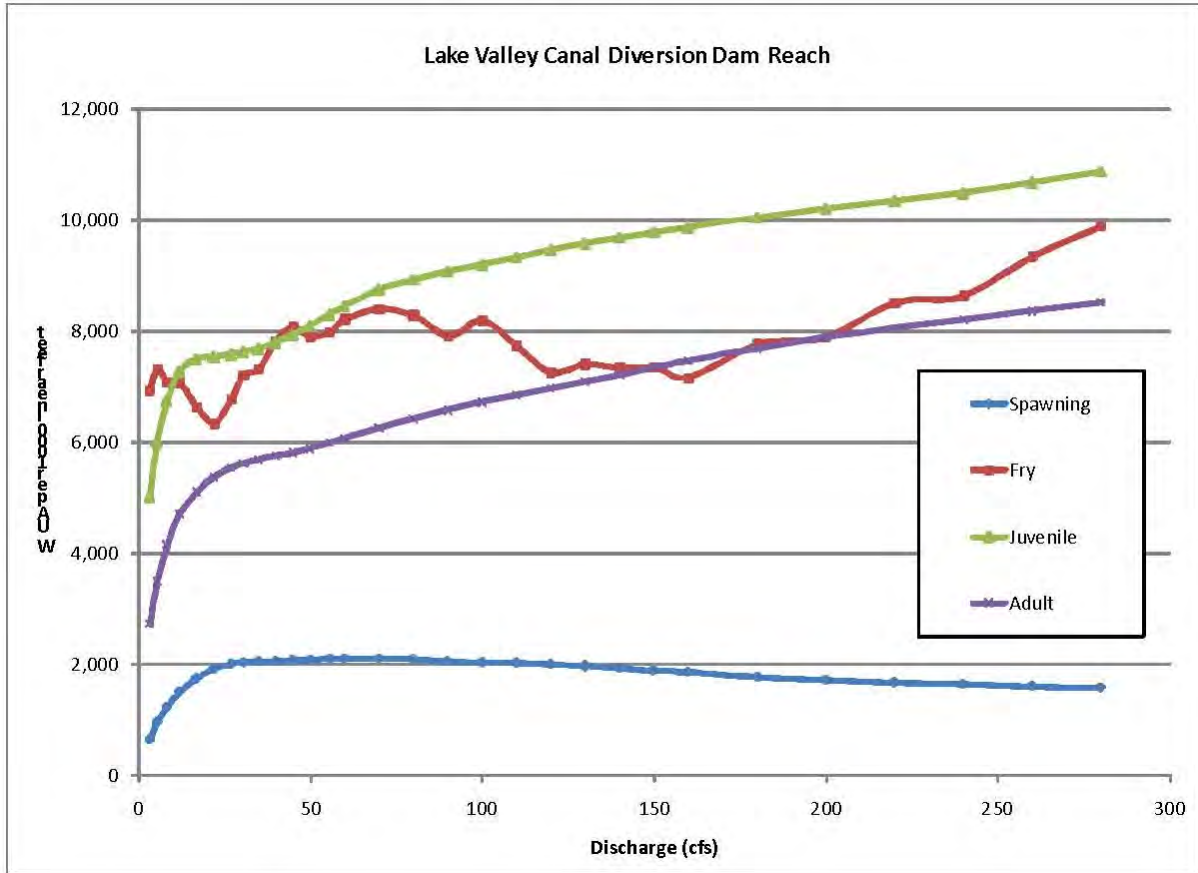


Figure 3-42. WUA for rainbow trout, North Fork of the North Fork American River below Lake Valley canal diversion dam. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

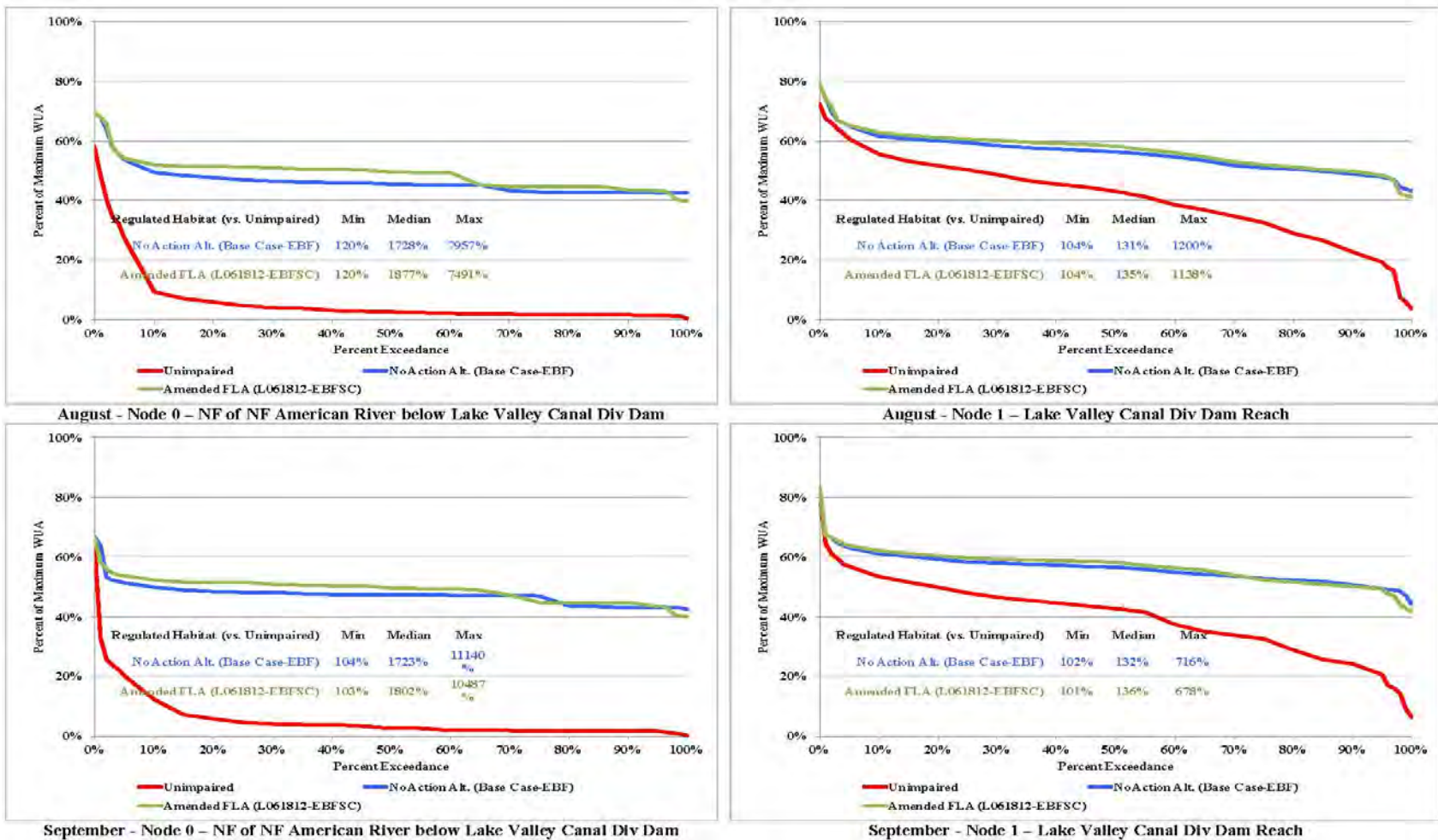


Figure 3-43. HEA for adult rainbow trout during the months of August (k) and September (l) in North Fork of the North Fork American River below Lake Valley canal diversion dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])

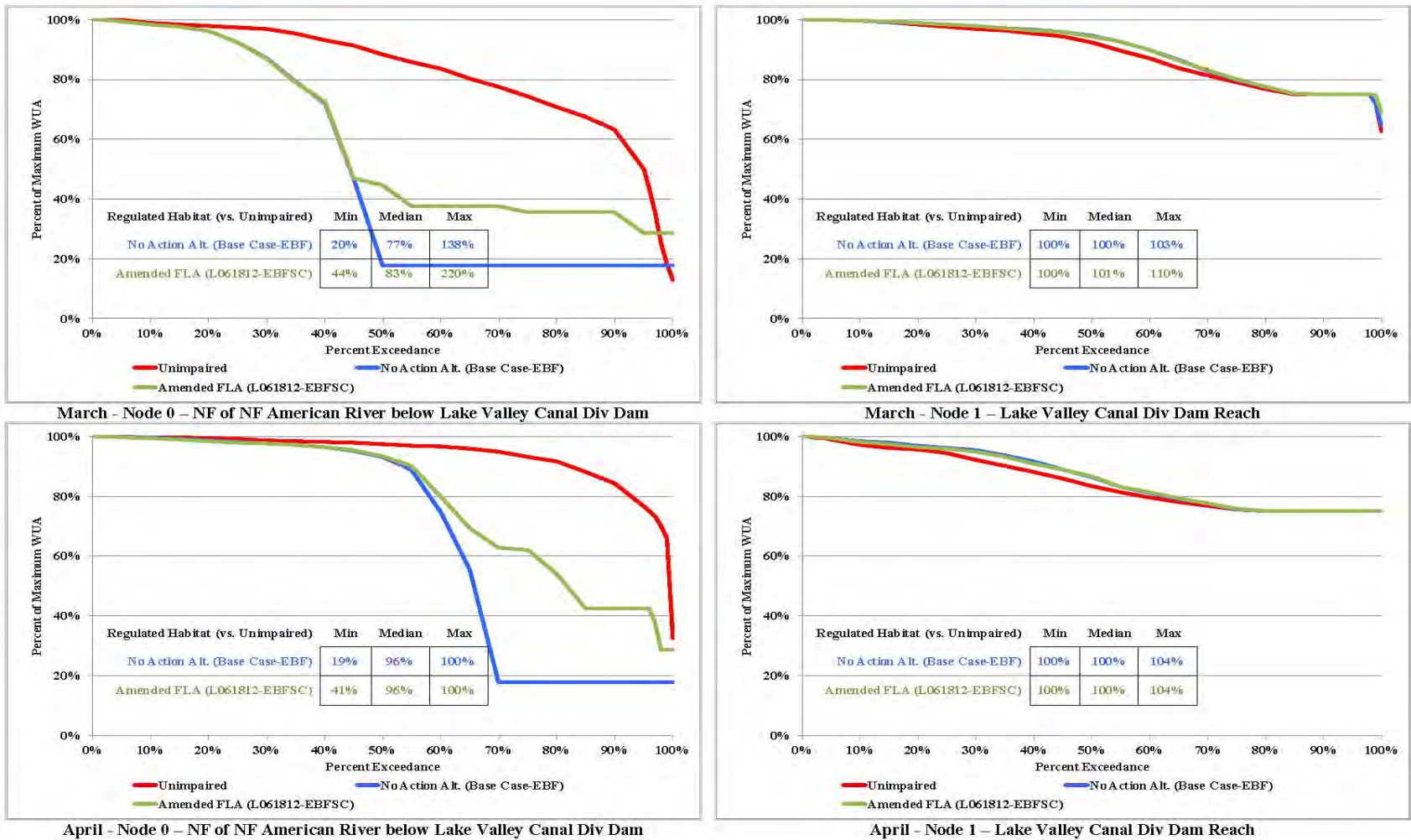


Figure 3-44. HEA for spawning rainbow trout during the months of March (a) and April (b) in the North Fork of the North Fork American River below Lake Valley canal diversion dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])

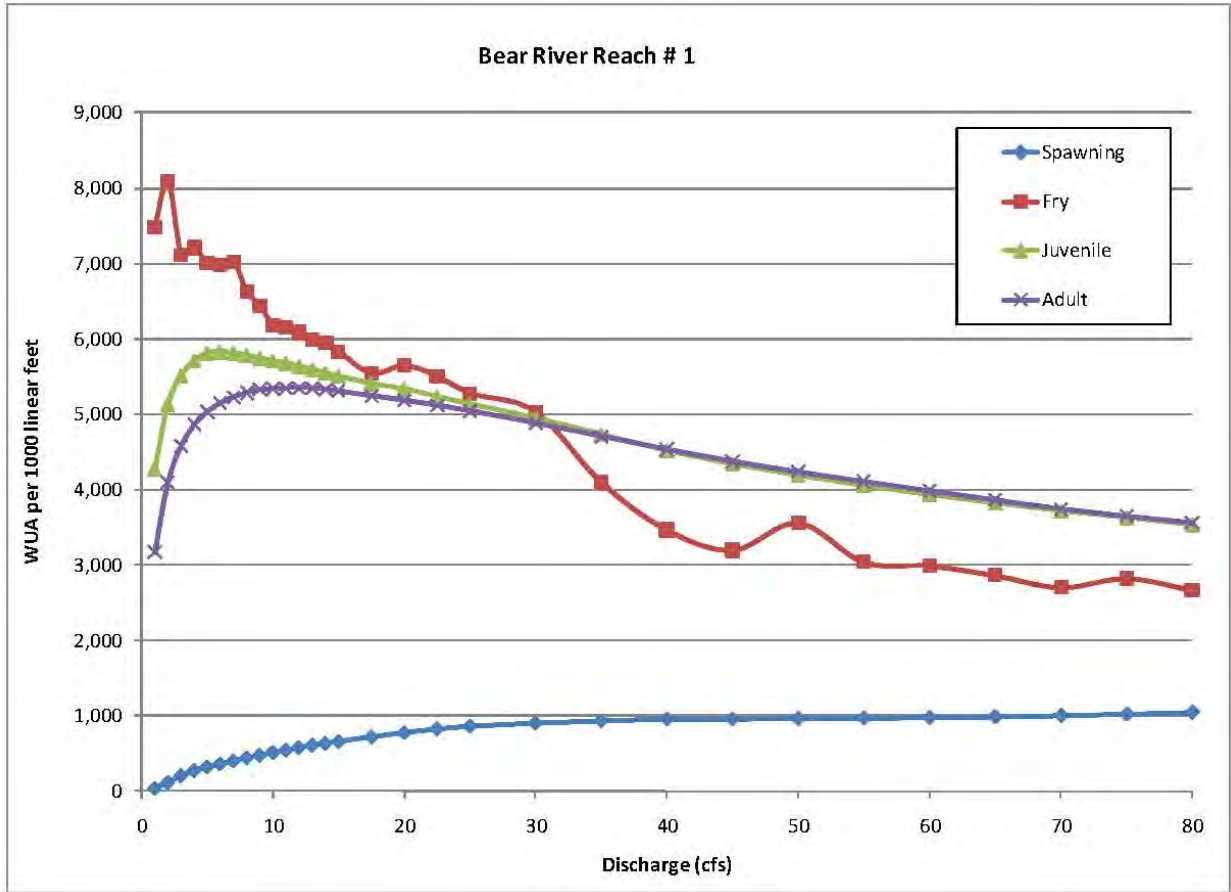


Figure 3-45. WUA for rainbow trout, Bear River below Drum canal spillway gate. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

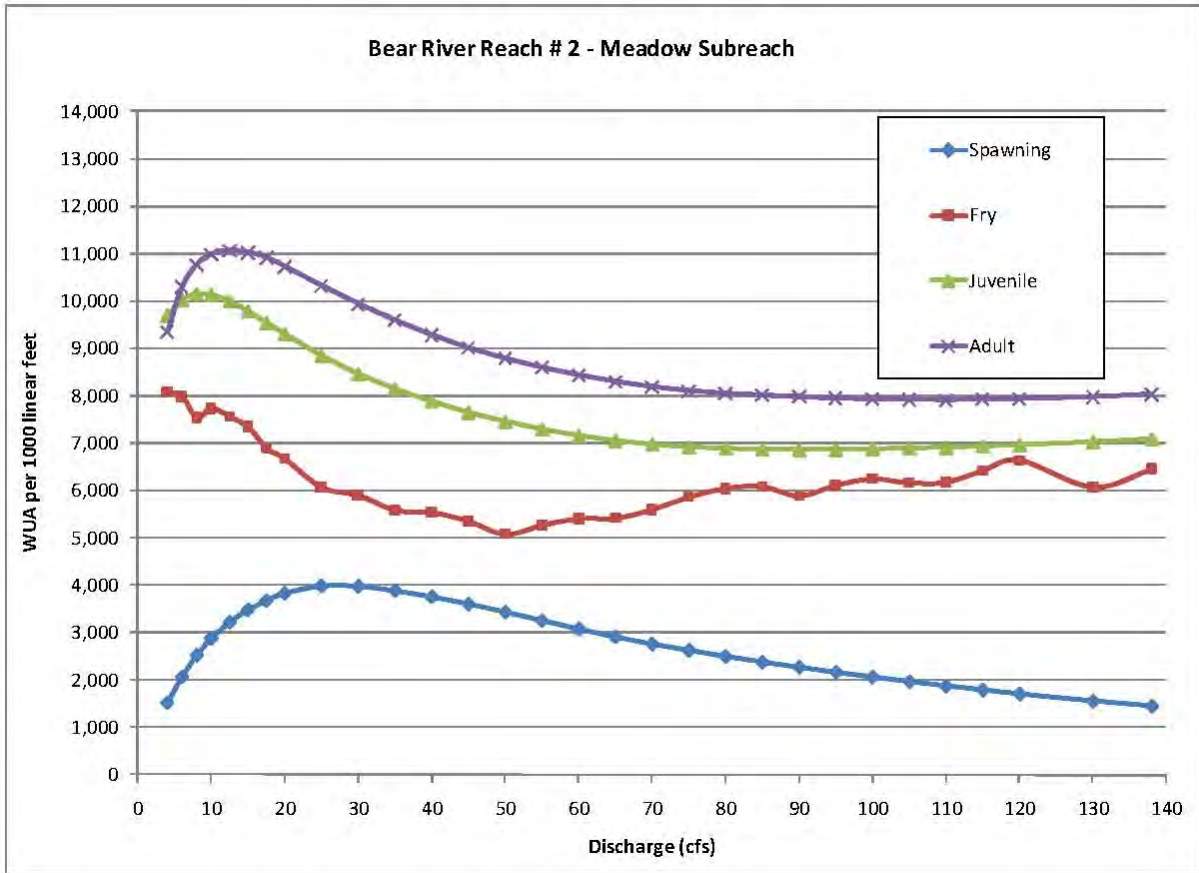


Figure 3-46. WUA for rainbow trout, Bear River at Highway 20 crossing, between South Yuba canal inflow at gage YB-139 and gage YB-198 Meadow sub-reach. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

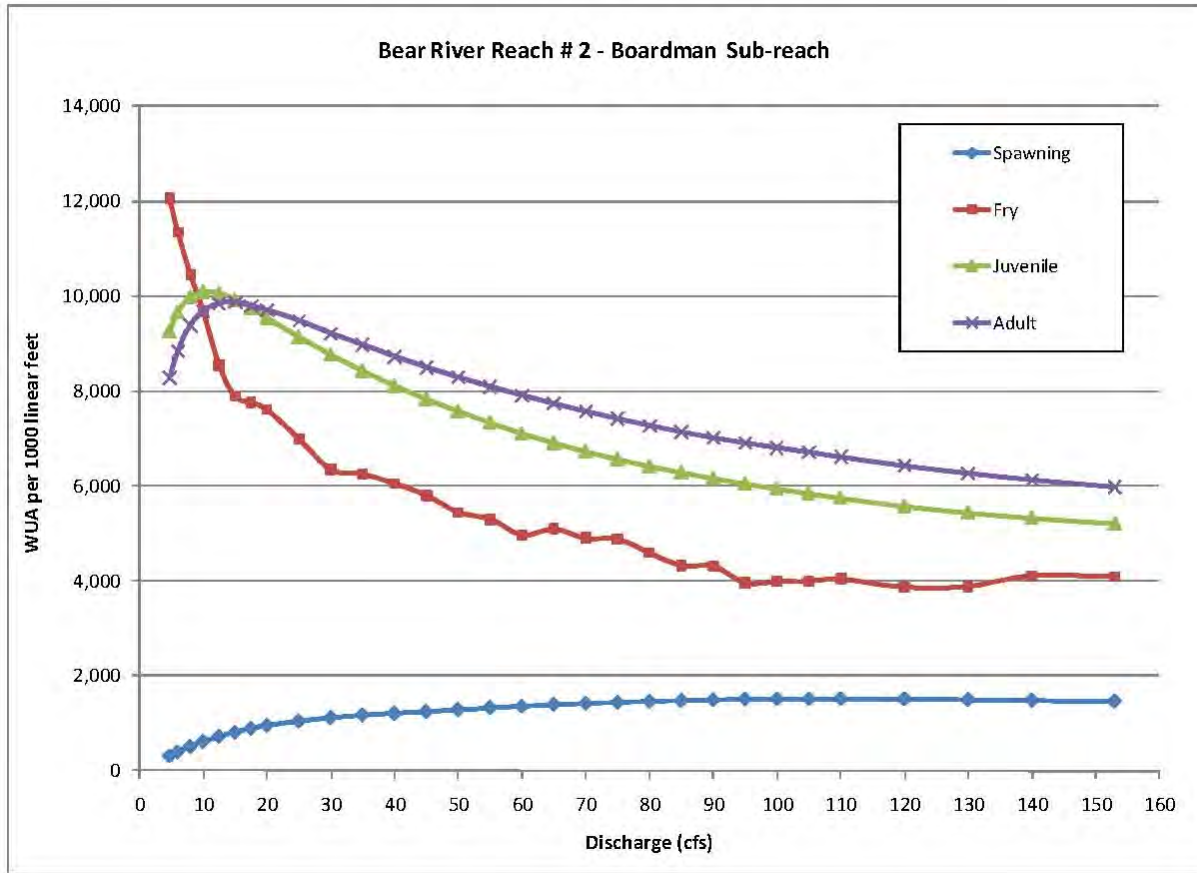
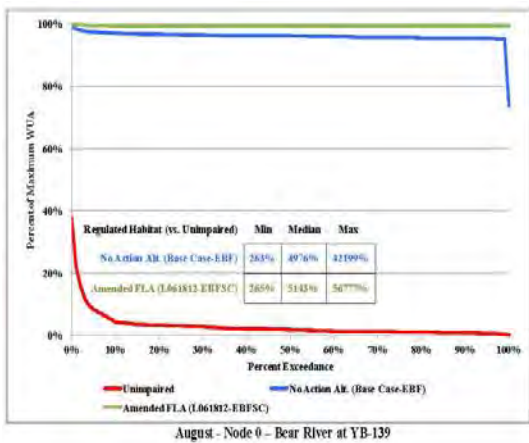
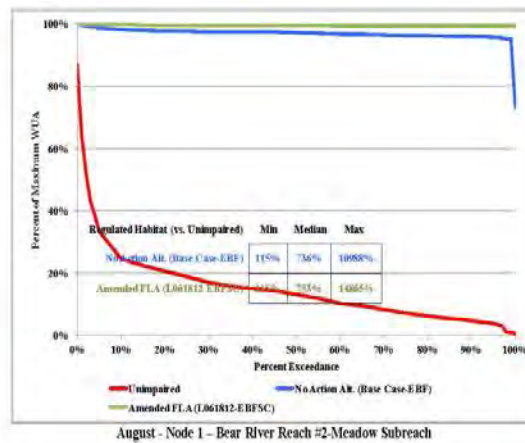


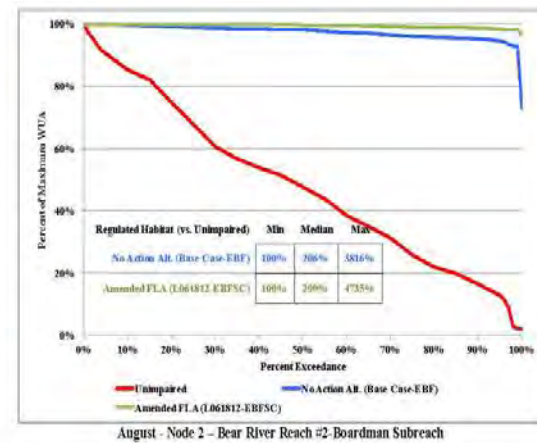
Figure 3-47. WUA for rainbow trout, Bear River at Highway 20 crossing, between South Yuba canal inflow at gage YB-139 and gage YB-198 Boardman sub-reach. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)



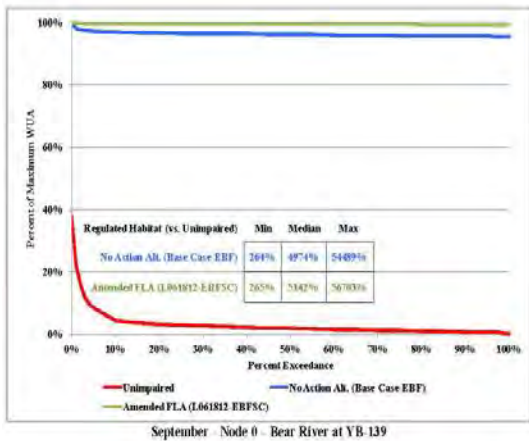
August - Node 0 - Bear River at YB-139



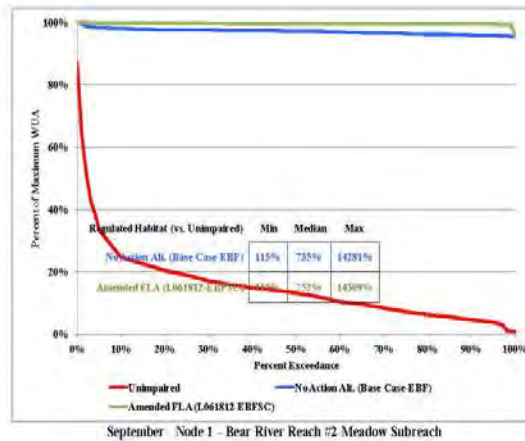
August - Node 1 - Bear River Reach #2-Meadow Subreach



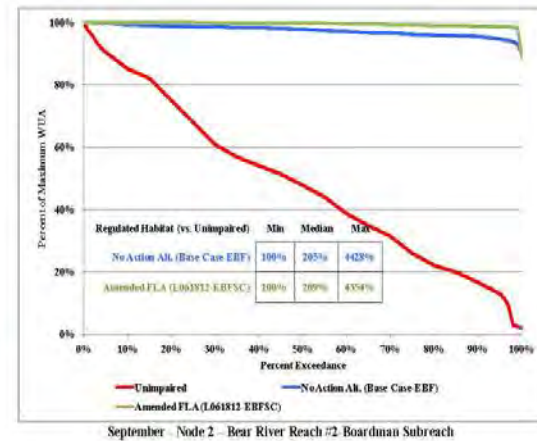
August - Node 2 - Bear River Reach #2-Boardman Subreach



September - Node 0 - Bear River at YB-139

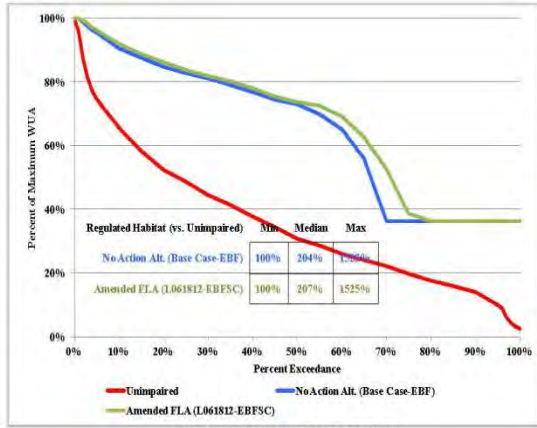


September - Node 1 - Bear River Reach #2-Meadow Subreach

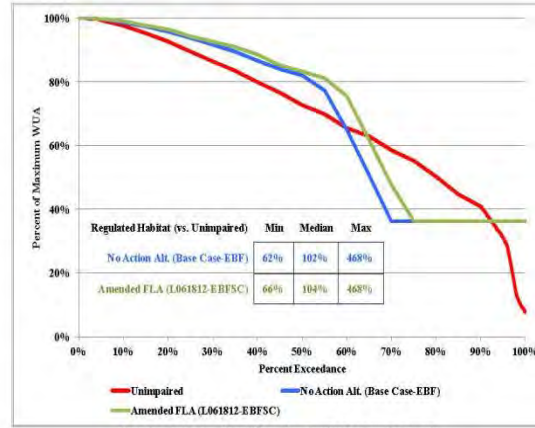


September - Node 2 - Bear River Reach #2-Boardman Subreach

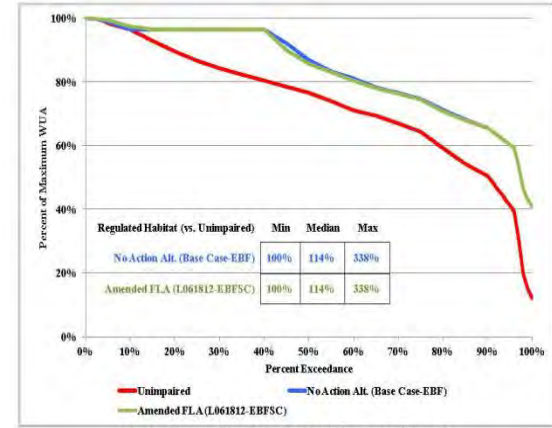
Figure 3-48. HEA for adult rainbow trout during the months of August (k) and September (l) in Bear River at Highway 20 crossing, between South Yuba canal inflow at gage YB-139 and gage YB-198 under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])



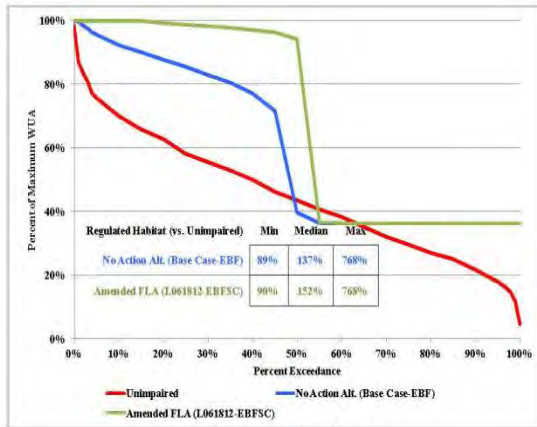
March - Node 0 - Bear River at YB-139



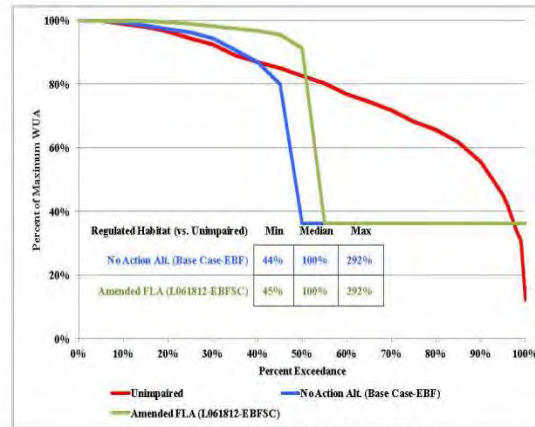
March - Node 1 - Bear River Reach #2-Meadow Subreach



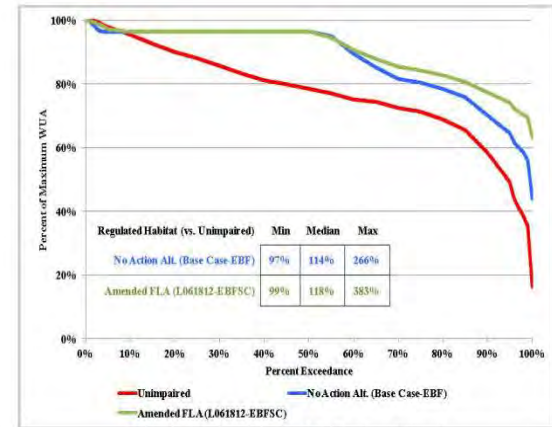
March - Node 2 - Bear River Reach #2-Boardman Subreach



April - Node 0 - Bear River at YB-139



April - Node 1 - Bear River Reach #2-Meadow Subreach



April - Node 2 - Bear River Reach #2-Boardman Subreach

Figures 3-49. HEA for spawning rainbow trout during the months of March (a) and April (b) in Bear River at Highway 20 crossing, between South Yuba canal inflow at gage YB-139 and gage YB-198 under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])

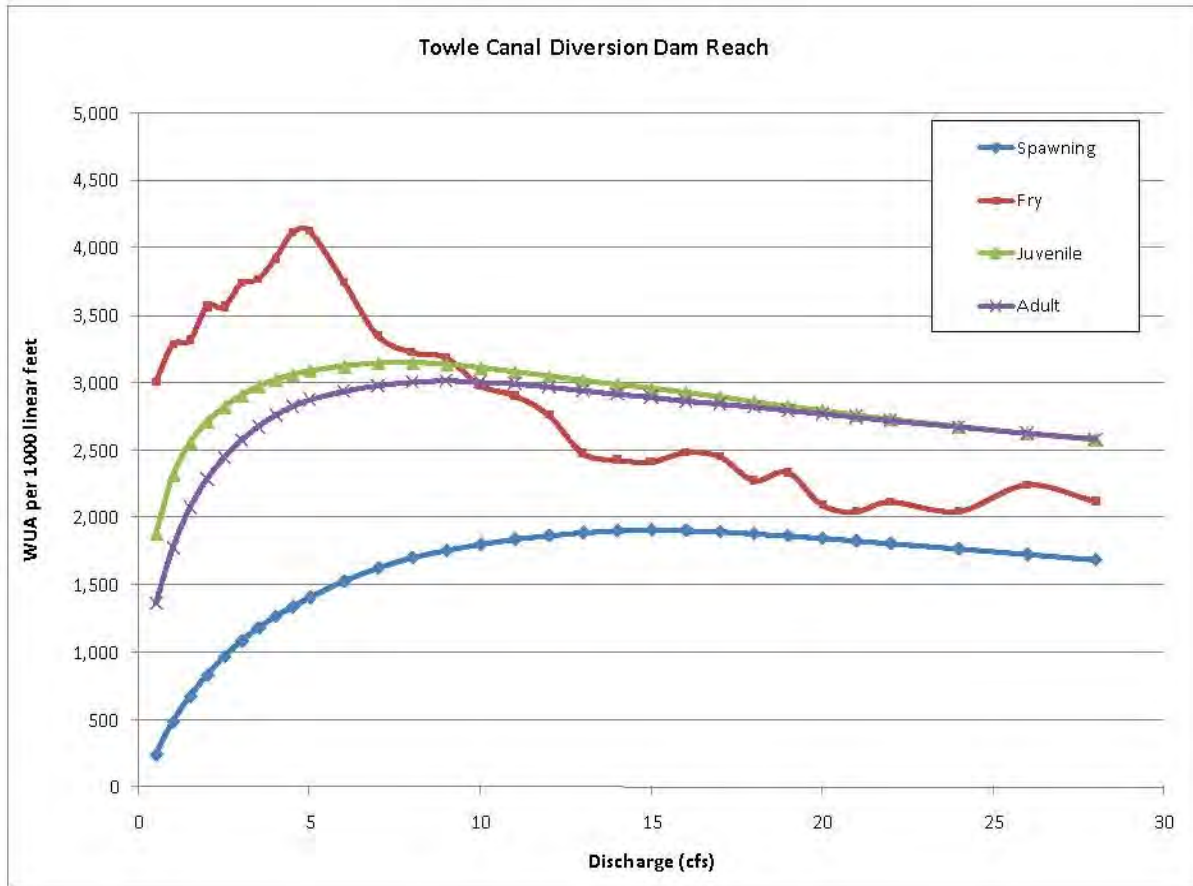
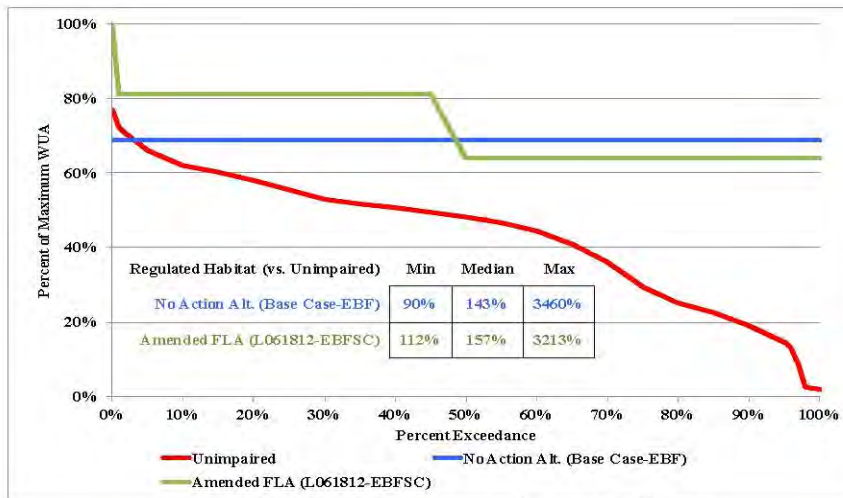
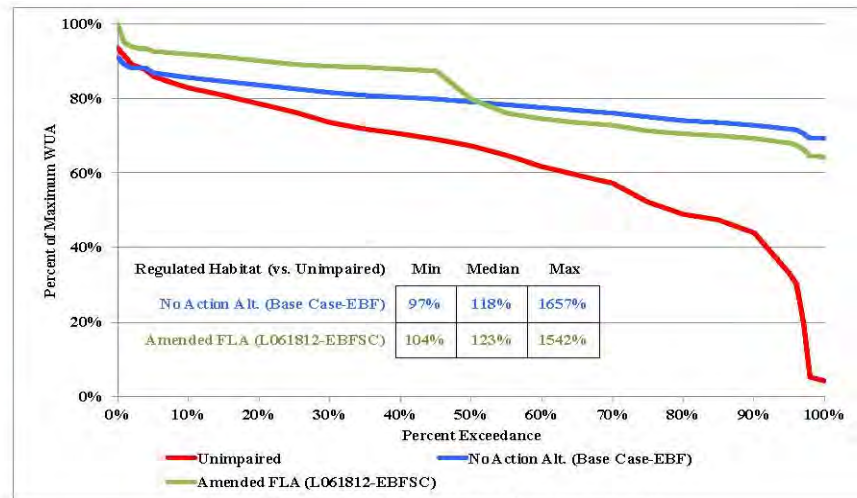


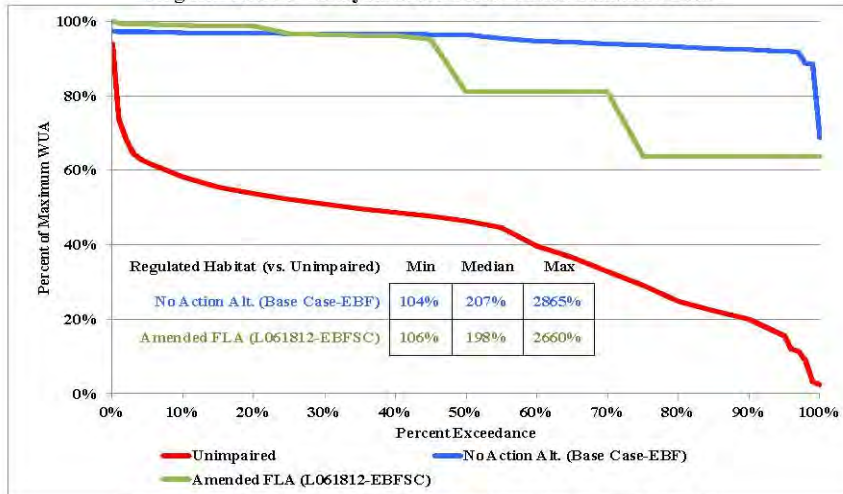
Figure 3-50. Modeled habitat suitability index (WUA) for rainbow trout, Canyon Creek below Towle canal diversion dam (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)



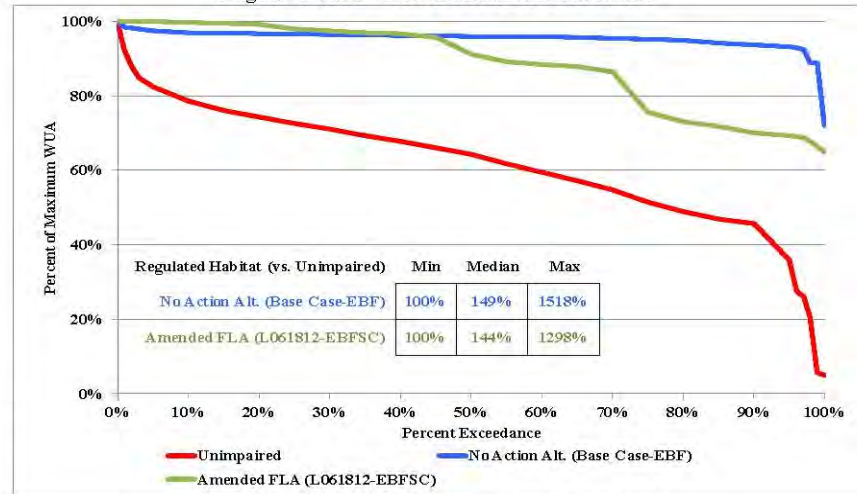
August - Node 0 - Canyon Creek below Towle Canal Div Dam



August - Node 1 - Towle Canal Div Dam Reach



September - Node 0 - Canyon Creek below Towle Canal Div Dam



September - Node 1 - Towle Canal Div Dam Reach

Figures 3-51. HEA for adult rainbow trout during the months of August (k) and September (l) in Canyon Creek below Towle canal diversion dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])

CFR Study - Alta Powerhouse Reach
Average Wetted Perimeter vs. Discharge

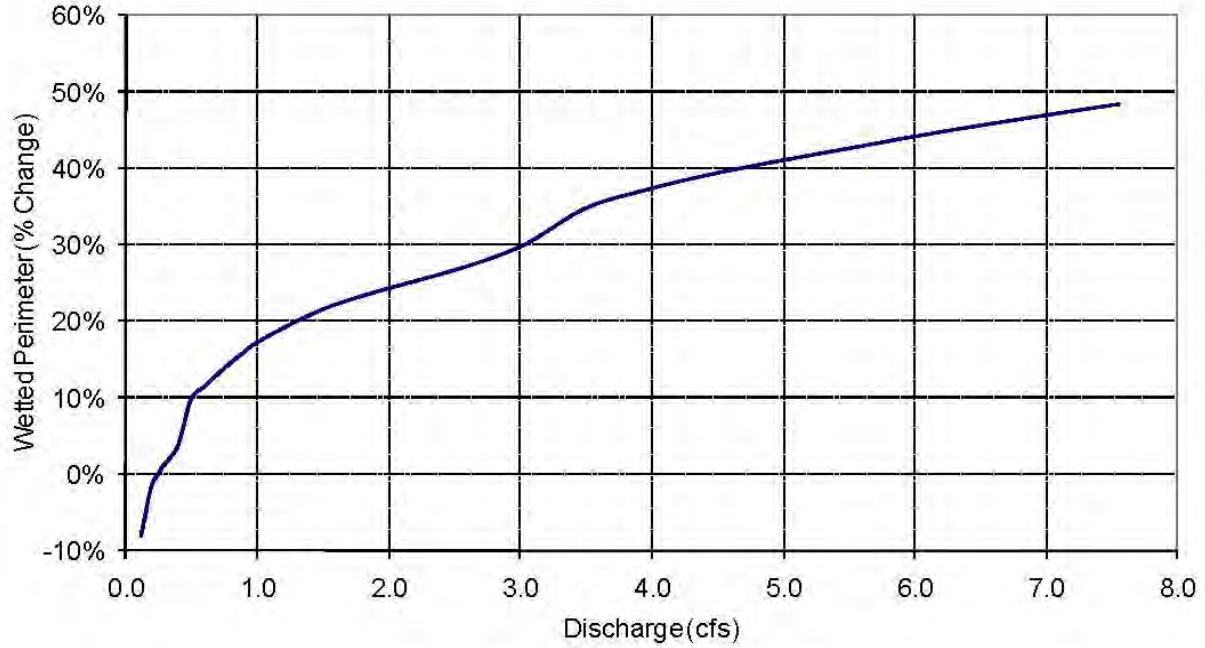


Figure 3-52. Percent change in wetted perimeter as a function of discharge in Little Bear River below Alta powerhouse tailrace, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

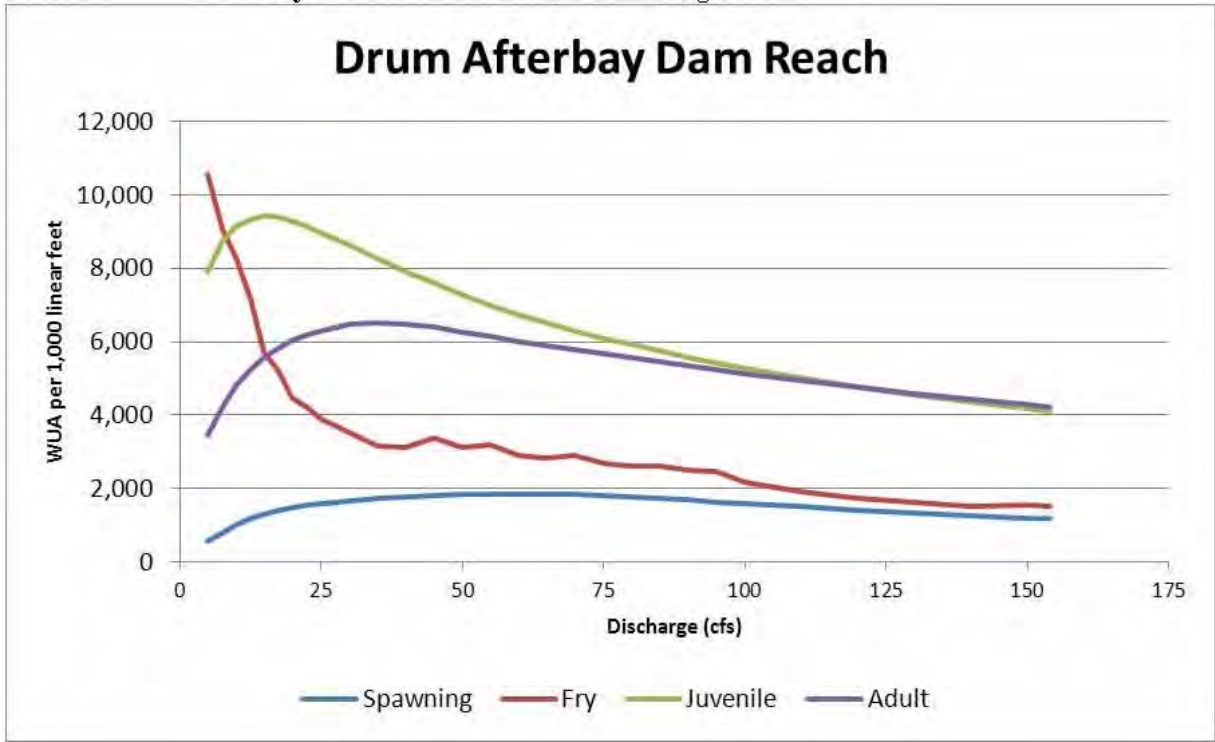
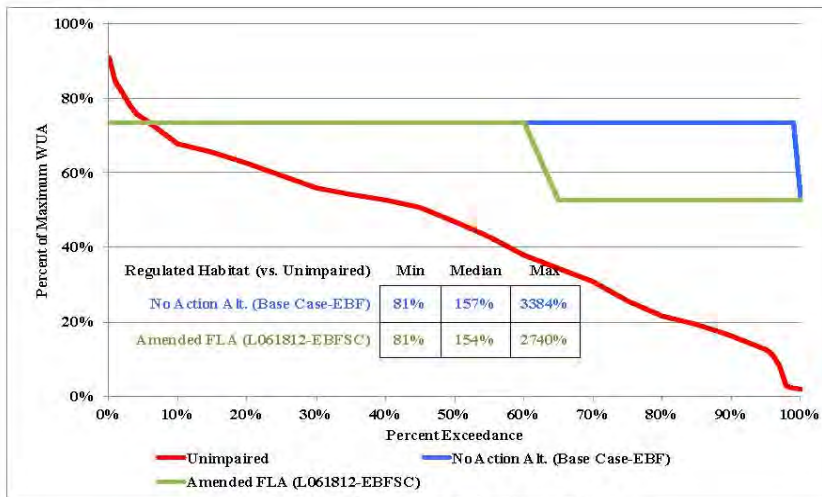
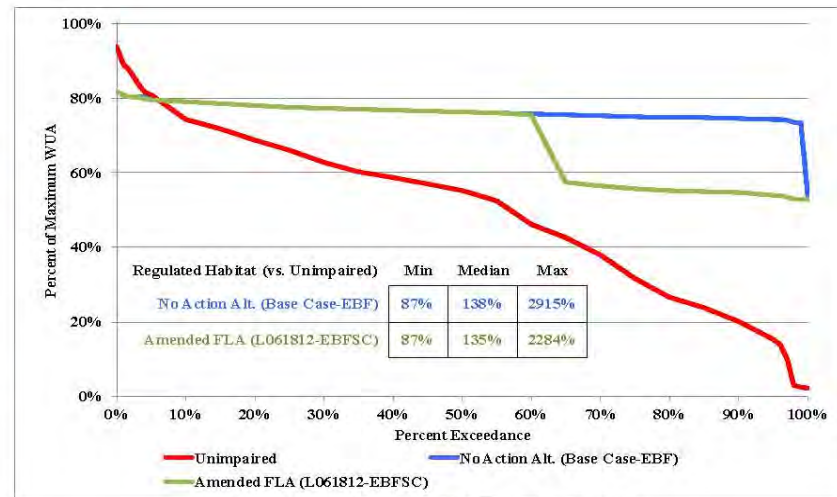


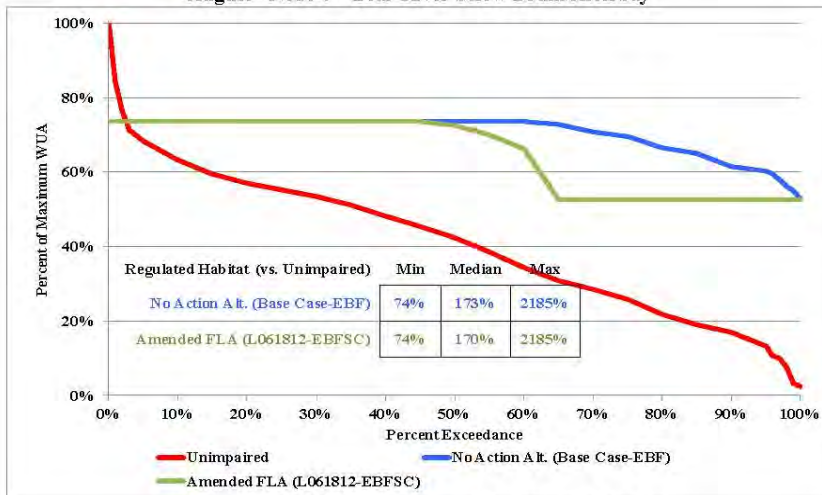
Figure 3-53. Bear River below Drum afterbay dam PHABSIM modeling results. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)



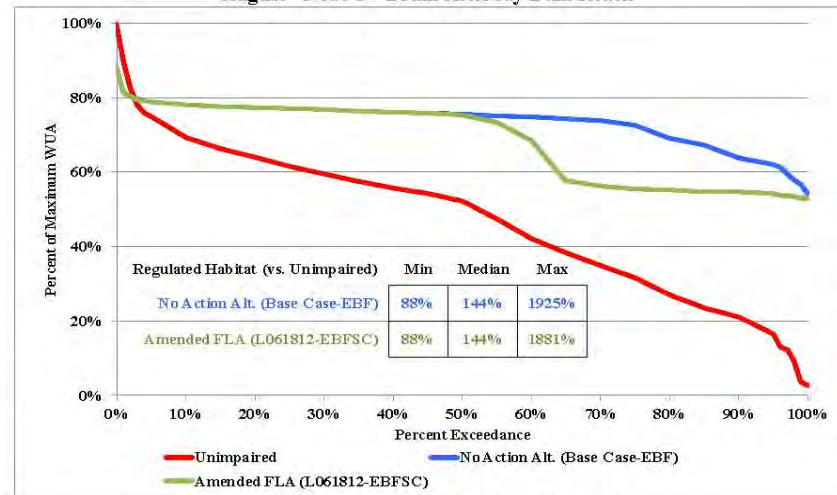
August - Node 0 - Bear River below Drum Afterbay



August - Node 1 - Drum Afterbay Dam Reach



September - Node 0 - Bear River below Drum Afterbay



September - Node 1 - Drum Afterbay Dam Reach

Figure 3-54. HEA for adult rainbow trout during the months of August (k) and September (l) in Bear River below Drum afterbay dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])

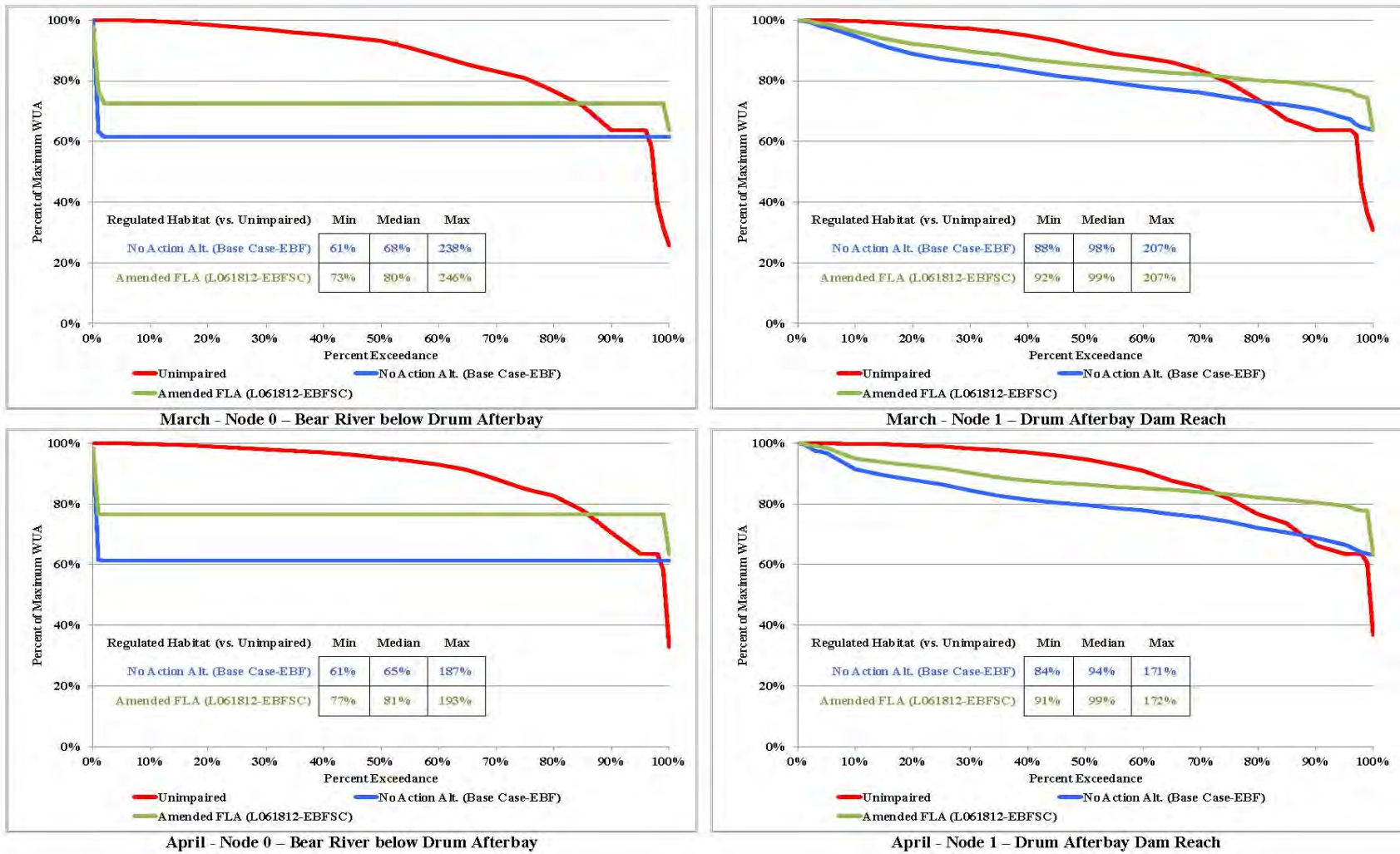


Figure 3-55. HEA for spawning rainbow trout during the months of March (a) and April (b) in Bear River below Drum afterbay dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 4 to PG&E's License Application, as Amended [August 30, 2012])

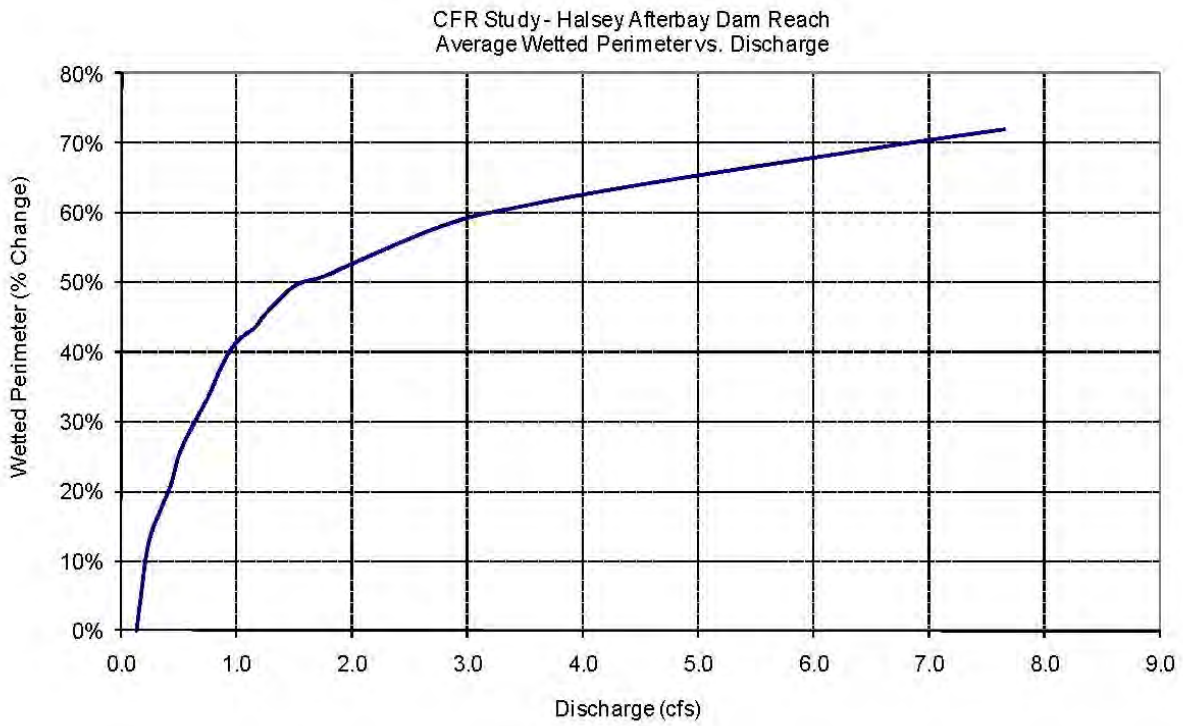


Figure 3-56. Percent change in wetted perimeter as a function of discharge in Dry Creek below Halsey afterbay dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)



Figure 3-57. Percent change in wetted perimeter as a function of discharge in Rock Creek below Rock Creek reservoir dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

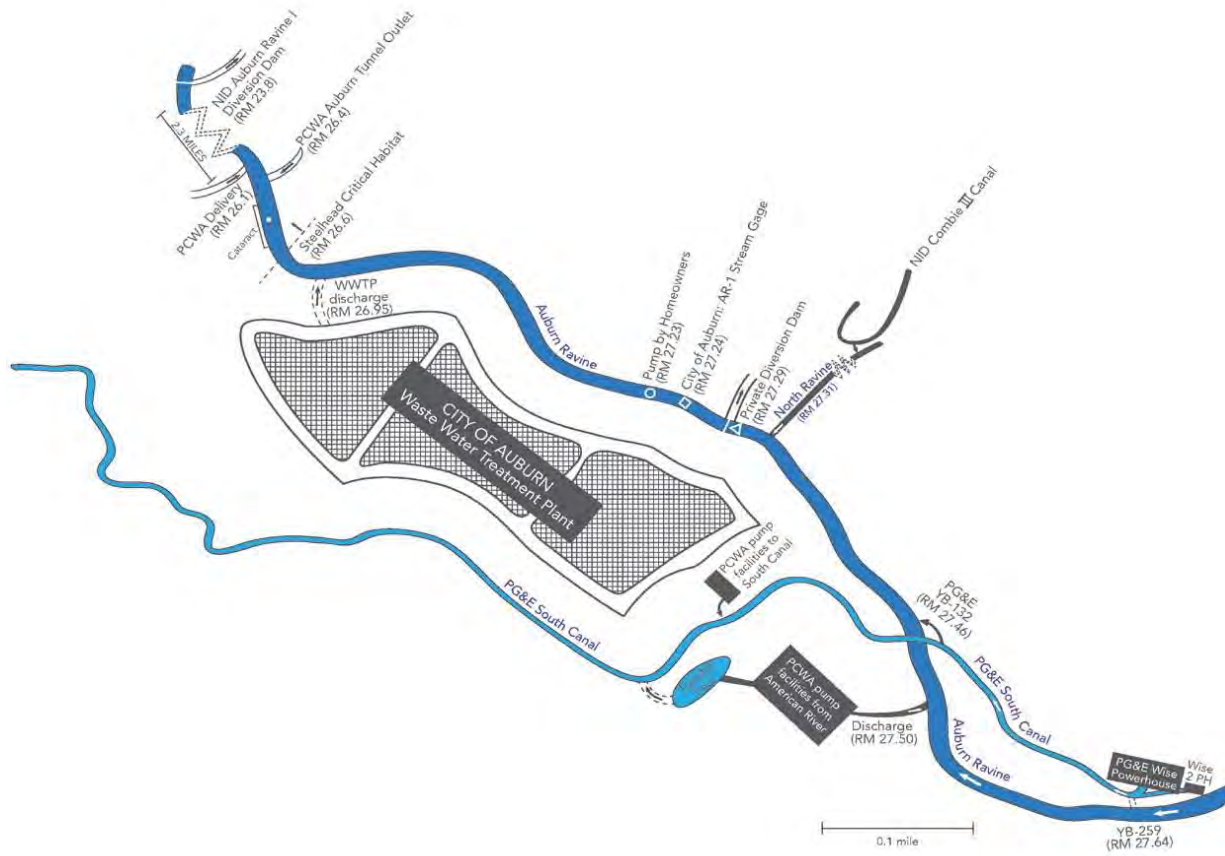
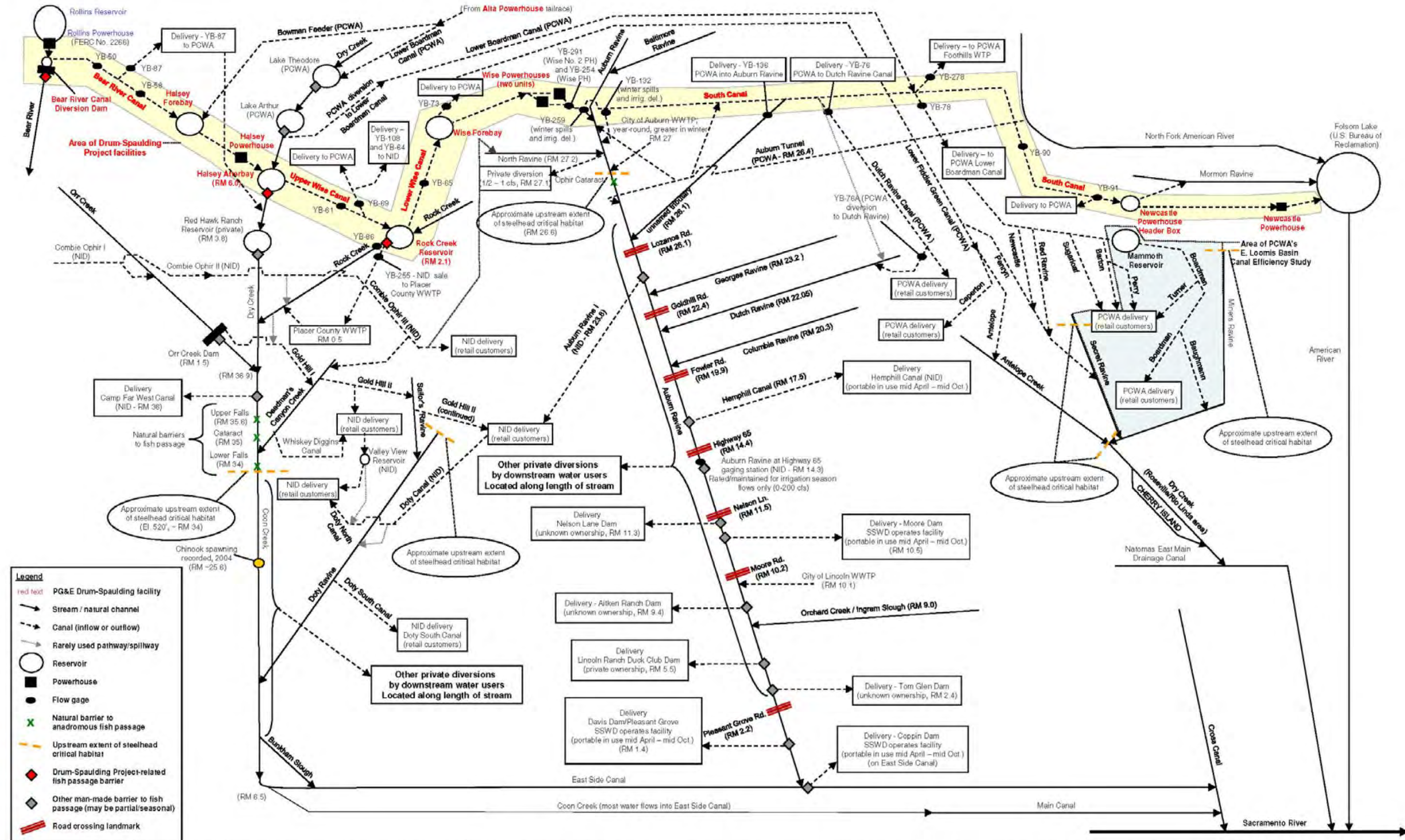


Figure 3-58. Diagram of Upper Auburn Ravine showing relationship of PG&E release point from South canal, other water discharges, and withdrawals, and barriers to anadromous fish migration.



Draft Conceptual Schematic of Western Placer Streams Area (Inset of main Yuba-Bear / Drum-Spauding schematic, based on best available information)

PG&E's Drum-Spauding Project (FERC No. 2310) and NID's Yuba-Bear Hydroelectric Project (FERC No. 2266)

Revision Date: April 2, 2012

Figure 3-59. Schematic of Auburn Ravine showing relative location of major discharges and withdrawals affecting flows in Auburn Ravine.

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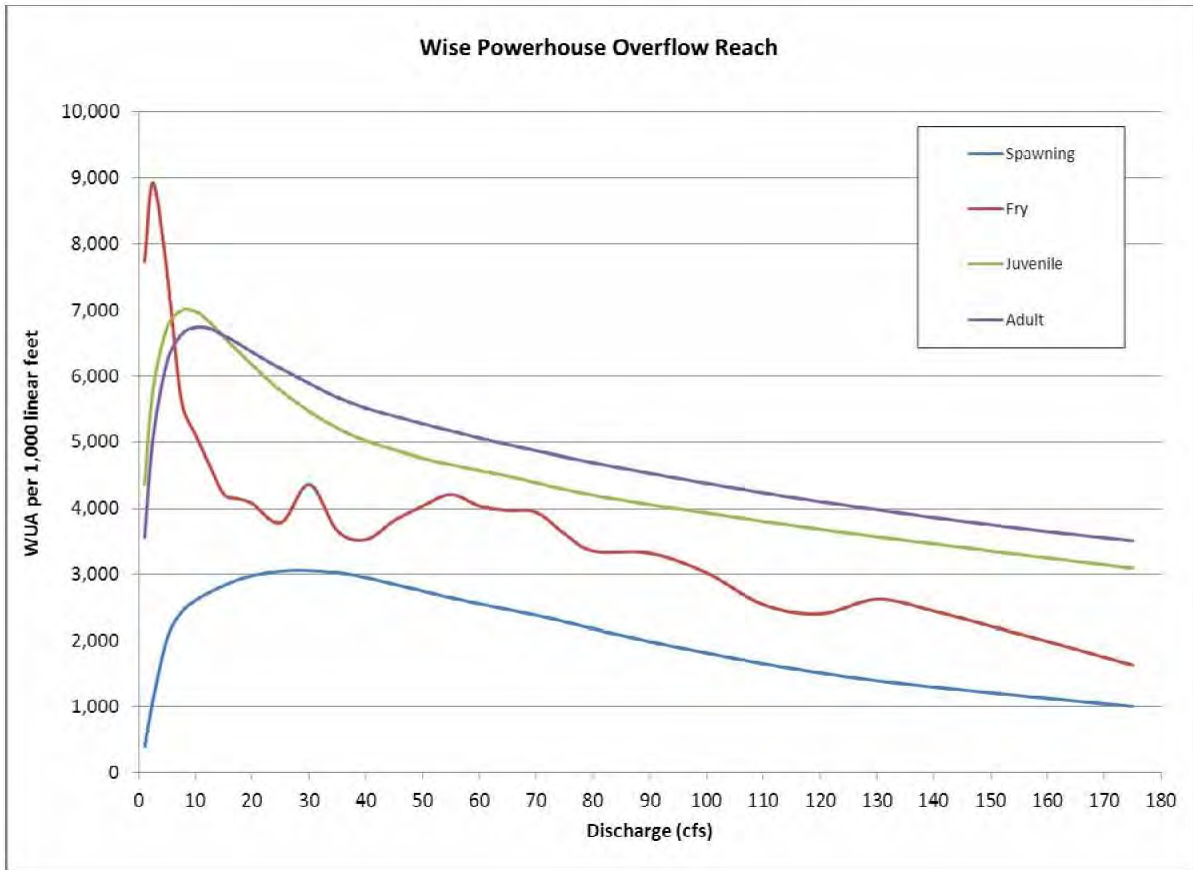


Figure 3-60. WUA for adult and juvenile rainbow trout and for rainbow trout spawning in the Auburn Ravine below Wise No. 1 and No. 2 powerhouses. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

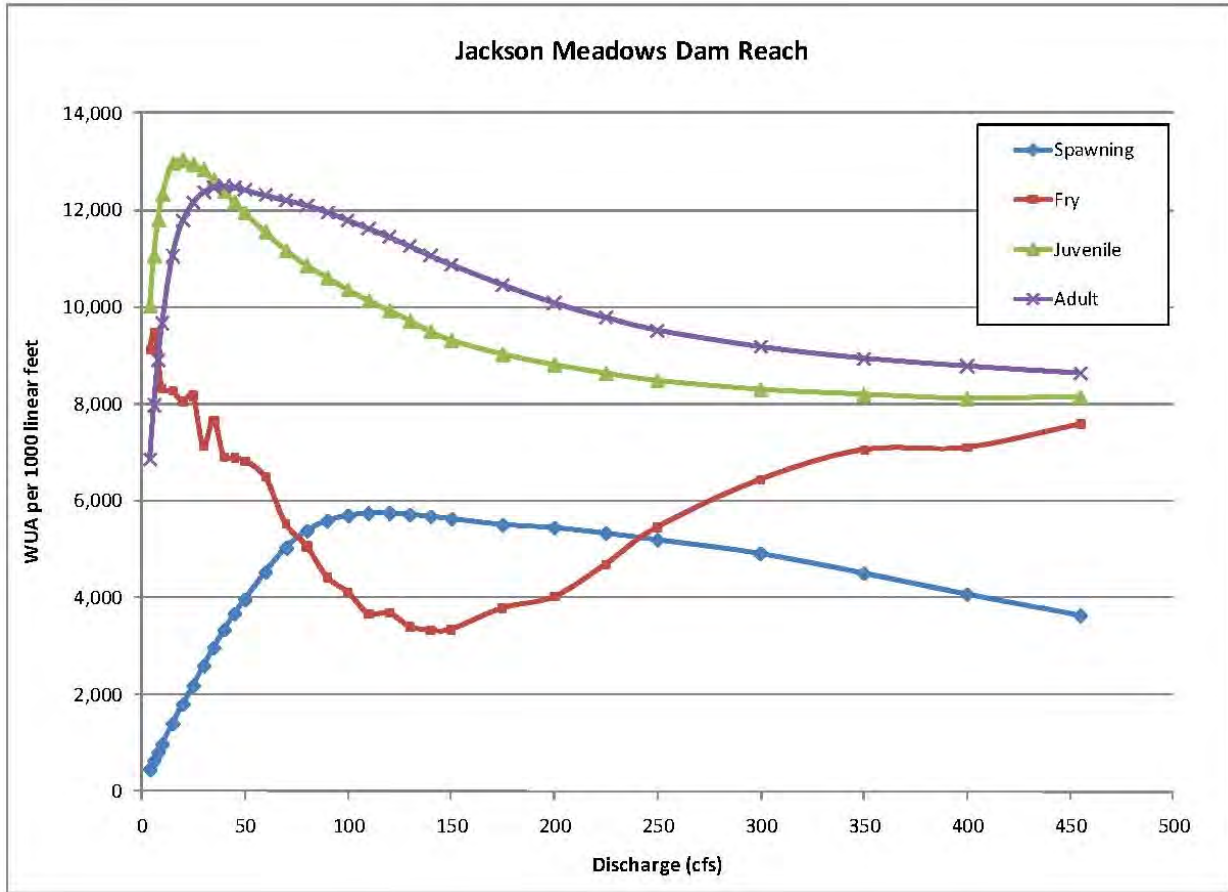


Figure 3-61. Modeled habitat suitability index (WUA) for rainbow trout, Middle Yuba River below Jackson Meadows reservoir dam. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

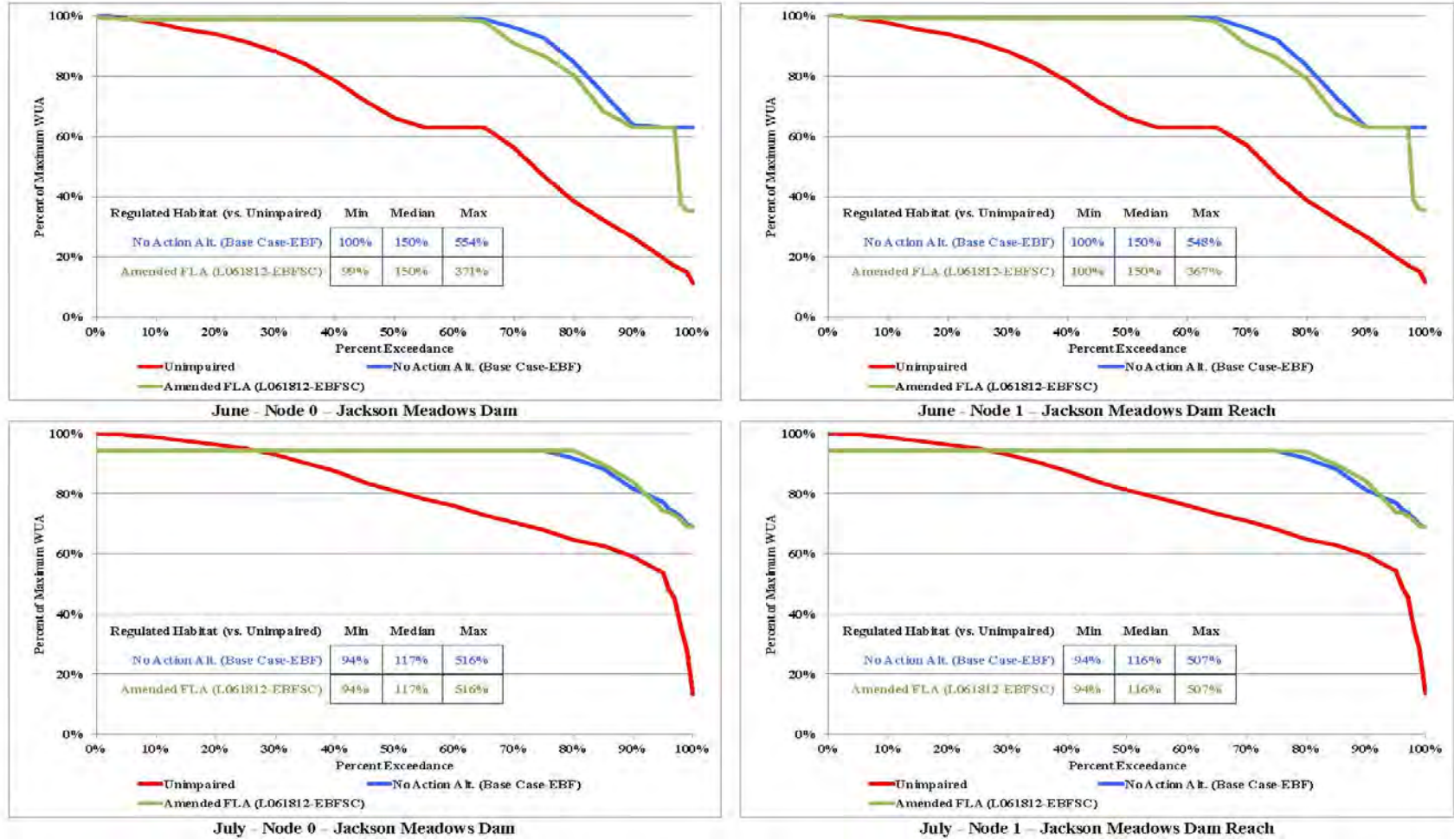


Figure 3-62. HEA for spawning rainbow trout during the month of June (i) and adult rainbow trout during the month of July (j) in Middle Yuba River below Jackson Meadows reservoir dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 3 to NID's License Application, as Amended [August 17, 2012])

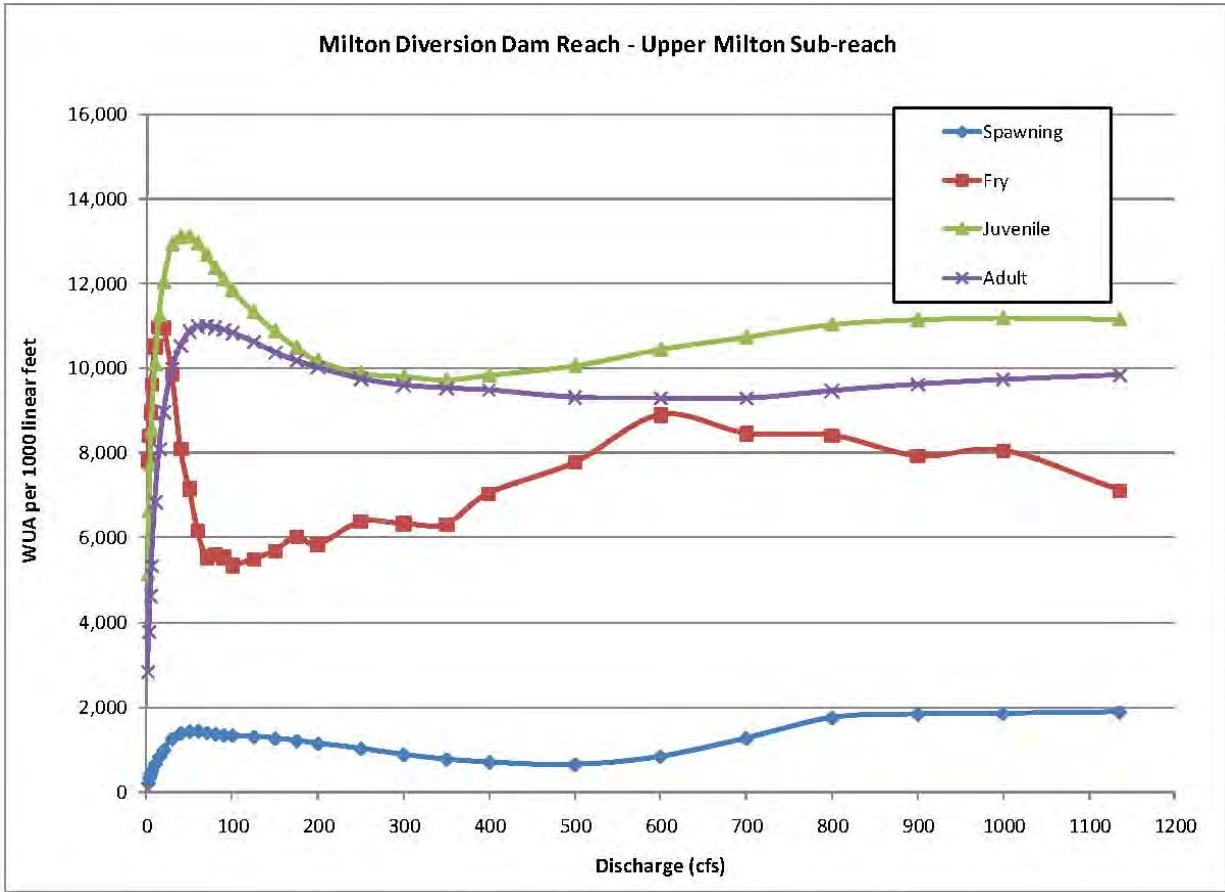


Figure 3-63. WUA for rainbow trout, Middle Yuba River below Milton diversion dam. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

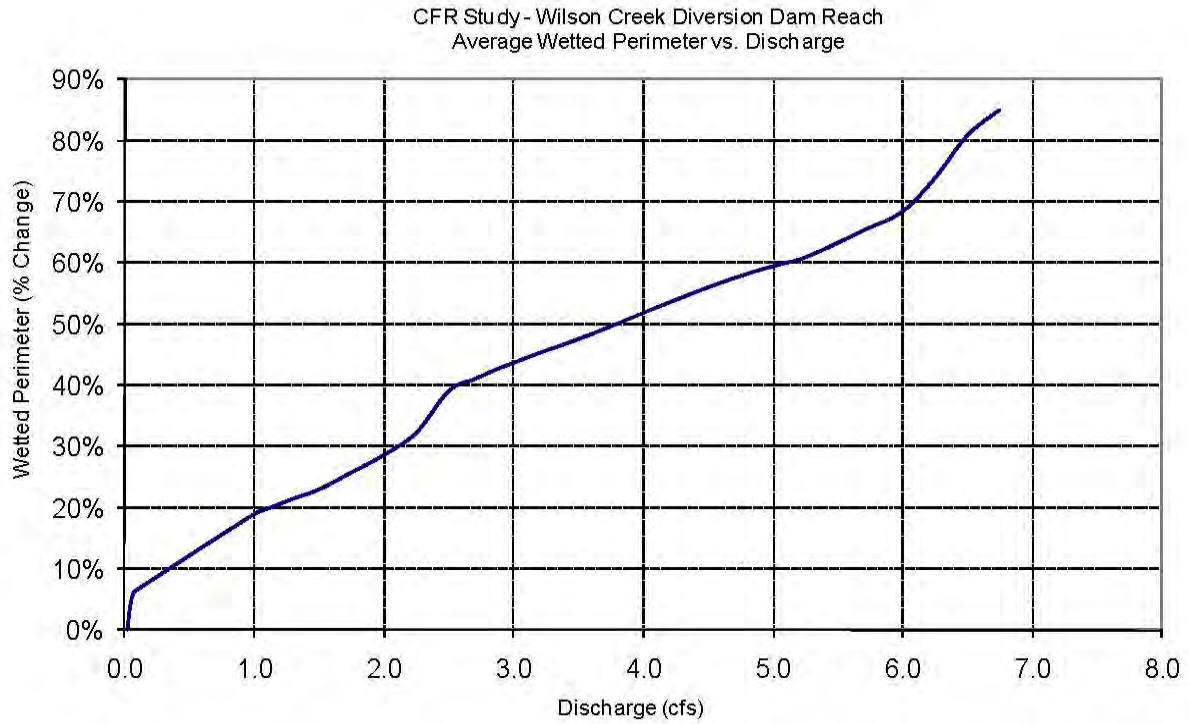


Figure 3-64. Percent change in wetted perimeter as a function of discharge in Wilson Creek below Wilson Creek diversion dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

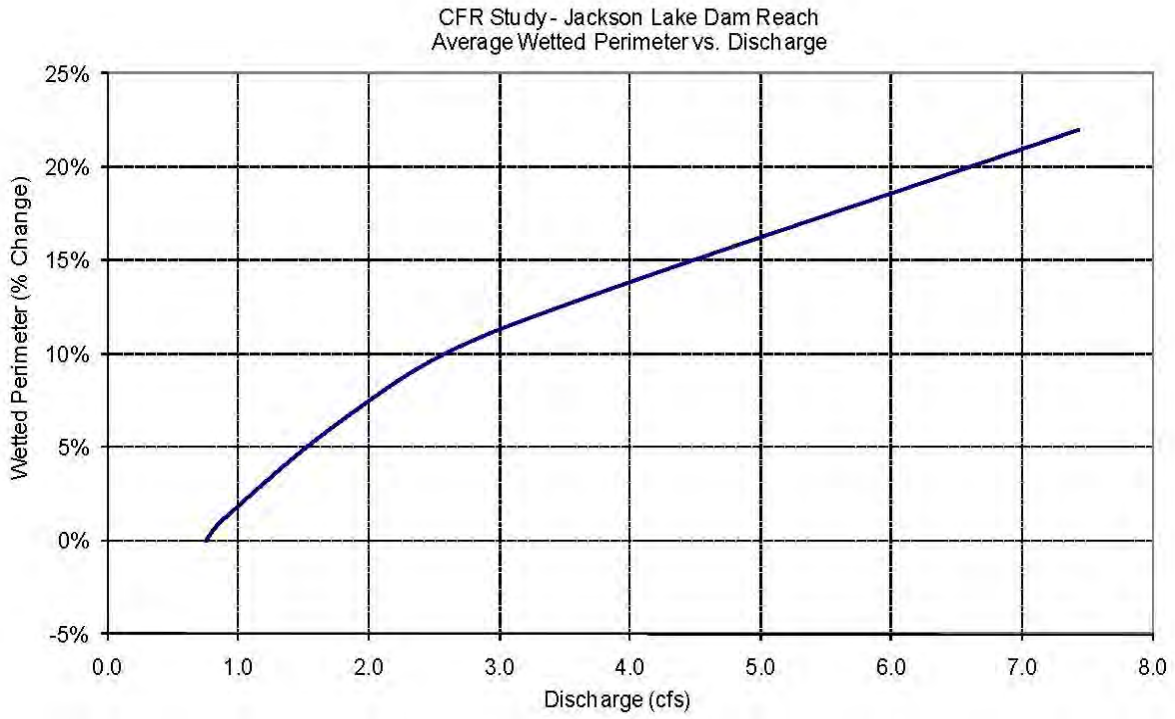


Figure 3-65. Percent change in wetted perimeter as a function of discharge in Jackson Creek below Jackson Lake dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

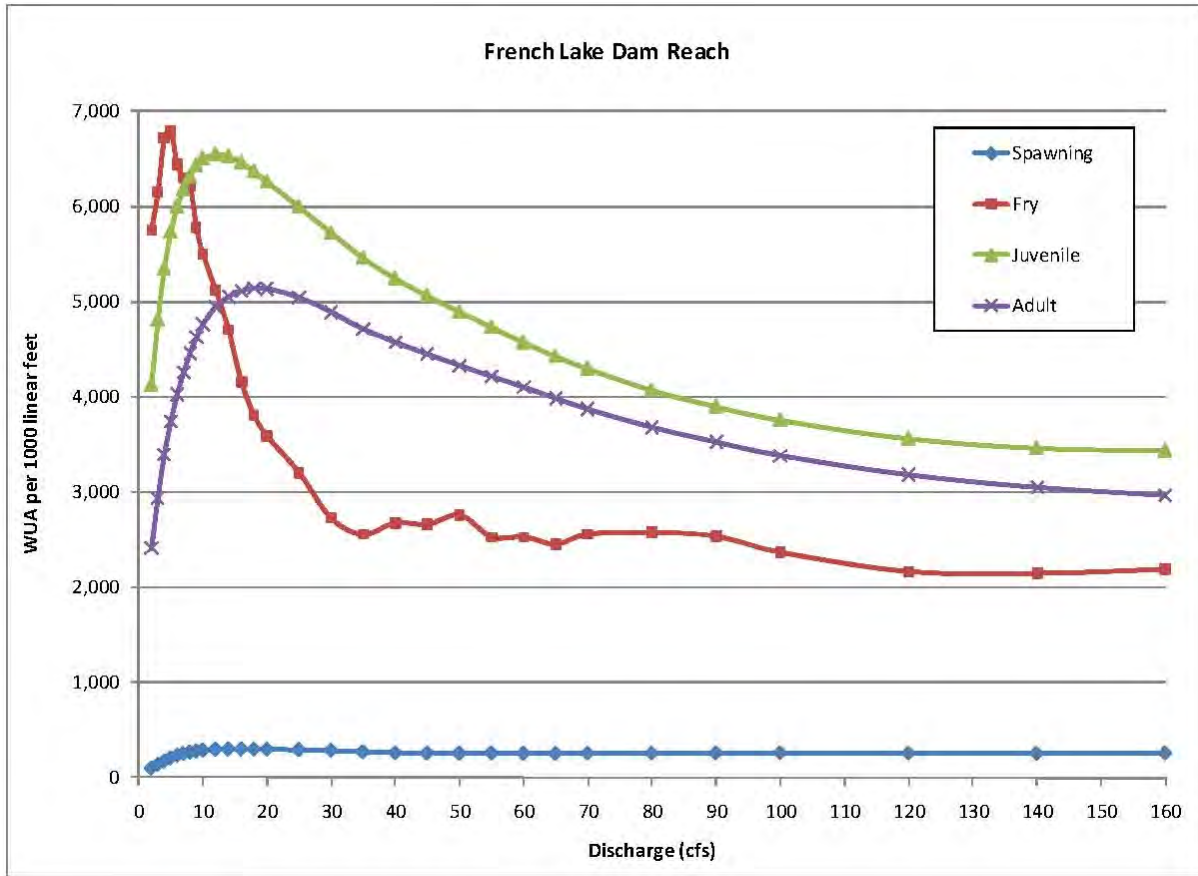


Figure 3-66. WUA for rainbow trout, Canyon Creek below French Lake dam. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

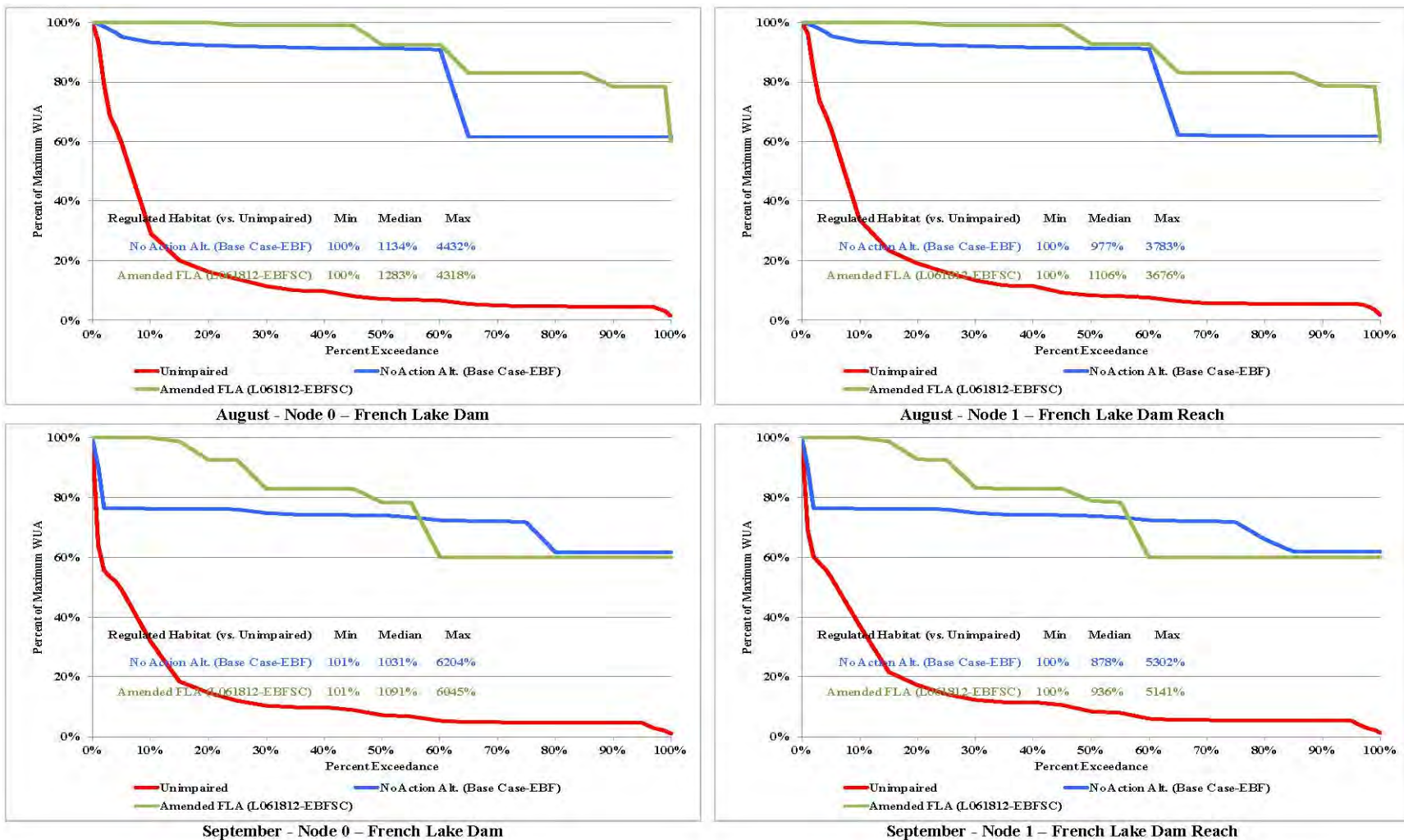


Figure 3-67. HEA for adult rainbow trout during the months of August and September in Canyon Creek below French Lake dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 3 to NID's License Application, as Amended [August 17, 2012])

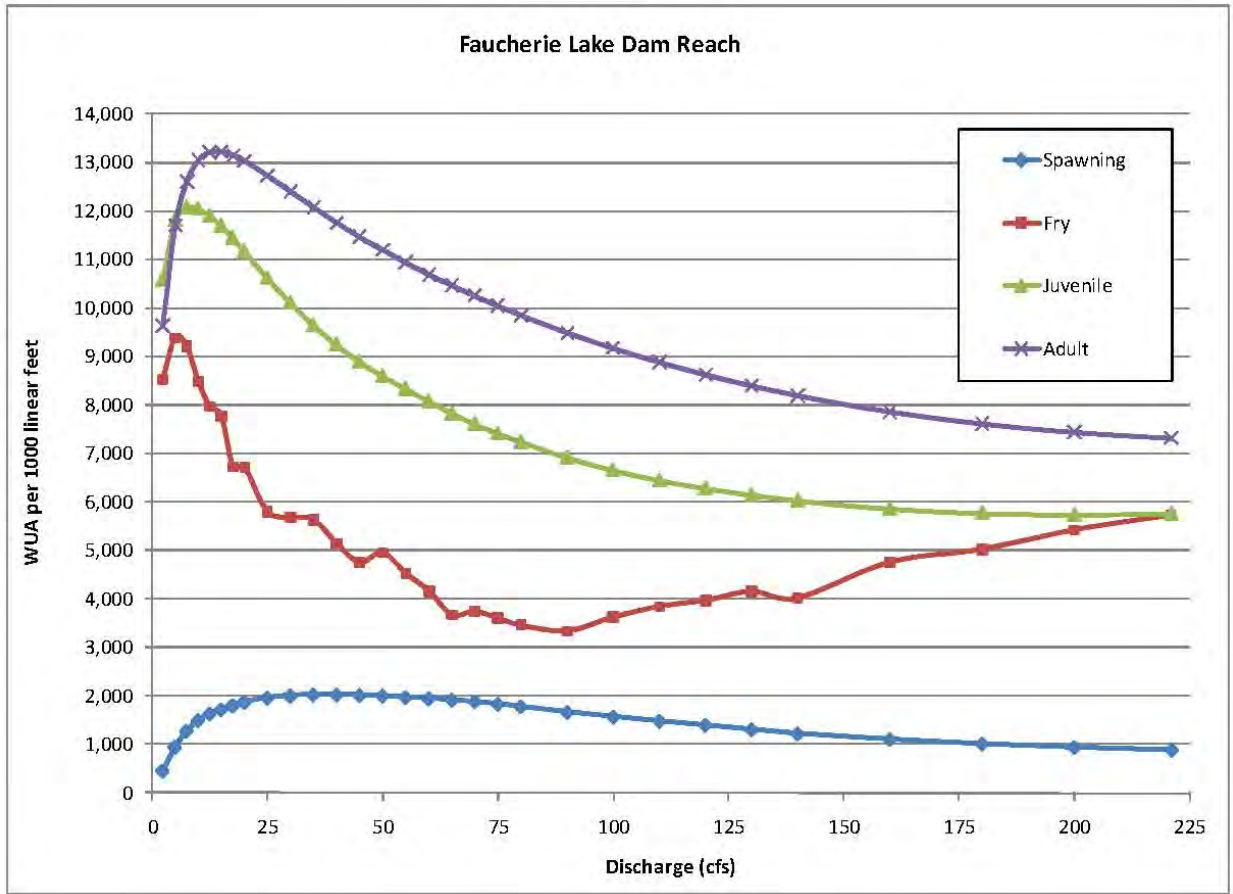


Figure 3-68. WUA for rainbow trout, Canyon Creek below Faucherie Lake dam. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

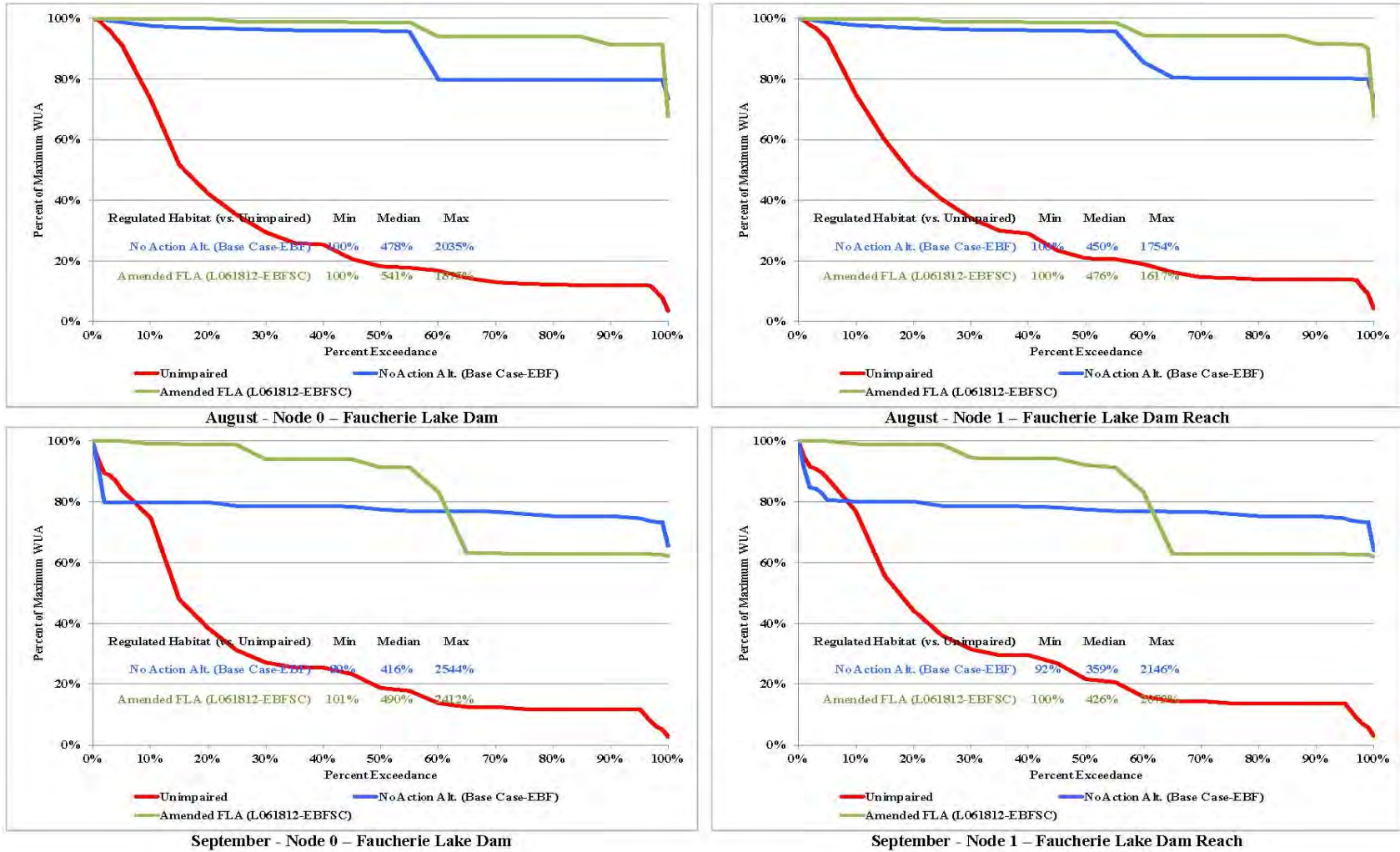


Figure 3-69. HEA for adult rainbow trout during the months of August (k) and September (l) in Canyon Creek below Faucherie Lake dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 3 to NID's License Application, as Amended [August 17, 2012])

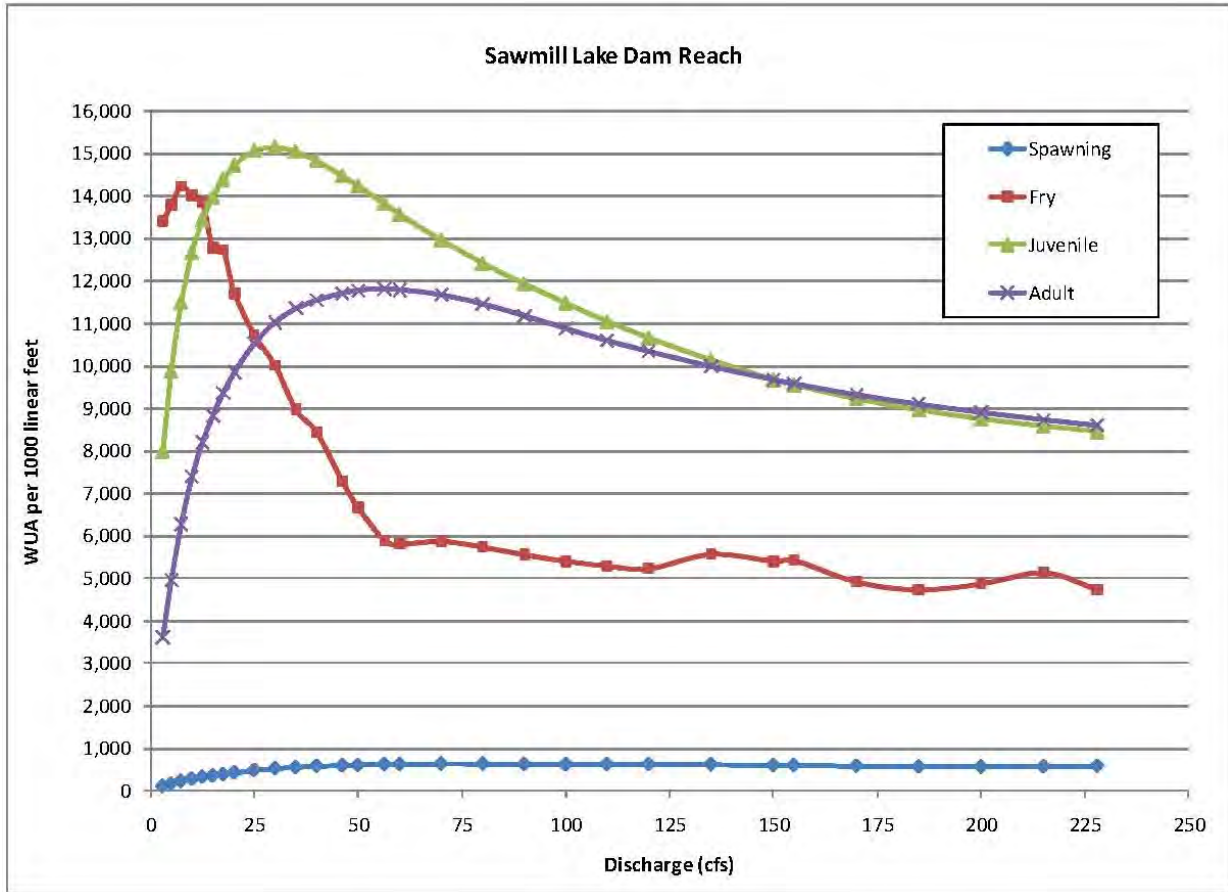


Figure 3-70. WUA for rainbow trout, Canyon Creek below Sawmill Lake dam. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

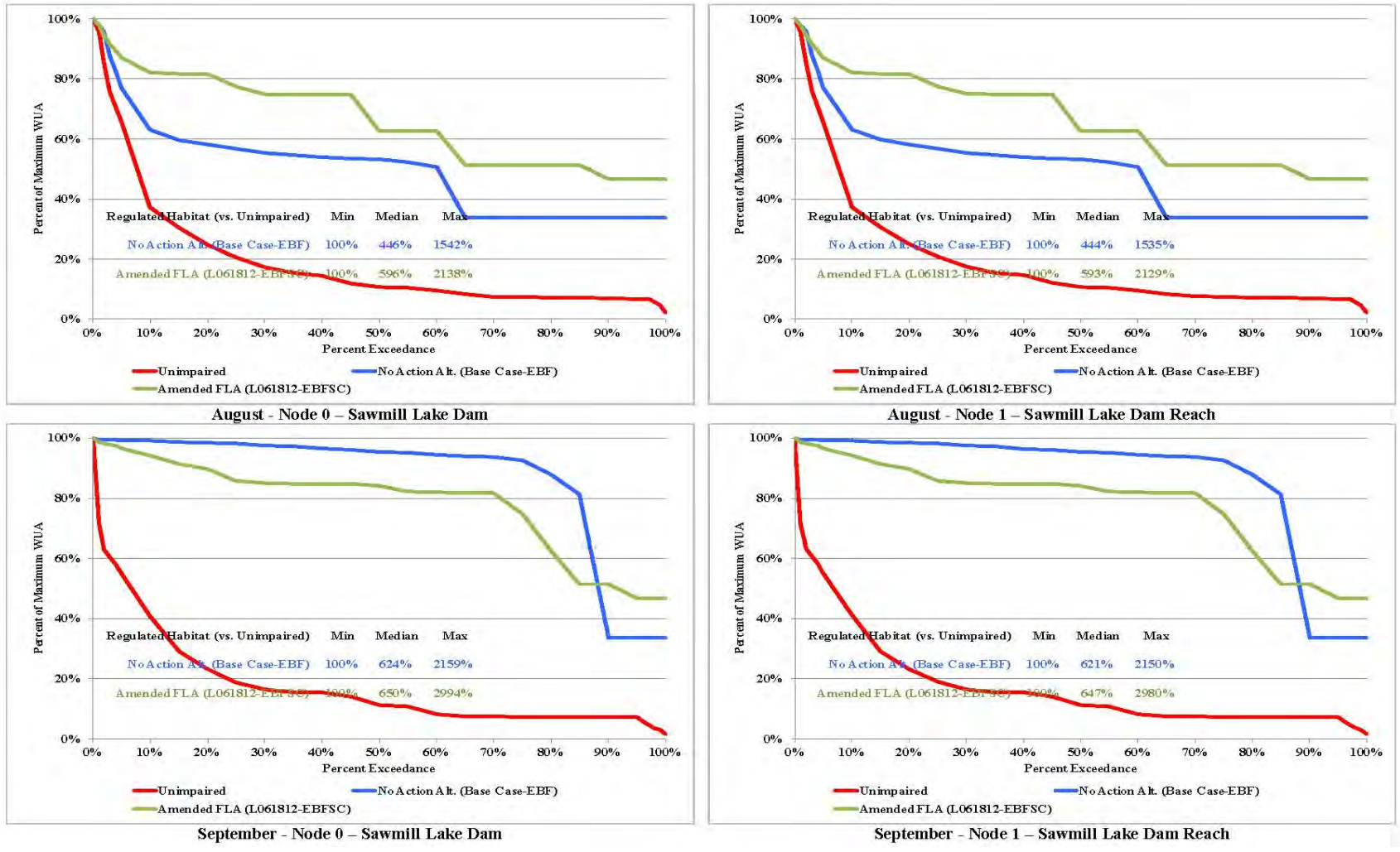


Figure 3-71. HEA for adult rainbow trout during the months of August (k) and September (l) in Canyon Creek below Sawmill Lake dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 3 to NID's License Application, as Amended [August 17, 2012])

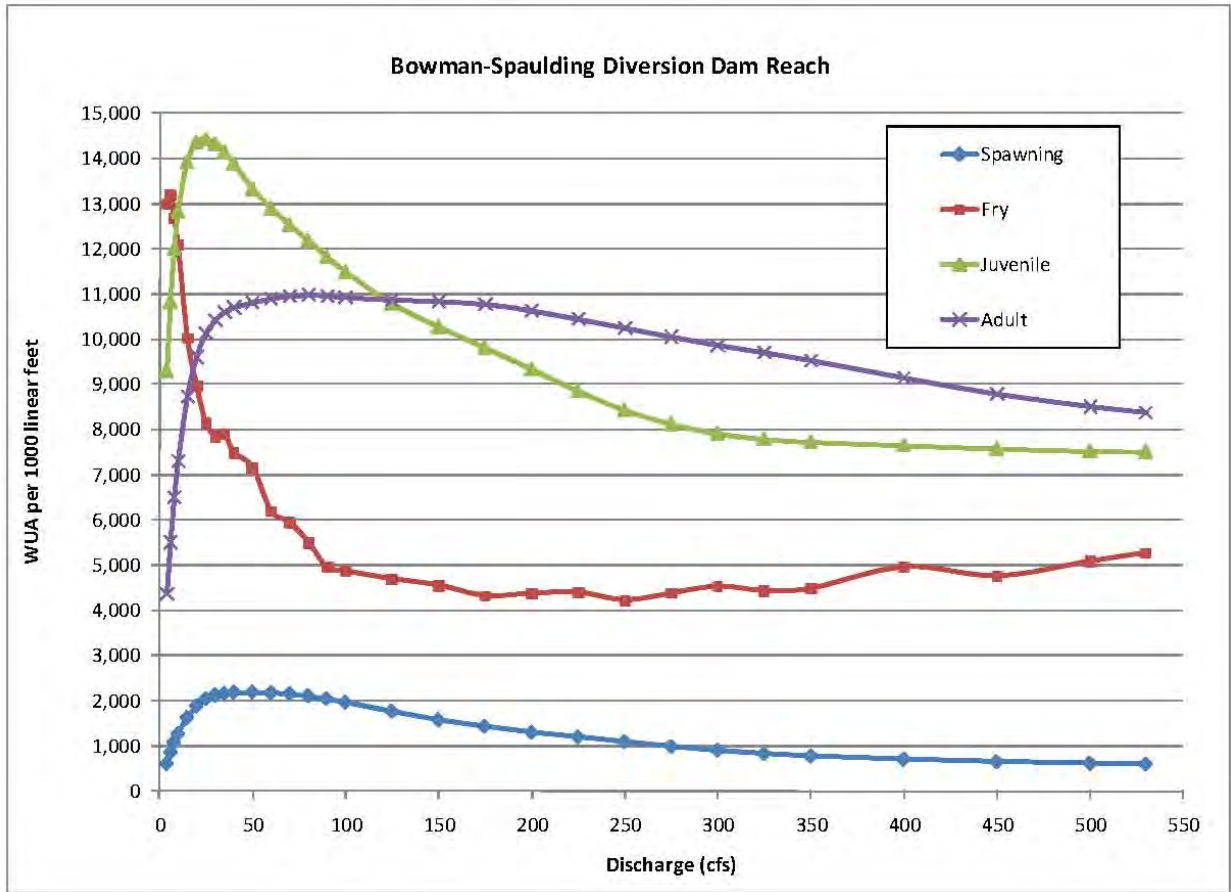


Figure 3-72. WUA for rainbow trout, Canyon Creek below Bowman-Spaulling diversion dam. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

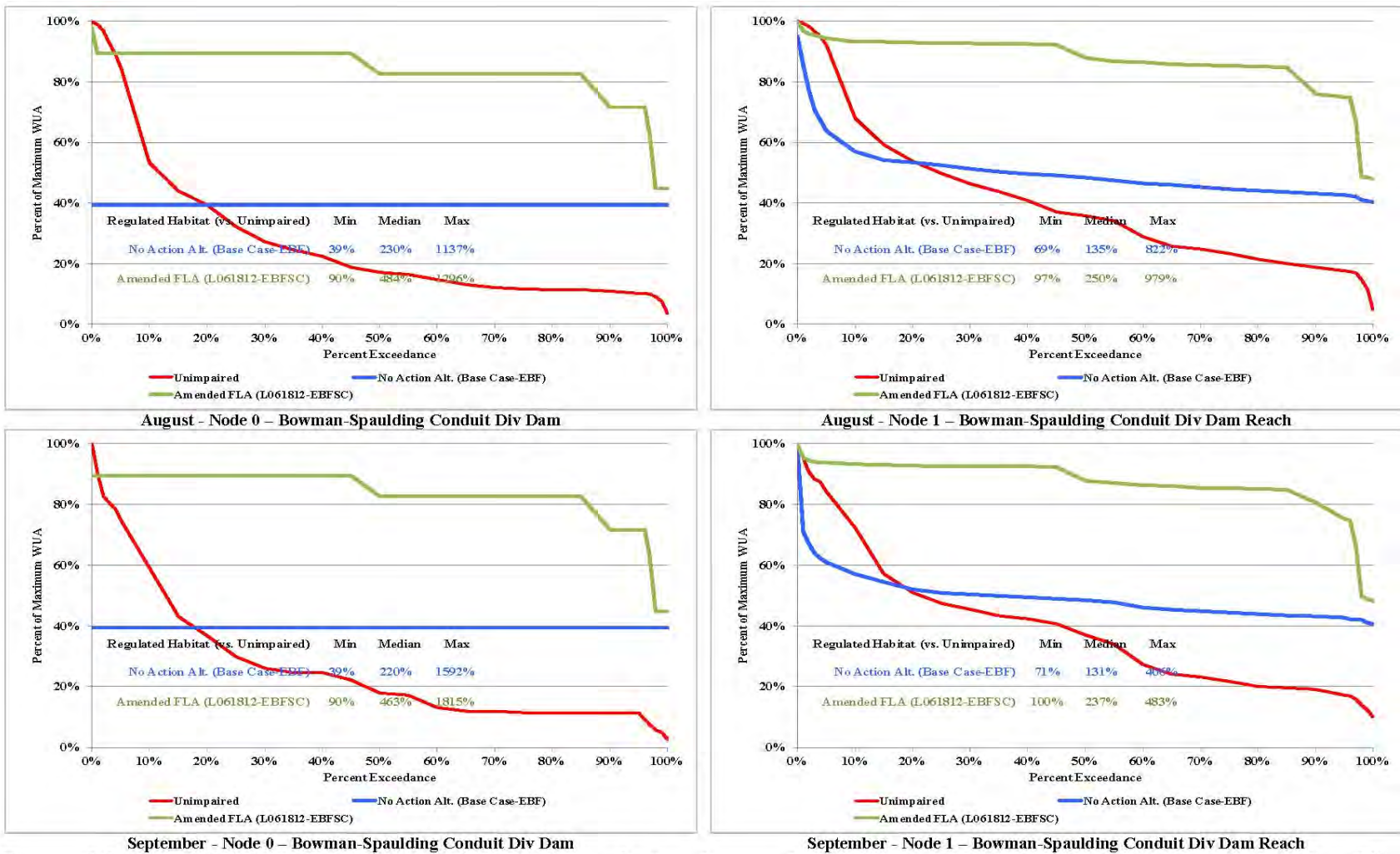


Figure 3-73. HEA for adult rainbow trout during the months of August (k) and September (l) in Canyon Creek below Bowman-Spaulling diversion dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 3 to NID's License Application, as Amended [August 17, 2012])

DFA Study - Texas Creek Diversion Dam Reach
Average Wetted Perimeter vs. Discharge

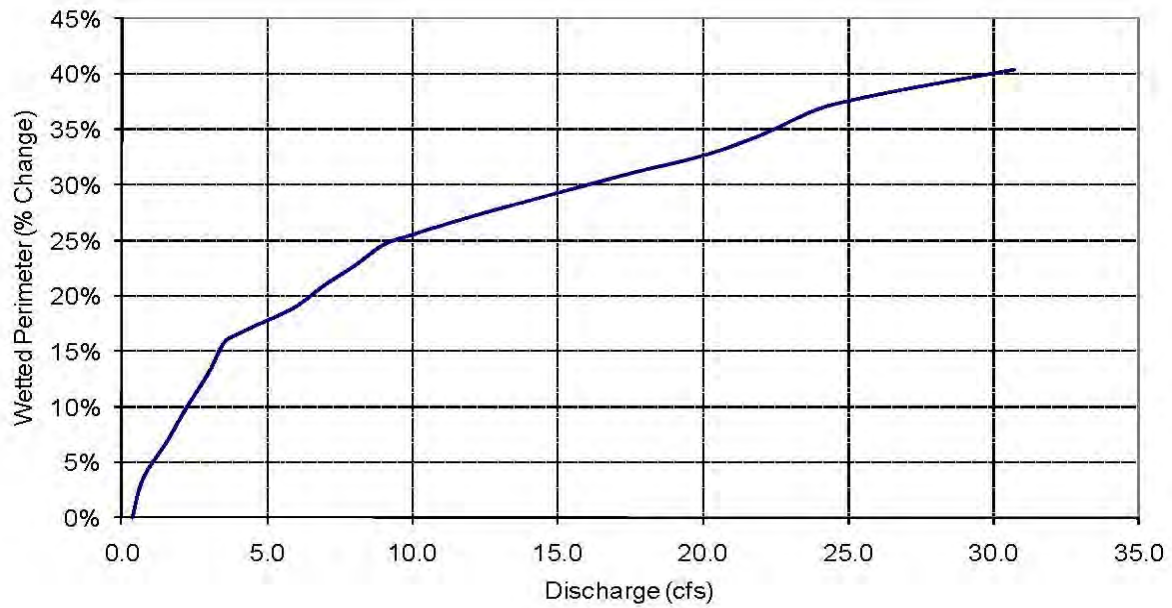


Figure 3-74. Percent change in wetted perimeter as a function of discharge in Texas Creek below Texas Creek diversion dam, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

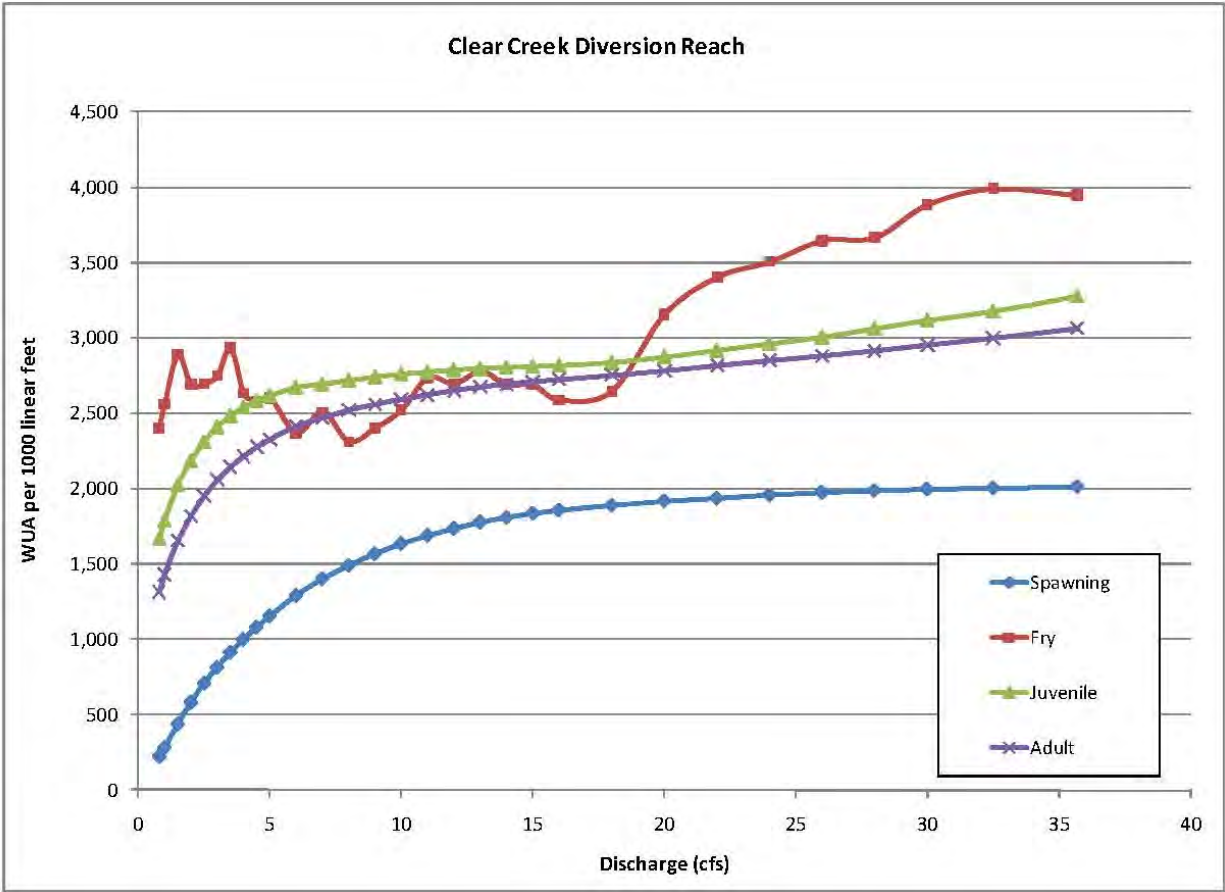


Figure 3-75. WUA for rainbow trout, Clear Creek below Bowman-Spaulding conduit. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

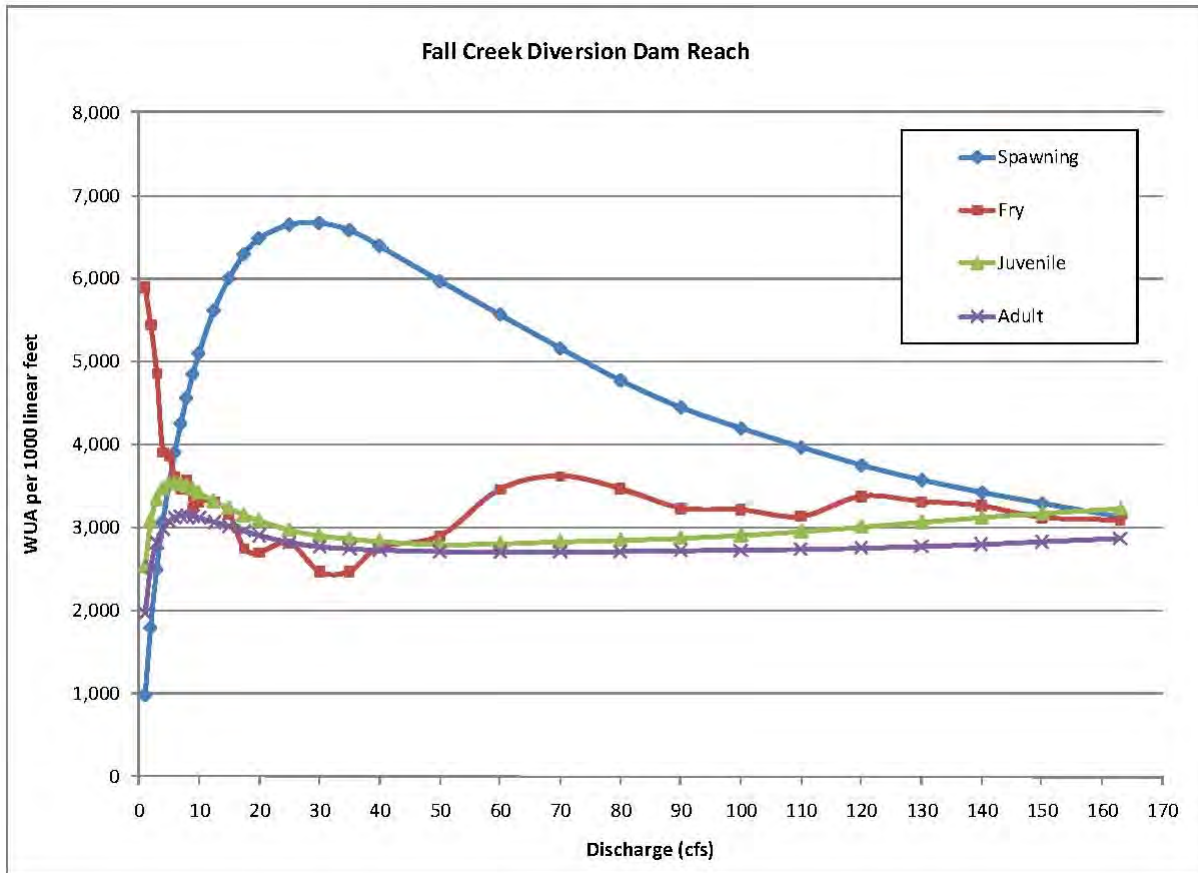


Figure 3-76. WUA for rainbow trout, Fall Creek below Fall Creek diversion dam. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

DFA Study - Trap Creek Diversion Reach
Average Wetted Perimeter vs. Discharge

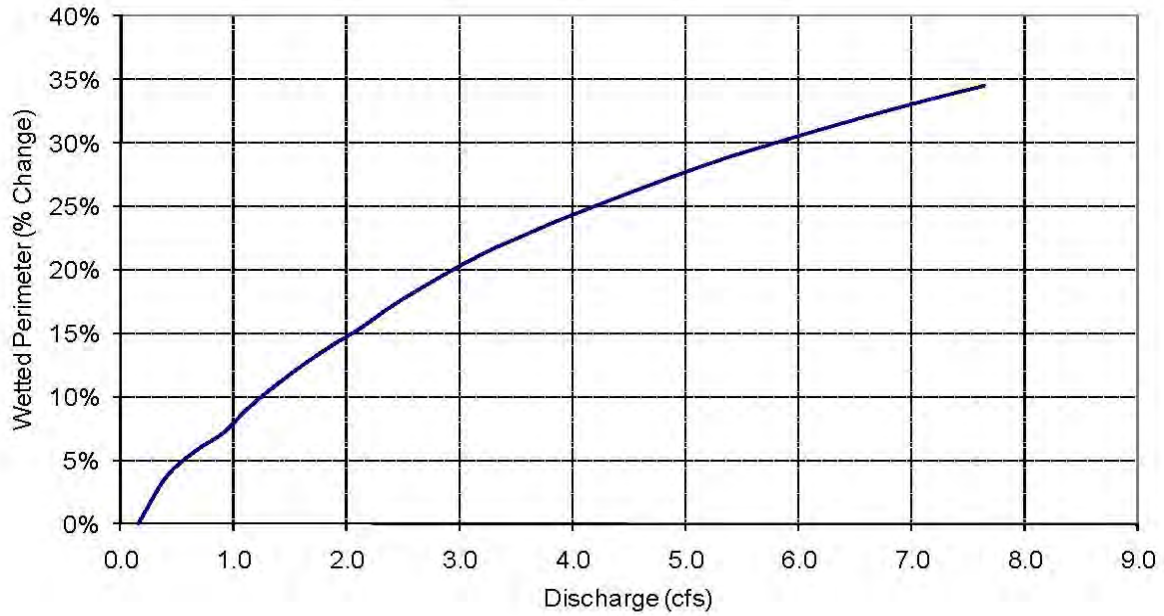


Figure 3-77. Percent change in wetted perimeter as a function of discharge in Trap Creek below Bowman-Spaulding conduit, averaged across three channel flow response transects. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

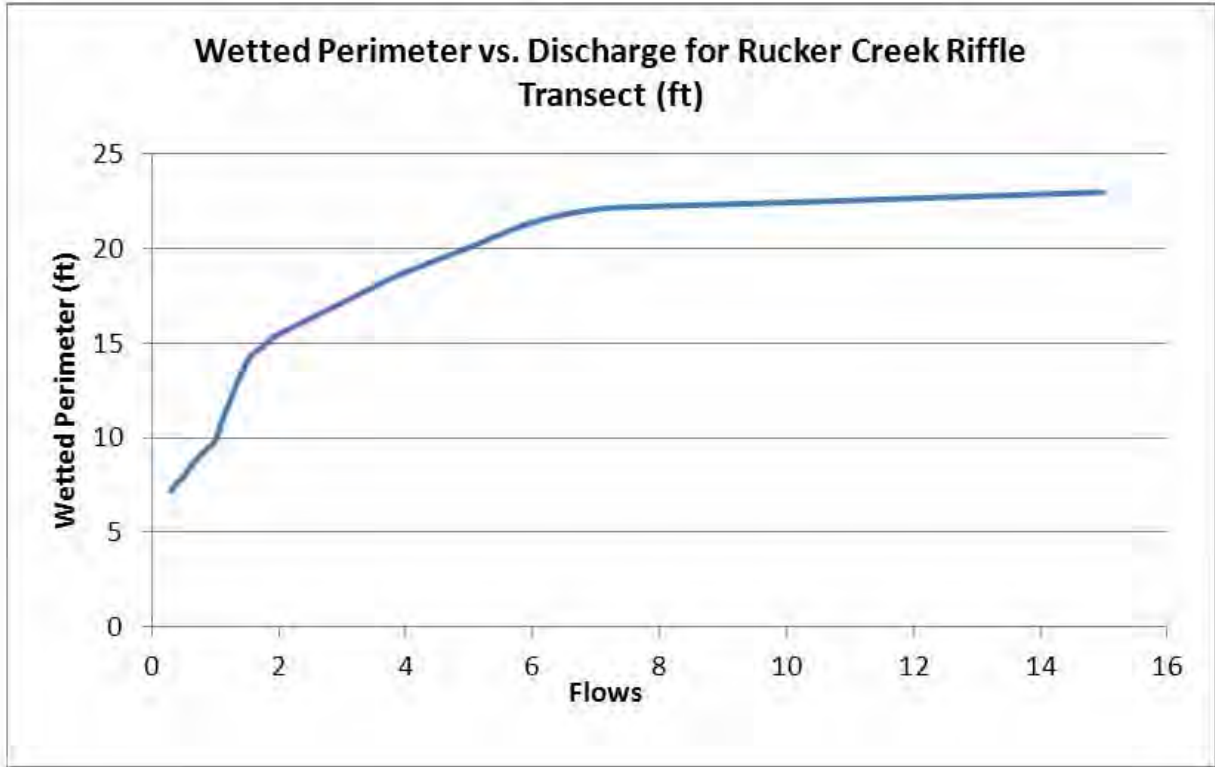


Figure 3-78. Wetted perimeter at the DFA Rucker Creek below Bowman Spaulding conduit riffle transect. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)

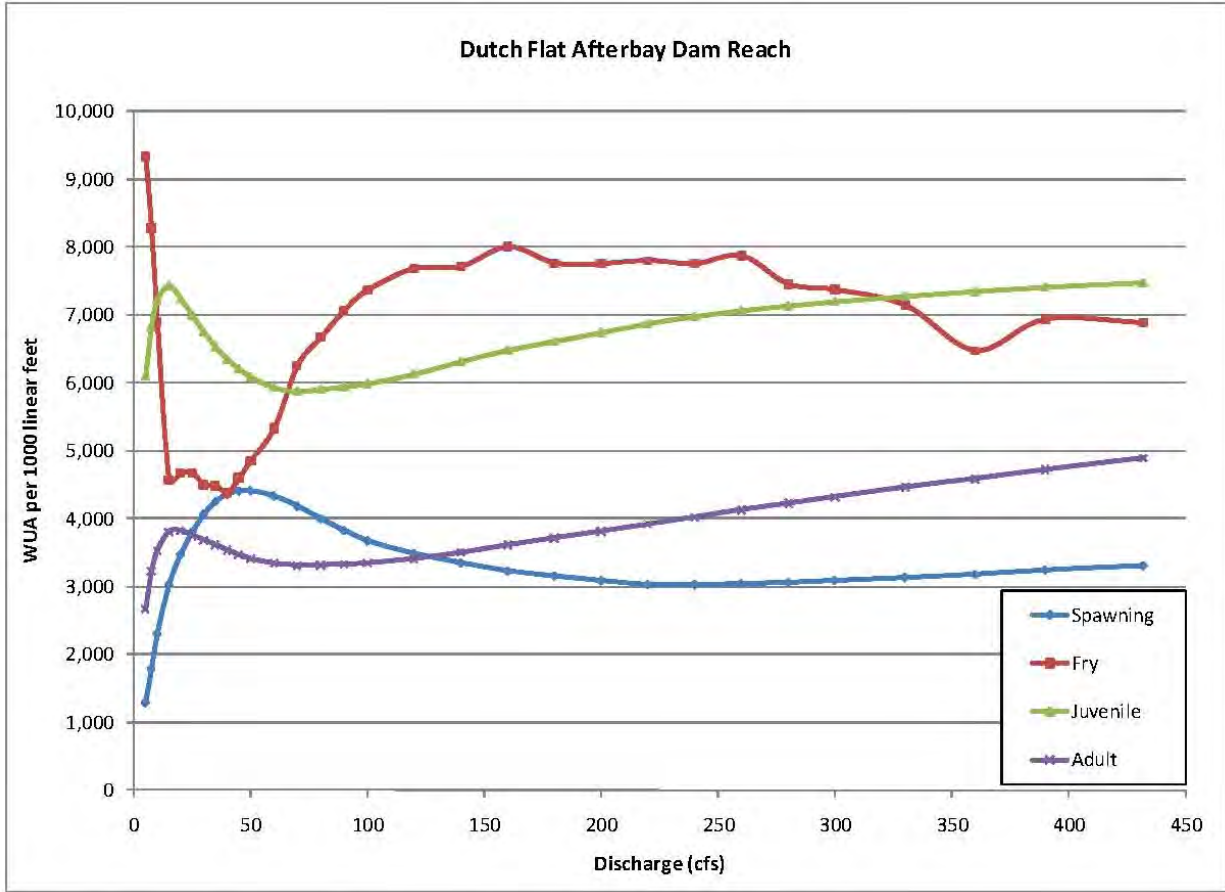
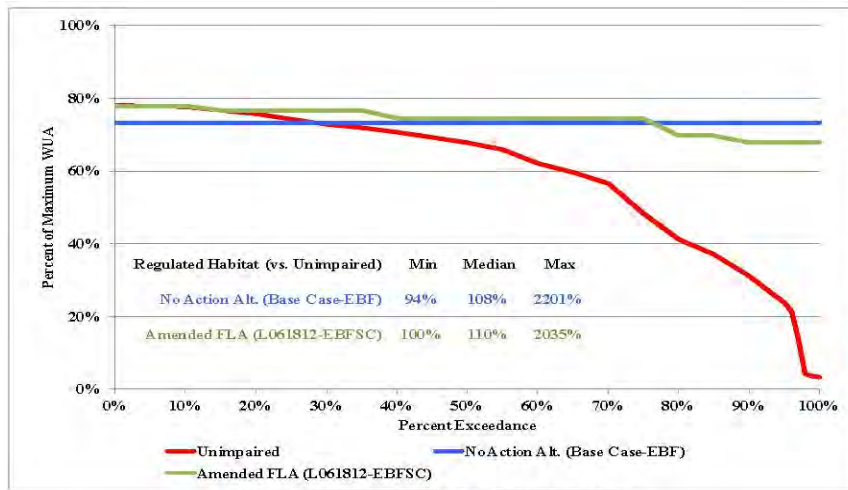
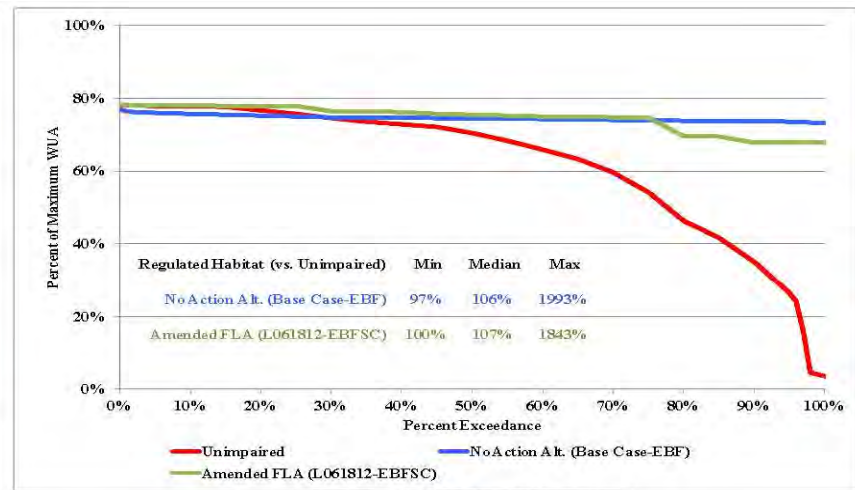


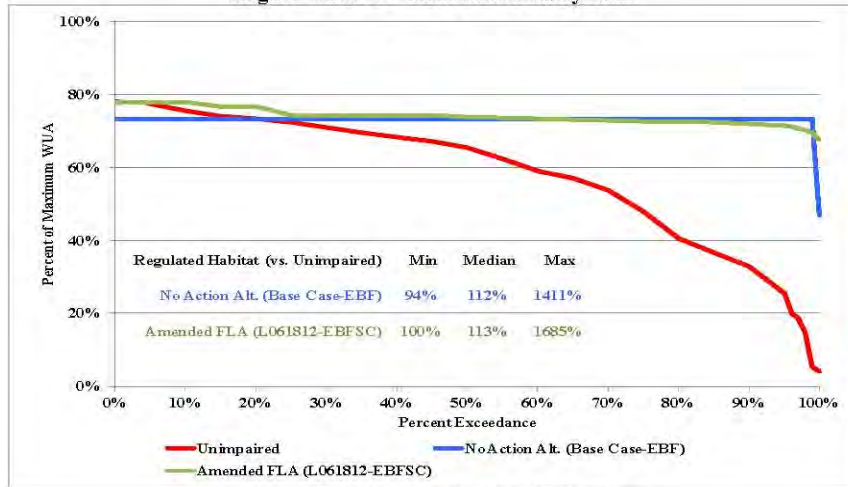
Figure 3-79. WUA for rainbow trout, Bear River below Dutch Flat afterbay dam. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)



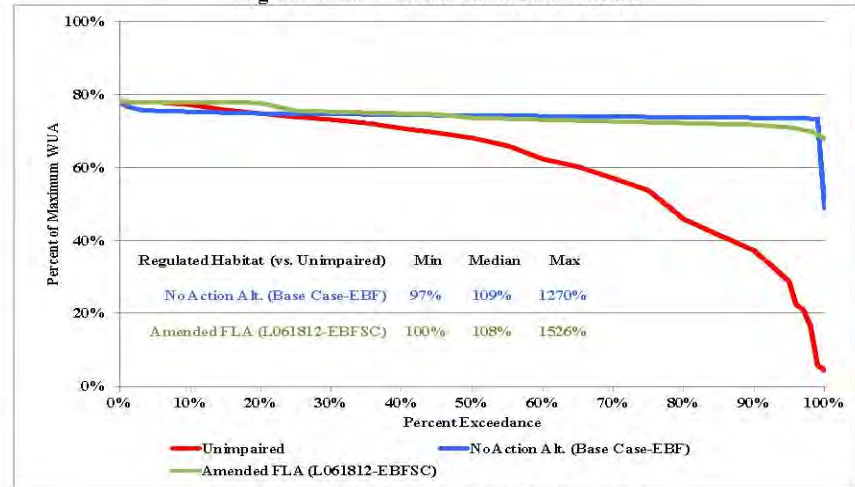
August - Node 0 – Dutch Flat Afterbay Dam



August - Node 1 – Dutch Flat AB Dam Reach



September - Node 0 – Dutch Flat Afterbay Dam



September - Node 1 – Dutch Flat AB Dam Reach

Figure 3-80. HEA for adult rainbow trout during the months of August and September in Bear River below Dutch Flat afterbay dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 3 to NID's License Application, as Amended [August 17, 2012])

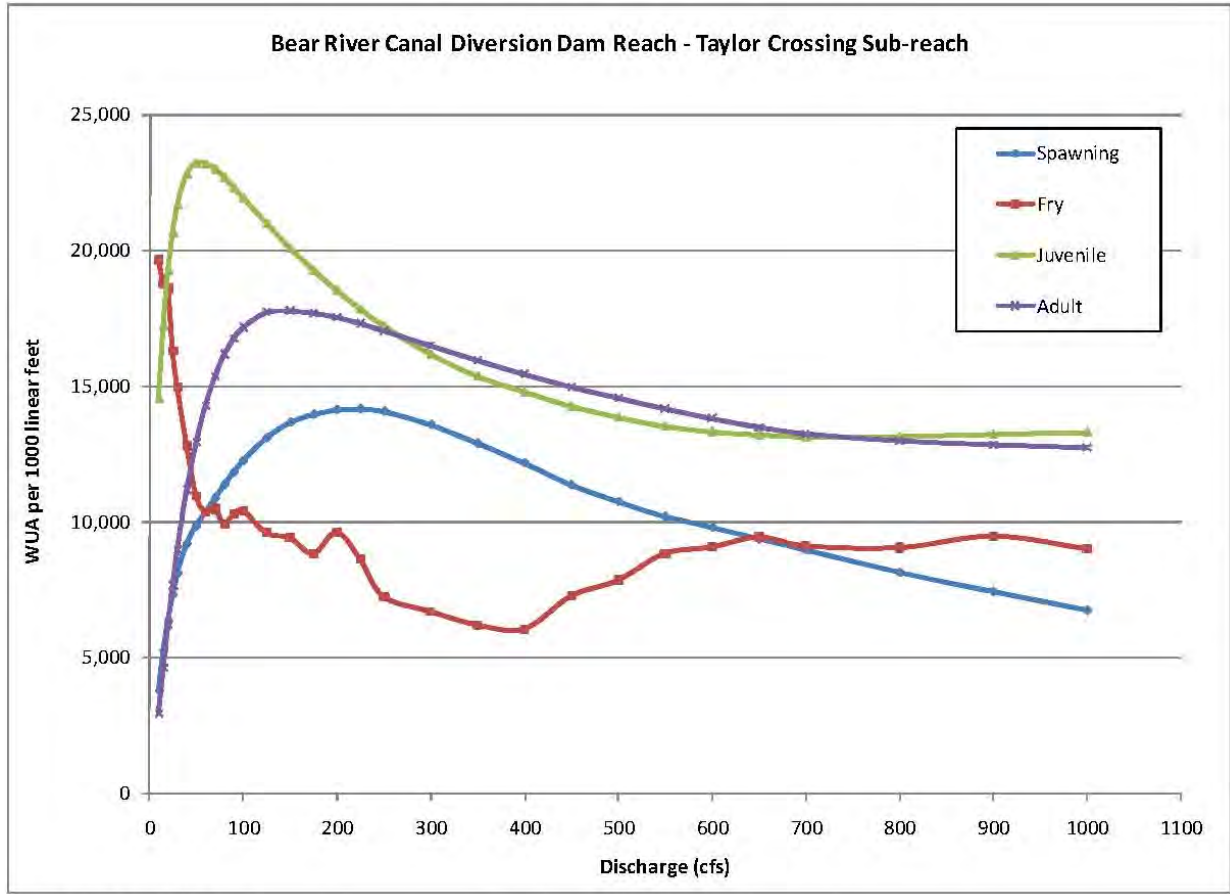
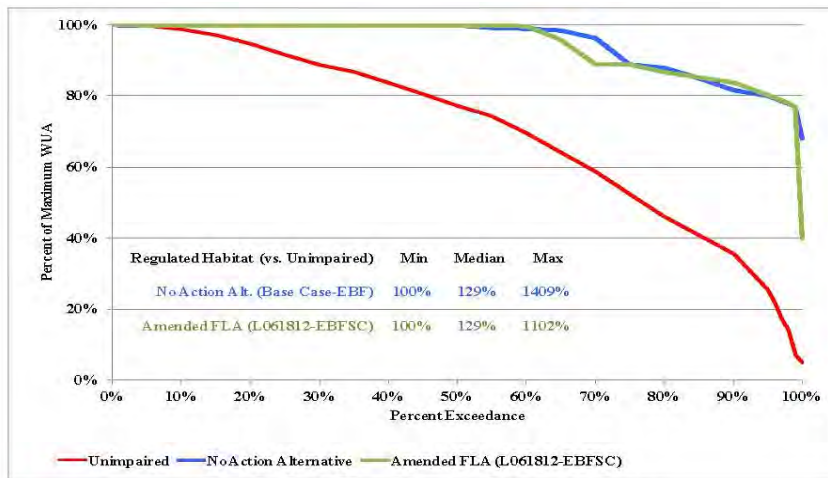
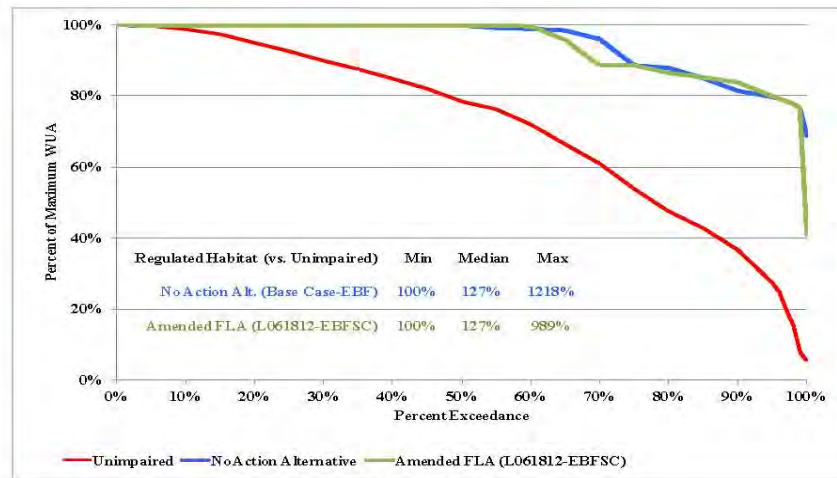


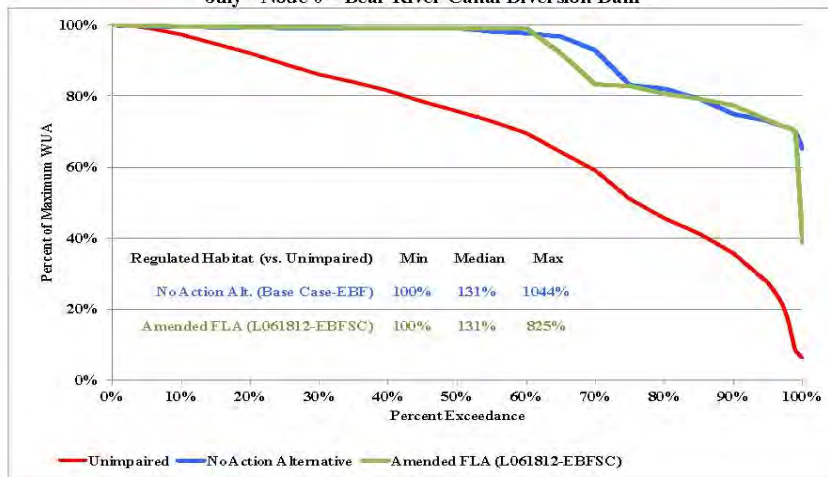
Figure 3-81. WUA for rainbow trout, Bear River below Rollins dam. (Source: Technical Memorandum 3-2, *Instream Flow*; NID and PG&E 2010)



July - Node 0 - Bear River Canal Diversion Dam



July - Node 1 - Taylor Crossing Sub-Reach



July - Node 2 - Dog Bar Sub-Reach

Figure 3-82. HEA for adult rainbow trout during the month of July in the Bear River below Rollins dam under historical streamflows based on the minimum streamflows in the existing license (no-action alternative, Base Case-EBF), proposed minimum streamflows (amended FLA, L061812-EBFSC), and estimated unregulated (unimpaired) streamflows. (Source: Supplement No. 3 to NID's License Application, as Amended [August 17, 2012])

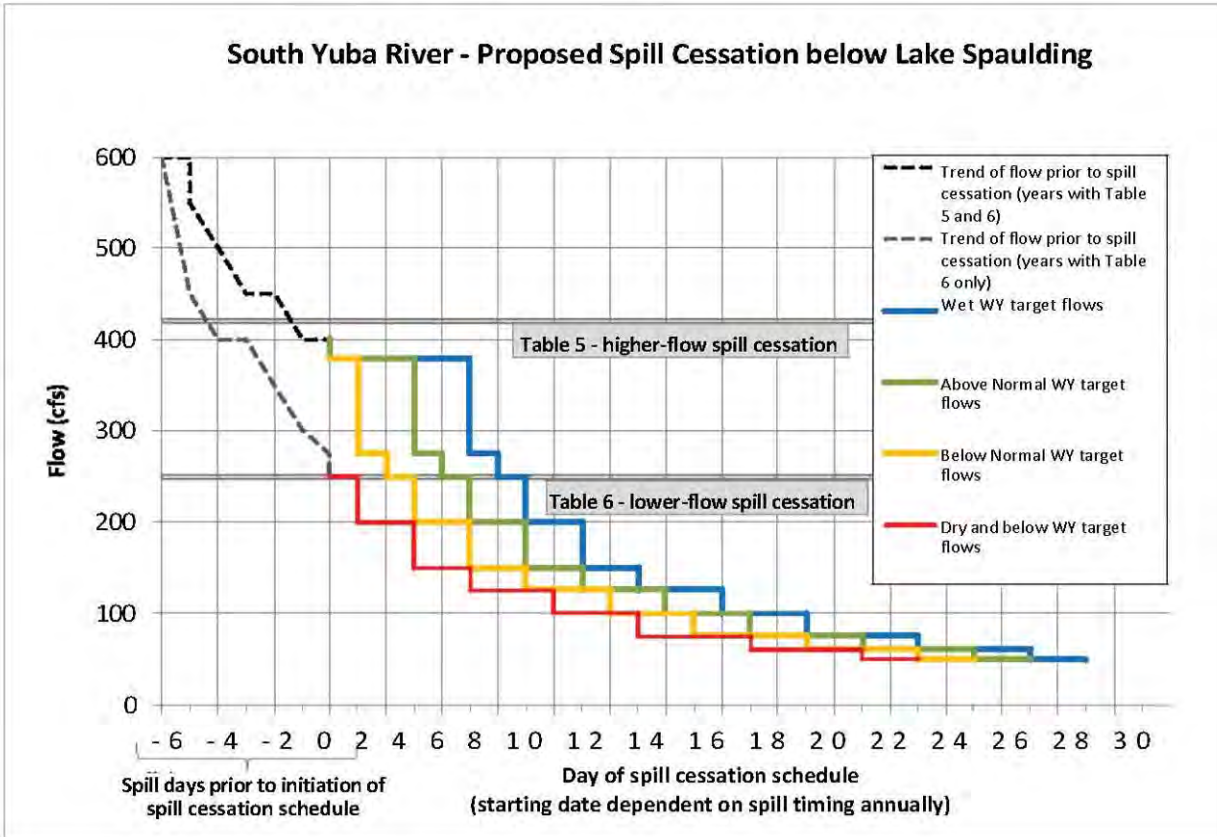


Figure 3-83. Proposed spill cessation flow schedules as shown in part 7 of measure DS-AQR1. (Source: PG&E 2011a)

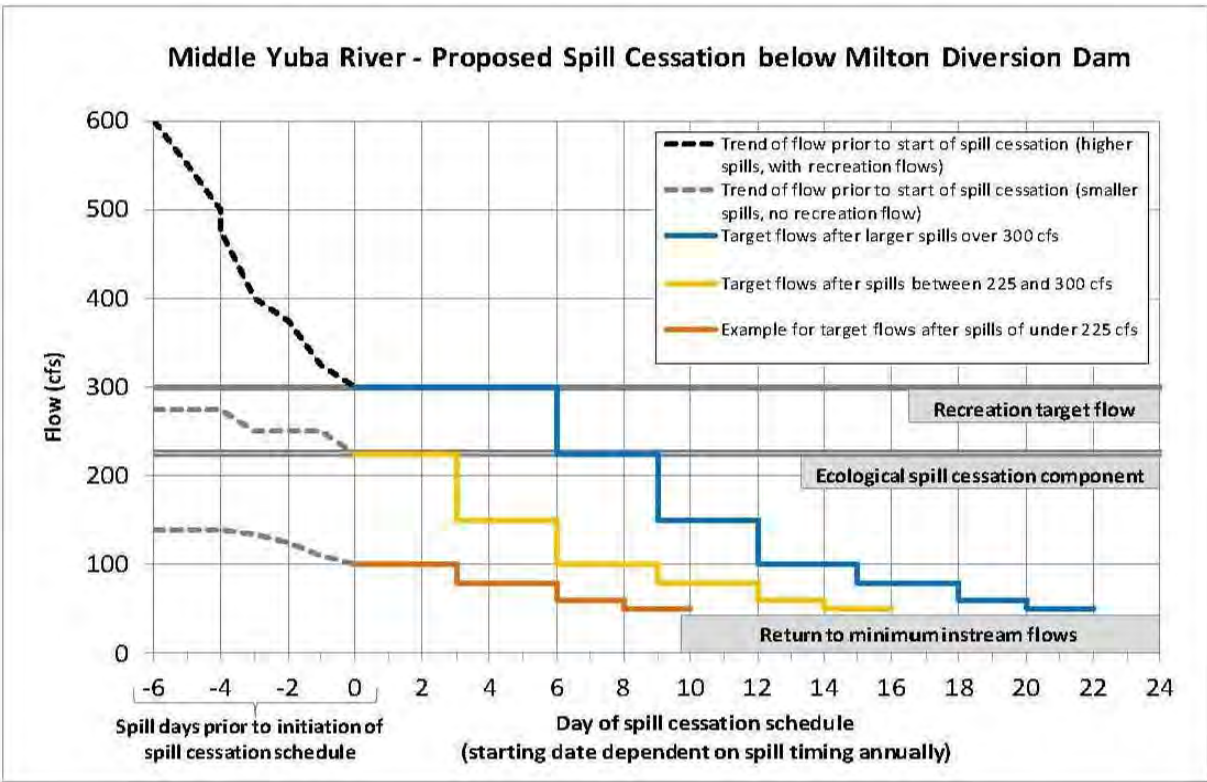


Figure 3-84. Spill cessation schedules for the Middle Yuba River below Milton diversion dam (including supplemental recreation flows for whitewater boating), as shown in part 7 of measure YB-AQR1 and measure YB-RR4. (Source: NID 2011a)

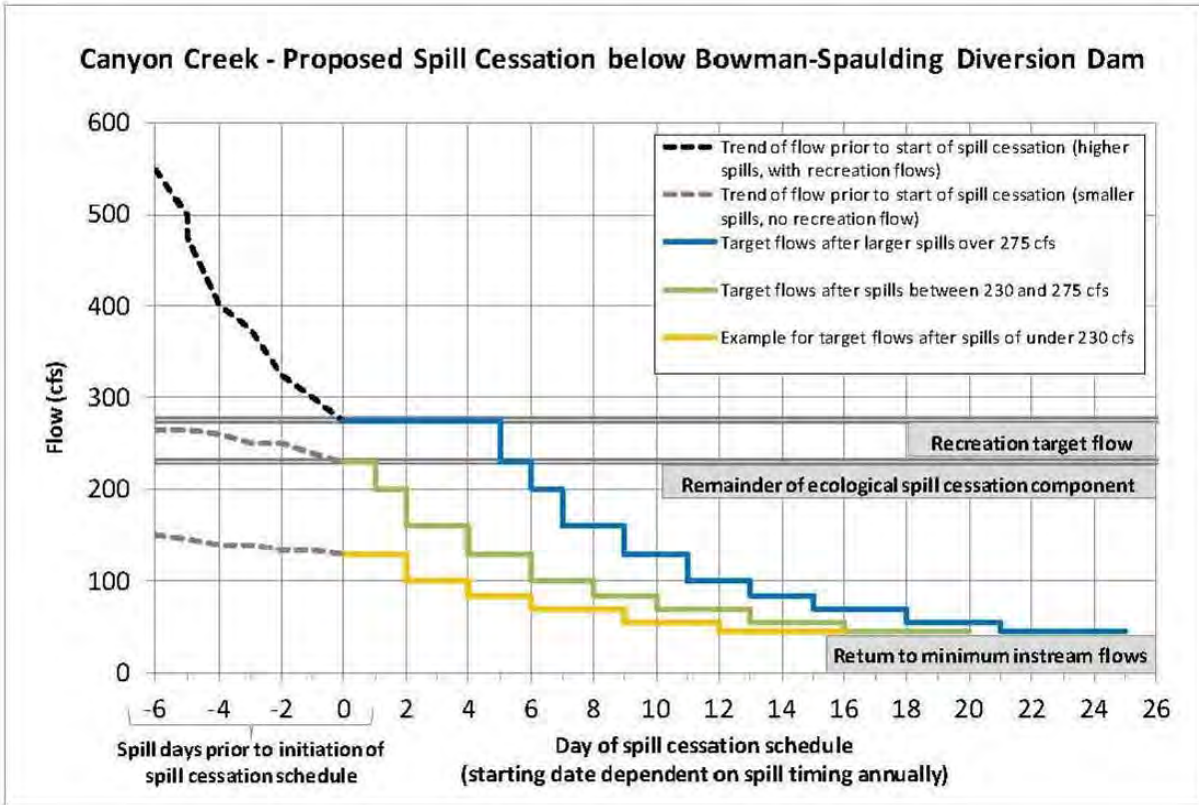


Figure 3-85. Proposed spill cessation flow schedules for Canyon Creek below Bowman-Spaulding diversion dam (including supplemental recreation flows for whitewater boating), as shown in part 7 of measure YB-AQR1 and measure YB-RR5. (Source: NID 2011a)

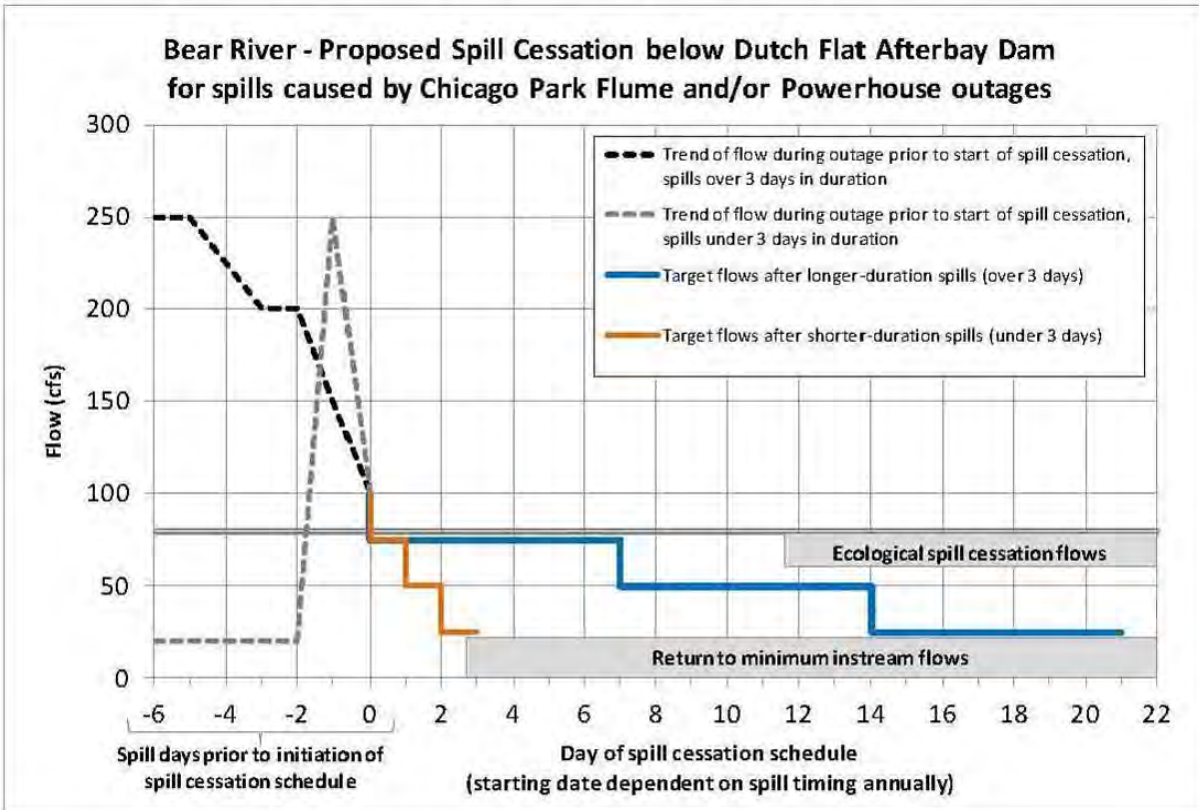


Figure 3-86. Proposed spill cessation flow schedules for Bear River below the Dutch Flat afterbay dam, for licensee-caused spills resulting from Chicago Park flume and/or powerhouse outages, as shown in part 7 of measure YB-AQR1. (Source: NID 2011a)

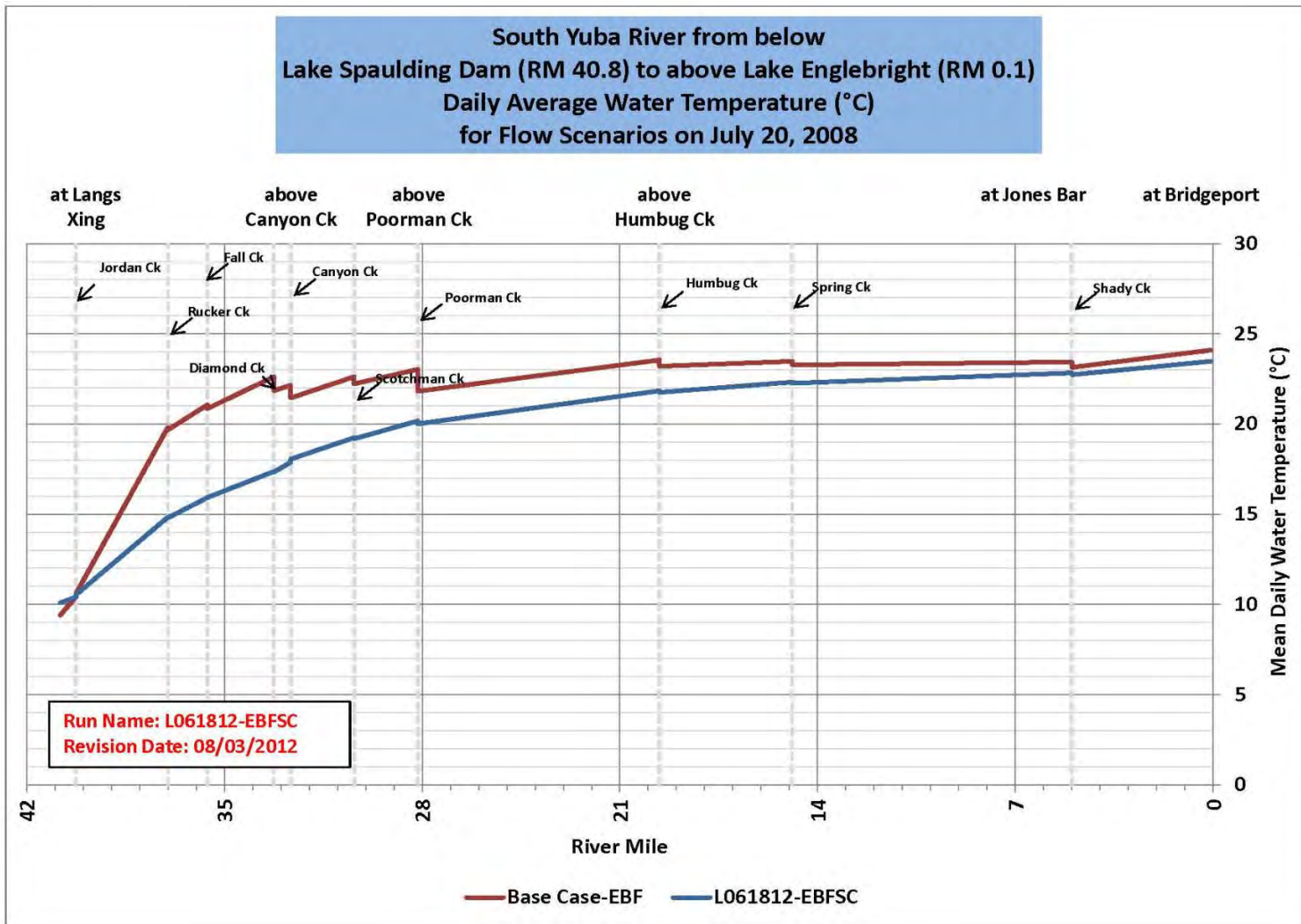


Figure 3-87. Daily average water temperature (°C) South Yuba River below Lake Spaulding dam (RM 40.8) to above Lake Englebright (RM 0.1) on July 20, 2008 for existing license streamflow conditions (Base Case-EBF model run) and minimum streamflow proposed by PG&E and relicensing stakeholders (L061812-EBFSC). (Source: PG&E *Supplement 4 to Amended License Application*; PG&E, August 30, 2012)

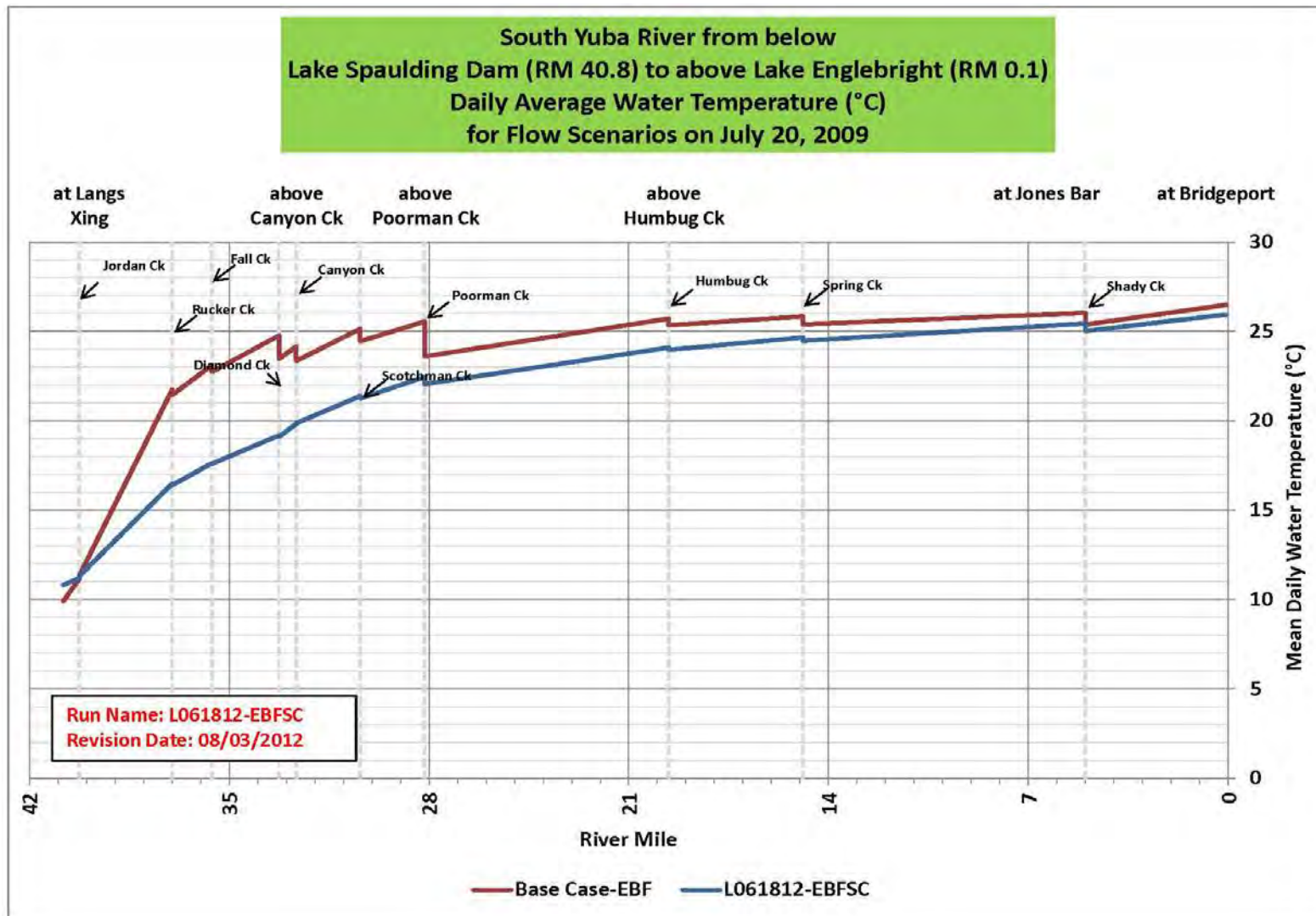


Figure 3-88. Daily average water temperature (°C) South Yuba River below Lake Spaulding dam (RM 40.8) to above Lake Englebright (RM 0.1) on July 20, 2009 for existing license streamflow conditions (Base Case-EBF model run) and minimum streamflow proposed by PG&E and relicensing stakeholders (L061812-EBFSC). (Source: *Supplement 4 to Amended License Application*; PG&E, August 30, 2012)

**South Yuba River above Canyon Creek (RM 32.5/WT22)
Average Daily Water Temperature (°C)
for Flow Scenarios during June 1 to September 30, 2008**

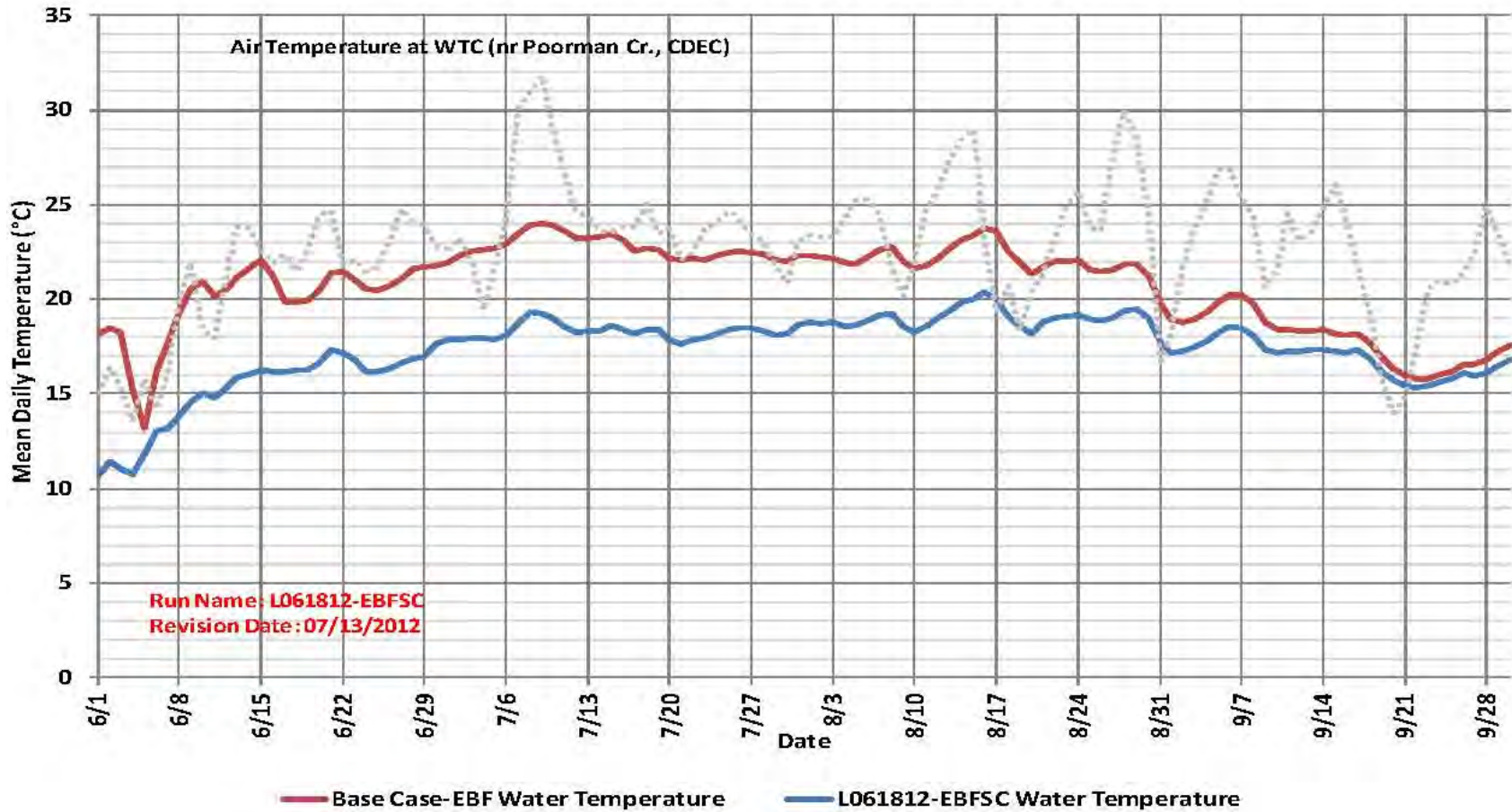


Figure 3-89. Modeled mean daily water temperatures under minimum streamflows proposed by PG&E and relicensing stakeholders (LO61812-EBFSC model run) for June through September 2008 in South Yuba River above the confluence with Canyon Creek compared to existing license minimum streamflow conditions (Base Case-EBF model run). (Source: *Supplement 4 to Amended License Application*; PG&E, August 30, 2012)

South Yuba River above Canyon Creek (RM 32.5/WT22)
Average Daily Water Temperature (°C)
for Flow Scenarios during June 1 to September 30, 2009

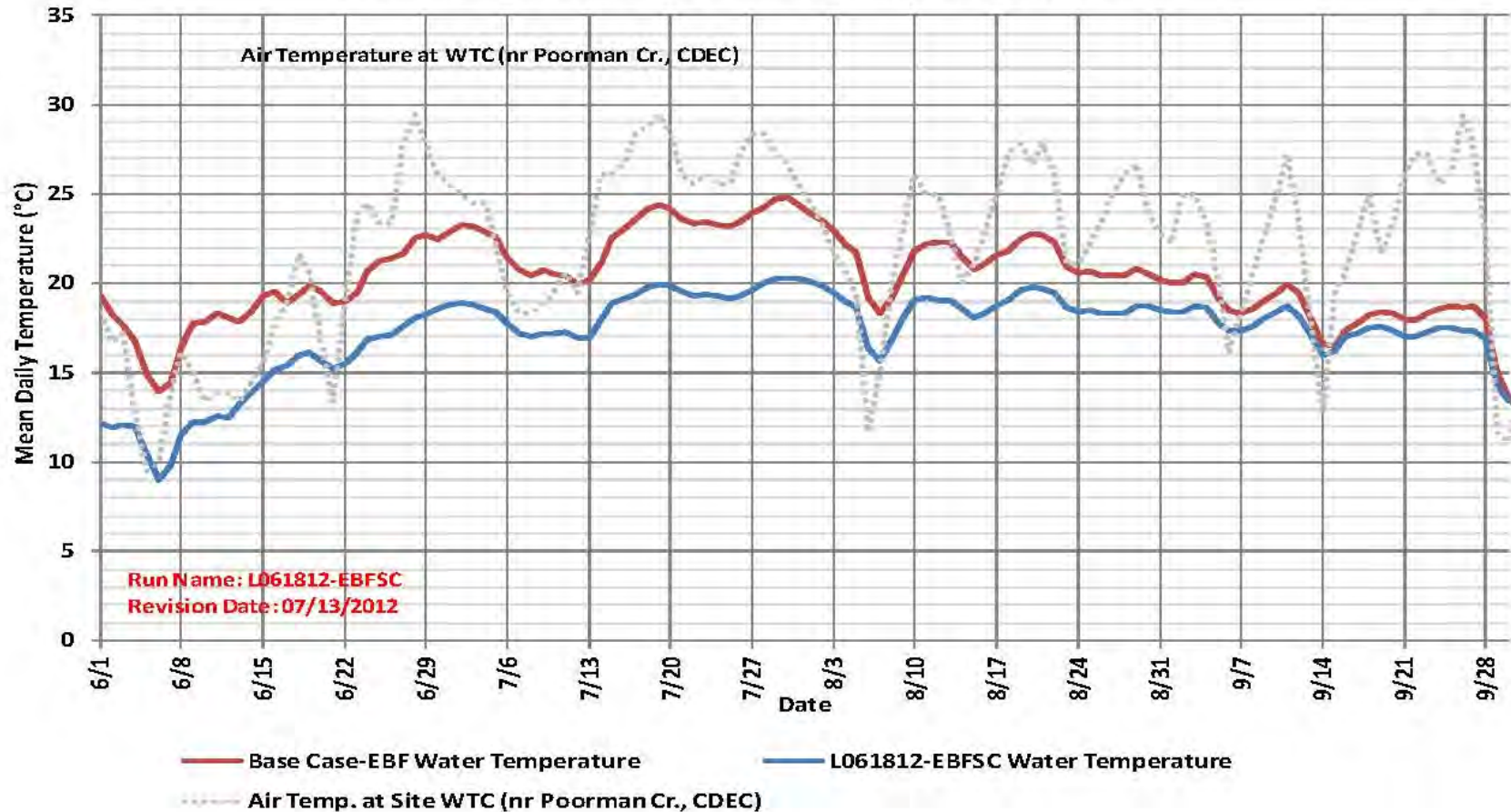


Figure 3-90. Modeled mean daily water temperatures under minimum streamflows proposed by PG&E and relicensing stakeholders (LO61812-EBFSC model run) for June through September 2009 in South Yuba River above the confluence with Canyon Creek compared to existing license minimum streamflow conditions (Base Case-EBF model run). (Source: *Supplement 4 to Amended License Application*; PG&E, August 30, 2012)

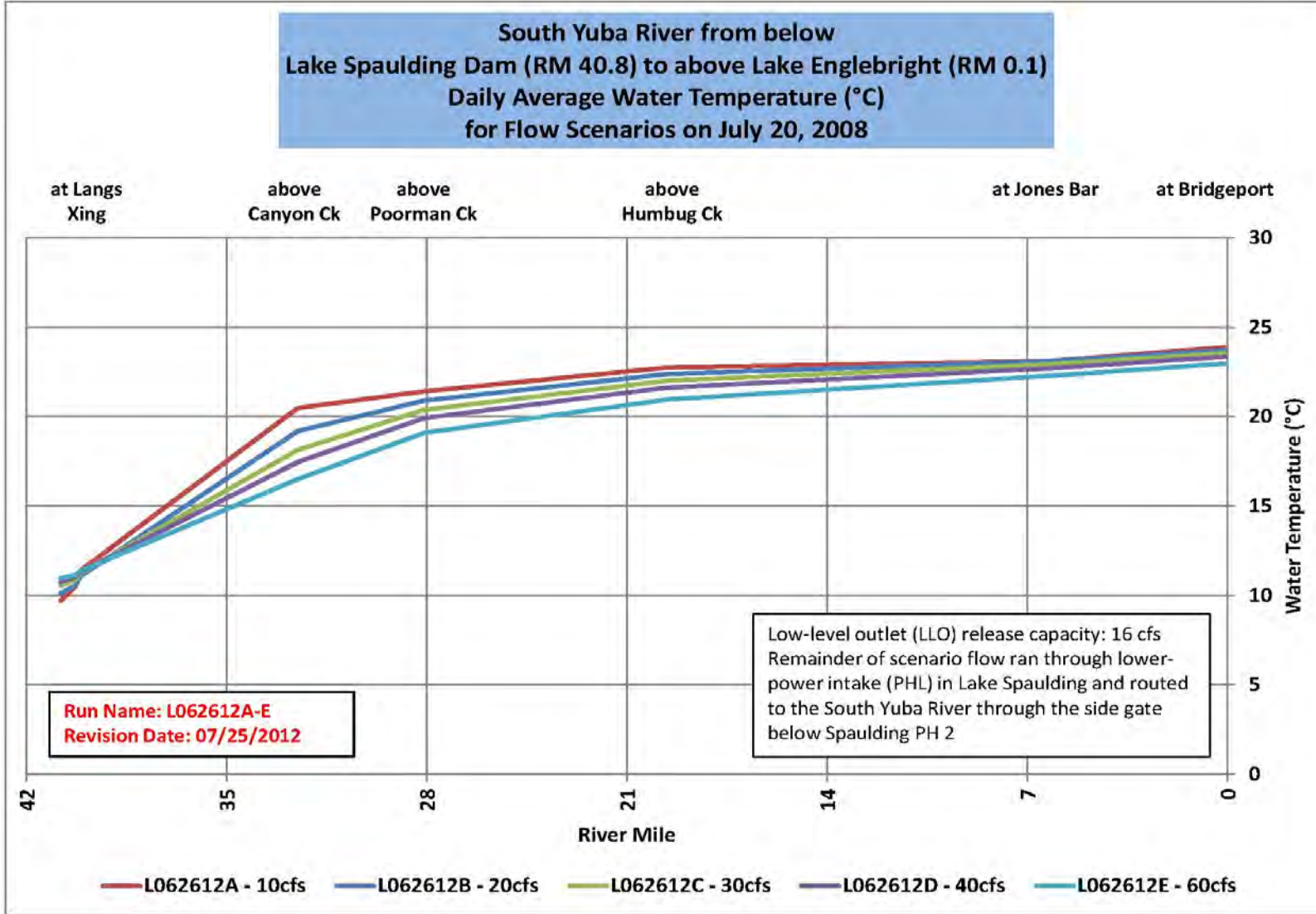


Figure 3-91. Daily average water temperature (°C) South Yuba River below Lake Spaulding dam (RM 40.8) to above Lake Englebright (RM 0.1) for five Lake Spaulding dam discharge (10, 20, 30, 40, and 60 cfs) scenarios on July 20, 2008. (Source: *Supplement 4 to Amended License Application*; PG&E, August 30, 2012)

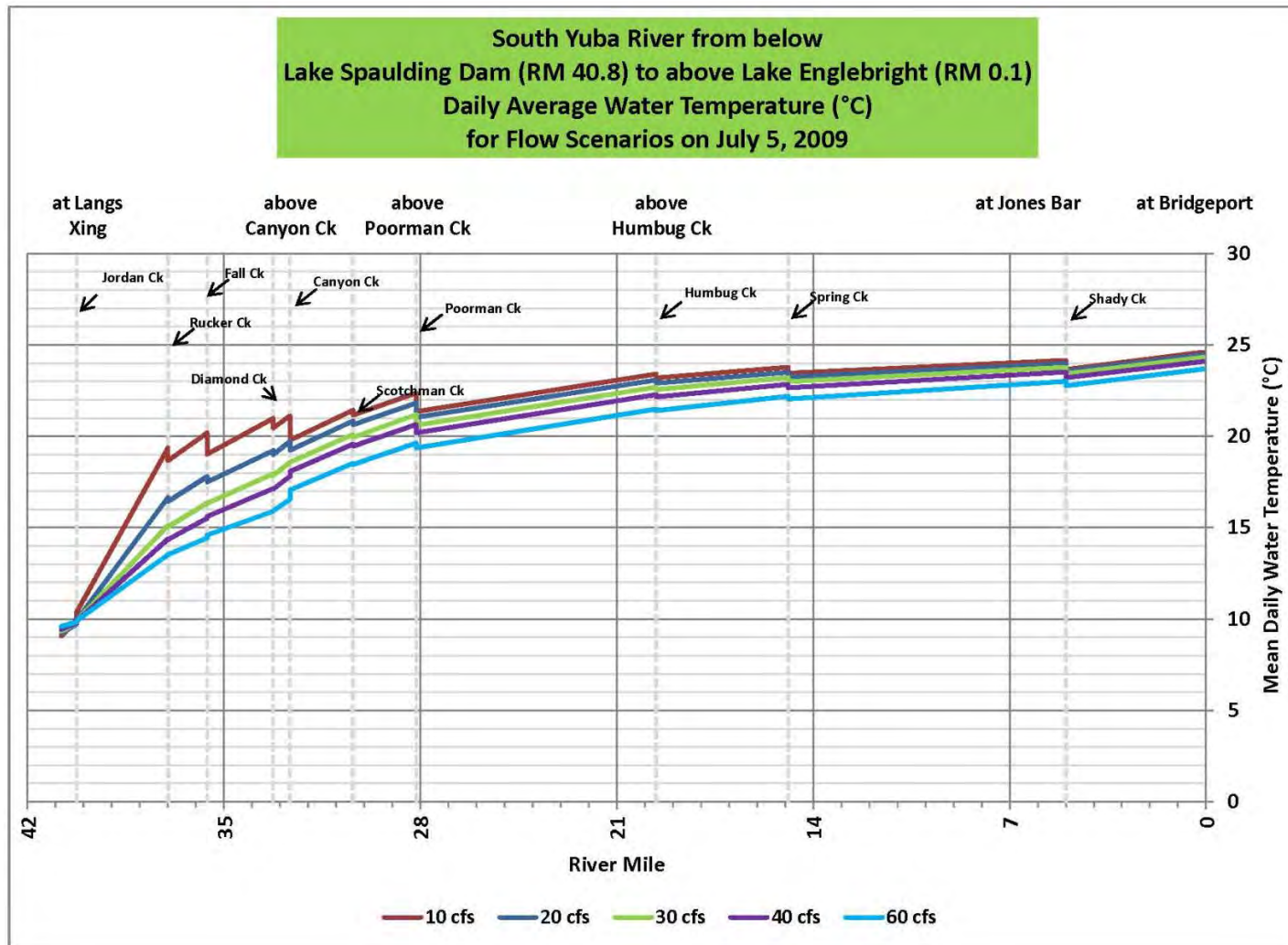


Figure 3-92. Daily average water temperature (°C) South Yuba River below Lake Spaulding dam (RM 40.8) to above Lake Englebright (RM 0.1) for five Lake Spaulding dam discharge (10, 20, 30, 40, and 60 cfs) scenarios on July 20, 2009. (Source: *Additional Information Regarding Water Temperature and Operations Modeling Results* NID, January 23, 2013)

**South Yuba River above Canyon Creek (RM 32.5/WT22)
Average Daily Water Temperature (°C)
for Flow Scenarios during June 1 to September 30, 2008**

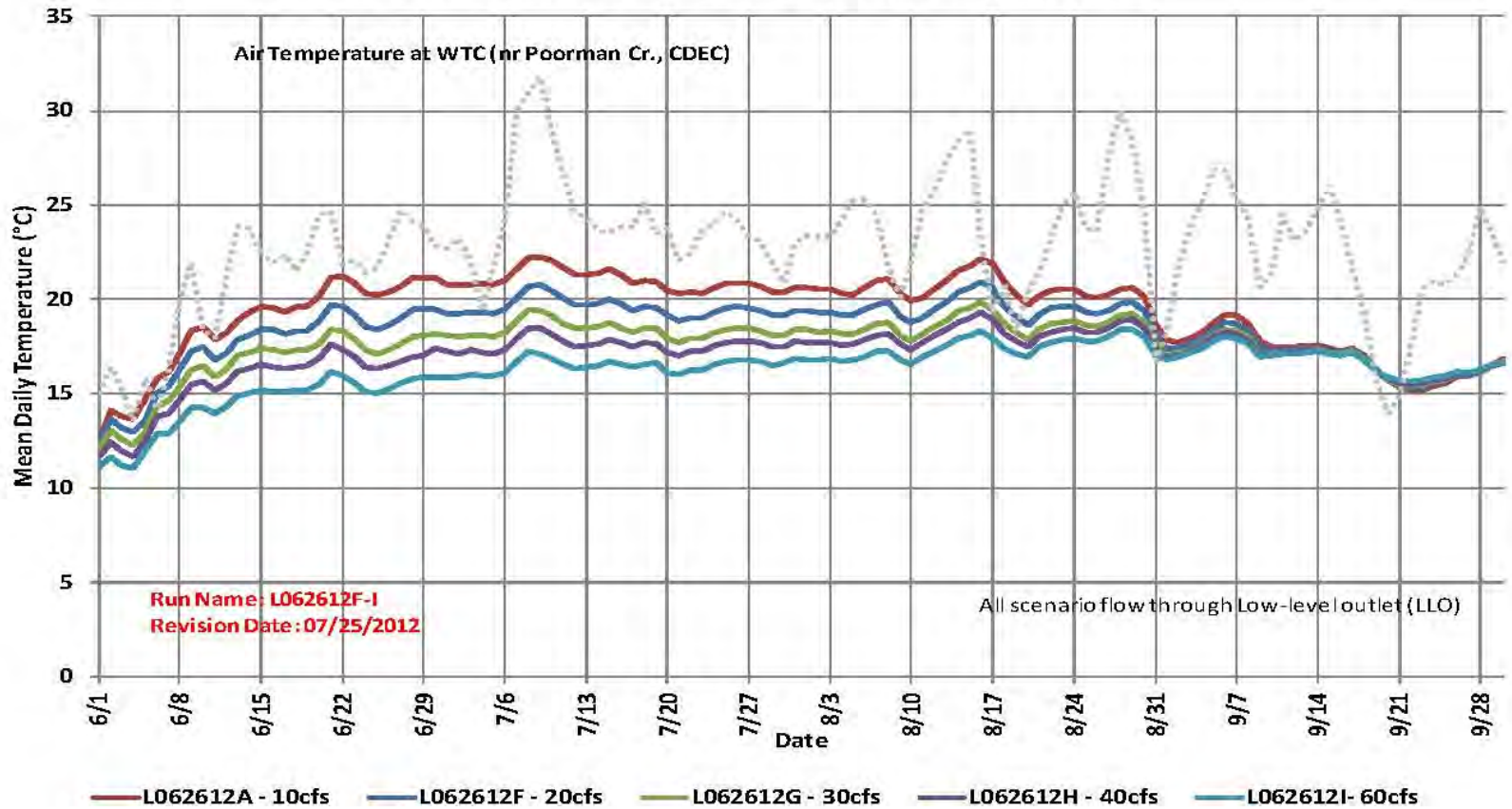


Figure 3-93. Modeled mean daily water temperatures under independent modeled-flow scenarios, June through September in South Yuba River above the confluence with Canyon Creek – 2008. (Source: *Supplement 4 to Amended License Application*; PG&E, August 30, 2012)

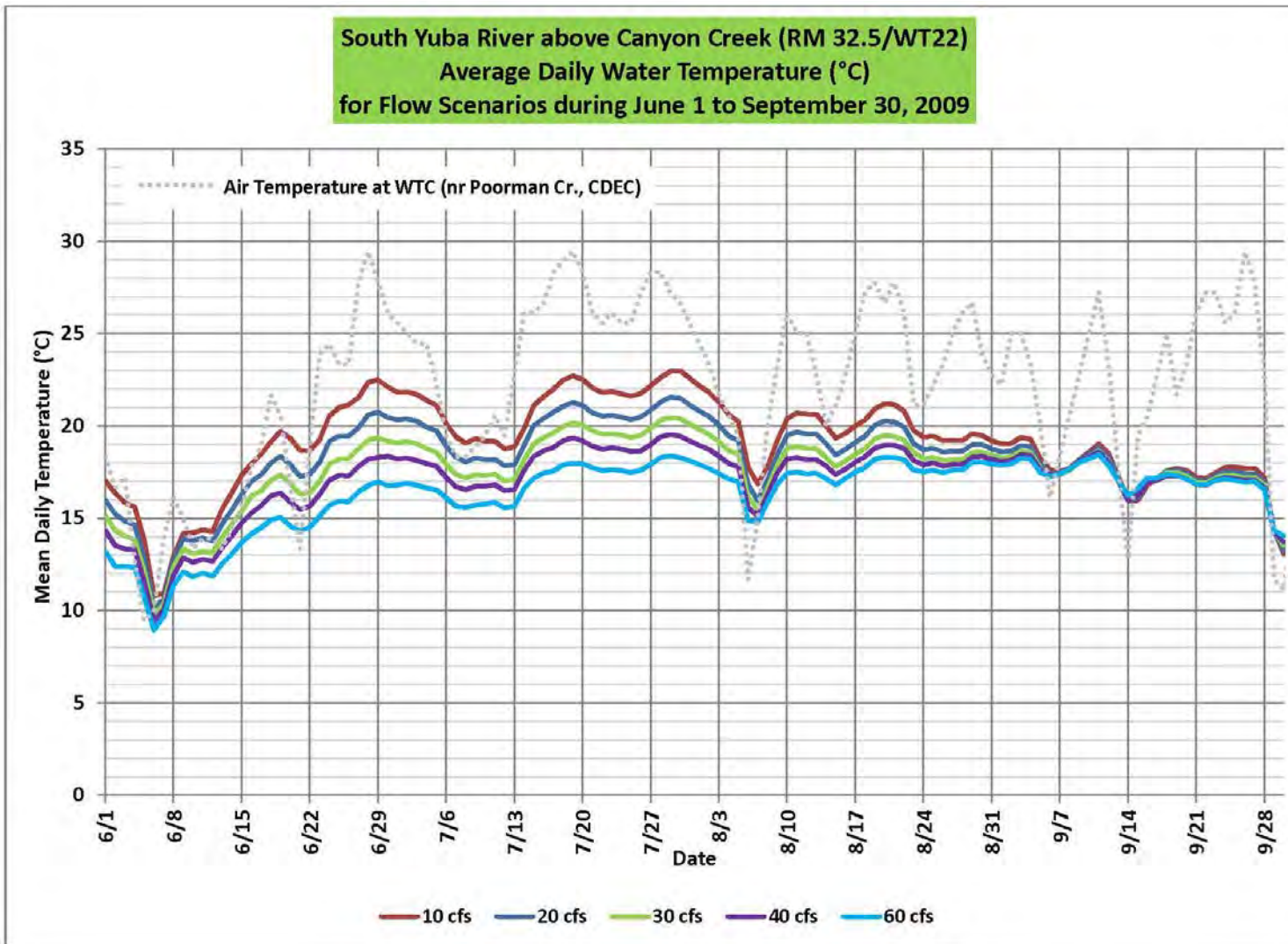


Figure 3-94. Modeled mean daily water temperatures under independent modeled-flow scenarios, June through September in South Yuba River above the confluence with Canyon Creek – 2009. (Source: *Additional Information Regarding Water Temperature and Operations Modeling Results* NID, January 23, 2013)

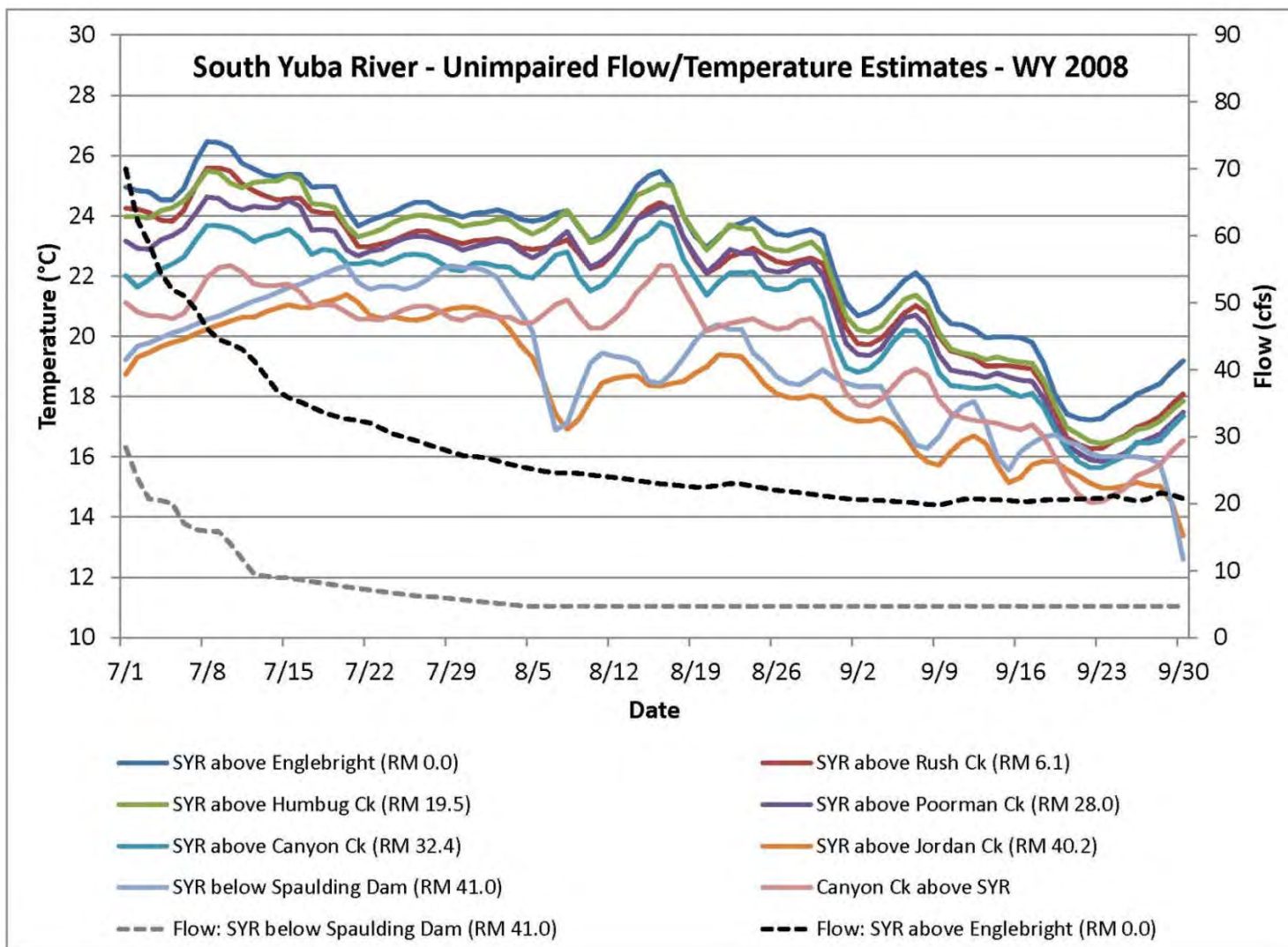


Figure 3-95. Model estimated water temperatures associated with unregulated (unimpaired) flow conditions at various locations in the South Yuba River below Lake Spaulding dam and Canyon Creek above South Yuba River between July 1 and September 30 2008. (Source: *Additional Information Regarding Water Temperature and Operations Modeling Results NID*, January 23, 2013)

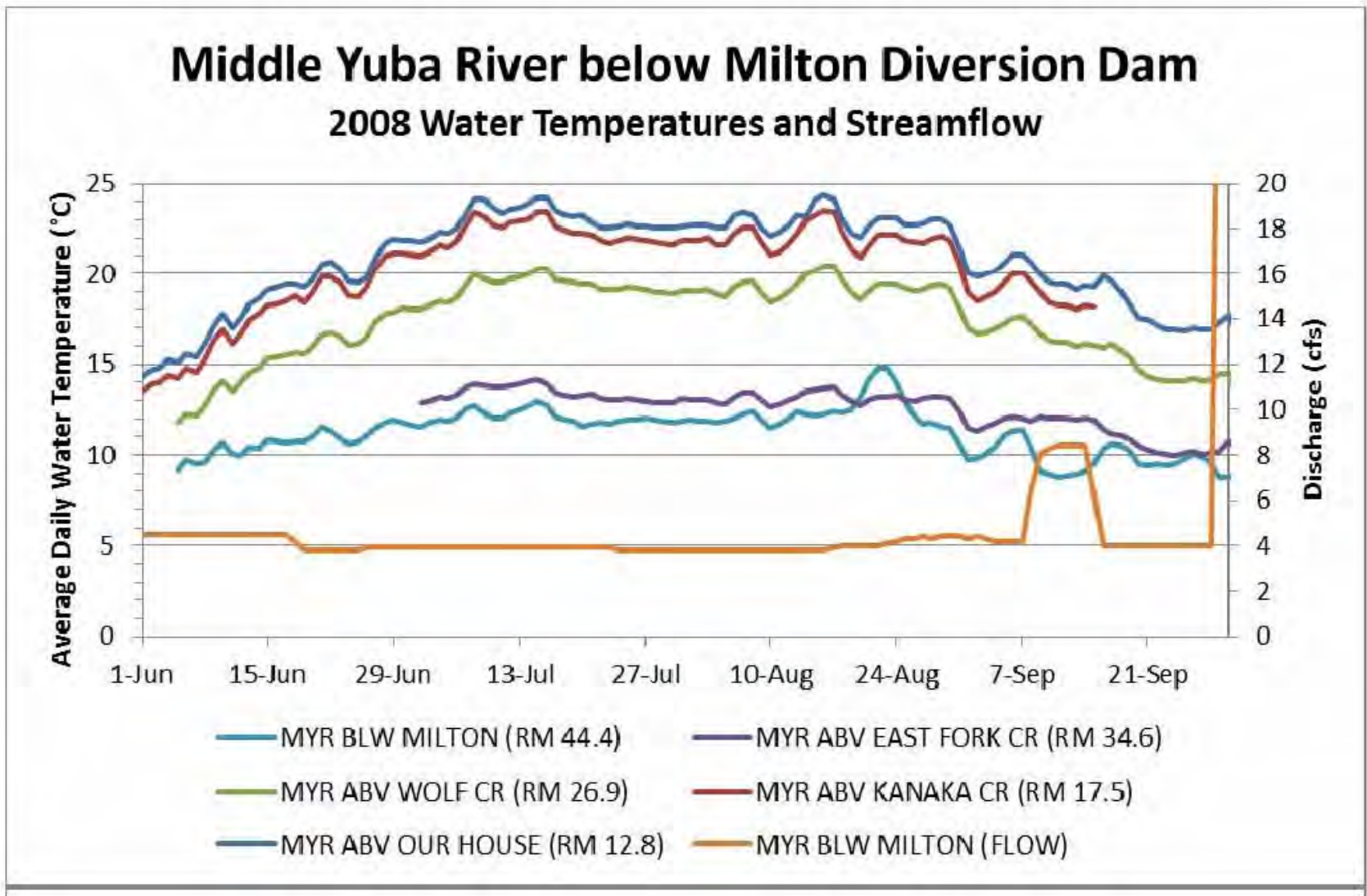


Figure 3-96. Daily average water temperature under existing license flows in the Middle Yuba River below Milton diversion dam to above Our House (non-project) reservoir based on 2008 water temperature monitoring program. (Source: California Fish and Wildlife, July 30, 2012)

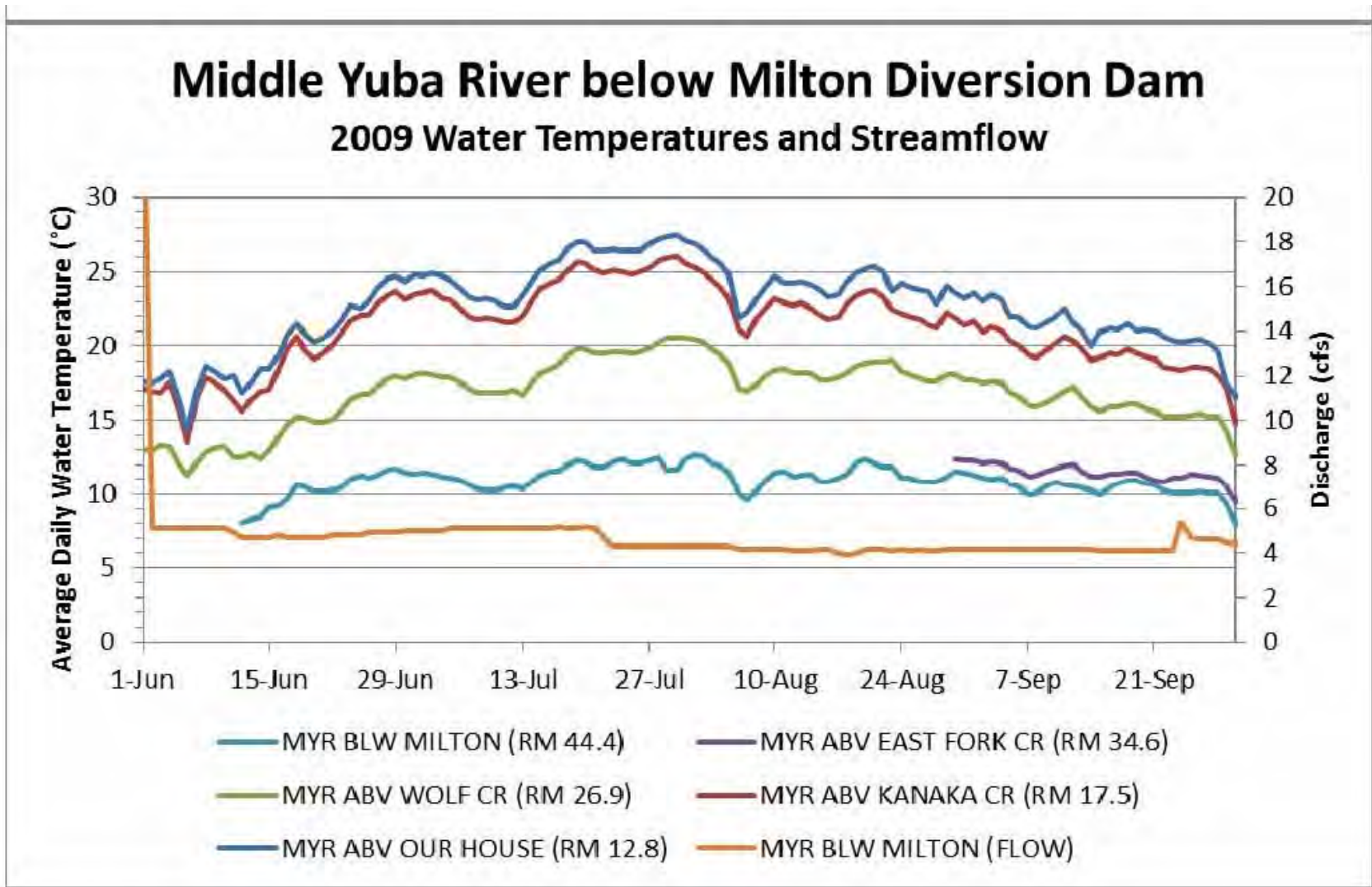


Figure 3-97. Daily average water temperature under existing license flows in the Middle Yuba River below Milton diversion dam to above Our House (non-project) reservoir based on 2009 water temperature monitoring program. (Source: California Fish and Wildlife, July 30, 2012)

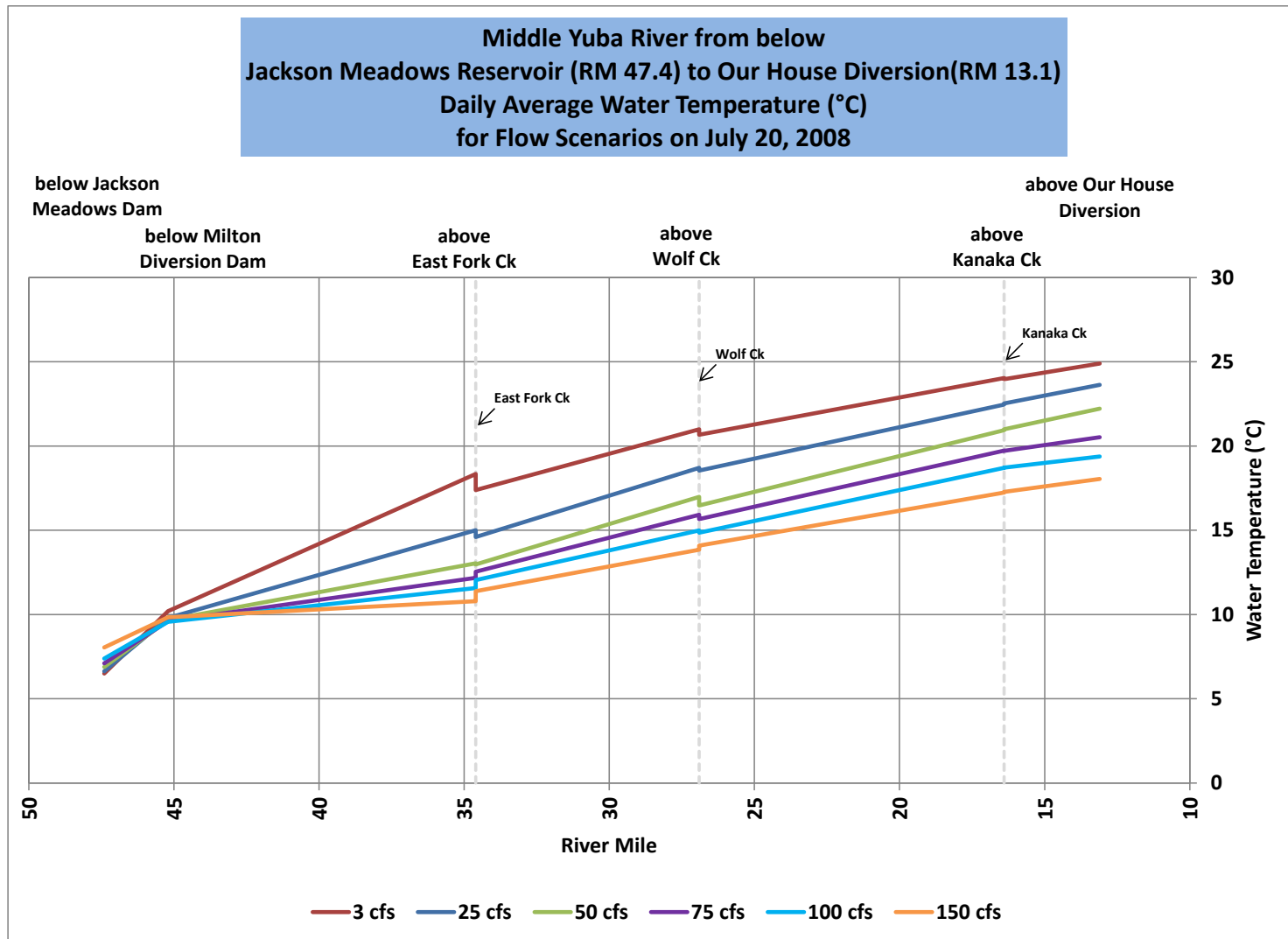


Figure 3-98. Daily Average Water Temperature (°C) for Middle Yuba River below Milton diversion dam (RM 44.4) to above Our House reservoir (RM 12.8) for Incremental Flow Scenarios on July 20 2008. (Source: *Additional Information Regarding Water Temperature and Operations Modeling Results* NID, February 14, 2013)

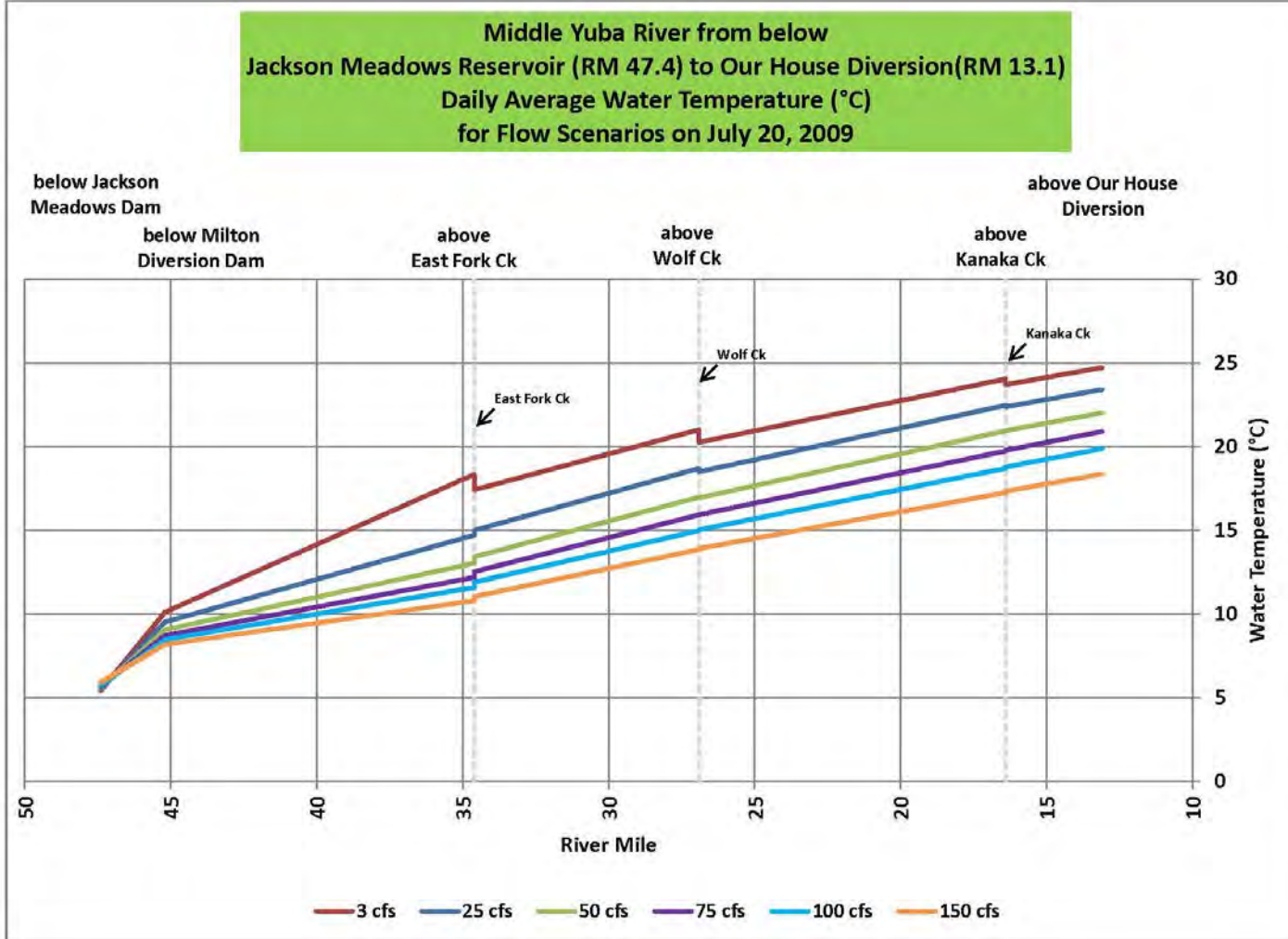


Figure 3-99. Daily Average Water Temperature (°C) for Middle Yuba River below Milton diversion dam (RM 44.4) to above Our House diversion impoundment (RM 12.8) for Incremental Flow Scenarios on July 20, 2008. (Source: *Additional Information Regarding Water Temperature and Operations Modeling Results NID*, January 23, 2013)

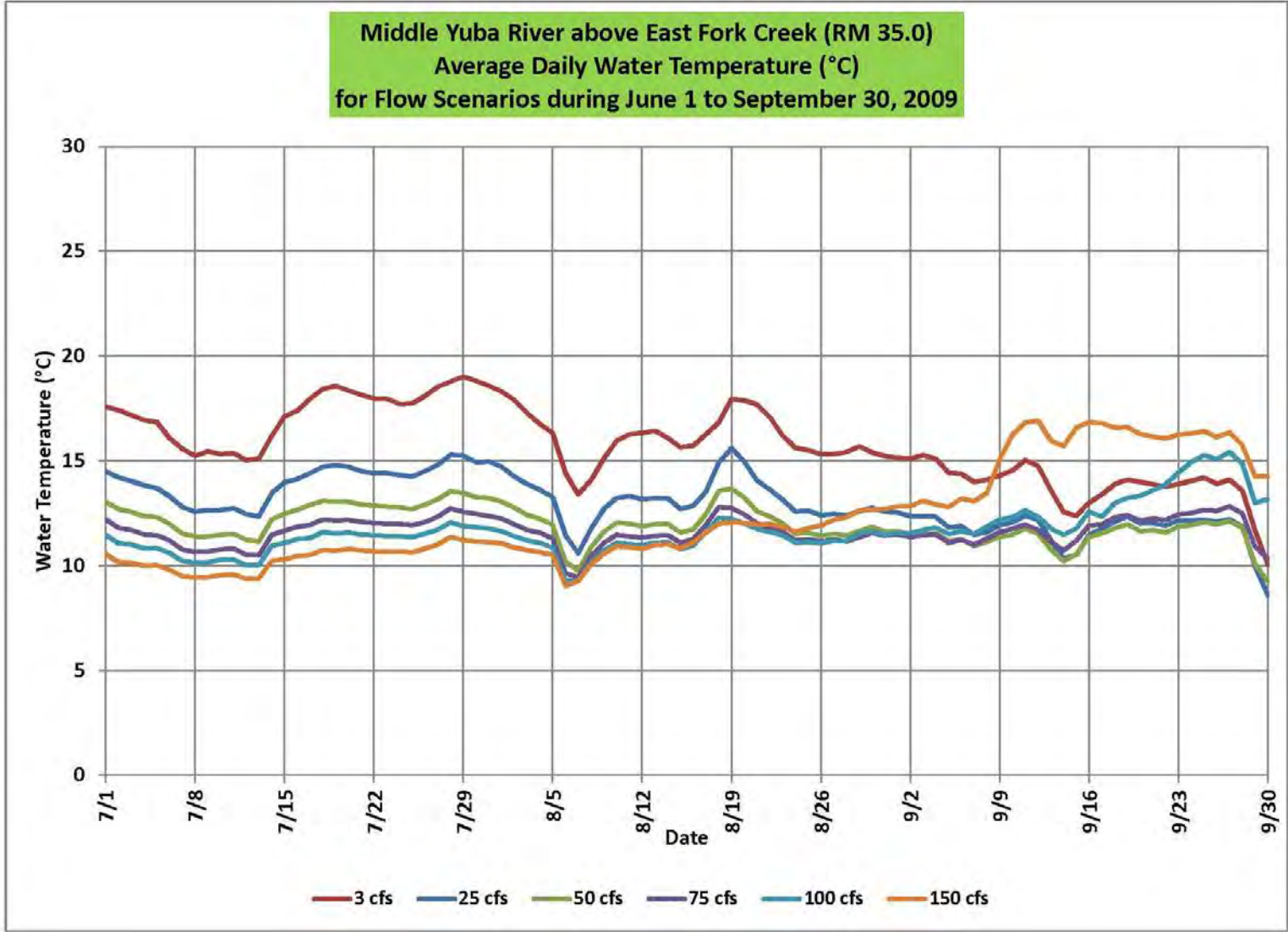


Figure 3-100. Model-estimated Water temperature in Middle Yuba River below Milton diversion dam and above East Fork Creek (RM 35) at incremental discharge flows from the Milton Diversion dam. (Source: *Additional Information Regarding Water Temperature and Operations Modeling Results* NID, January 23, 2013)

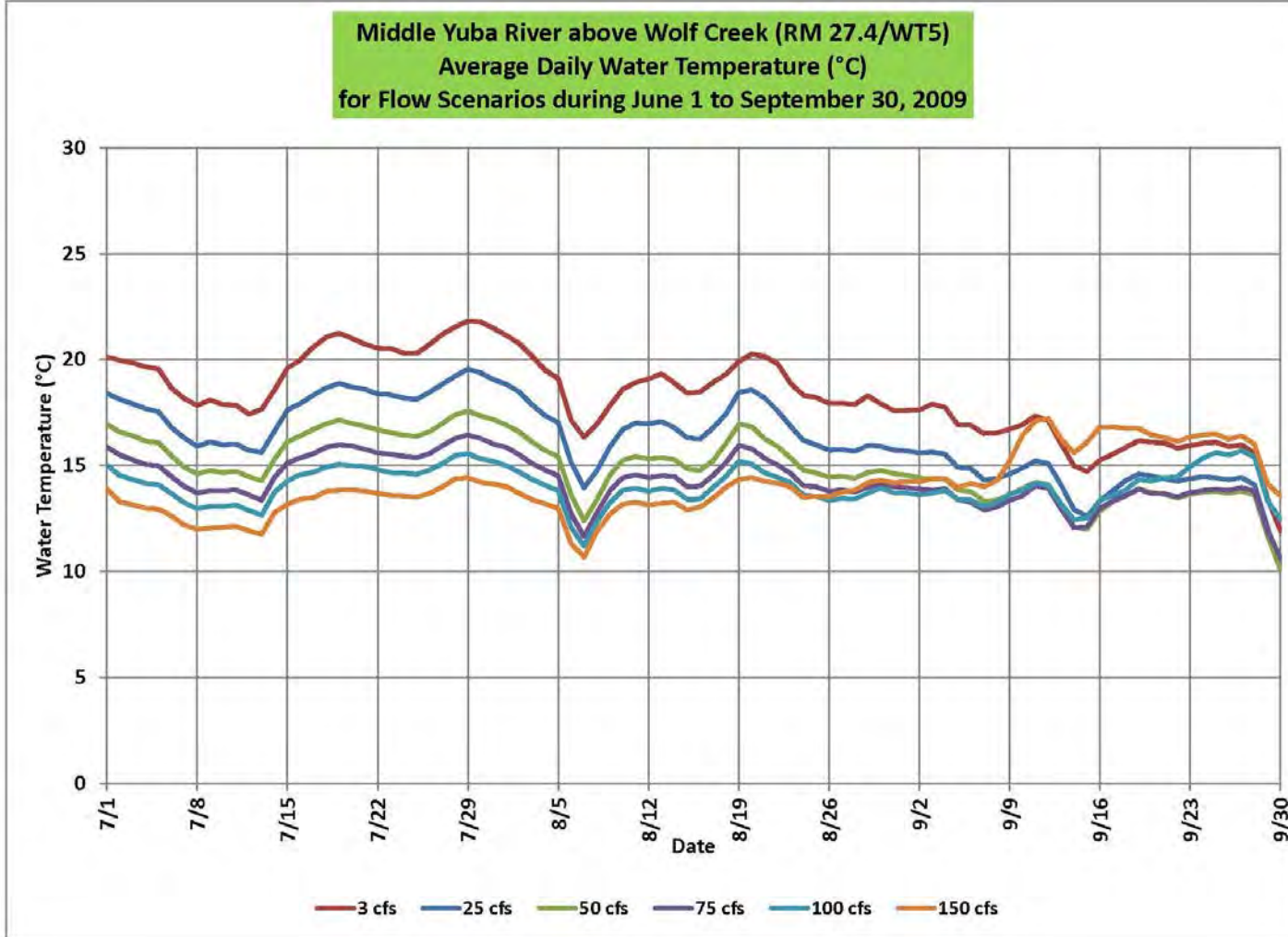


Figure 3-101. Model-estimated Water temperature in Middle Yuba River below Milton diversion dam and above Wolf Creek (RM 27.4) at incremental discharge flows from the Milton Diversion dam. (Source: *Additional Information Regarding Water Temperature and Operations Modeling Results* NID, January 23, 2013)

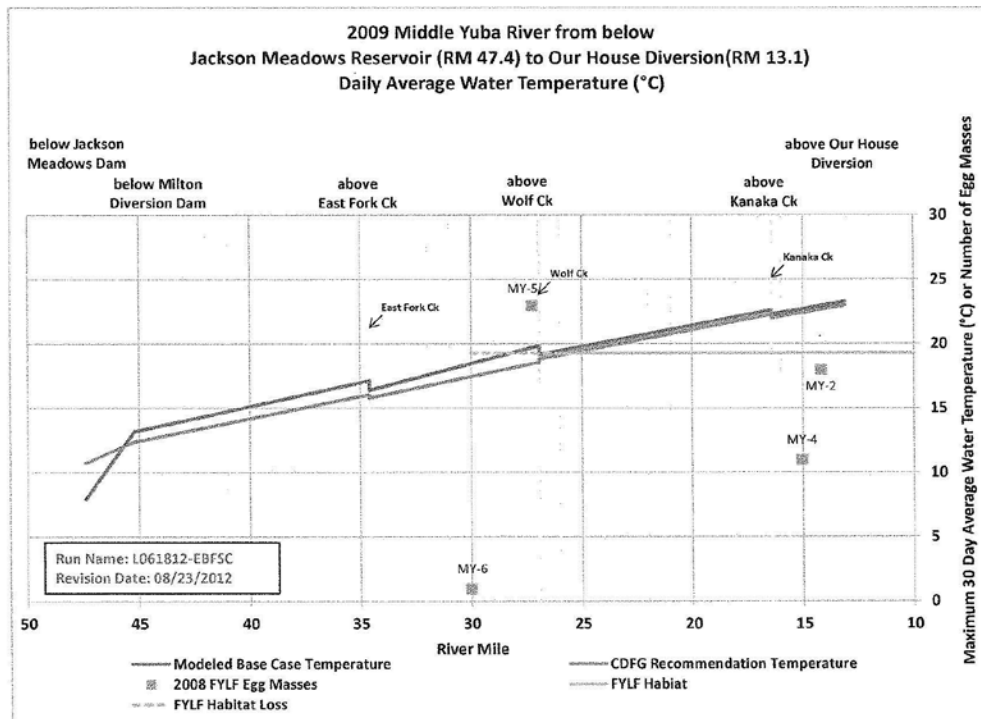
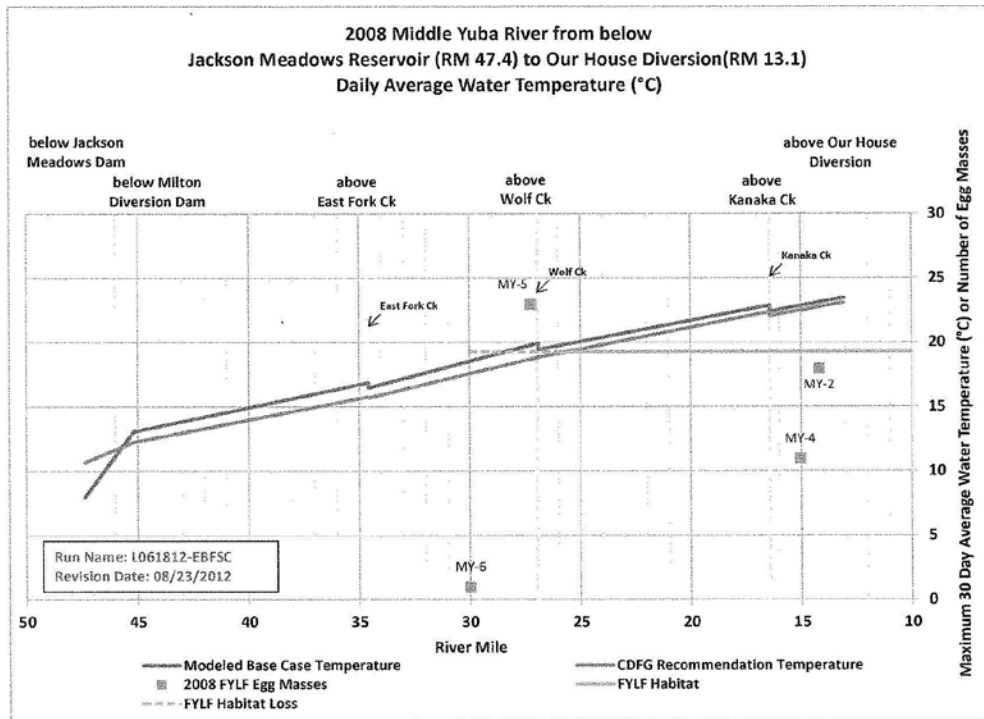


Figure 3-102. Middle Yuba River below Milton diversion dam Maximum 30-day Average Water Temperature between Jackson Meadows Lake dam and Our House reservoir and estimated foothill yellow-legged frog habitat loss for existing license conditions and California Fish and Wildlife Block Flow proposal estimated for meteorological conditions in 2008 (top) and 2009 (bottom). (Source: PCWA, September 14, 2012)

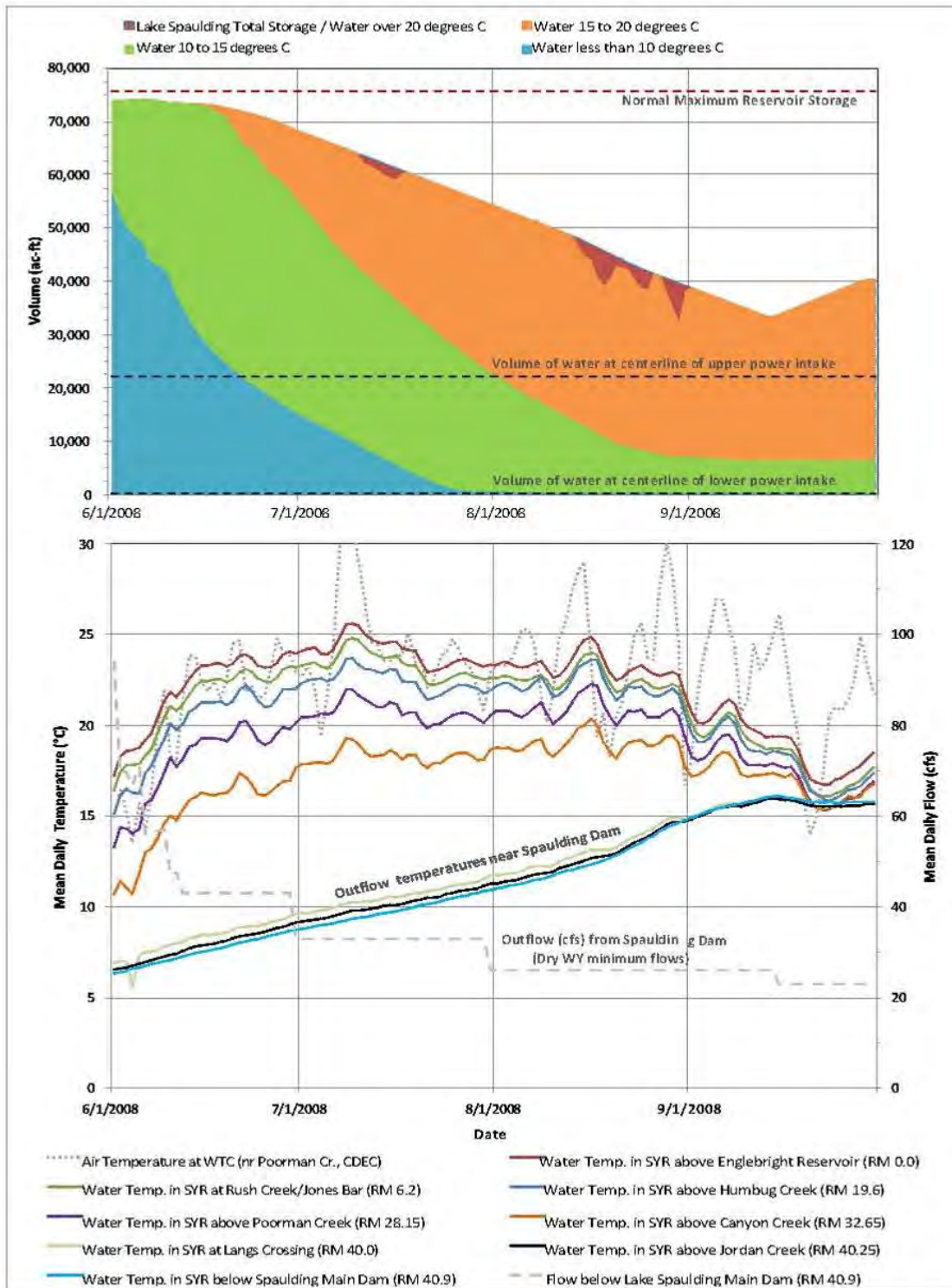


Figure 3-103. Modeled Lake Spaulding water temperature and mean daily water temperatures from June through September in South Yuba River from Lake Spaulding dam to Englebright reservoir – 2008. (Source: Supplement No. 4 to Amended License Application; PG&E, August 2012)

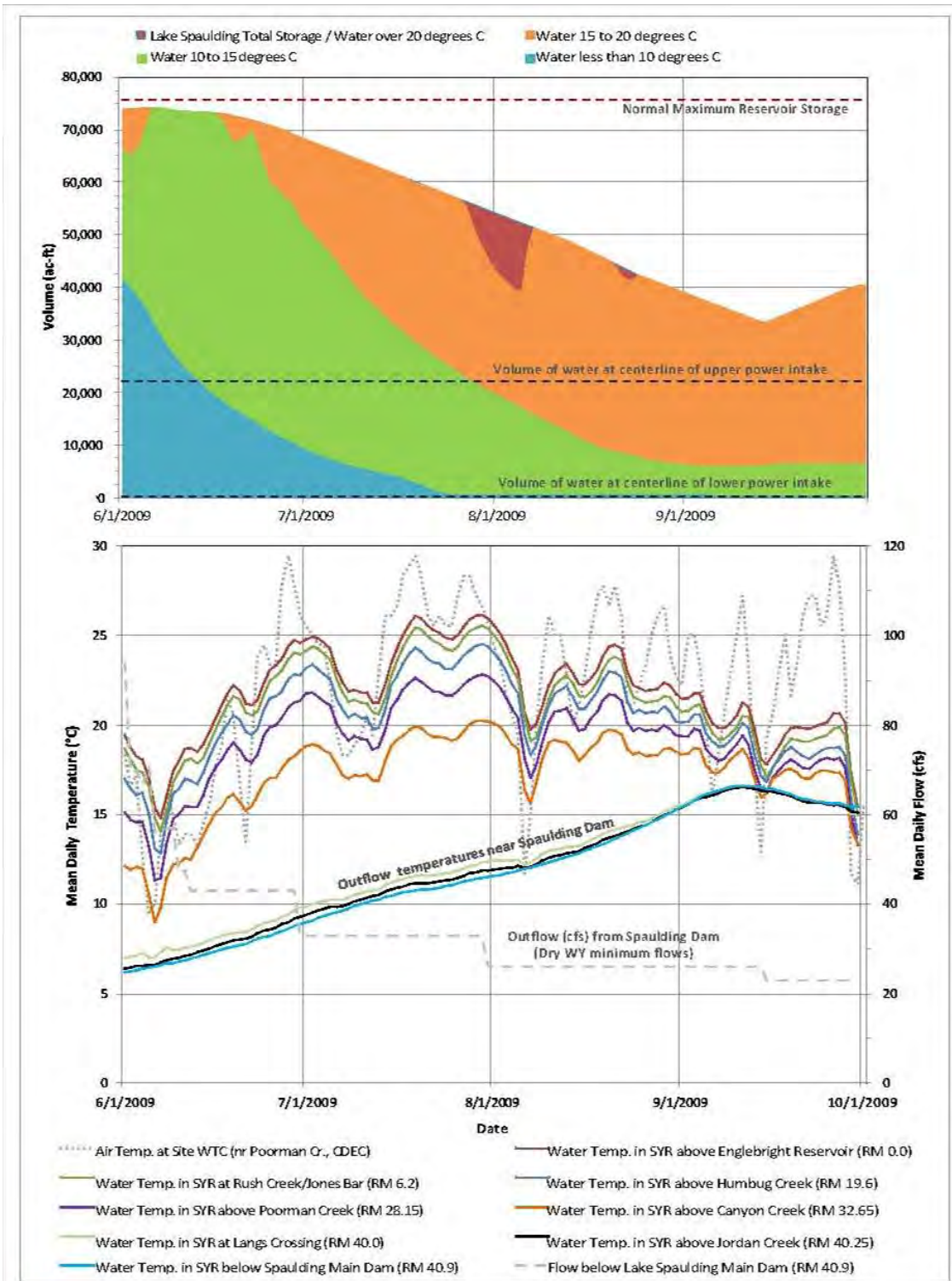


Figure 3-104. Modeled Lake Spaulding water temperature and mean daily water temperatures from June through September in South Yuba River from Lake Spaulding dam to Englebright reservoir – 2009. (Source: Supplement No. 4 to Amended License Application; PG&E, August 2012)

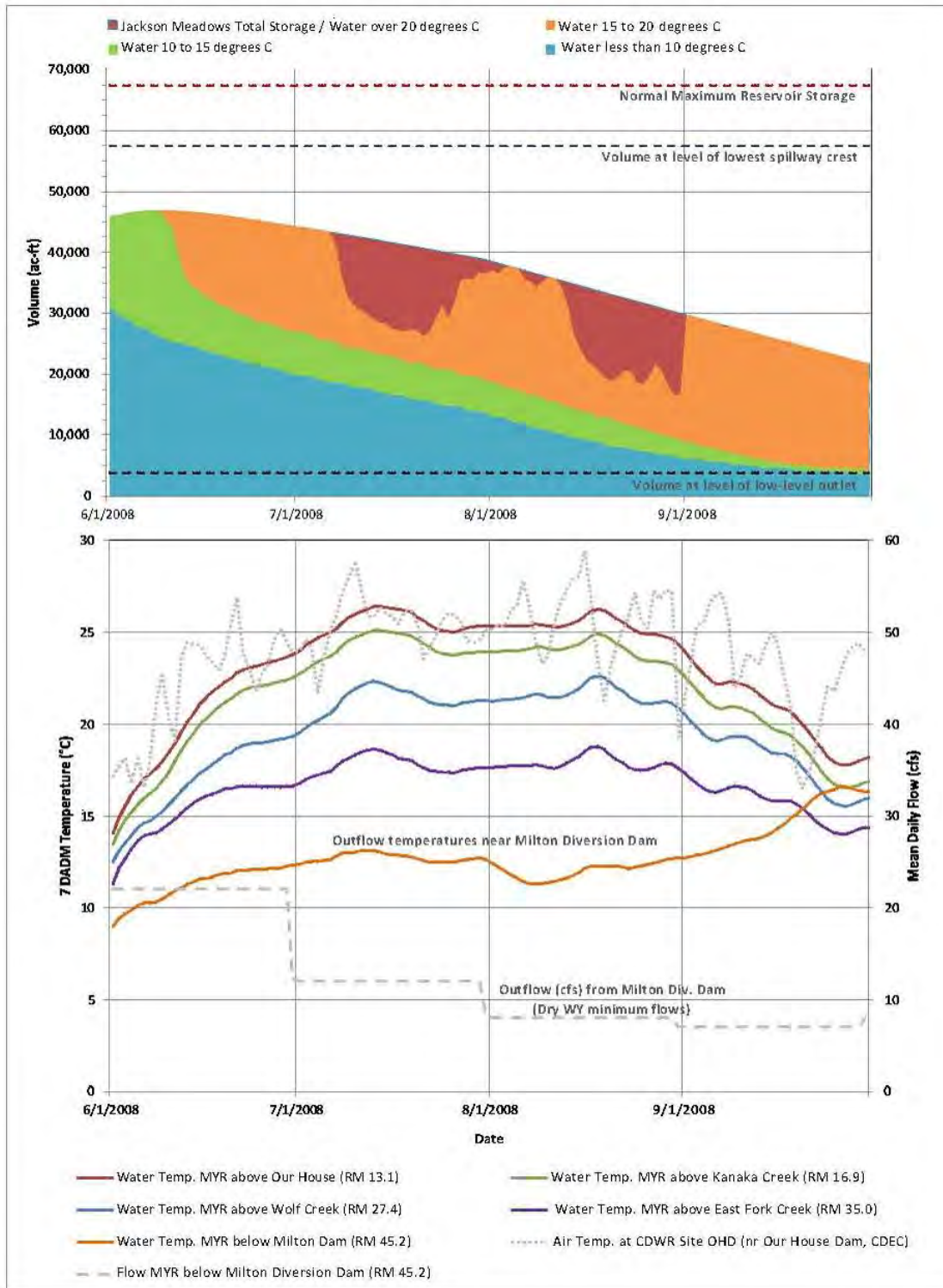


Figure 3-105. Modeled Jackson Meadows water temperature and 7DADM water temperatures from June through September in the Middle Yuba River from Milton diversion dam to Our House diversion dam – 2008. (Source: Supplement No. 3 to Amended License Application; NID, August 2012)

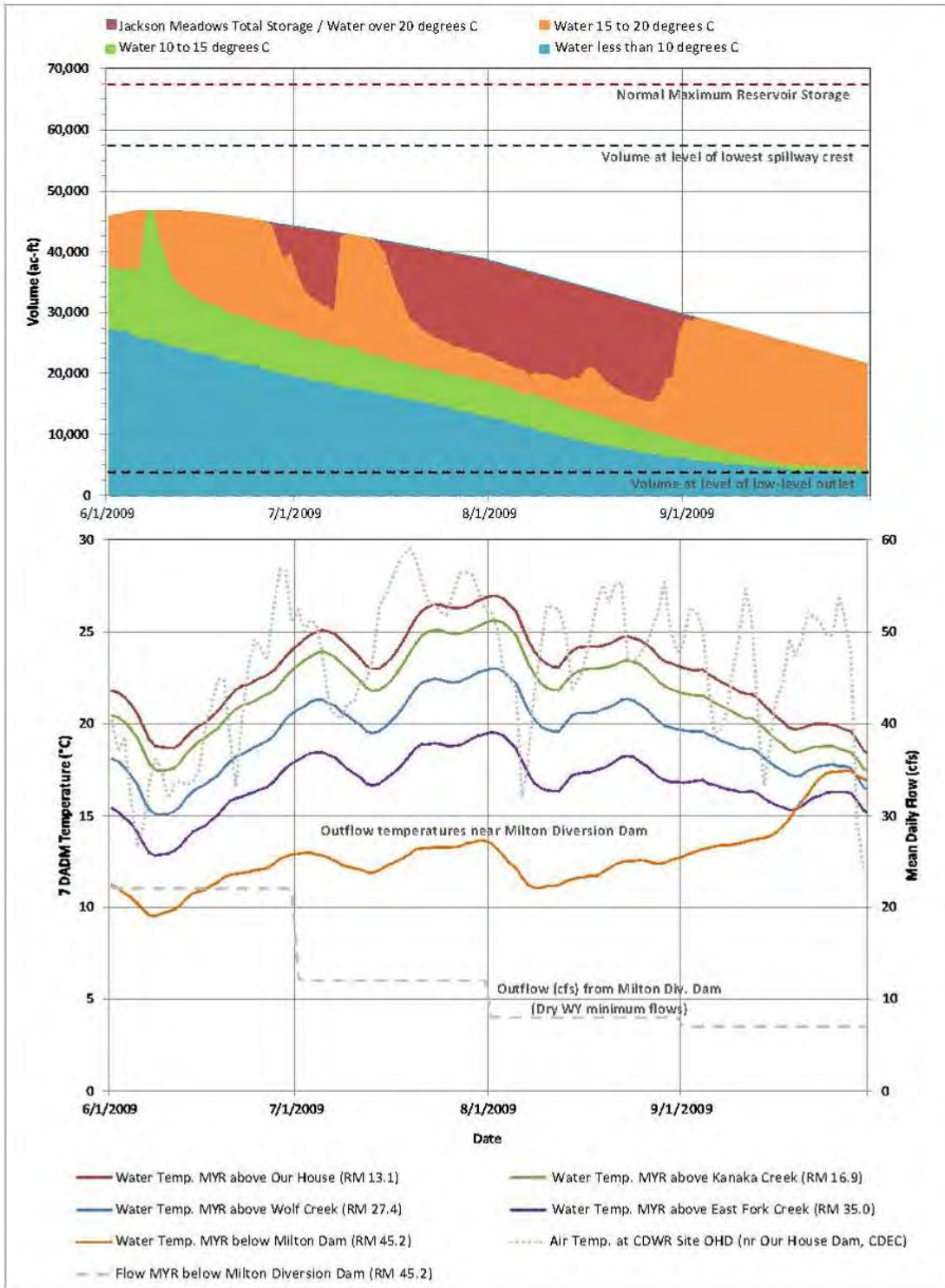


Figure 3-106. Modeled Jackson Meadows water temperature and 7DADM water temperatures from June through September in the Middle Yuba River from Milton diversion dam to Our House diversion dam – 2009. (Source: Supplement No. 3 to Amended License Application; NID, August 2012)

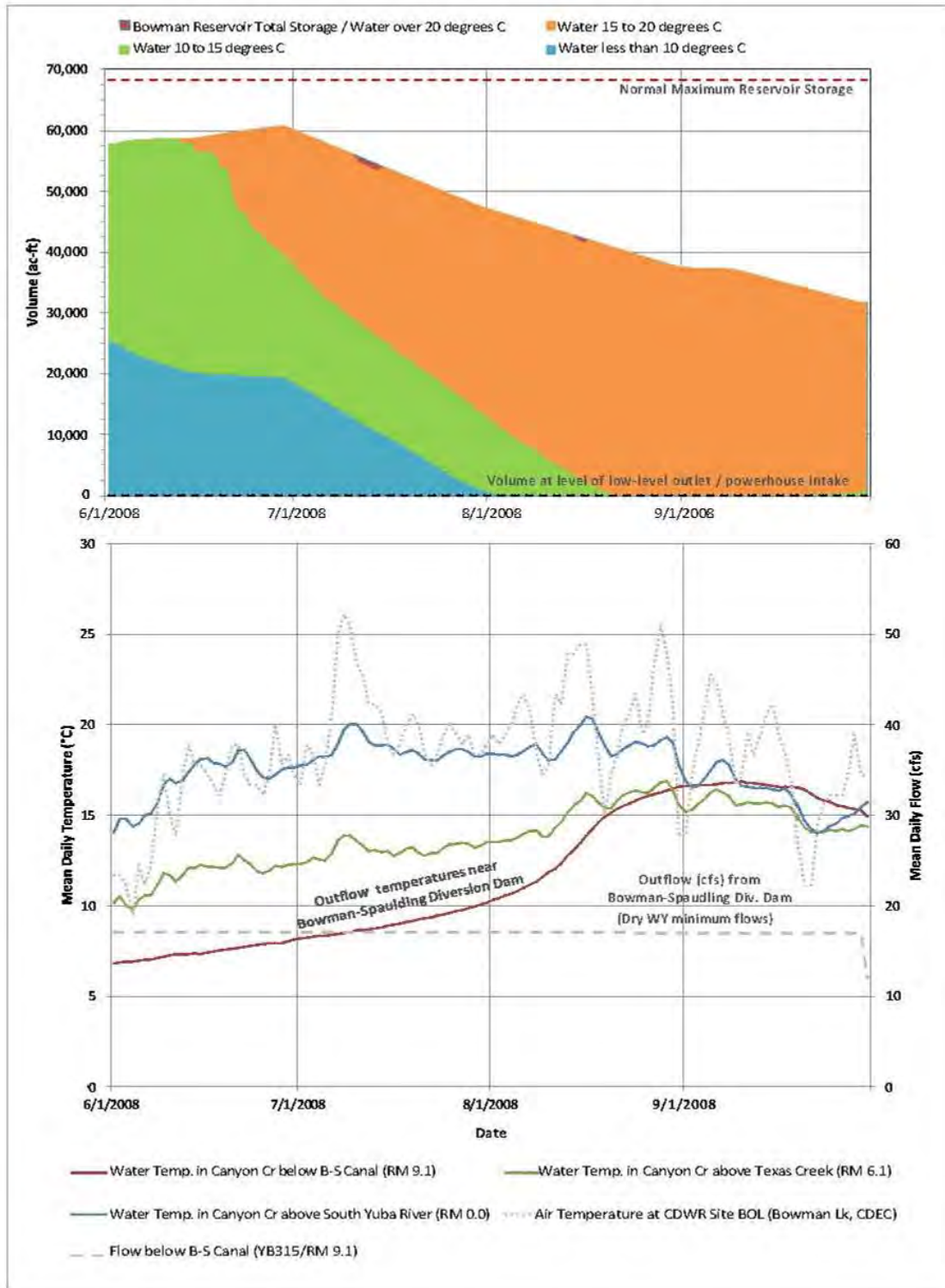


Figure 3-107. Modeled Bowman reservoir water temperature and mean daily water temperature from June through September in Canyon Creek from Bowman-Spaudling diversion dam to the South Yuba River – 2008. (Source: Supplement No. 3 to Amended License Application; NID, August 2012)

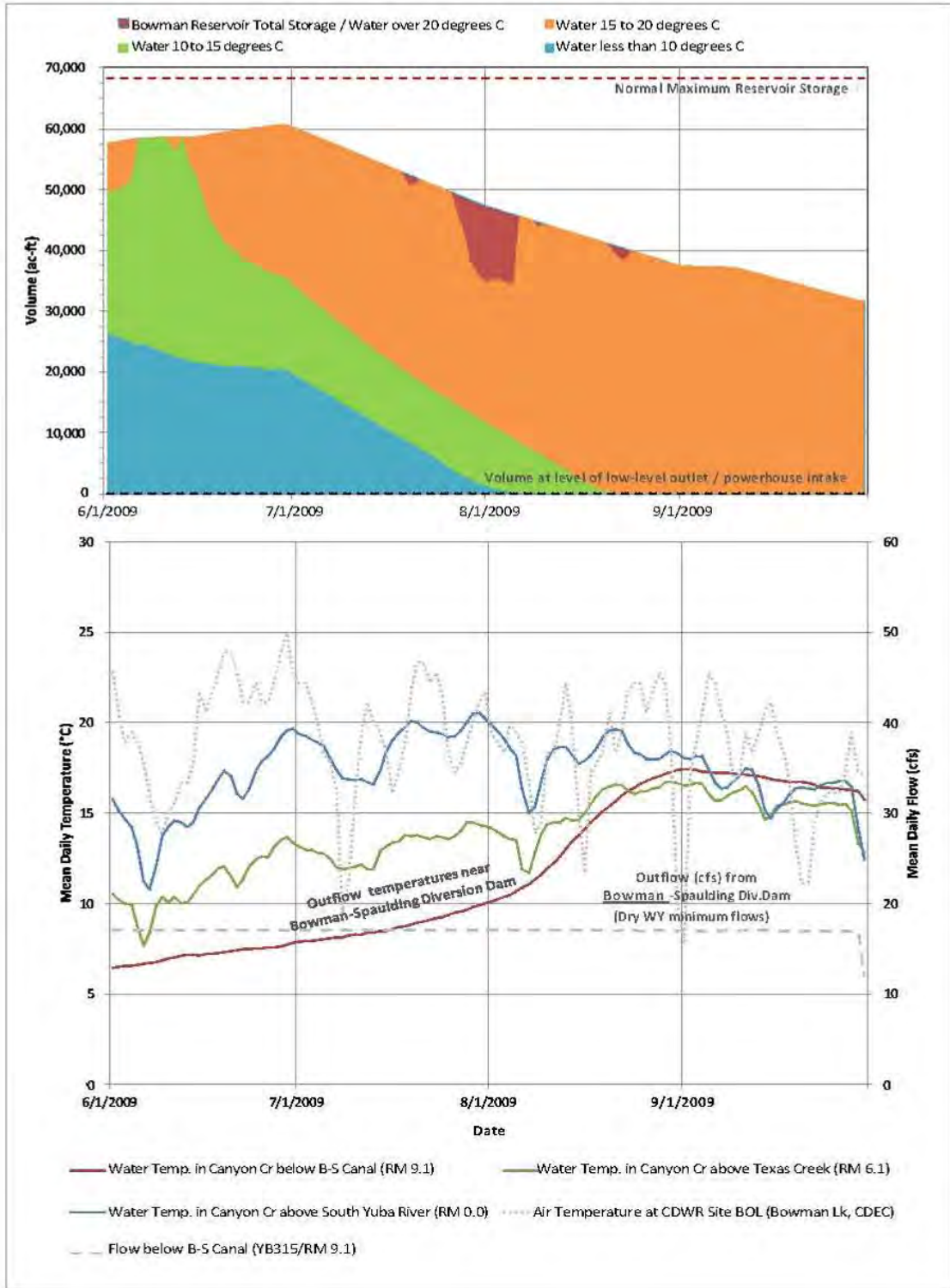


Figure 3-108. Modeled Bowman reservoir water temperature and daily water temperatures from June through September in Canyon Creek from Bowman-Spaulding diversion dam to the South Yuba River – 2009. (Source: Supplement No. 3 to Amended License Application; NID, August 2012)

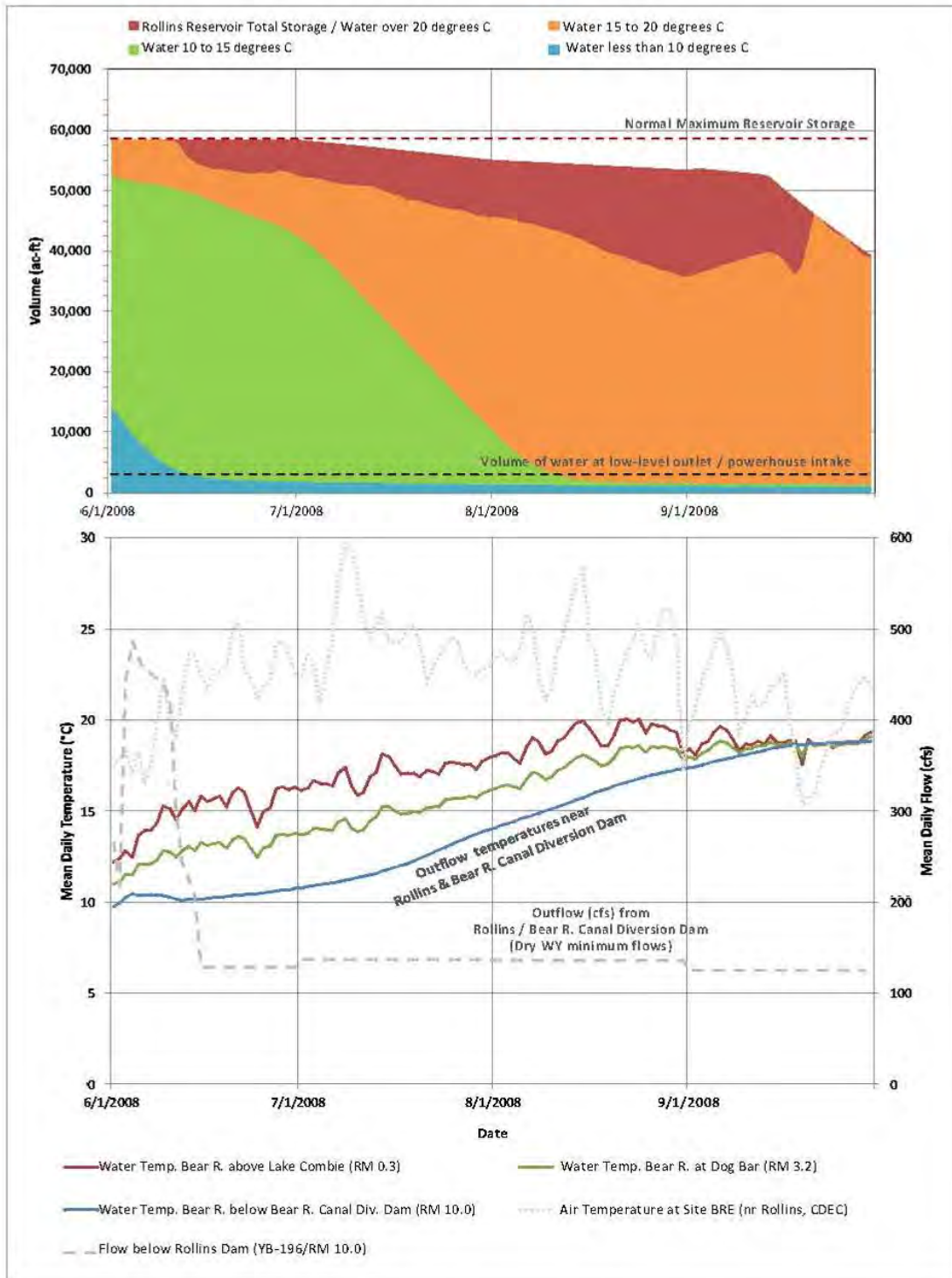


Figure 3-109. Modeled Rollins reservoir water temperature and mean daily water temperatures from June through September in the Bear River from Rollins dam to Lake Combie – 2008. (Source: Supplement No. 3 to Amended License Application; NID, August 2012)

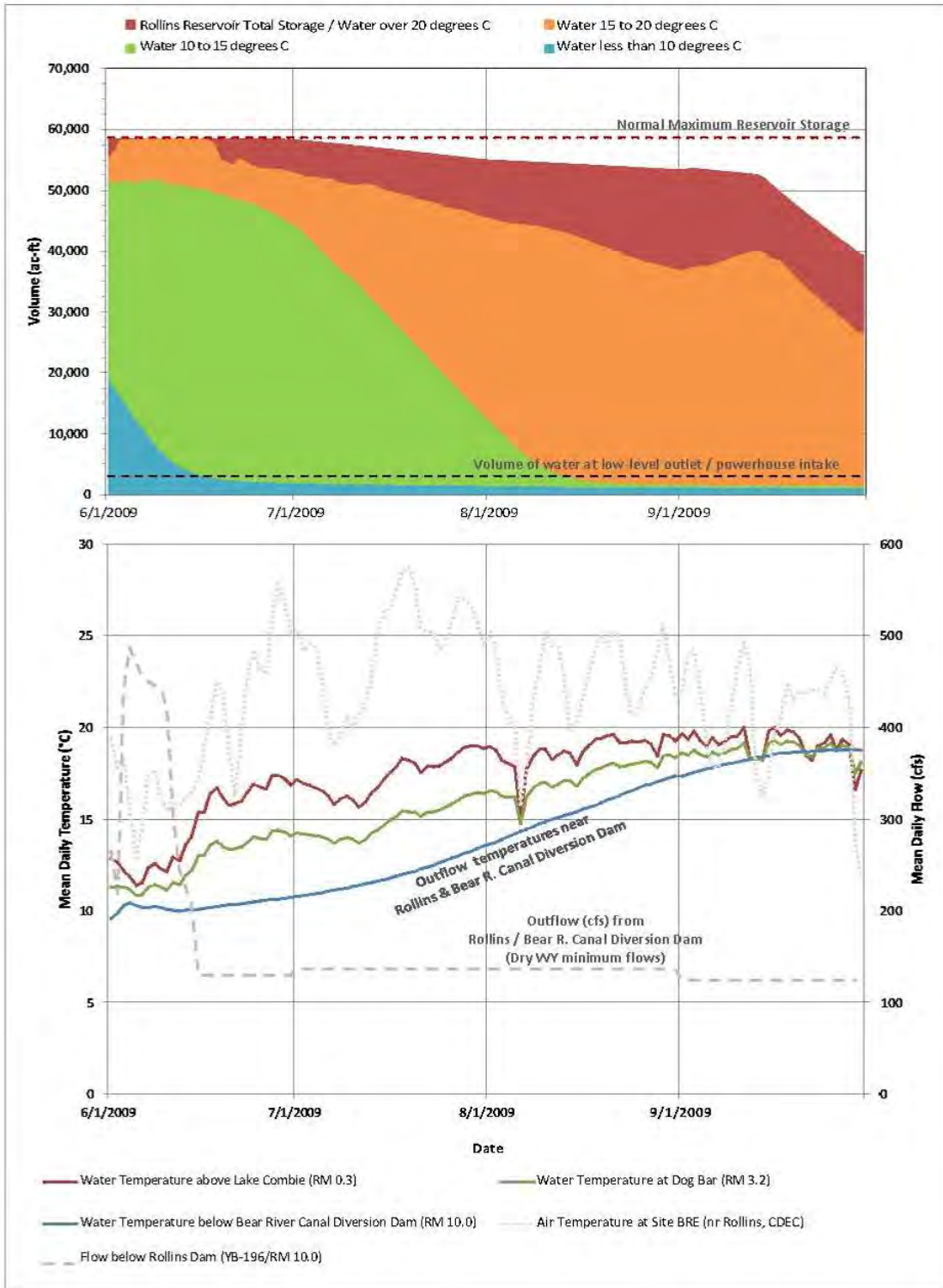


Figure 3-110. Modeled Rollins reservoir water temperature and mean daily water temperatures from June through September in the Bear River from Rollins dam to Lake Combie – 2009. (Source: Supplement No. 3 to Amended License Application; NID, August 2012)

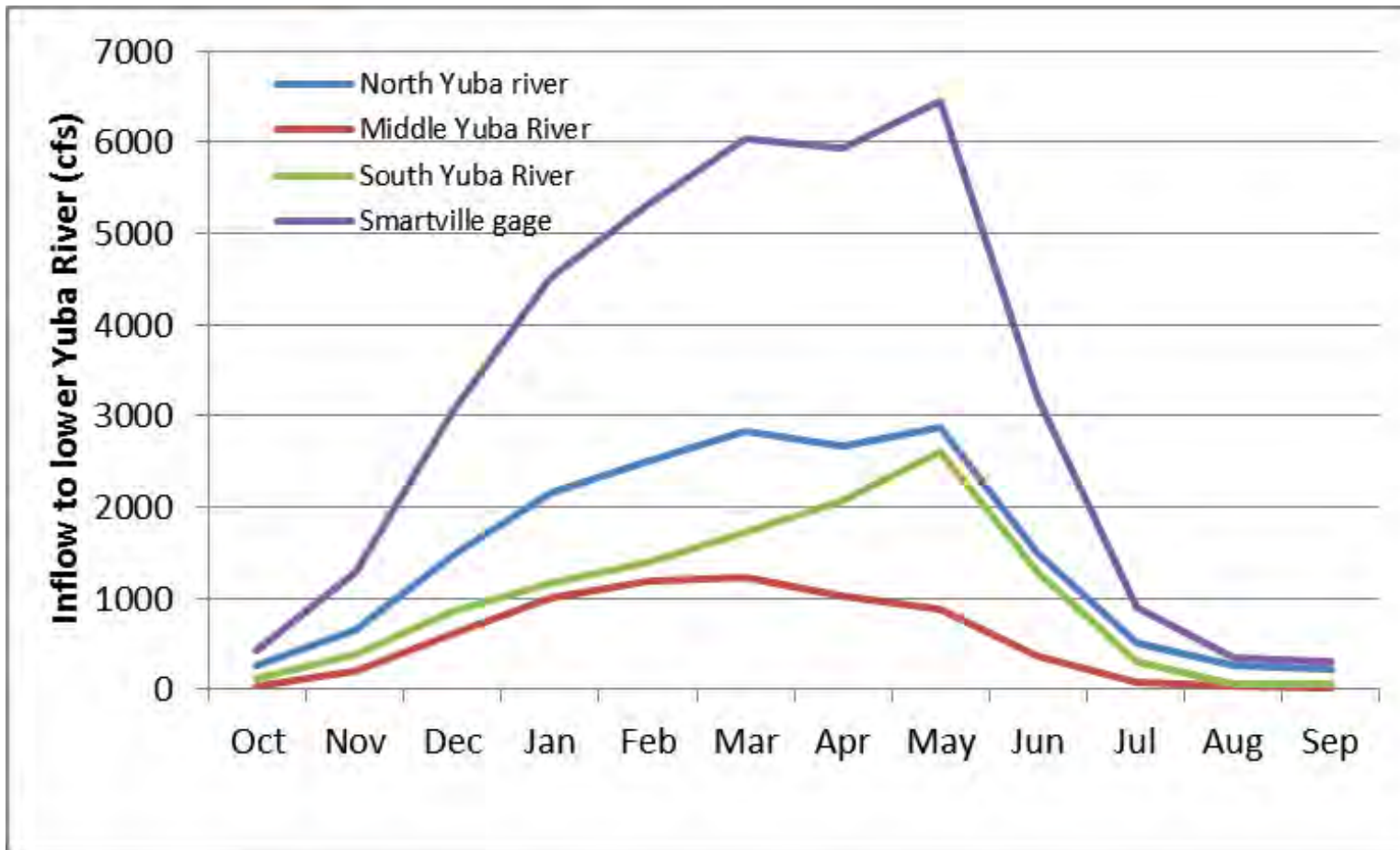


Figure 3-111. Contribution of flow from North, Middle, and South Yuba Rivers to total monthly flow at Smartville USGS gage on Yuba River below Englebright dam. (Source: Staff)

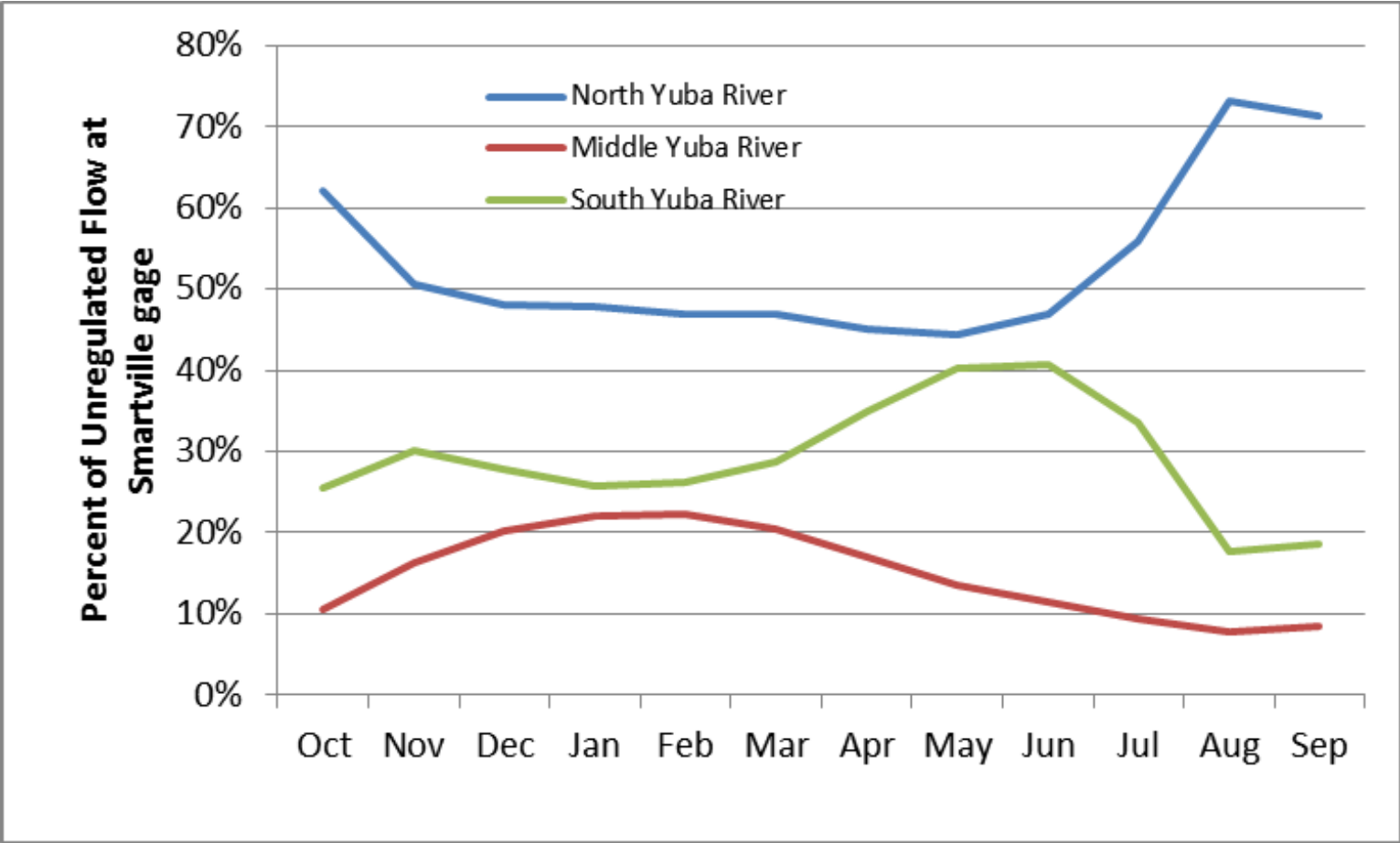


Figure 3-112. Percent of total estimated unregulated monthly average flow at USGS Smartville gage on the Yuba River below Englebright dam contributed by the North, Middle, and South Yuba Rivers. (Source: Staff)

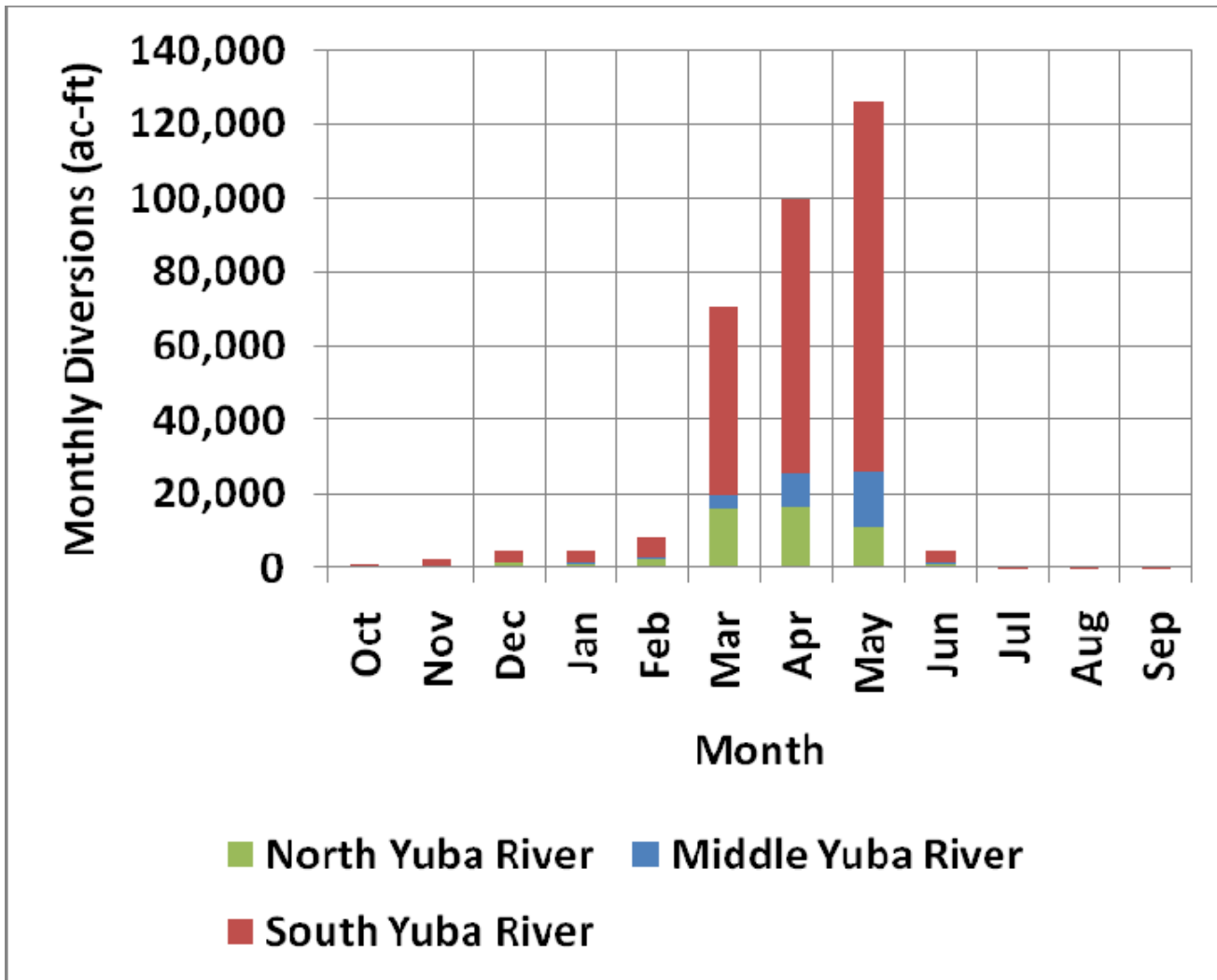


Figure 3-113. Monthly average diversions from upper forks of the Yuba River during Water Year 2001 (representative dry year). (Source: PG&E and NID 2011a)

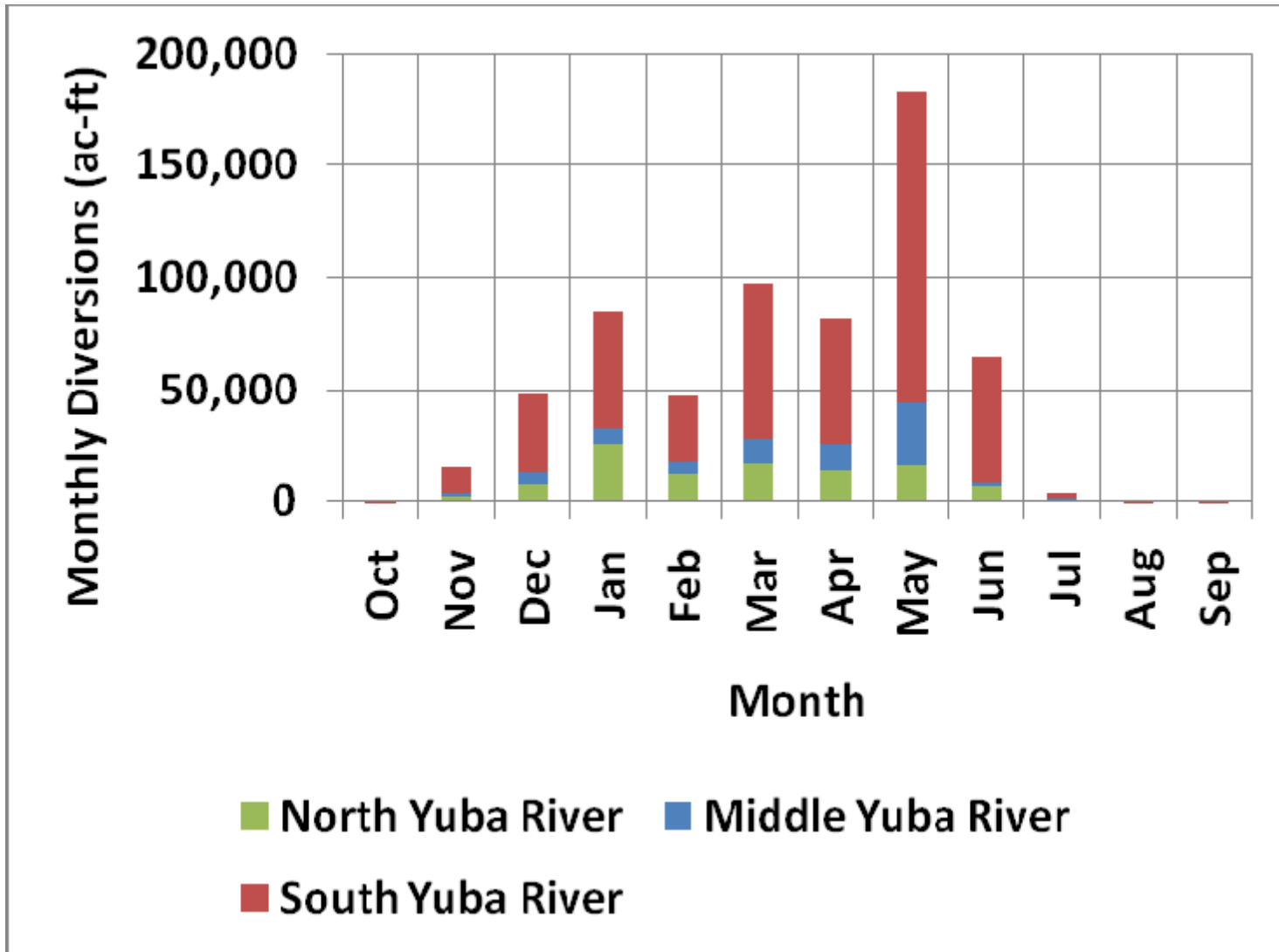


Figure 3-114. Monthly average diversions from upper forks of the Yuba River during Water Year 2003 (representative noraml year). (Source: PG&E and NID 2011a)

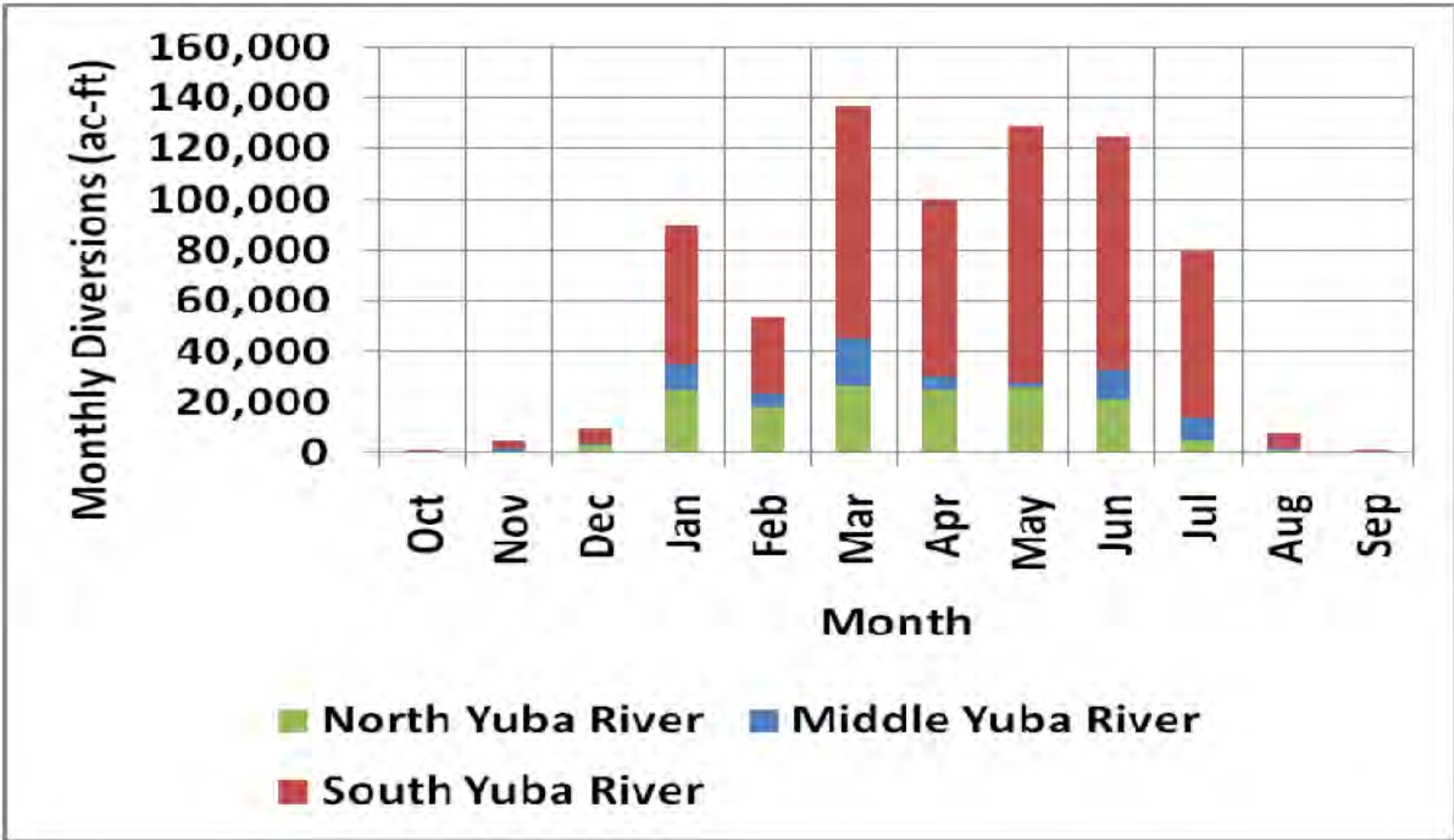


Figure 3-115. Monthly average diversions from upper forks of the Yuba River during Water Year 1995 (representative wet year). (Source: PG&E 2011a)

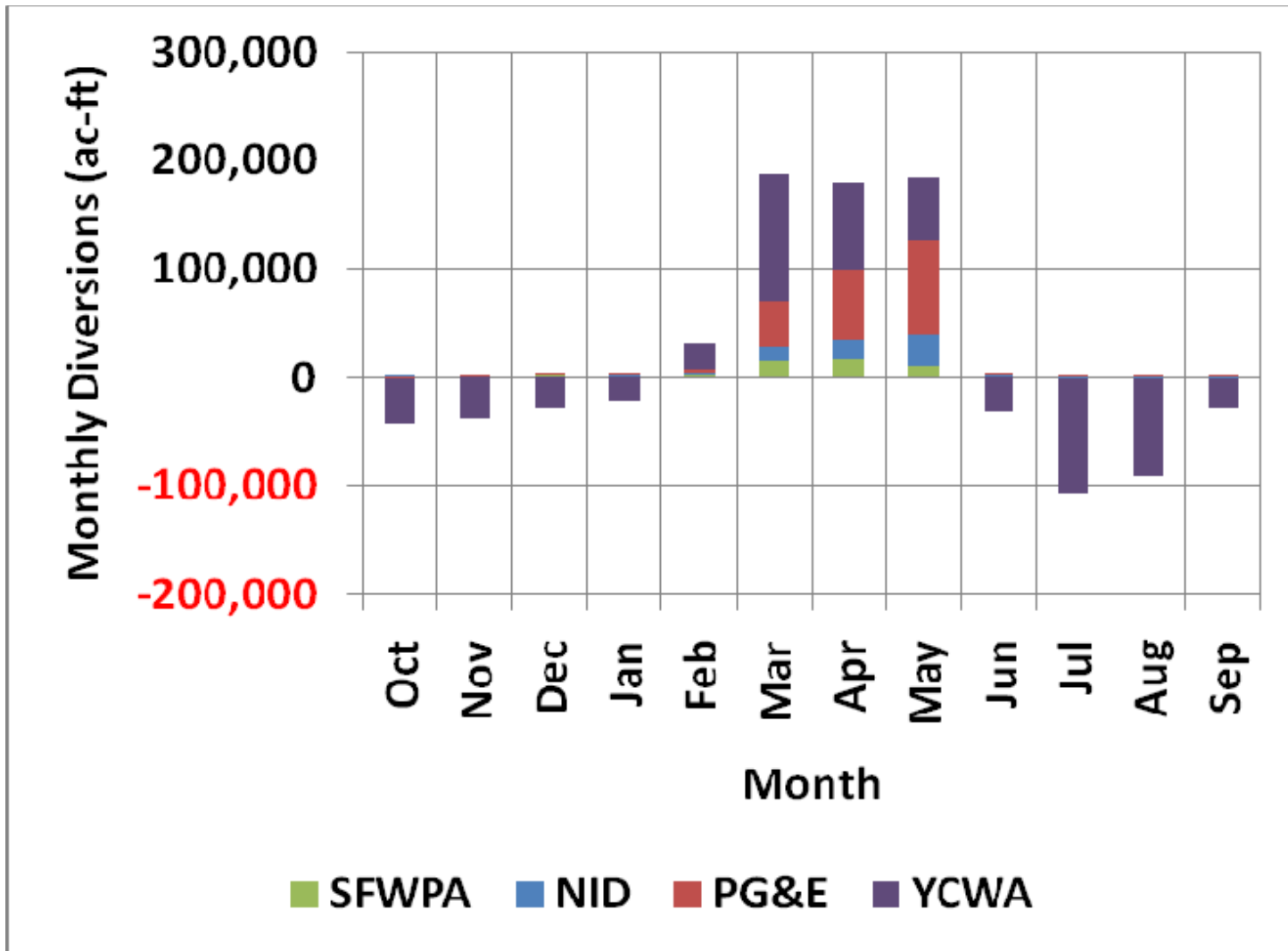


Figure 3-116. Monthly average diversions from Yuba River watershed (by SFWPA, NID and PG&E) as compared to diversions to storage/augmentations from storage primarily in New Bullards Bar Reservoir by YCWA during Water Year 2001 (representative dry year). (Source: PG&E and NID 2011a)

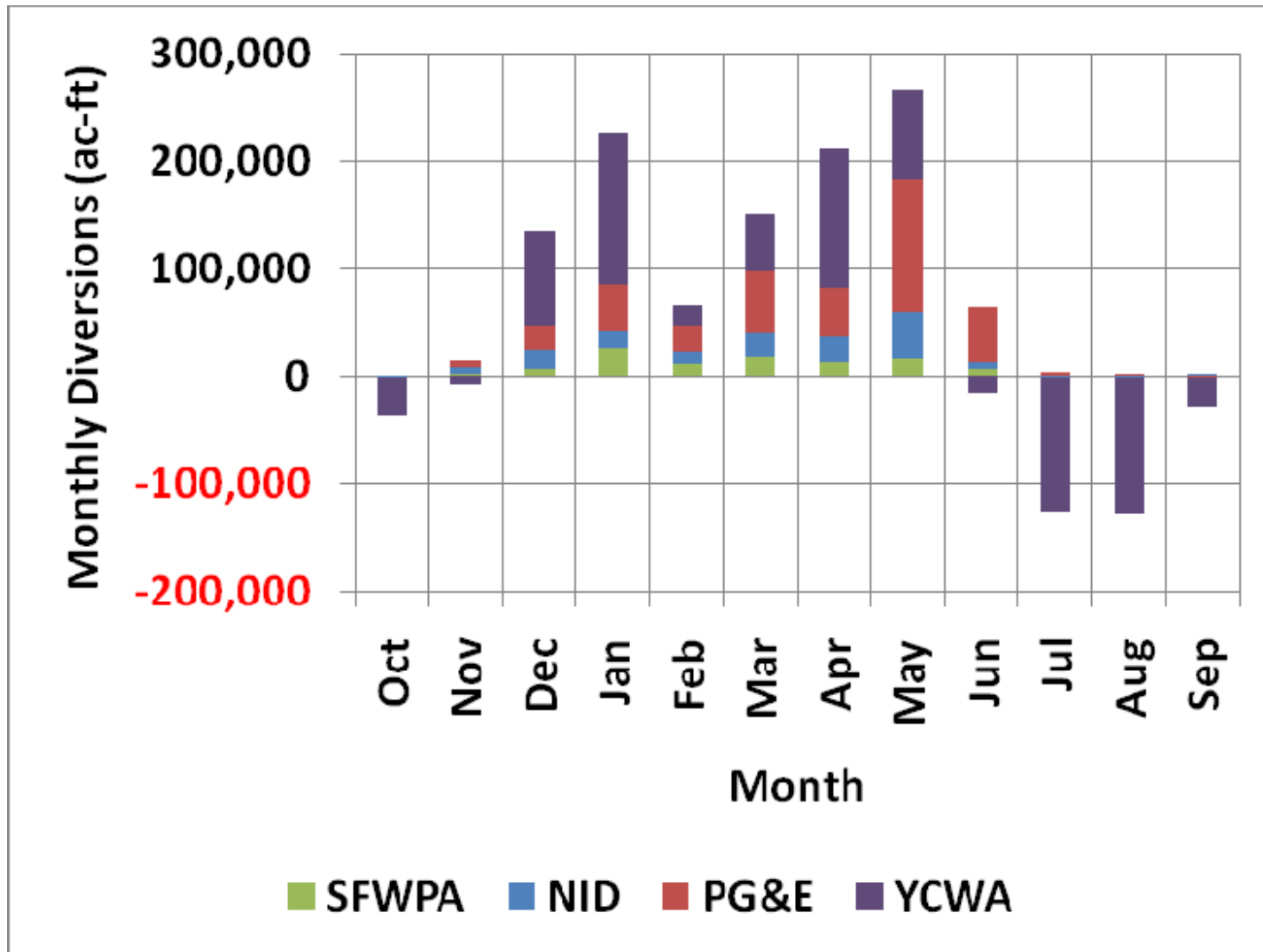


Figure 3-117. Monthly average diversions from Yuba River watershed (by SFWPA, NID and PG&E) as compared to diversions to storage/augmentations from storage primarily in New Bullards Bar Reservoir by YCWA during Water Year 2003 (representative normal year). (Source: PG&E and NID 2011a)

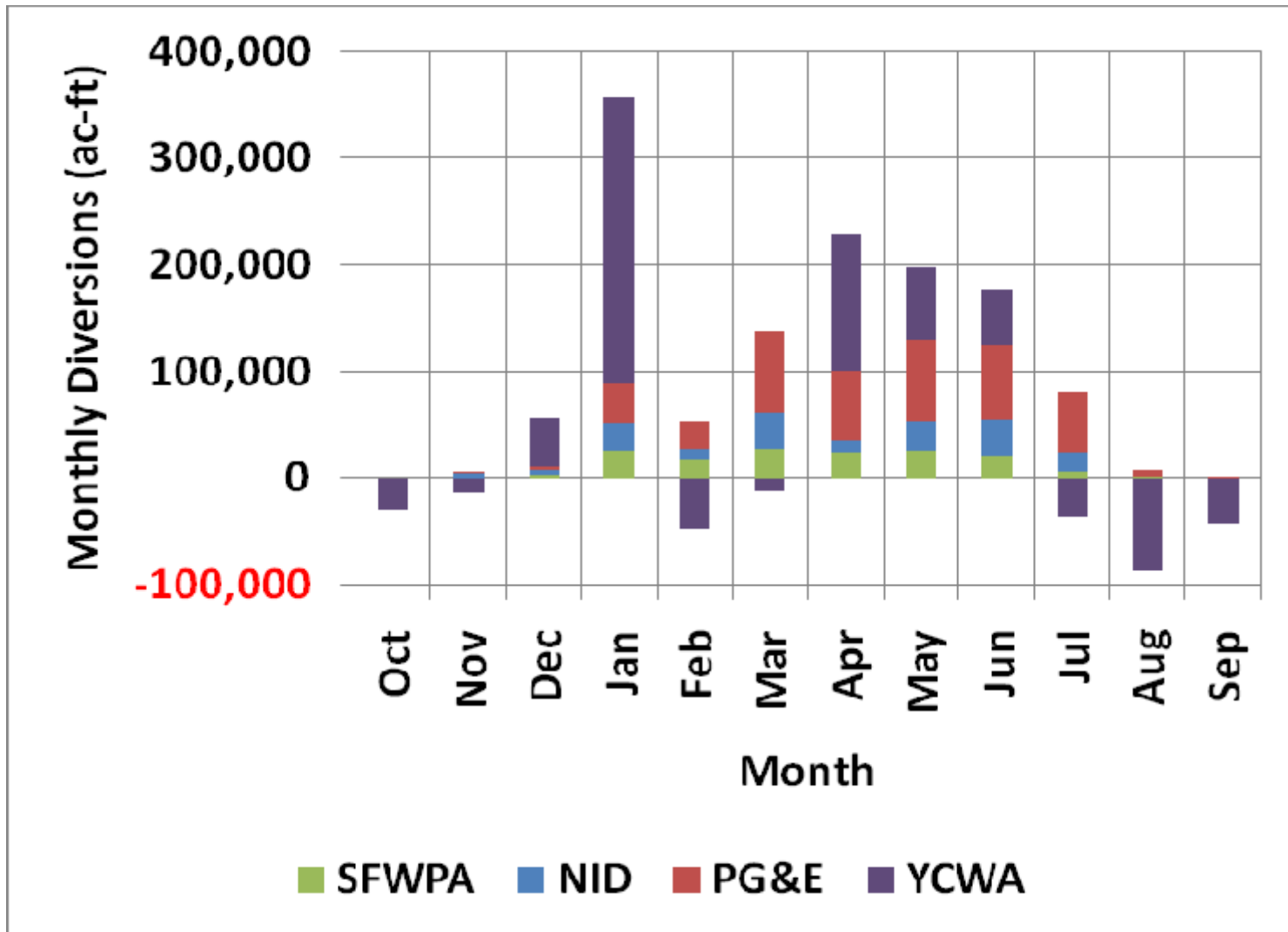


Figure 3-118. Monthly average diversions from Yuba River watershed (by SFWPA, NID and PG&E) as compared to diversions to storage/augmentations from storage primarily in New Bullards Bar Reservoir by YCWA during Water Year 1995 (representative wet year). (Source: PG&E and NID 2011a)

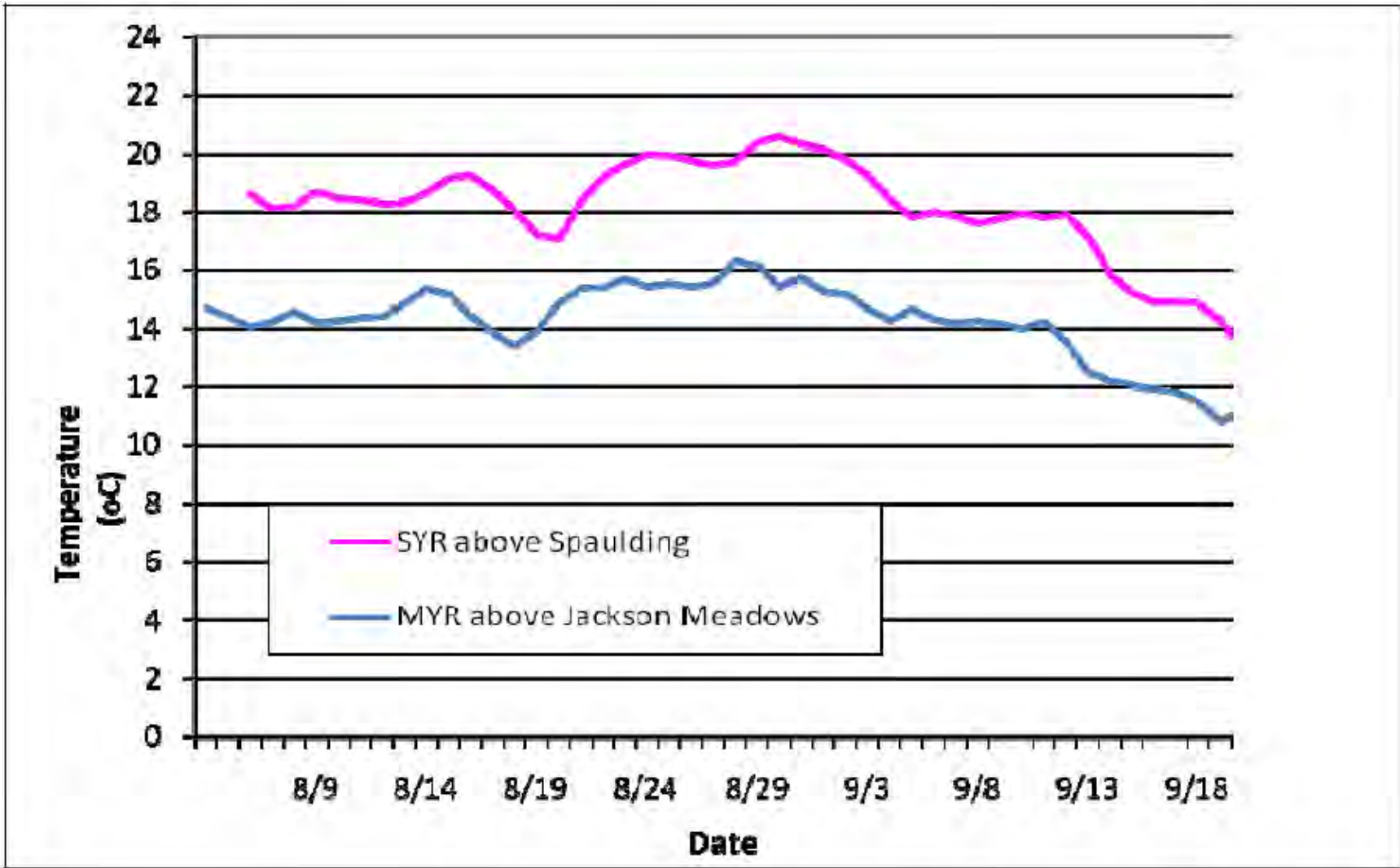


Figure 3-119. Mean daily water temperatures in the Middle and South Yuba rivers above Jackson Meadows Reservoir and Lake Spaulding, August-September 2007. (Source: PG&E and NID 2011a)

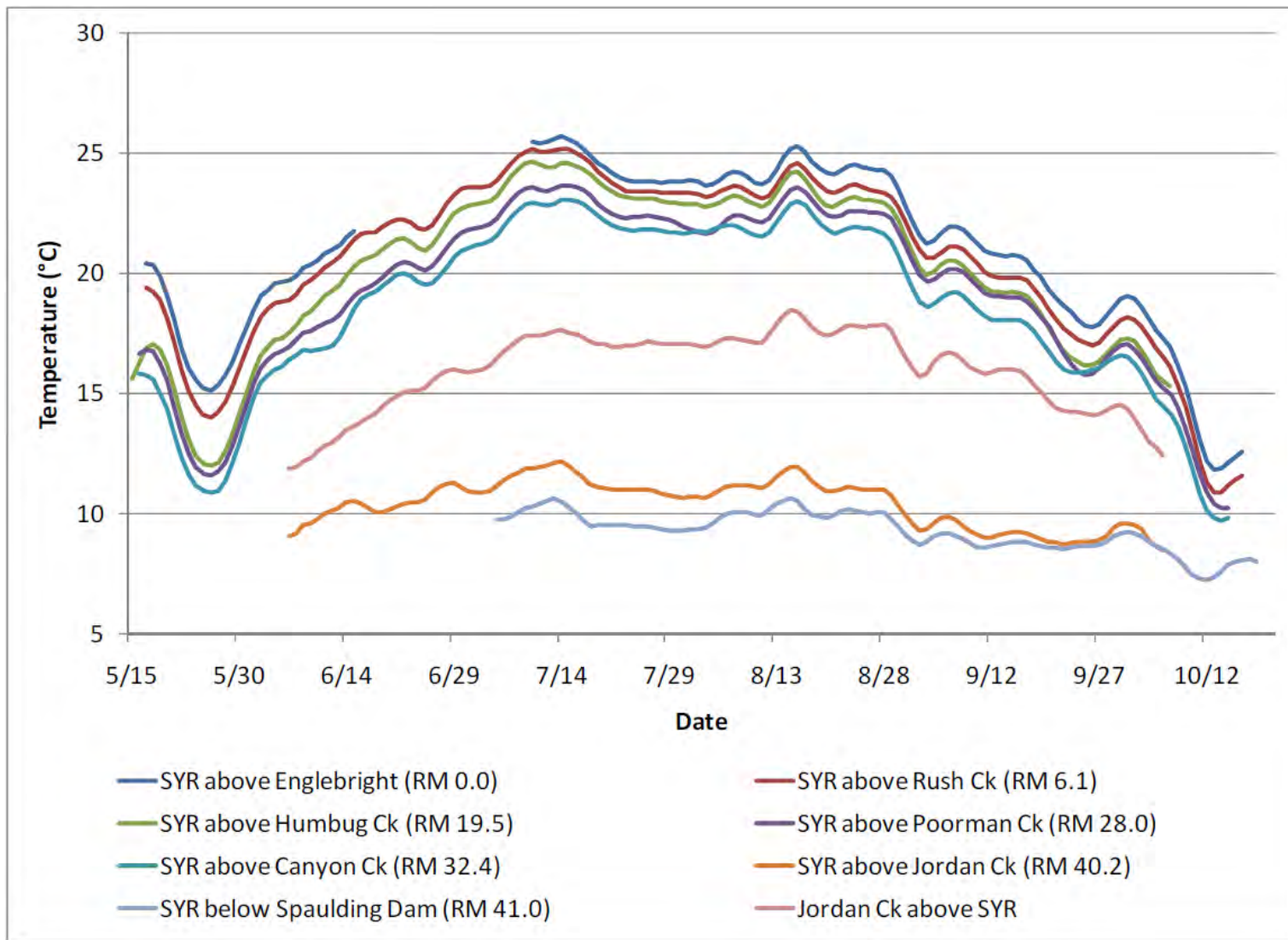


Figure 3-120. Mean daily water temperatures in the South Yuba River below Lake Spaulding, May-October 2008. (Source: PG&E and NID 2011a)

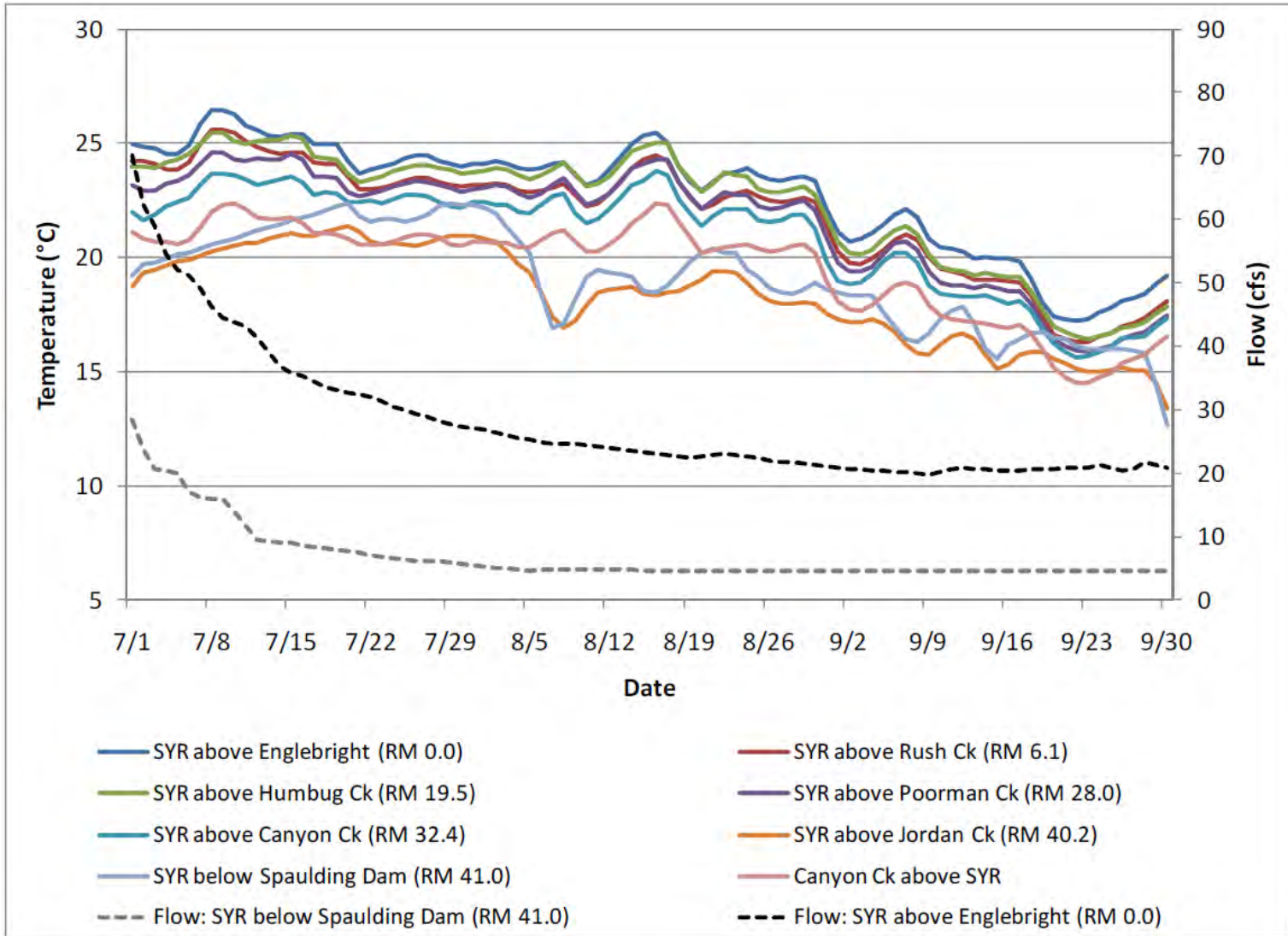


Figure 3-121. Modeled mean daily water temperatures in the South Yuba River between Lake Spaulding and Englebright Reservoir under synthesized unimpaired flow conditions below Spaulding Dam, July-September 2008. (Source: PG&E and NID 2011a)

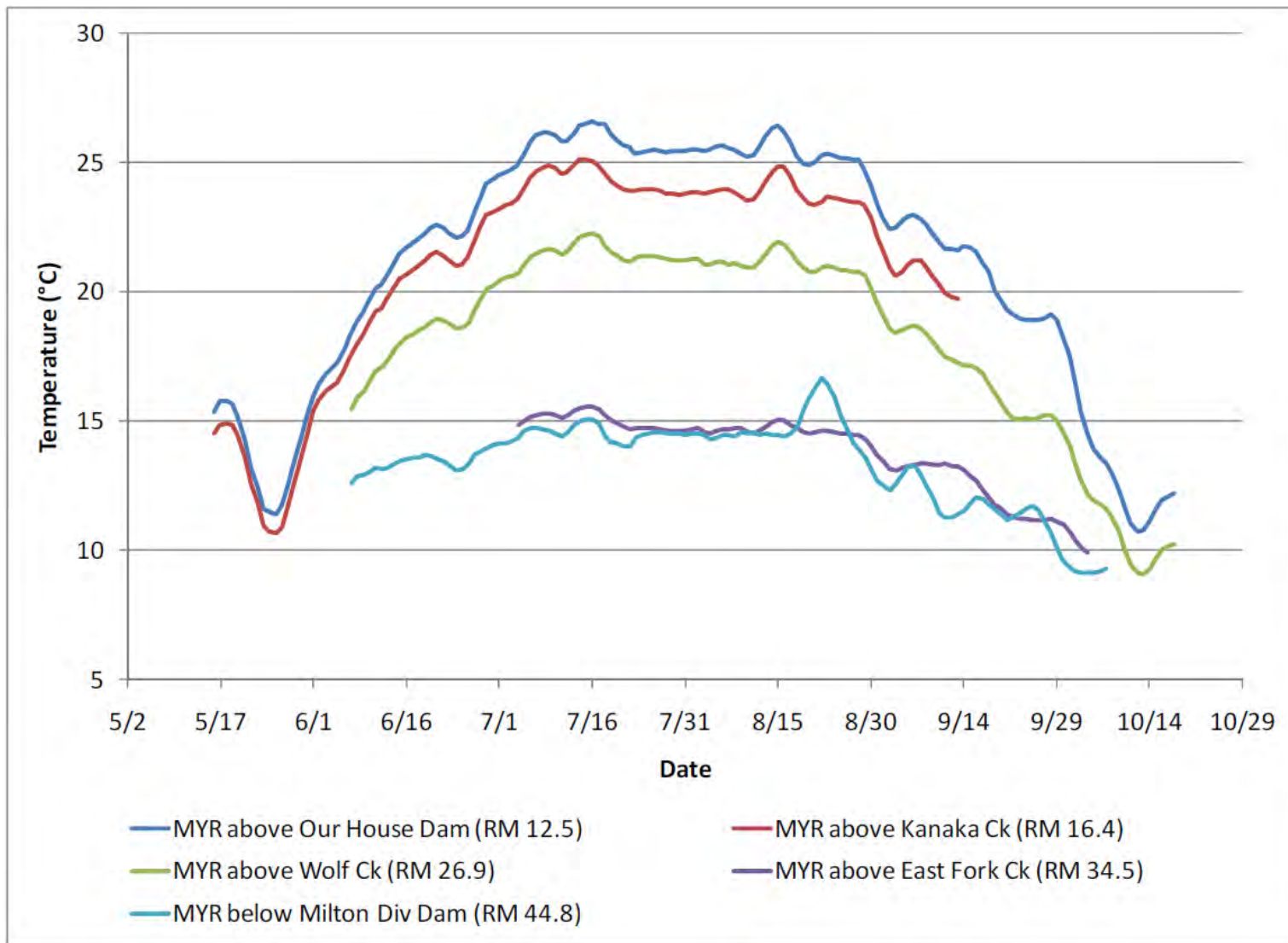


Figure 3-122. Mean daily water temperatures in the Middle Yuba River below Milton Diversion Dam, May-October 2008. (Source: PG&E and NID 2011a)

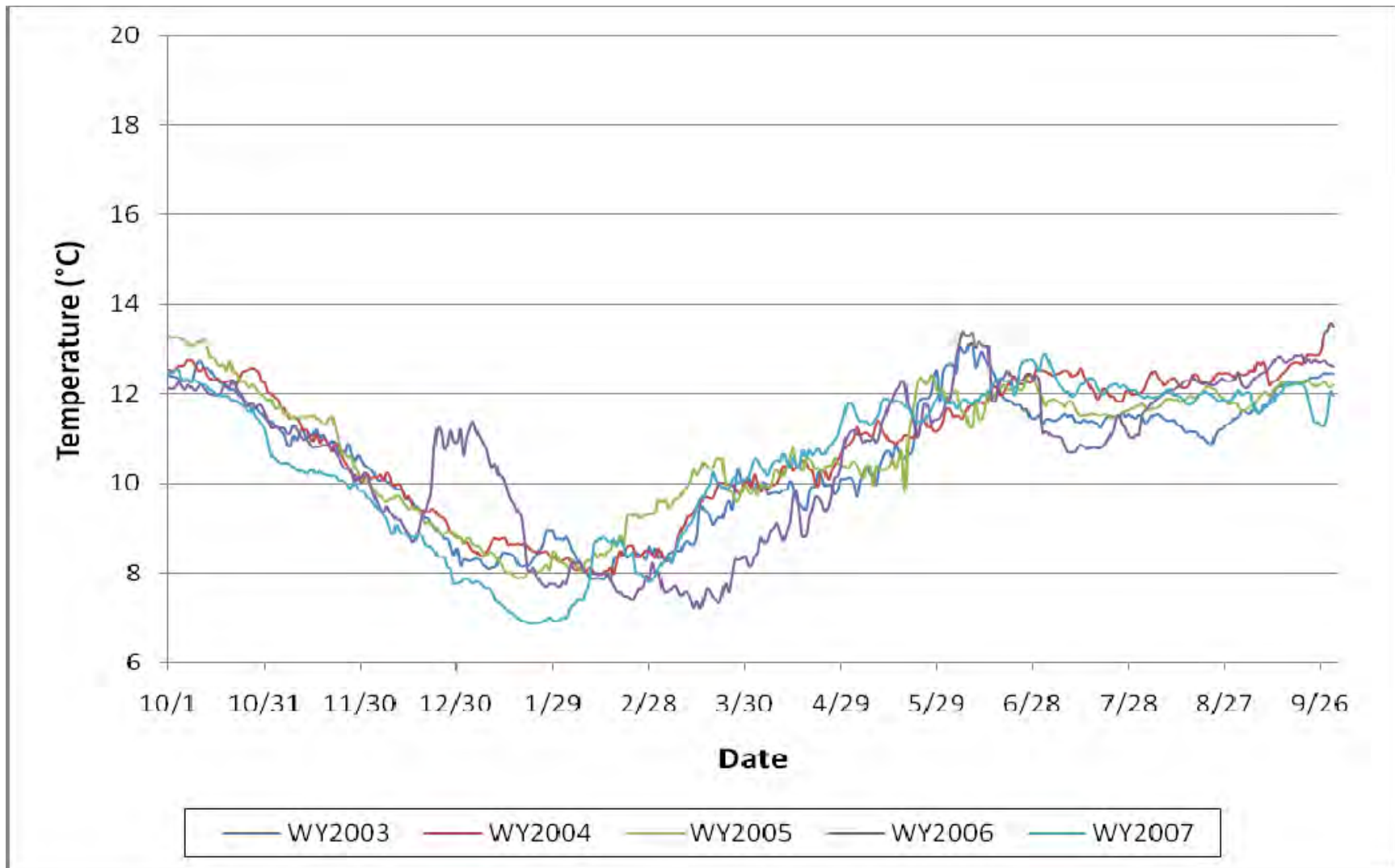


Figure 3-123. Mean daily water temperatures in the Yuba River at Smartsville for Water Years 2003-2007. (Source: PG&E and NID 2011a)

Appendix C

Existing and Proposed Recreation Facilities for Upper Drum-Spaulling, Lower Drum, Deer Creek, and Yuba-Bear Projects

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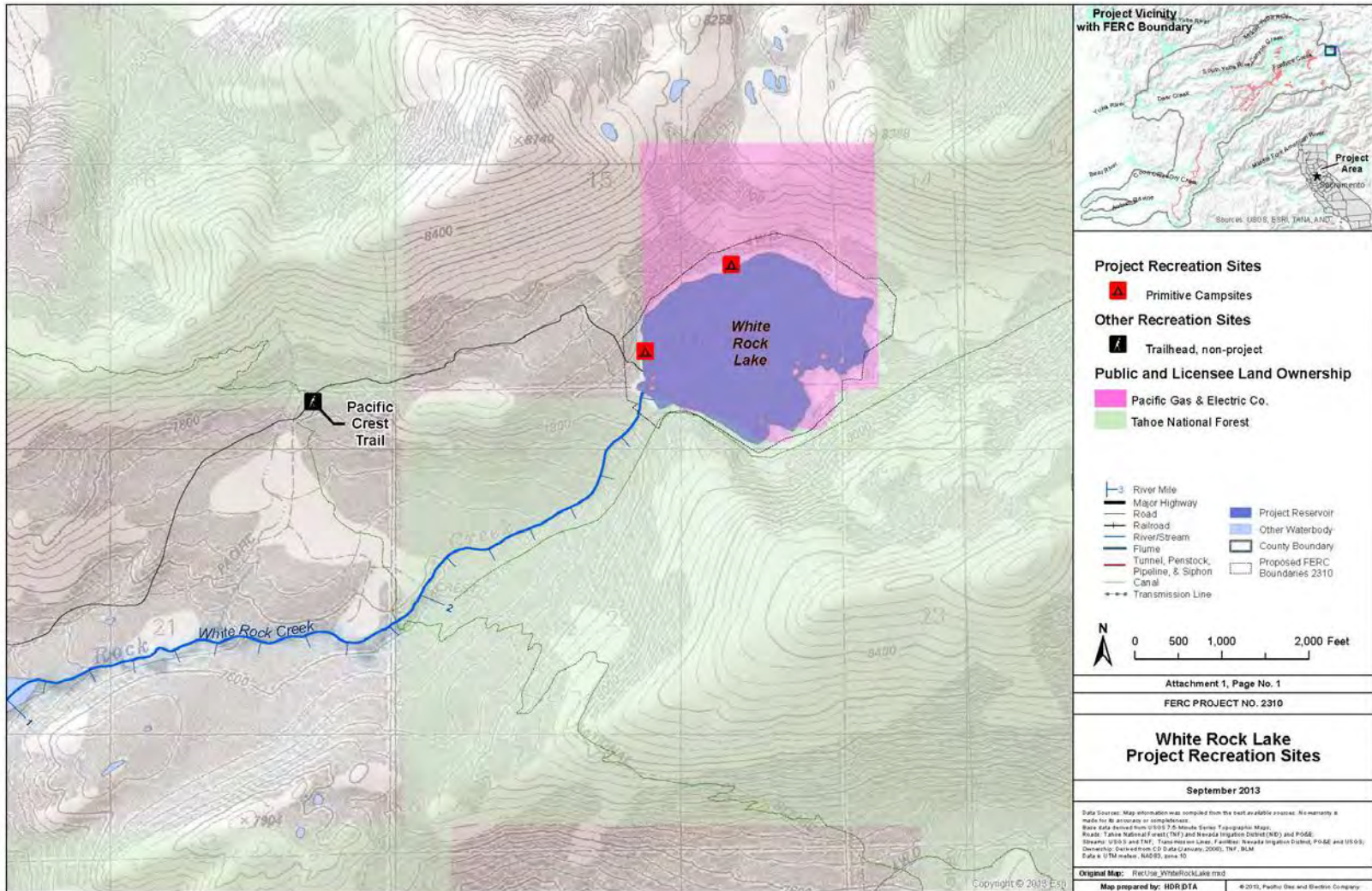


Figure C-1. Existing and proposed recreation facilities at White Rock Lake Recreation Area, Upper Drum-Spaulding Project. (Source: PG&E, 2013a)

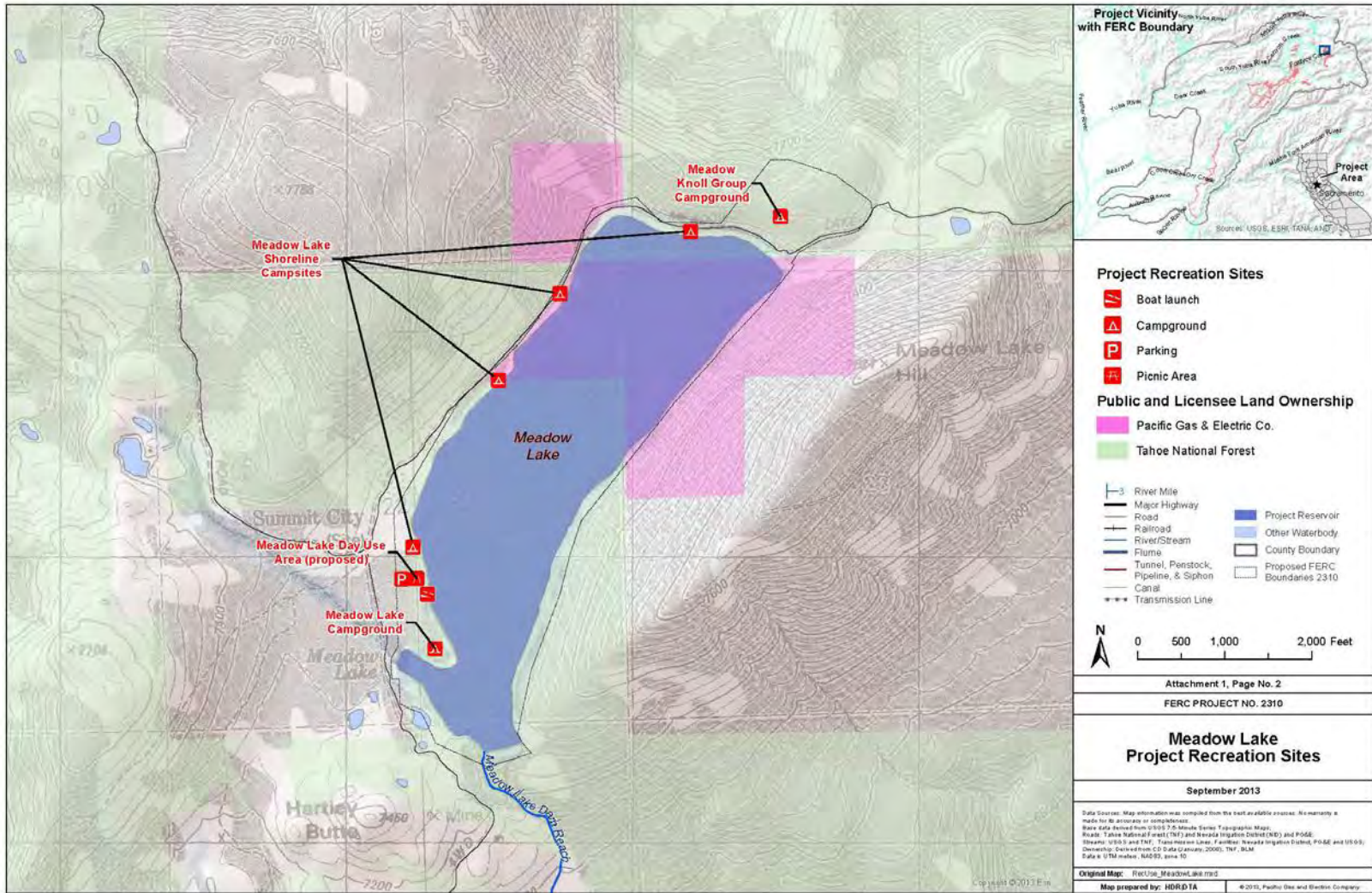


Figure C-2. Existing and proposed recreation facilities at Fordyce Lake Recreation Area, Upper Drum-Spaulding Project. (Source: PG&E, 2013a)

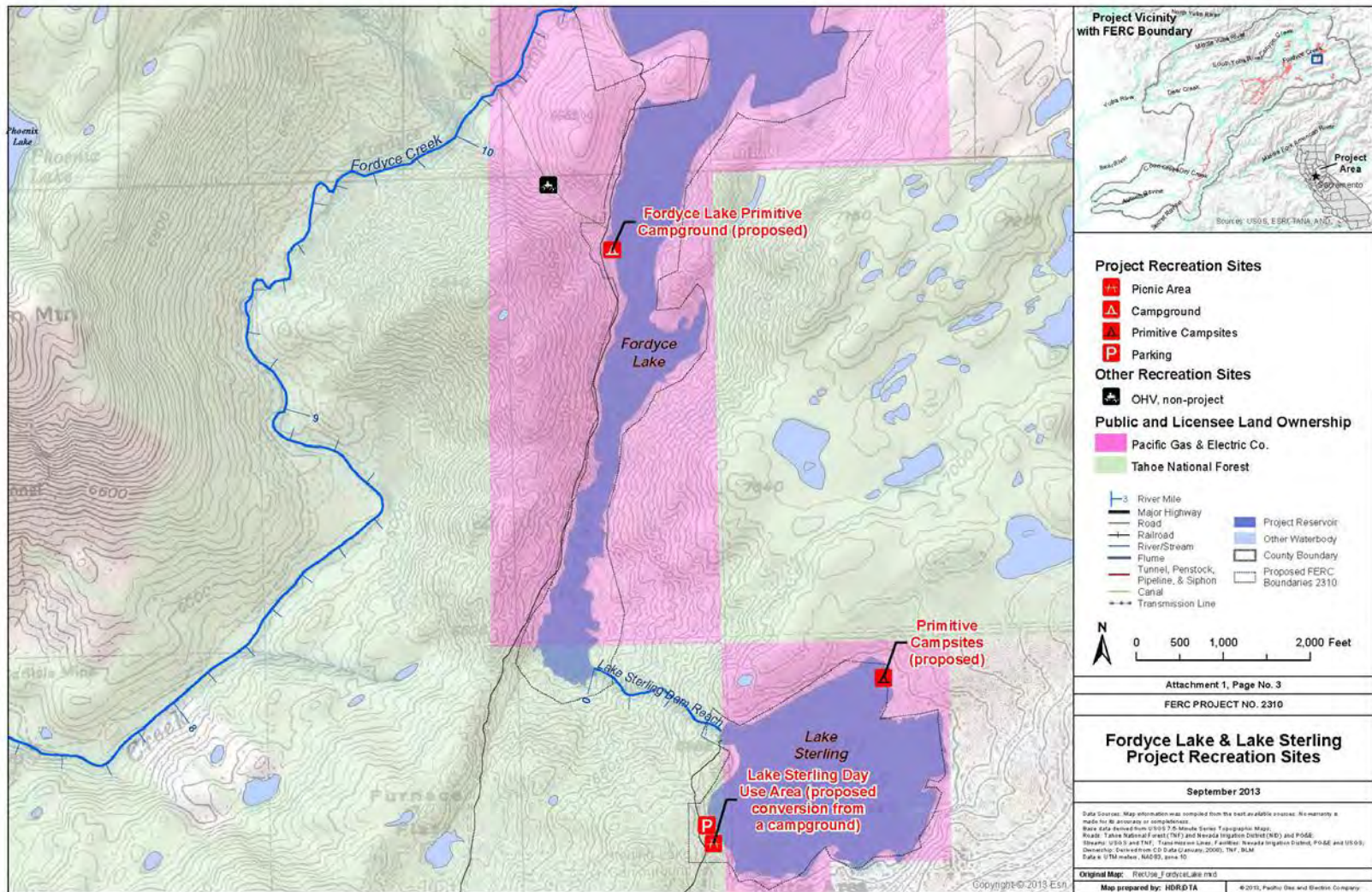


Figure C-3. Existing and proposed recreation facilities at Fordyce Lake Recreation Area, Upper Drum-Spaulding Project. (Source: PG&E, 2013a)

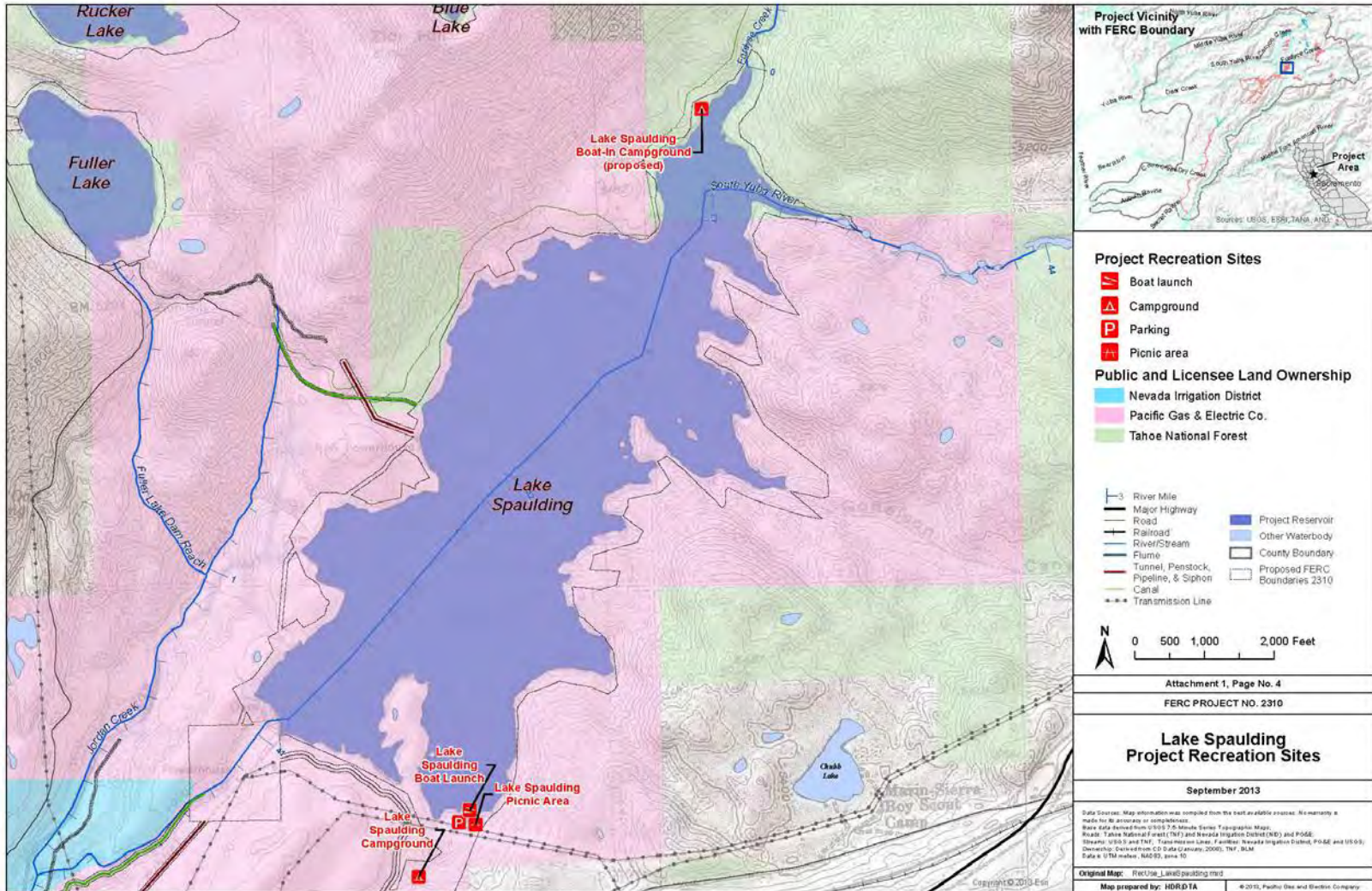


Figure C-4. Existing and proposed recreation facilities at Lake Spaulding Recreation Area, Upper Drum-Spaulding Project. (Source: PG&E, 2013a)

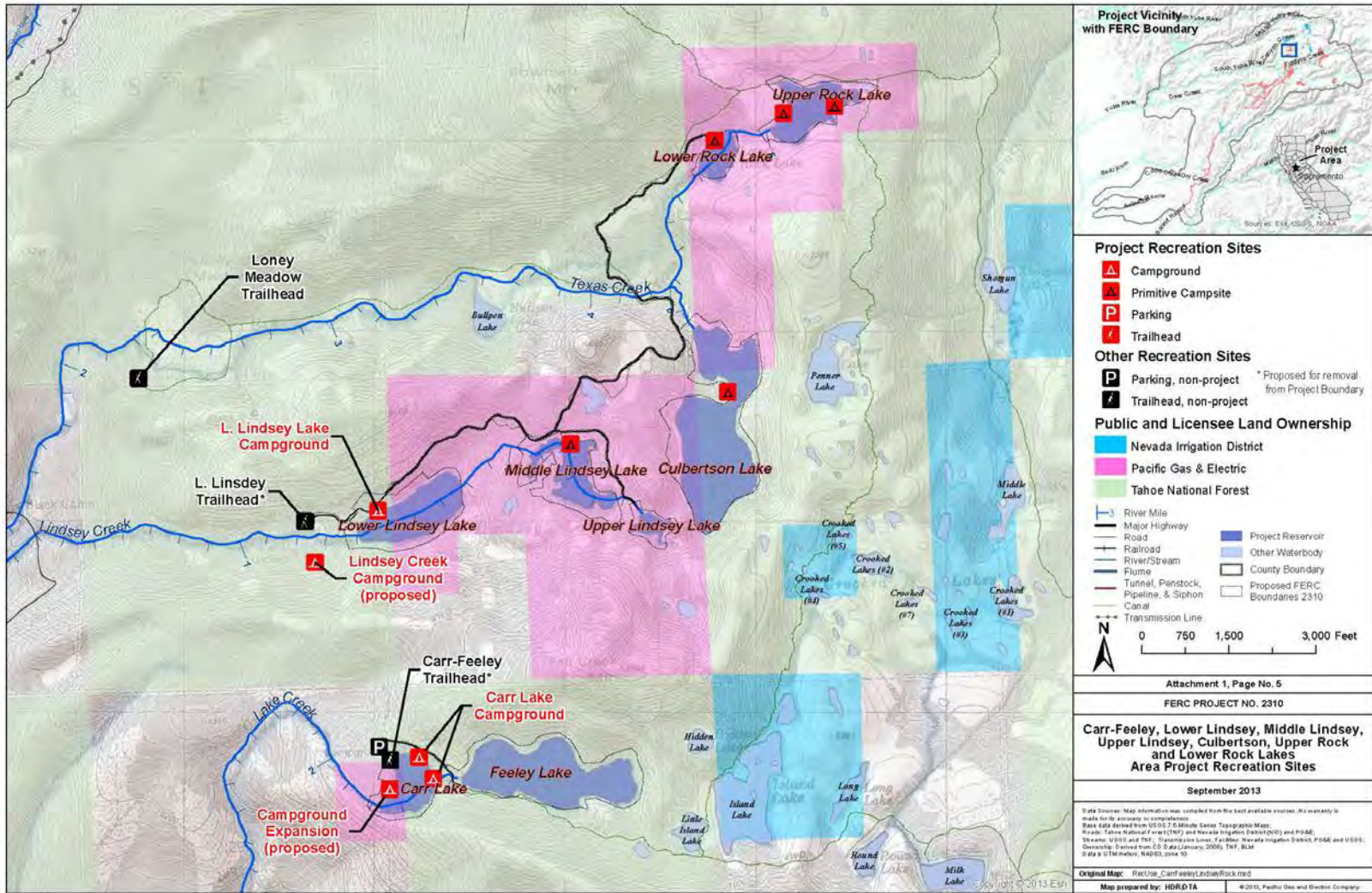


Figure C-5. Existing and proposed recreation facilities at Grouse Lakes Recreation Area, Upper Drum-Spaulding Project. (Source: PG&E, 2013a)

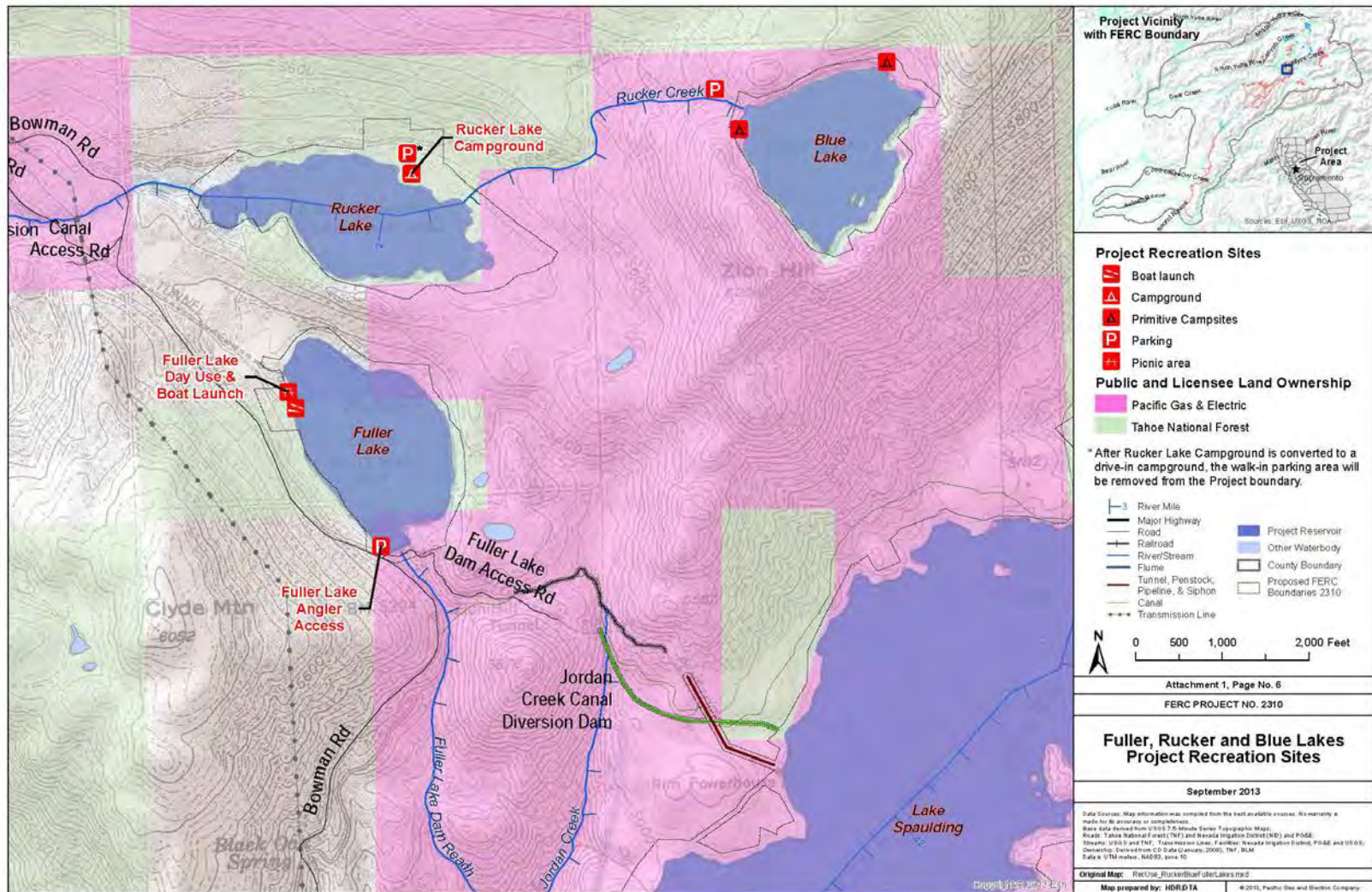


Figure C-6. Existing and proposed recreation facilities at Lake Spaulding Recreation Area, Upper Drum-Spaulding Project. (Source: PG&E, 2013a)

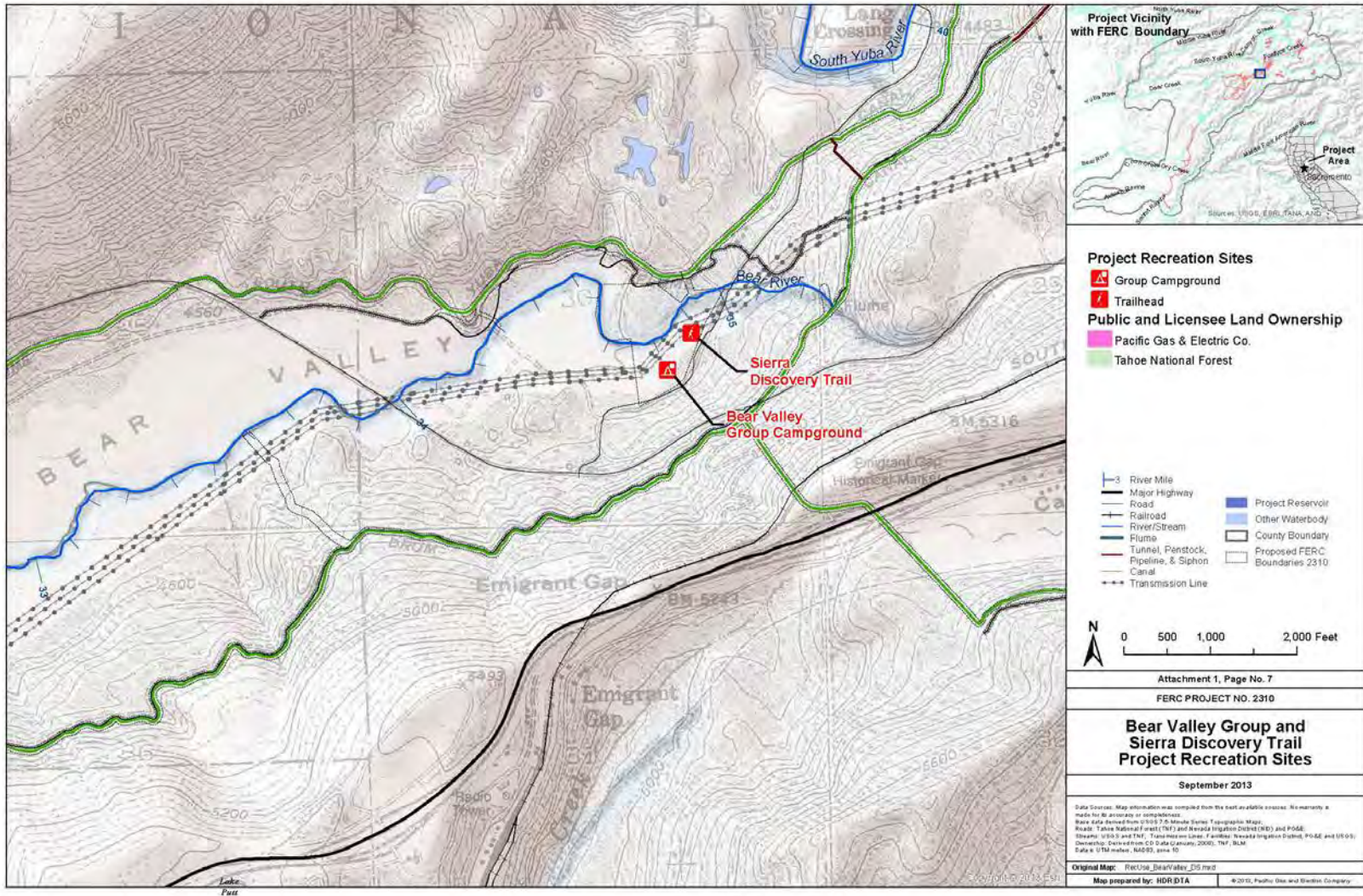


Figure C-7. Existing and proposed recreation facilities at Lake Spaulding Recreation Area, Upper Drum-Spaulding Project. (Source: PG&E, 2013a)

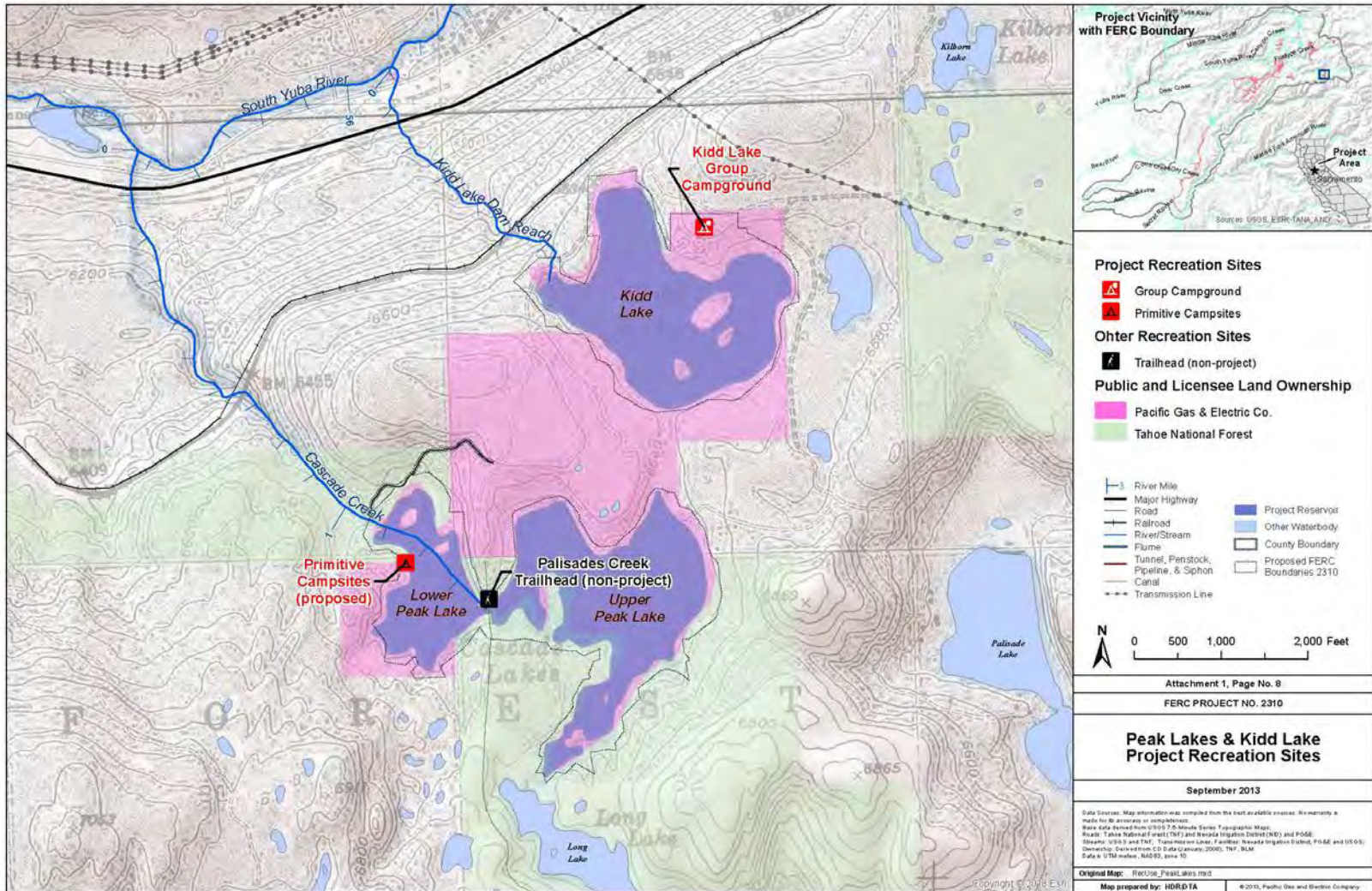


Figure C-8. Existing and proposed recreation facilities at Kidd Lake Recreation Area, Upper Drum-Spaulding Project. (Source: PG&E, 2013a)

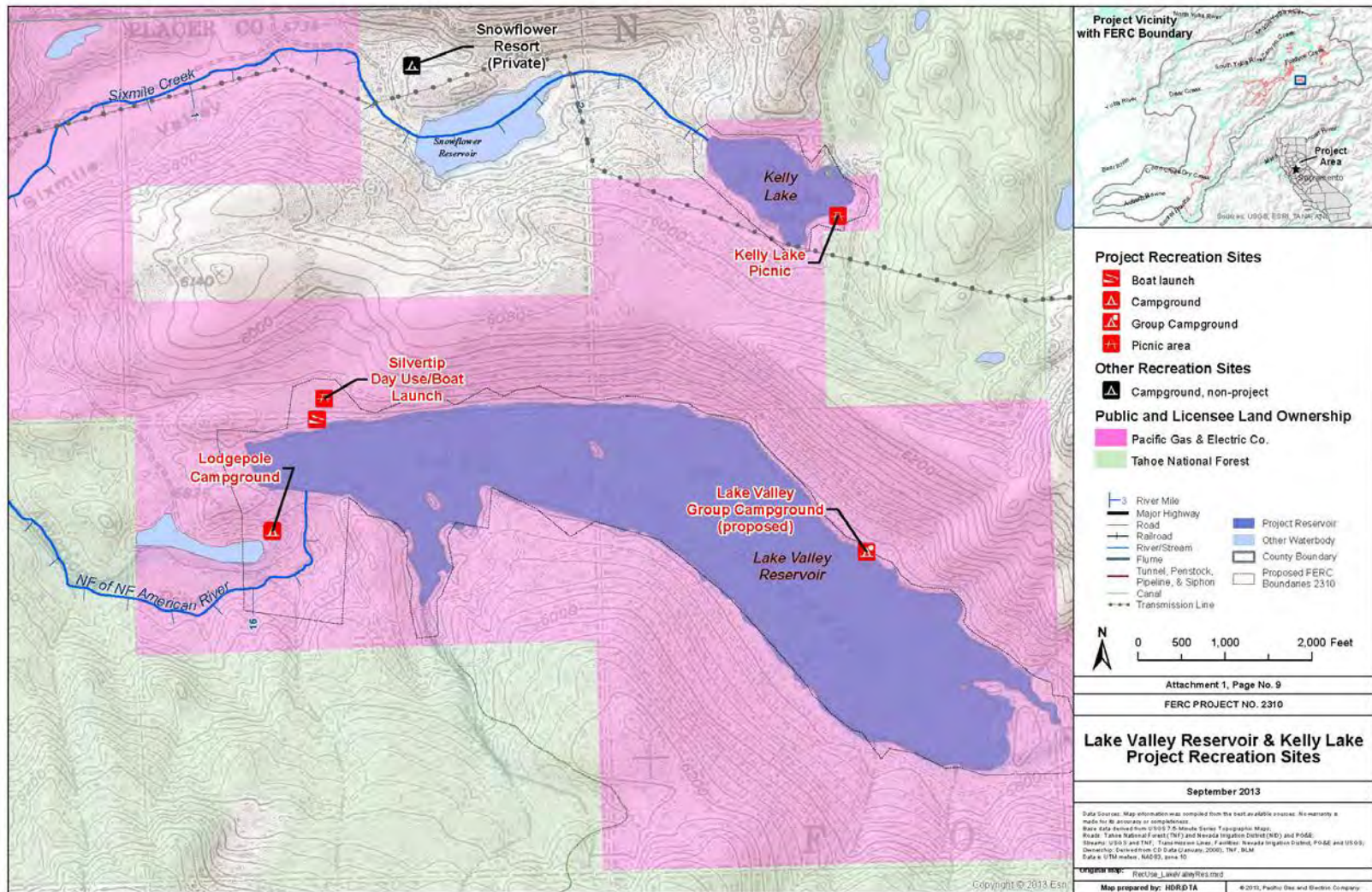


Figure C-9. Existing and proposed recreation facilities at Lake Valley Recreation Area, Upper Drum-Spaulding Project. (Source: PG&E, 2013a)

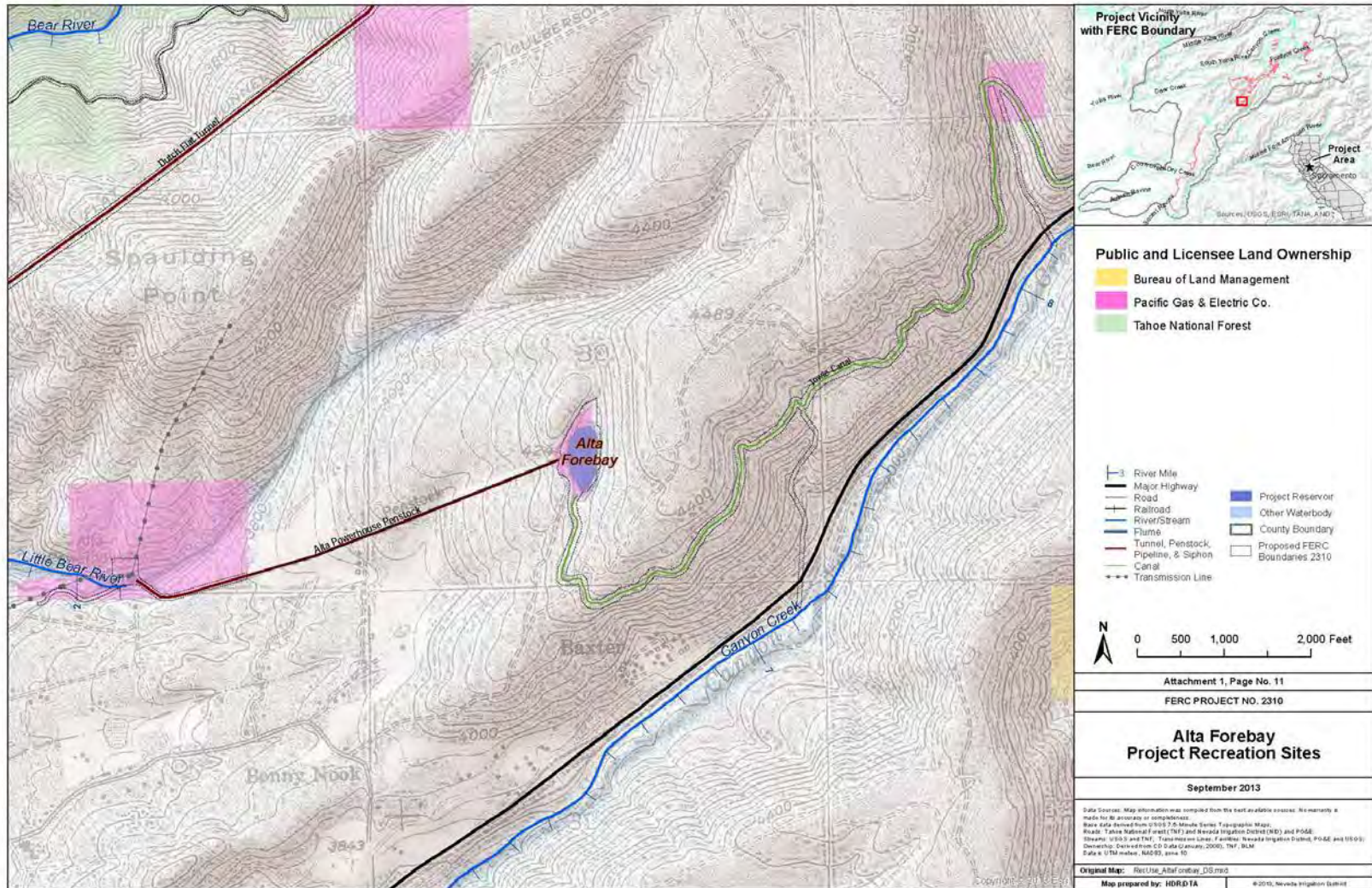


Figure C-10. Existing and proposed recreation facilities at Alta-Drum Recreation Area, Upper Drum-Spaulding Project. (Source: PG&E, 2013a)

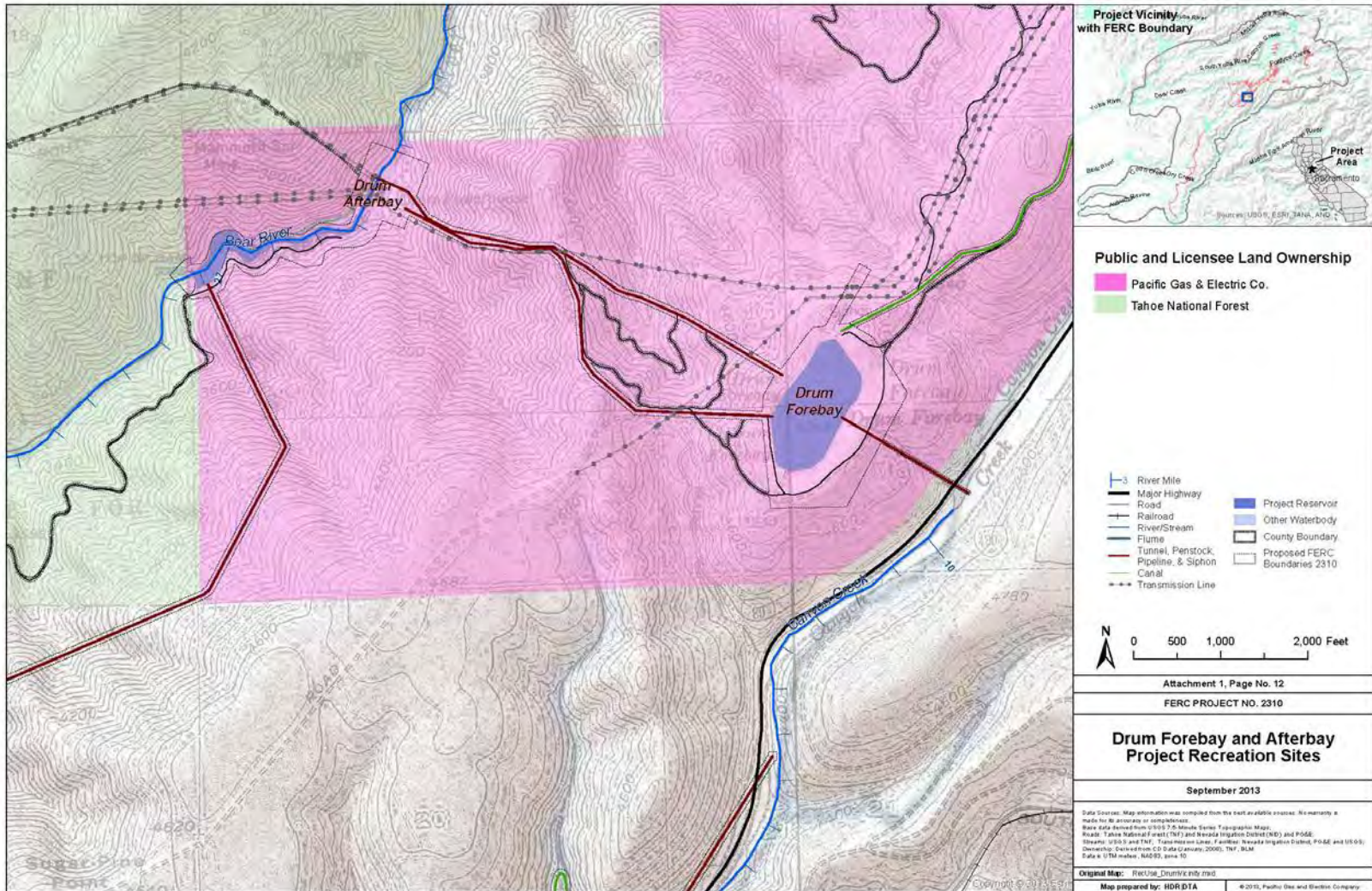


Figure C-11. Existing and proposed recreation facilities at Alta-Drum Recreation Area, Upper Drum-Spaulding Project. (Source: PG&E, 2013a)

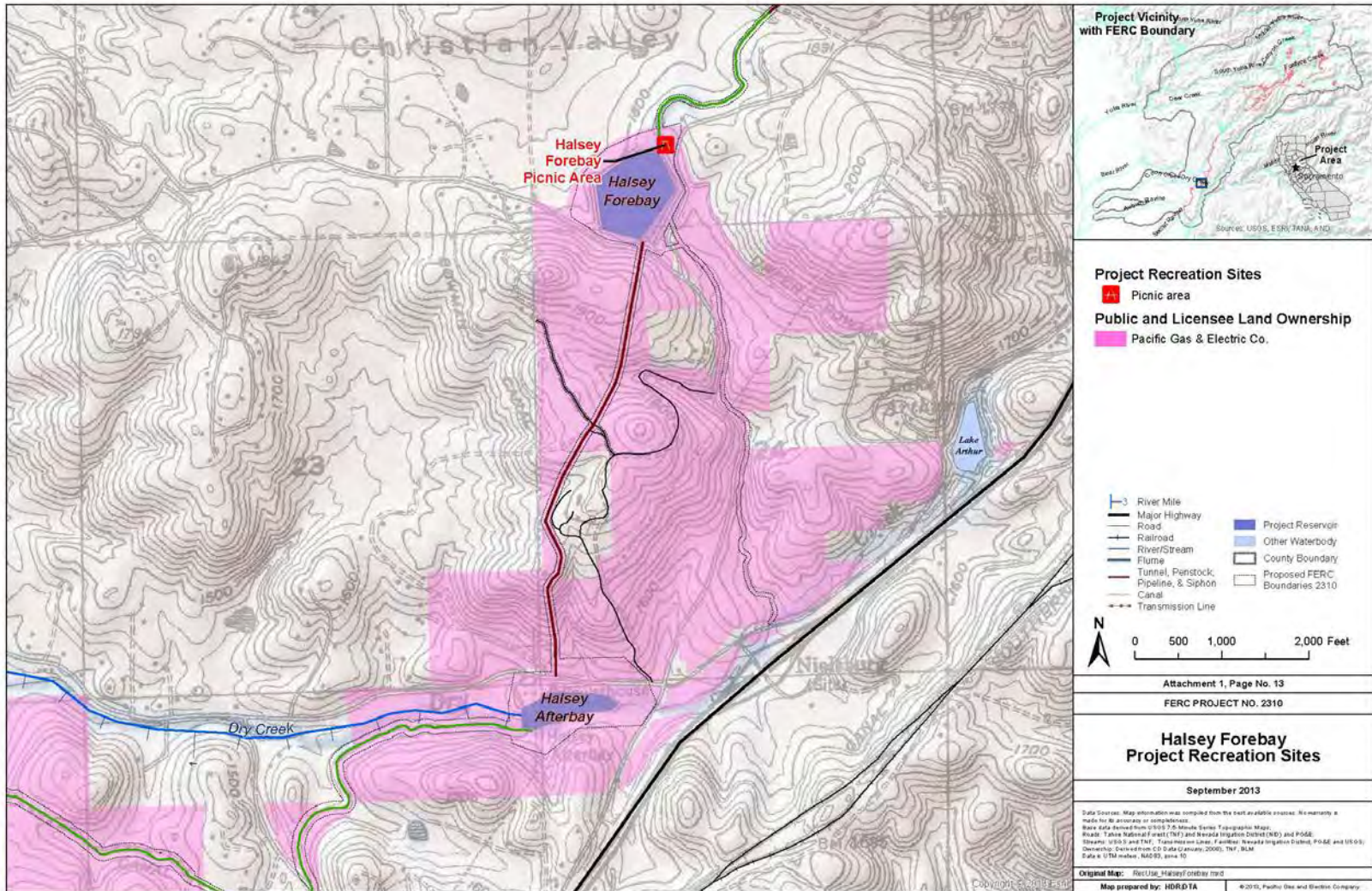


Figure C-12. Existing and proposed recreation facilities at Alta-Drum and Halsey Forebay Recreation Areas, Lower Drum Project. (Source: PG&E, 2013a)

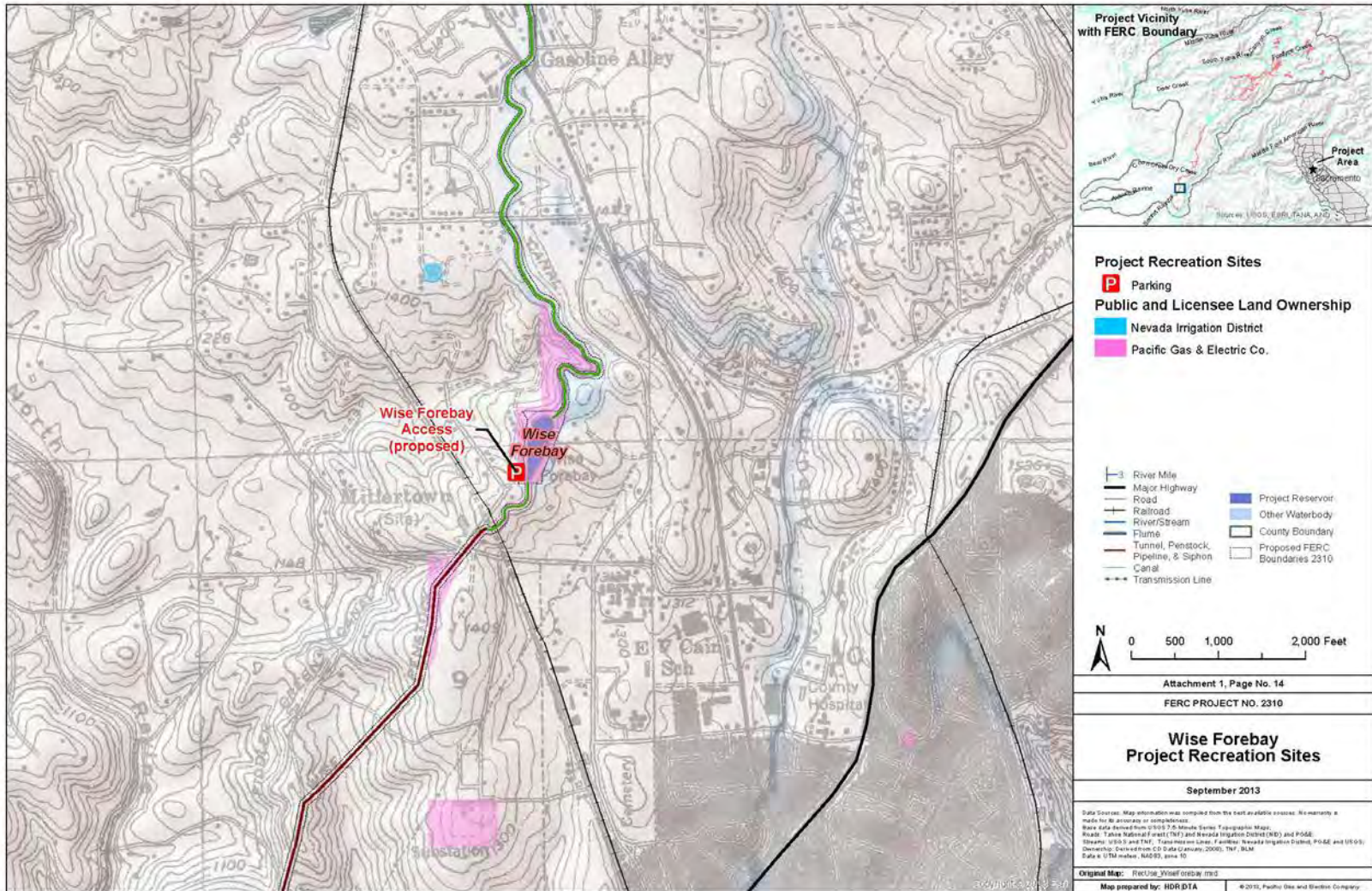


Figure C-13. Existing and proposed recreation facilities at Alta-Drum Recreation Area, Lower Drum Project. (Source: PG&E, 2013a)

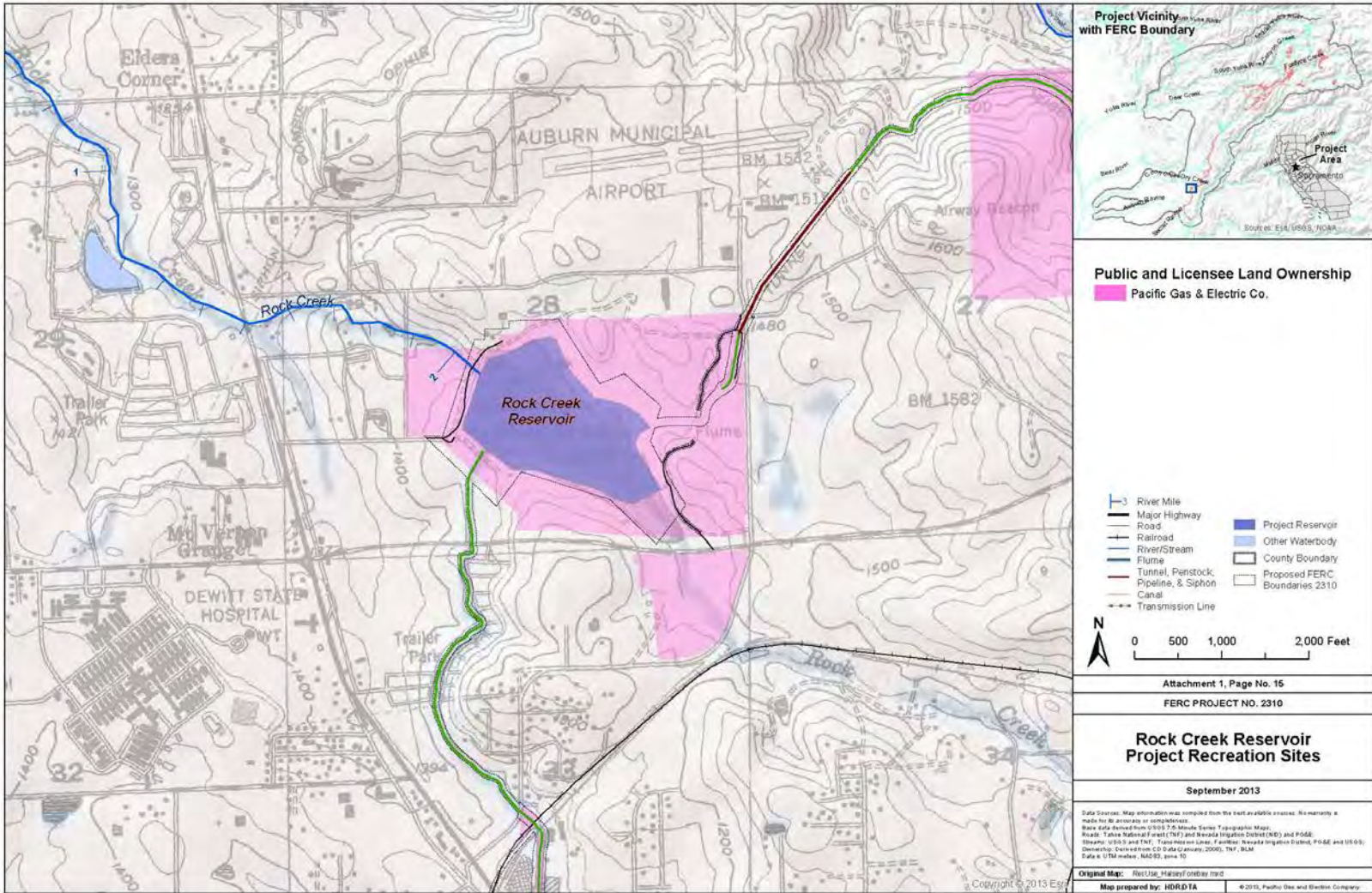


Figure C-14. Existing and proposed recreation facilities at Rock Creek Recreation Area, Lower Drum Project. (Source: PG&E, 2013a)

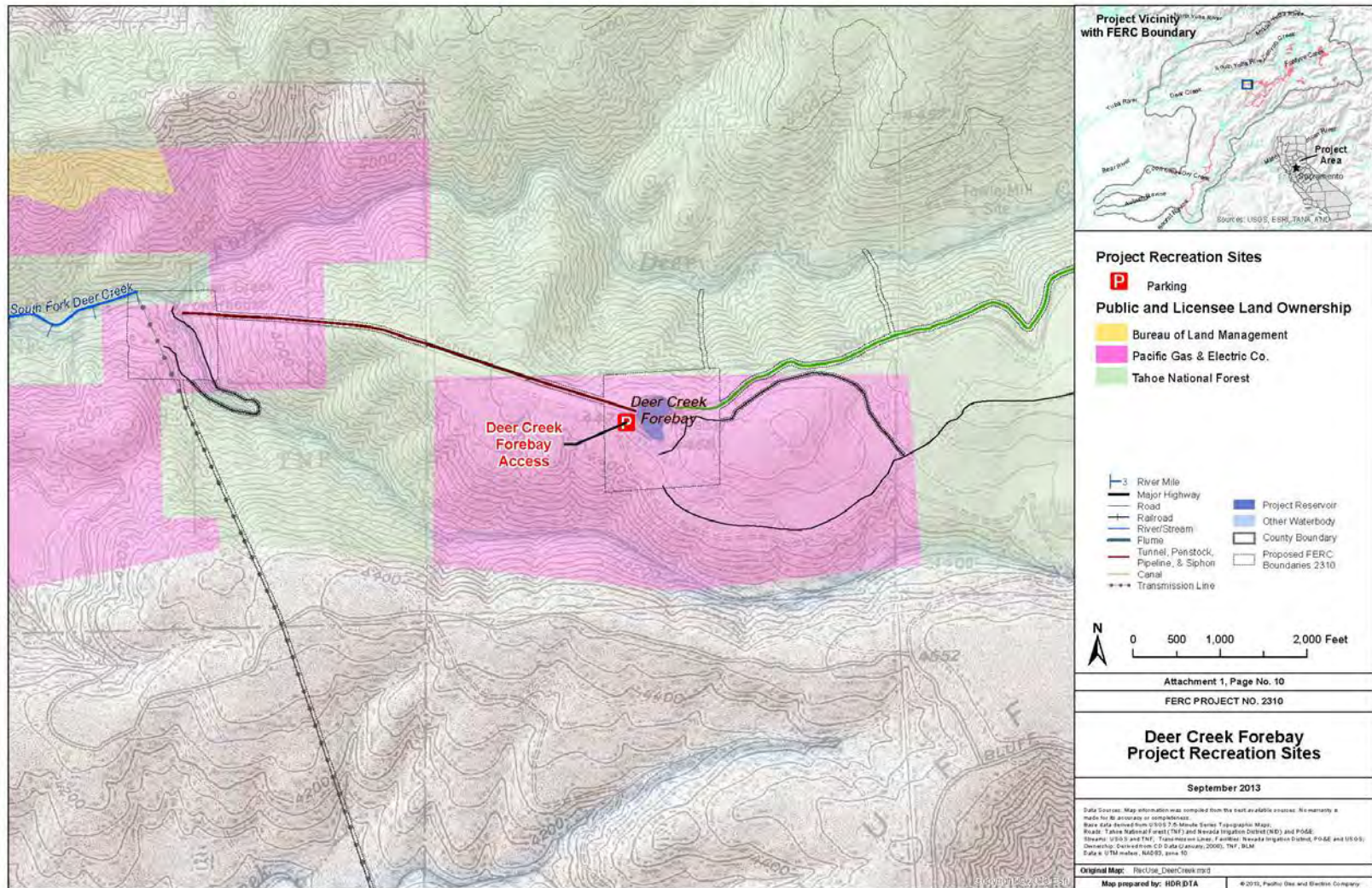


Figure C-15. Existing and proposed recreation facilities at Alta-Drum Recreation Area, Deer Creek Project. (Source: PG&E, 2013a)

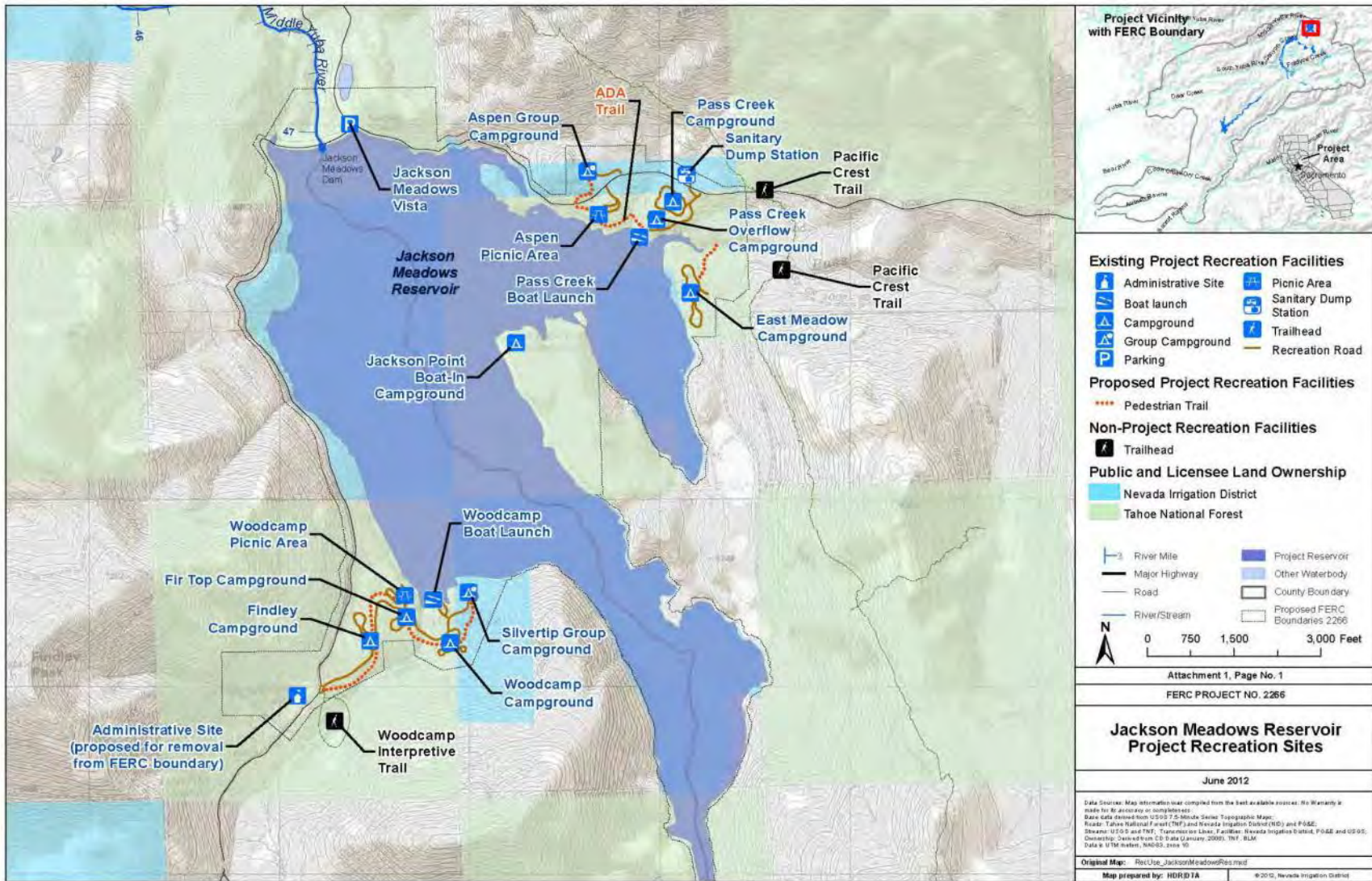


Figure C-16. Existing and proposed recreation facilities at Jackson Meadows Recreation Area, Yuba-Bear Project. (Source: NID, 2012a)

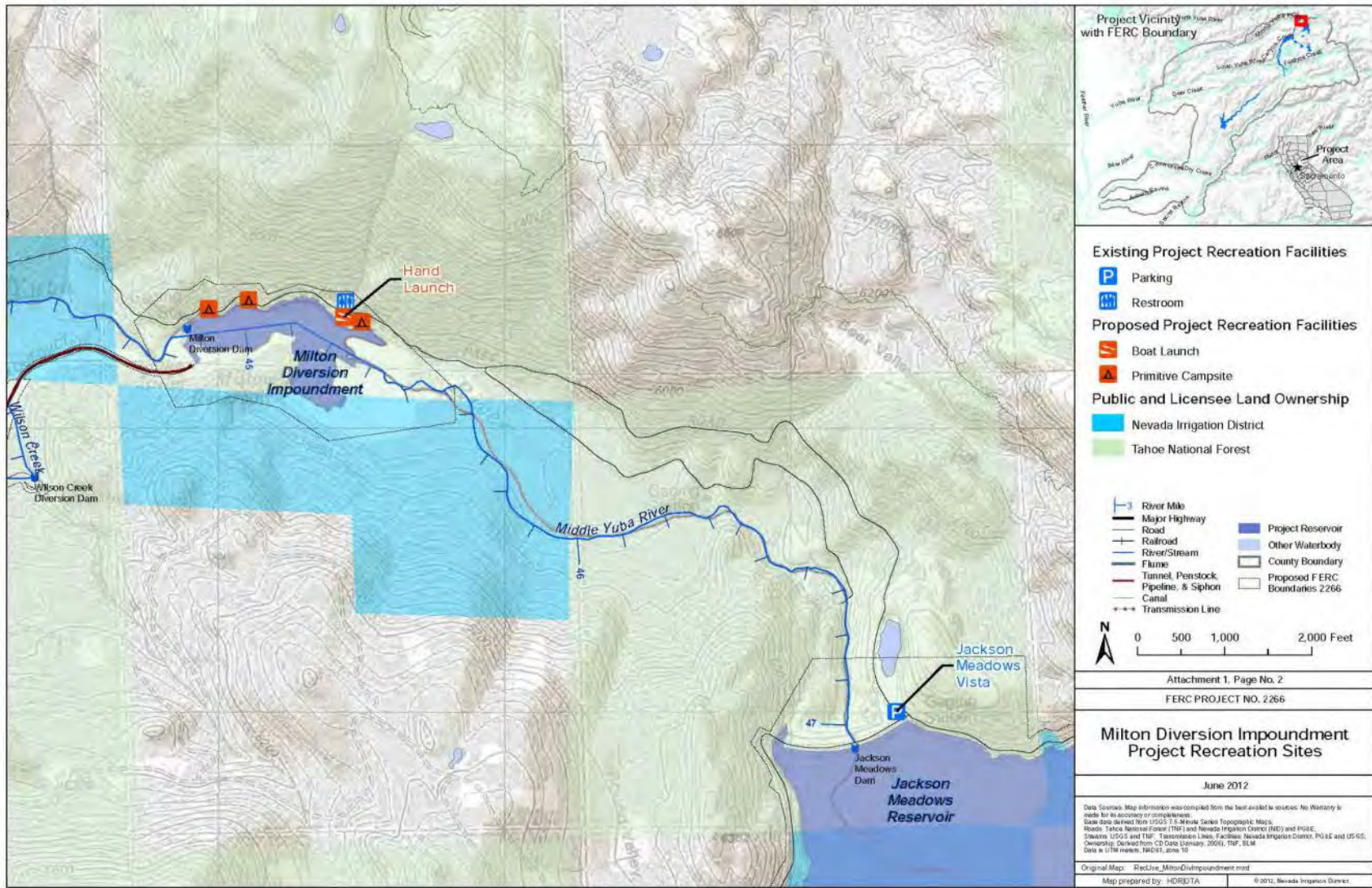


Figure C-17. Existing and proposed recreation facilities at Jackson Meadows Recreation Area, Yuba-Bear Project. (Source: NID, 2012a)

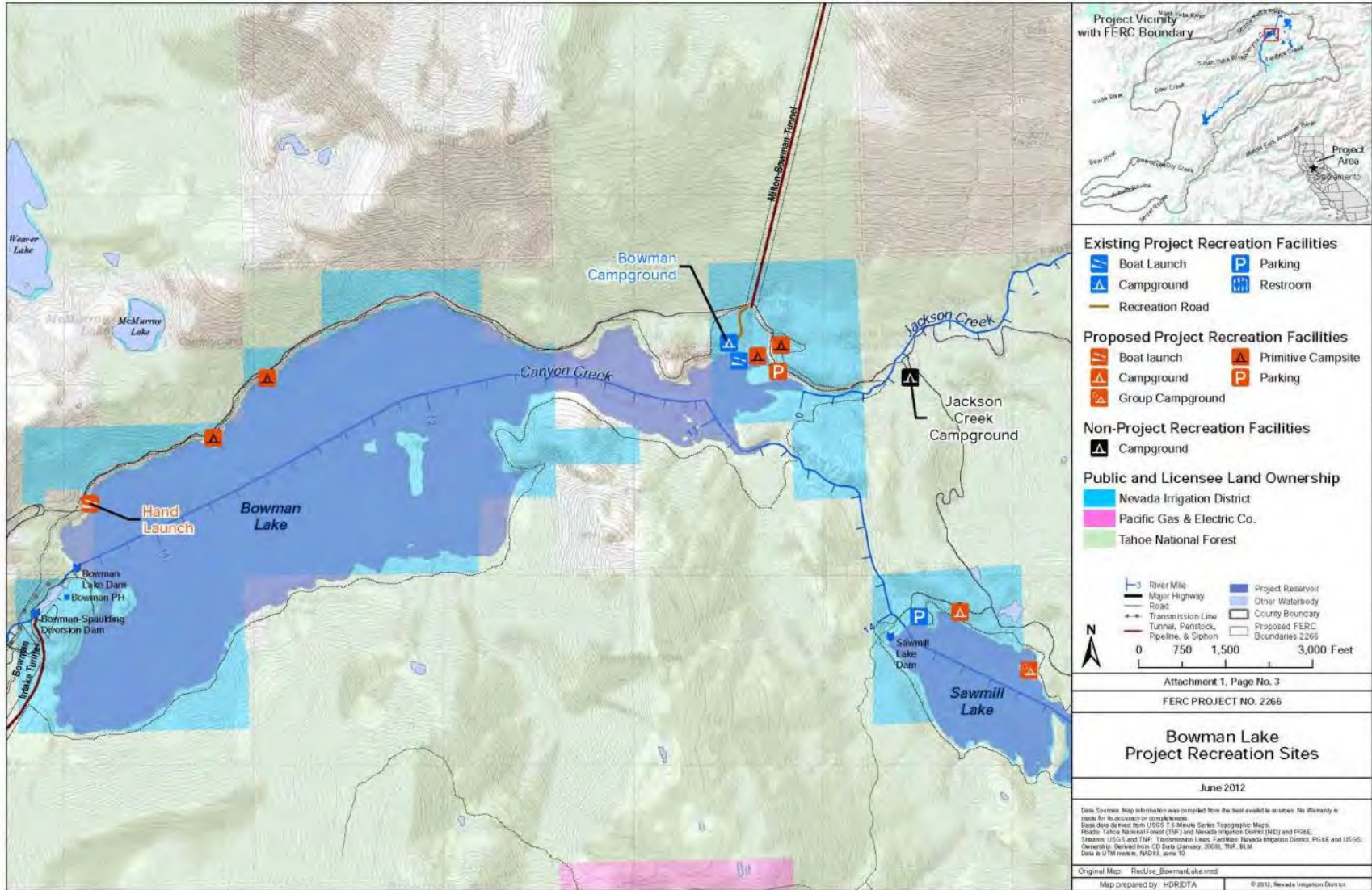


Figure C-18. Existing and proposed recreation facilities at Bowman Lake Recreation Area, Yuba-Bear Project. (Source: NID, 2012a)

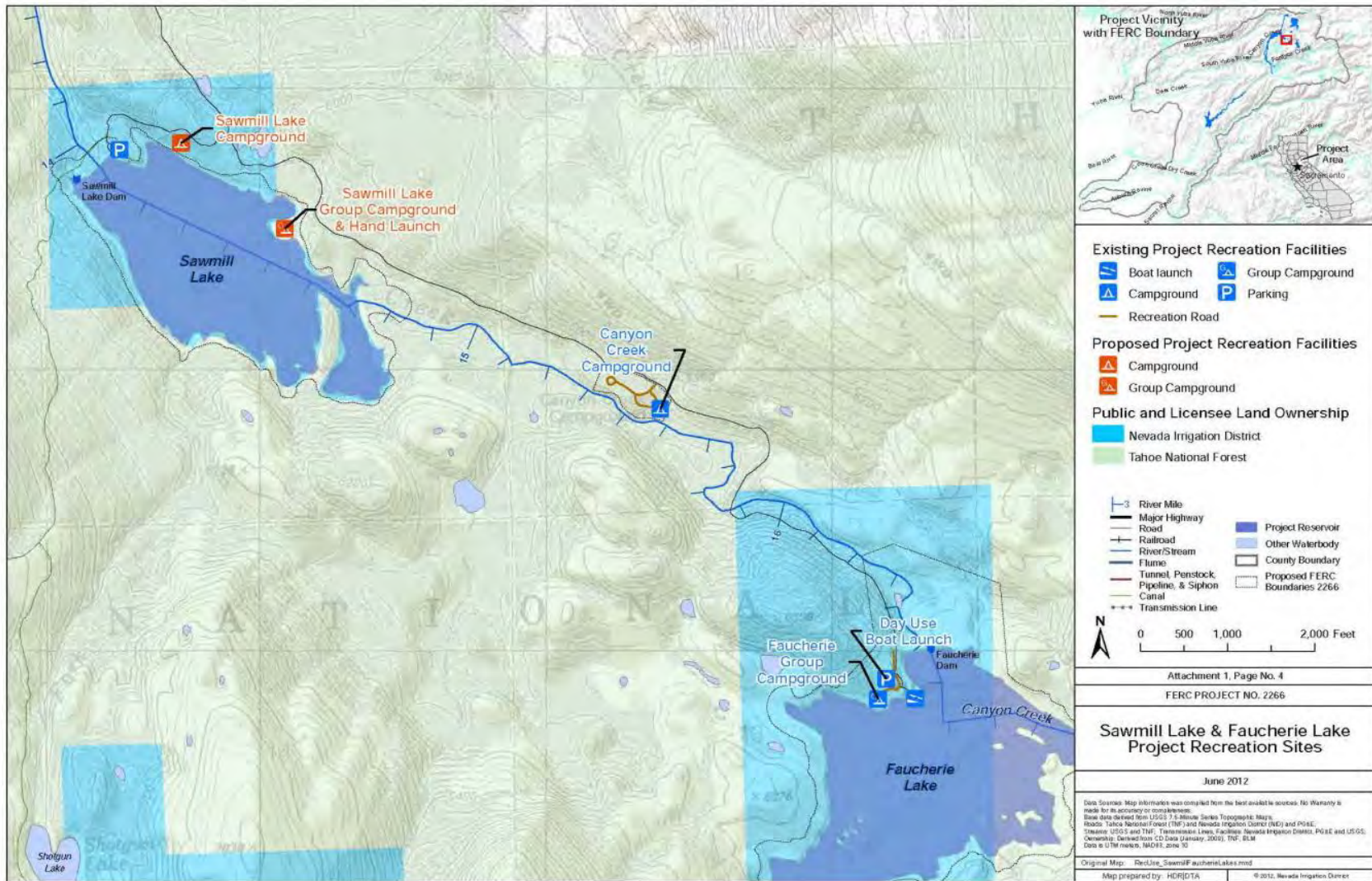


Figure C-19. Existing and proposed recreation facilities at Bowman Lake Recreation Area, Yuba-Bear Project. (Source: NID, 2012a)

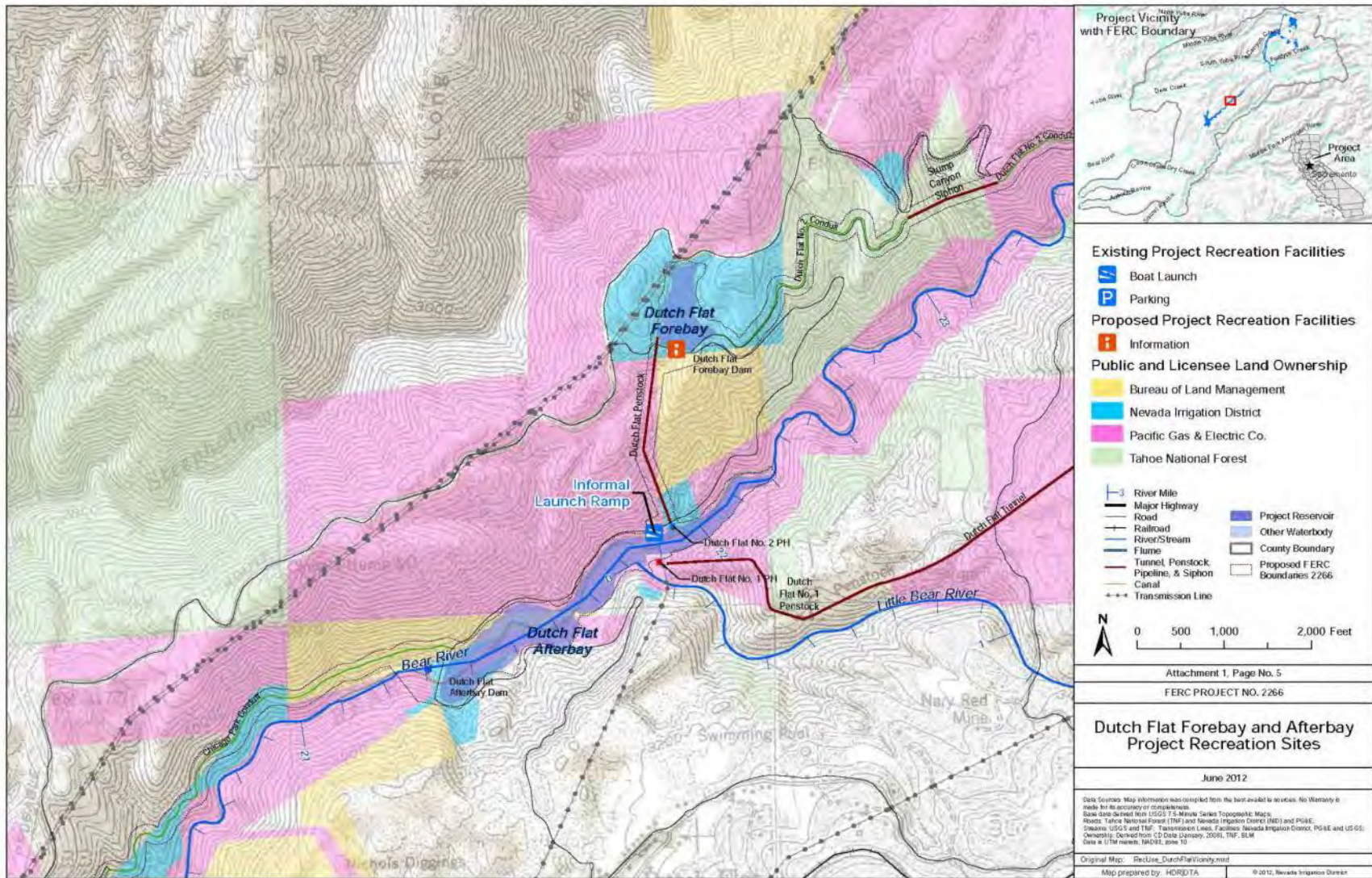


Figure C-20. Existing and proposed recreation facilities at Dutch Flat Recreation Area, Yuba-Bear Project. (Source: NID, 2012a)

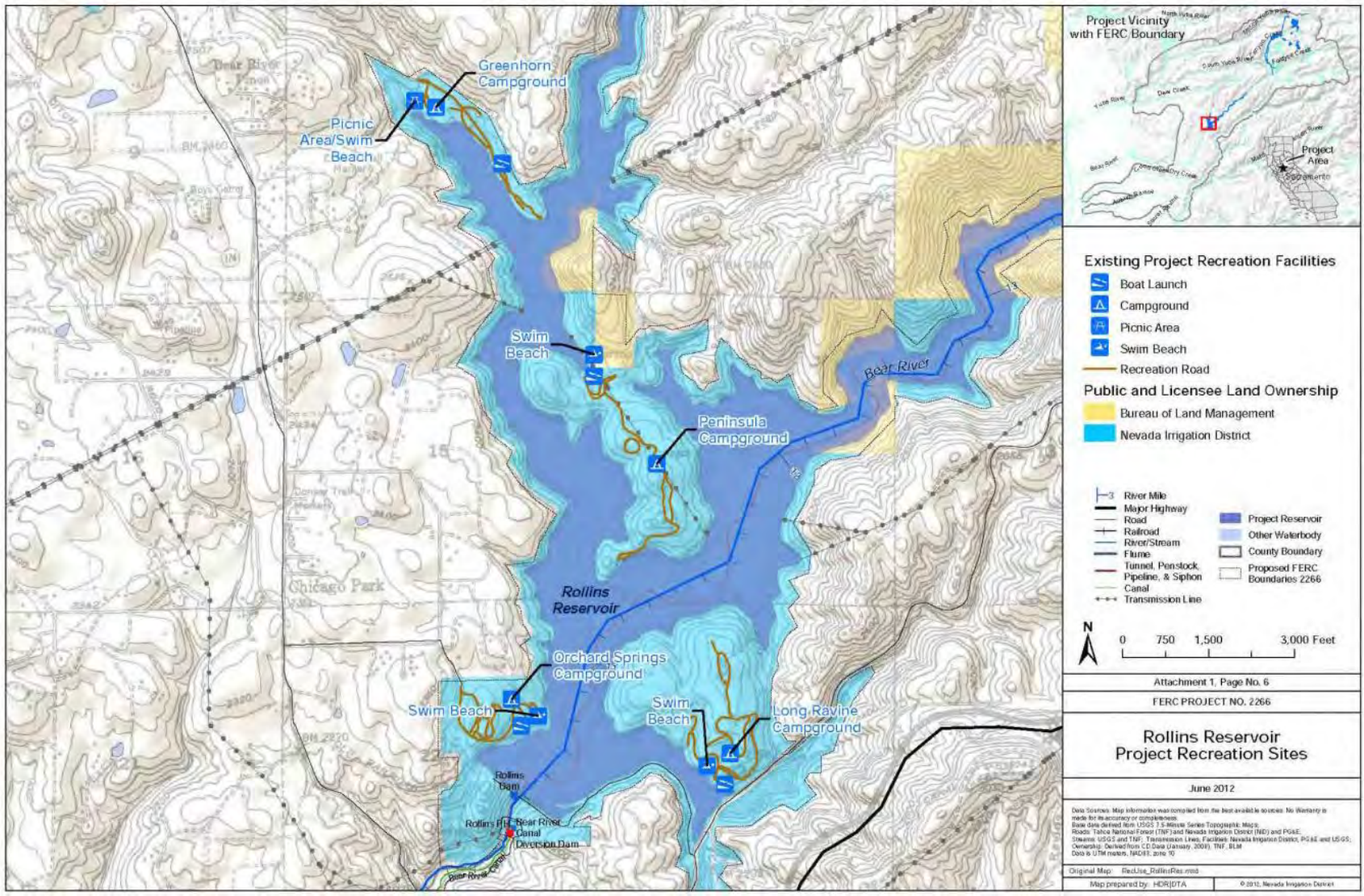


Figure C-21. Existing and proposed recreation facilities at Rollins Reservoir Recreation Area, Yuba-Bear Project. (Source: NID, 2012a)

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Appendix D

Capital and Annual Costs of Measures for the Upper Drum-Spaulding, Lower Drum, and Deer Creek Projects

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Appendix D-1

Capital and Annual Costs of Measures for the Upper Drum-Spaulling Project

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Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Annual Consultation with Forest Service and BLM	PG&E (DS-GEN1); Forest Service (4e #1); BLM (4e #23); Reclamation (4e #b.1); California Fish and Wildlife (10j #1)	Adopt	\$0	\$0	\$24,000	\$0	\$24,000	
Consultation Group Specific to the Upper Drum-Spaulding Project Supplemental Flow and Water Temperature Management	Forest Service (4e #2); BLM (4e #24)	Adopt	\$85,000	\$16,000	\$45,000		\$61,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Annual Employee Training	PG&E (DS-GEN2); Forest Service (4e #25); BLM (4e #1); California Fish and Wildlife (10j #1.1)	Adopt	\$0	\$0	\$48,000	\$0	\$48,000	
Develop and Implement Coordinated Operations Plan for the Upper Drum-Spaulding Project and the Yuba-Bear Hydroelectric Project	PG&E (DS-GEN3); Forest Service (4e #25); BLM (4e #2); California Fish and Wildlife (10j #1.2)	Adopt	\$48,000	\$9,000	\$8,000	\$0	\$17,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Implement Erosion and Sediment Control and Management Plan; Canal Release Point Plan	PG&E (no measure #); Forest Service (4e #49 and #50; BLM (4e #19 and #50); California Fish and Wildlife (10j #22 and #27)	Adopt	\$750,000	\$143,000	\$6,000	\$0	\$149,000	
Watershed Restoration Plan	California Fish and Wildlife (10j #28)	Adopt	\$0	\$0	\$0	\$0	\$0	Cost included under Erosion and Sediment Control and management and Canal Release Point plans above.

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Water Year Types	PG&E (DS-AQR1); Forest Service (4e #26); California Fish and Wildlife (10j #2.1)	Adopt	\$0	\$0	\$8,000	\$0	\$8,000	
Minimum Streamflows for 6 Project-Affected Stream Reaches	PG&E (DS-AQR1); Forest Service (4e #27); California Fish and Wildlife (10j #2.2)	Adopt	\$14,350,000	\$2,731,000	\$47,000	\$0	\$2,778,000	
Minimum streamflows below Bowman Lake and Lake Spaulding for temperature management	NMFS (10j #4.1)	Do not adopt	\$0	\$0	\$0	\$0	\$0	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Minimum streamflows below Bowman Lake and Lake Spaulding for Central Valley Steelhead in the absence of Chinook salmon reintroduction	NMFS (10j #6.1)	Do not adopt	\$0	\$0	\$0	\$0	\$0	
Flow Setting for Minimum Streamflows in 16 Remote Project-Affected Stream Reaches	PG&E (DS-AQR1); Forest Service (4e #28); California Fish and Wildlife (10j #2.4)	Adopt	\$10,000	\$2,000	\$300,000	\$0	\$302,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Canal Outages that Affect Minimum Streamflows— Coordination and Planning	PG&E (DS-AQR1); Forest Service (4e #29); BLM (4e #4); California Fish and Wildlife (10j #2.5)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	
Fordyce Lake Drawdown	PG&E (DS-AQR1); Forest Service (4e #30); California Fish and Wildlife (10j #2.6)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Flow Releases to the Bear River below Drum Canal at YB-137	PG&E (DS-AQR1); Forest Service (10a #6); California Fish and Wildlife (10j #2.7)	Adopt	\$50,000	\$10,000	\$5,000	\$0	\$15,000	
Spill Cessation and Minimization of Flow Fluctuations at the South Yuba River below Lake Spaulding	PG&E (DS-AQR1); Forest Service (4e #31); California Fish and Wildlife (10j #2.8)	Adopt	\$250,000	\$48,000	\$5,000	\$0	\$53,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Implement Canals Outages Fish Rescue Plan	PG&E (DS-AQR2); Forest Service (4e #33); BLM (4e #5); California Fish and Wildlife (10j #3)	Adopt	\$12,000	\$2,000	\$12,000	\$0	\$314,000	
Fish Stocking in Lake Spaulding	PG&E (DS-AQR3)	Do not adopt	\$0	\$0	\$15,000	\$0	\$15,000	
Reservoir fish stocking/Fish Stocking Plan	Forest Service (10a #8); California Fish and Wildlife (10j #17)	Adopt with modification	\$10,000	\$2,000	\$66,000 annually; every other year for first 6 years after license issuance cost is estimated at \$66,000 + \$30,000 (\$96,000)	\$0	\$71,000	66,000 annually; every other year for first 6 years after license issuance; cost is estimated at \$66,000 + \$30,000 (\$96,000)

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Streamflow Measurement , Implement Gaging Plan	PG&E (DS-AQR4); Forest Service (4e #34); BLM (4e #9); California Fish and Wildlife (10j #4)	Adopt	\$650,000	\$124,000	\$130,000	\$0	\$254,000	
Install additional streamflow and temperature gaging instruments in the South Yuba River at the confluence of Poorman Creek	NMFS (10j #4.1)	Do not adopt	\$0	\$0	\$0	\$0	\$0	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Supplemental Flows for Water Temperature Management in the South Yuba River	PG&E (no measure #); Forest Service (4e #32)	Adopt	\$360,000	\$69,000	\$80,000	\$0	\$149,000	Water temperature monitoring and logging included in Water Temperature and Stage Monitoring Plan
Block Flows for Water Temperature Management in the South Yuba River	California Fish and Wildlife (10j #2.9)	Do not adopt	\$0	\$0	\$0	\$0	\$0	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Ecological Group	California Fish and Wildlife (10j #2.10)	Adopt with modification	\$0	\$0	\$0	\$0	\$0	PG&E and Forest Service proposed alternative Consultation Group Specific to the South Yuba River Supplemental Flow and water temperature management and evaluation
Aquatic Invasive Species Management and Monitoring Plan	PG&E (no measure #); Forest Service (4e #37); California Fish and Wildlife (10j #6)	Adopt	\$20,000	\$4,000	\$13,000	\$0	\$17,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Fish Population Monitoring Plan	PG&E (no measure #); Forest Service (4e #51)	Adopt	\$540,000	\$103,000	\$170,000	\$0	\$273,000	
Foothill Yellow-Legged Frog Monitoring Plan	PG&E (no measure #); Forest Service (4e #51)	Adopt	\$35,000	\$7,000	\$55,000	\$0	\$62,000	
Channel Morphology Monitoring Plan	PG&E (no measure #); Forest Service (4e #51)	Adopt	\$35,000	\$7,000	\$35,000	\$0	\$42,000	
Water Temperature and Stage Monitoring Plan	PG&E (no measure #); Forest Service (4e #51)	Adopt	\$150,000	\$28,000	\$47,000	\$0	\$76,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Western Pond Turtle Incidental Observation Monitoring	PG&E (no measure #); Forest Service (4e #51)	Adopt	\$0	\$0	\$2,000	\$0	\$2,000	
Riparian Vegetation	PG&E (no measure #); Forest Service (4e #51)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	
Sensitive Raptor Monitoring	PG&E (no measure #); Forest Service (4e #51)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	
Aquatic Benthic Macroinvertebrates Monitoring Plan	Forest Service (4e #51)	Adopt	\$100,000	\$19,000	\$20,000	\$0	\$39,000	
Monitoring Program for all Project-Affected Resources	California Fish and Wildlife (10j #8)	Do not adopt	\$1,130,000	\$215,000	\$740,000	\$0	\$955,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Large Woody Debris Management Plan	PG&E (no measure #); Forest Service (4e #52); California Fish and Wildlife (10j #9)	Adopt	\$40,000	\$8,000	\$50,000	\$0	\$58,000	
Large Woody Debris Management Plan	NMFS (10j #4.2.1 and 4.2.2)	Do not adopt						
Coarse Substrate Management Plan	NMFS (10j #4.3)	Do not adopt	\$0	\$0	\$0	\$0	\$0	
Adaptive Management Plan	NMFS (10j #4.4)	Do not adopt	\$0	\$0	\$0	\$0	\$0	
Annual Review of Ecological Conditions	California Fish and Wildlife (10j #10)	Adopt with modification	\$0	\$0	\$15,000	\$0	\$15,000	Include as part of annual consultation meeting

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Penstock and Other Drainage Structure Emergency and Maintenance Release Points	California Fish and Wildlife (10j #11)	Adopt with modification	\$150,000	\$29,000	\$22,000	\$0	\$51,000	Adopt Canal Release Point Plan filed by Forest Service
Integrated Vegetation Management Plan	PG&E (no measure #); Forest Service (4e #38); BLM (4e #17); California Fish and Wildlife (10j #7.1)	Adopt	\$260,000	\$48,000	\$36,000	\$0	\$84,000	Consult with tribes and add culturally significant species and apply to all project lands
Monitor Animal Losses in Project Canals	PG&E (no measure #); Forest Service (4e #39); BLM (4e #12); California Fish and Wildlife (10j #7.2)	Adopt	\$0	\$0	\$10,000	\$0	\$10,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Consult with California Fish and Wildlife When Replacing Wildlife Escape and Wildlife Crossing Facilities	PG&E (no measure #); Forest Service (4e #40); BLM (4e #11); California Fish and Wildlife (10j #7.5)	Adopt	\$0	\$0	\$4,000	\$0	\$4,000	
Wildlife Crossings (Drum and South Yuba Canals) (Staff)	PG&E (no measure #); Forest Service (4e #41); California Fish and Wildlife (10j #7.3)	Adopt	\$750,000	\$143,000	\$50,000	\$0	\$193,000	Develop Wildlife Crossing Plan

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Bear River Management through Bear Valley (Bear River Flow Management, including Drum Canal Operations)	PG&E (DS-TR4A, DS-TR4B); Forest Service (4e #50 and 10a #7); California Fish and Wildlife (10j #7.6)	Adopt	\$1,550,000	\$295,000	\$70,000	\$0	\$365,000	
Bald Eagle Management Plan	PG&E (DS-TR5); Forest Service (4e #43); BLM (4e #16); California Fish and Wildlife (10j #7.7)	Adopt	\$0	\$0	\$10,000	\$0	\$10,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spauling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Special Status Species	Forest Service (4e 44); BLM (4e #13); California Fish and Wildlife (10j #7.8 and #12)	Do not adopt	\$0	\$0	\$0	\$0	\$0	
Annual Review of Special Status Species	Forest Service (4e #45); BLM (4e #14); California Fish and Wildlife (10j #7.9)	Adopt	\$0	\$0	\$0	\$0	\$0	
Pesticide Use Restrictions	Forest Service (4e #); BLM (4e #37); California Fish and Wildlife (10j #16)	Adopt	\$0	\$0	\$0	\$0	\$0	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Raptor Safe Project Powerlines	PG&E (no measure #); Forest Service (4e #46); BLM (4e #15); California Fish and Wildlife (10j #7.10)	Adopt	\$0	\$0	\$66,000	\$0	\$66,000	
Raptor Collision incidental observation monitoring	PG&E (no measure #); Forest Service (4e #47); BLM (4e #15); California Fish and Wildlife (10j #7.11)	Adopt	\$10,000	\$2,000	\$7,000	\$0	\$9,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Bat Management	PG&E (12/20/13); Forest Service (4e #48); California Fish and Wildlife (10j #7.12)	Adopt	\$5,000	\$1,000	\$3,000	\$0	\$4,000	
Eradicate Bullfrogs	FWS (10a #2)	Do not adopt	\$0	\$0	\$0	\$0	\$0	
Wildlife Protection	FWS (10a #3)	Do not adopt	\$0	\$0	\$0	\$0	\$0	
Protect and Maintain Natural Ecosystem Processes	FWS (10a #5)	Do not adopt	\$0	\$0	\$0	\$0	\$0	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: White Rock Lake Primitive Campsites	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$30,000	\$6,000	\$20,000	\$0	\$26,000	
Recreation Plan: Meadow Campground	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$156,000	\$30,000	\$34,000	\$0	\$64,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Meadow Lake Shoreline Campsites	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$115,000	\$22,000	\$24,000	\$0	\$46,000	
Recreation Plan: Meadow Knoll Group Campground	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$10,000	\$2,000	\$29,000	\$0	\$31,000	
Recreation Plan: Meadow Lake Day-Use Area (proposed) ¹	PG&E (no measure #)	Adopt	\$45,000	\$9,000	\$22,000	\$0	\$31,000	

¹ Cost estimates provided by PG&E and no recommendation or improvements were provided in the Recreation Plan

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spauling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Meadow Lake Directional and Informational Signage and Undeveloped Boat Ramps	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$55,000	\$10,000	\$27,000	\$0	\$37,000	
Recreation Plan: Lake Sterling Campground Conversion	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$150,000	\$29,000	\$29,000	\$0	\$58,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Lake Sterling Primitive Campsites	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$4,000	\$1,000	\$25,000	\$0	\$26,000	
Recreation Plan: Lake Sterling Dam Railing ²	PG&E (no measure #); Forest Service (4e #53)	Adopt	\$270,000	\$51,000	\$1,000	\$0	\$52,000	

² Cost estimates provided by PG&E and no recommendation or improvements were provided in the Recreation Plan

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Fordyce Lake Primitive Campground (proposed)	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$95,000	\$18,000	\$23,000	\$0	\$41,000	
Recreation Plan: Fordyce Lake OHV Signage	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$5,000	\$1,000	\$2,500	\$0	\$3,500	
Recreation Plan: Lake Spaulding Campground	PG&E (no measure #); Forest Service (4e #53)	Adopt	\$270,000	\$51,000	\$53,000	\$0	\$104,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Lake Spaulding Campground	California Fish and Wildlife (10j #16)	Do not adopt	\$300,000	\$57,000	\$58,000	\$0	\$115,000	
Lake Spaulding Boat-In Campground (proposed)	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$115,000	\$22,000	\$33,000	\$0	\$55,000	
Recreation Plan: Lake Spaulding Boat Launch	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$246,000	\$47,000	\$89,000	\$0	\$136,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Bear Valley Group Campground	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$31,000	\$6,000	\$49,000	\$0	\$55,000	
Recreation Plan, Bear River Corridor: Bear River Trail Project	California Fish and Wildlife (10j #16)	Do not adopt	No cost estimate provided	No cost estimate provided	No cost estimate provided	No cost estimate provided	No cost estimate provided	
Recreation Plan: Sierra Discovery Trail	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$75,000	\$14,000	\$42,000	\$0	\$56,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Fuller Lake Day Use and Boat Launch	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$311,000	\$59,000	\$40,000	\$0	\$99,000	
Recreation Plan: Fuller Lake Angler Access	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$13,000	\$2,000	\$19,000	\$0	\$21,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Rucker Lake Campground	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$38,000 ³	\$7,000	\$29,000	\$0	\$36,000	.
Recreation Plan: Rucker Lake Campground Conversion (proposed)	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$900,000	\$171,000	\$30,000	\$0	\$201,000	

³ This cost was provided by PG&E in its Amended License Application filed on June 18, 2012, and its Supplement to the Amended License Application filed on August 30, 2012; however, this cost appears to reflect PG&E's original proposal for this facility instead of the cost for the revised proposal for this facility as provided in the Revised Recreation Facilities Plan submitted on August 29, 2012.

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spauling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Blue Lake Primitive Campsites	PG&E (no measure #); Forest Service (4e #53)	Adopt	\$1,000	\$0	\$10,000	\$0	\$10,000	
Recreation Plan: Carr Lake Walk-In Campground	PG&E (no measure #); Forest Service (4e #53)	Adopt	\$158,000	\$30,000	\$16,000	\$0	\$46,000	
Recreation Plan: Carr-Feeley Trailhead	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Do not adopt	\$0	\$0	\$0	\$0	\$0	There is no cost associated with proposal to removing this trailhead from the project boundary

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Lower Lindsey Lake Campground	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$126,000	\$24,000	\$21,000	\$0	\$45,000	
Recreation Plan: Lindsey Creek Campground	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$532,000	\$101,000	\$43,000	\$0	\$144,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spauling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: M. Lindsey, Culbertson, Rock Lakes Primitive Walk-In Campsites	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$1,000	\$0	\$12,000	\$0	\$12,000	
Recreation Plan: Kidd Lake Group Campground	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$51,000	\$10,000	\$68,000	\$0	\$78,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Upper Peak Lake Shoreline Access	California Fish and Wildlife (10j #16)	Do not adopt	\$6,000	\$1,000	\$4,000 ⁴	\$0	\$5,000	
Recreation Plan: Lower Peak Lake Primitive Campsites (proposed)	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$256,000	\$49,000	\$5,000	\$0	\$54,000	

⁴ This cost was provided by PG&E in its Amended License Application filed on June 18, 2012, and its Supplement to the Amended License Application filed on August 30, 2012; however, this cost appears to reflect PG&E's original proposal for this facility instead of the cost for the revised proposal for this facility as provided in the Revised Recreation Facilities Plan submitted on August 29, 2012.

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Kelly Lake Picnic Area	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$16,000	\$3,000	\$10,000	\$0	\$13,000	
Recreation Plan: Lodgepole Campground	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$98,000	\$19,000	\$66,000	\$0	\$85,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Silvertip Day Use and Boat Launch	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$1,184,000	\$225,000	\$46,000	\$0	\$271,000	
Recreation Plan: Lake Valley Group Campground (proposed)	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$127,000	\$24,000	\$68,000	\$0	\$92,000	
Recreation Plan: Alta Forebay	PG&E (no measure #); Forest Service (4e #53)	Adopt	\$2,000	\$0	\$1,000	\$0	\$1,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spauling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Plan: Drum Forebay	PG&E (no measure #); Forest Service (4e #53)	Adopt	\$2,000	\$0	\$4,000	\$0	\$4,000	
Recreation Plan: Drum Afterbay	PG&E (no measure #)	Adopt	\$0	\$0	\$1,000	\$0	\$1,000	
Recreation Survey, Monitoring, and Future Development Triggers	California Fish and Wildlife (10j #12)	Adopt	\$0	\$0	\$0	\$0	\$0	No separate costs associated with this measure which is already included as part of the Recreation Plan, which we recommend adopting
Licensee Contact	PG&E (no measure #); Forest Service (4e #53); BLM (4e #48)	Adopt	\$0	\$0	\$8,000	\$0	\$8,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Review of Recreation Developments	California Fish and Wildlife (10j #14)	Adopt	\$0	\$0	\$0	\$0	\$0	No separate costs associated with this measure which is already included as part of the Recreation Plan, which we recommend adopting
Annual Recreation Coordination Meeting	California Fish and Wildlife (10j #15)	Adopt	\$0	\$0	\$0	\$0	\$0	No separate costs associated with this measure which is already included as part of the Recreation Plan, which we recommend adopting

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Provide Potable Water (15 service connections or 25 persons)	California Fish and Wildlife (10j #16)	Adopt	\$0	\$0	\$0	\$0	\$0	No separate costs associated with this measure which is already included as part of the Recreation Plan, which we recommend adopting; staff modification: does not include Safe Drinking Water Act or specified connections

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Food Lockers	California Fish and Wildlife (10j #16)	Adopt	\$0	\$0	\$0	\$0	\$0	No separate costs associated with this measure which is already included as part of the Recreation Plan, which we recommend adopting
Facility Plans	California Fish and Wildlife (10j #16)	Do not adopt	\$0	\$0	\$0	\$0	\$0	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Public Information and Education	California Fish and Wildlife (10j #16)	Adopt with modification	\$0	\$0	\$0	\$0	\$0	No separate costs associated with this measure which is already included as part of the Recreation Plan, which we recommend adopting; Staff modification: does not include specification for brochures
Plan addressing Costs of Managing Project-Related Recreation	California Fish and Wildlife (10j #16)	Do not adopt	\$8,000	\$1,000	\$0	\$0	\$1,000	
Recreation Operation, Maintenance, and Administration Agreement	BLM (4e #6)	Do not adopt	\$95,000	\$3,000	\$15,000	\$0	\$33,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Provide Recreation Flow Information	PG&E (DS-RR2); Forest Service (4e #54 and 10a #10)	Adopt	\$10,000	\$2,000	\$6,800	\$0	\$8,800	Staff recommended additions: include 15-minute reporting interval for those stream reaches where streamflow information is currently provided in 15-minute intervals and submittal of plan to the Commission for approval
Transportation Management Plan For Primary Project Roads (Staff)	PG&E (no measure #); Forest Service (4e #57); BLM (4e #22)	Adopt	\$2,016,000	\$384,000	\$342,000	\$0	\$726,000	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulding Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Fire Prevention and Response Plan on Federal Land	PG&E (no measure #); Forest Service (4e #58); BLM (4e #18)	Adopt	\$0	\$0	\$2,000	\$0	\$2,000	
Historic Properties Management Plan	PG&E (DS-CR-1); Forest Service (4e #56)	Adopt	\$3,792,000	\$722,000	\$48,800	\$0	\$771,000	
Visual Resource Management Plan on Federal Land	PG&E (no measure #); Forest Service (4e #55); BLM (4e #20)	Adopt	\$0	\$0	\$3,000	\$0	\$3,000	
Revise the Project Boundary	PG&E (no measure #)	Adopt	\$0	\$0	\$0	\$0	\$0	

Table D-1. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Upper Drum-Spaulling Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Hazardous Substances Plan; Hazardous materials – take reasonable precautions as to prevent contamination or pollution of Federal lands and waters	Forest Service (4e #21); BLM (4e #49); California Fish and Wildlife (10j #23)	Adopt	\$48,000	\$9,000	\$0	\$0	\$9,000	
Total Applicant's Proposal			\$30,686,000	\$5,841,000	\$2,803,000	\$5,833,000	\$8,643,000	
Staff Alternative			\$31,730,000	\$6,039,000	\$2,982,000	\$5,833,000	\$9,021,000	
Staff Alternative with 4(e) Mandatory Conditions			\$32,830,000	\$6,234,000	\$3,682,000	\$5,833,000	\$9,915,000	

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Appendix D-2

Capital and Annual Costs of Measures for the Lower Drum Project

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Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Annual Consultation with BOR	PG&E (DS-GEN1); Reclamation (4e #b.1); California Fish and Wildlife (10j #1)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	
Annual Employee Training	PG&E (DS-GEN2); California Fish and Wildlife (10j #1.1)	Adopt	\$0	\$0	\$8,000	\$0	\$8,000	
Develop and Implement Coordinated Operations Plan for the Drum-Spaulding Project, Lower Drum, Deer Creek, and the Yuba-Bear Hydroelectric Projects	PG&E (DS-GEN3); California Fish and Wildlife (10j #1.2)	Adopt	\$10,000	\$2,000	\$2,000	\$0	\$4,000	

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Implement Erosion and Sediment Control and Management; Facility Release Plan;	PG&E (no measure #); California Fish and Wildlife (10j #22 and #27)	Adopt with modifications	\$1,500,000	\$286,000	\$13,000	\$0	\$299,000	
Watershed Restoration Plan	California Fish and Wildlife (10j #28)	Adopt						Cost included under Erosion and Sediment Control and Management and Canal Release Point Plans
Water Year Types	PG&E (DS-AQR1); California Fish and Wildlife (10j #2.1)	Adopt	\$0	\$0	\$2,000	\$0	\$2,000	

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Minimum Streamflows	PG&E (DS-AQR1); California Fish and Wildlife (10j #2.2)	Adopt	\$1,000,000	\$190,000	\$3,000	\$0	\$193,000	
Minimum Streamflows in Auburn Ravine, Rock Creek, and Dry Creek	NMFS (10j #7.1)	Do not adopt						
Canal Outages	PG&E (DS-AQR1); California Fish and Wildlife (10j #2.5)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	
Implement Fish Protection and Management During Canal Outages Fish Rescue Plan	PG&E (DS-AQR2); California Fish and Wildlife (10j #3)	Adopt	\$25,000	\$5,000	\$25,000	\$0	\$30,000	

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Reservoir fish stocking/Fish Stocking Plan	Forest Service (10a #8); California Fish and Wildlife (10j #17)	Adopt with modification	\$10,000	\$2,000	\$21,000	\$0	\$23,000	Staff modification: develop a fish stocking plan that includes annual stocking in Halsey forebay and would also include provisions for stocking fish in additional project reservoirs based on changes in recreational use and angling pressure over the term of the new license.

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Streamflow Measurement (Gage Modifications and Additions)/Gaging Plan	PG&E (DS-AQR4); Forest Service (4e #34); California Fish and Wildlife (10j #4)	Adopt	\$170,000	\$32,000	\$0	\$0	\$32,000	Cost of California Fish and Wildlife measure included in Gaging Plan
Coordination of the Drum-Spaulding Project and the Yuba-Bear Hydroelectric Project Operations Regarding the Yuba-Bear Hydroelectric Project's Minimum Streamflows in the Bear River Below Rollins Reservoir at NID's YB-196 gage (USGS 11422500)	PG&E (DS-AQR6)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Lower Drum Project Compliance with Minimum Streamflows in the Bear River Below Rollins Reservoir at NID's YB-196 gage (USGS 11422500)	California Fish and Wildlife (10j #2.3)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	
Aquatic Invasive Species Management and Monitoring Plan	PG&E (no measure #); California Fish and Wildlife (10j #6)	Adopt	\$5,000	\$1,000	\$2,000	\$0	\$3,000	
Fish Population Monitoring Plan	PG&E (no measure #)	Adopt	\$25,000	\$5,000	\$18,000	\$0	\$23,000	
Western Pond Turtle Incidental Observations Monitoring	PG&E (no measure #)	Adopt	\$0	\$0	\$1,000	\$0	\$1,000	
Riparian Vegetation Monitoring Plan	PG&E (no measure #)	Adopt	\$0	\$0	\$2,500	\$0	\$2,500	

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Aquatic Benthic Macroinvertebrates Monitoring Plan (PG&E)	PG&E (no measure #)	Adopt	\$2,500	\$0	\$7,500	\$0	\$7,500	
Water Temperature and Stage Monitoring Plan	PG&E (no measure #)	Adopt	\$2,500	\$0	\$7,500	\$0	\$7,500	2 years only
Monitoring Program for all Project-Affected Resources	California Fish and Wildlife (10j #8)	Adopt						Cost included in individual monitoring plans listed above.
Annual Review of Ecological Conditions	California Fish and Wildlife (10j #10)	Do not adopt	\$0	\$0	\$15,000	\$0	\$15,000	Include as part of annual consultation meeting
Penstock and Other Drainage Structure Emergency and Maintenance Release Points	California Fish and Wildlife (10j #11)	Adopt with modification						Costs included in implementation of Canal Release Point Plan filed by Forest Service.

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Integrated Vegetation Management Plan	PG&E (no measure #); California Fish and Wildlife (10j #7.1)	Adopt	\$50,000	\$10,000	\$15,000	\$0	\$25,000	Consult with tribes and include culturally significant species and apply to all project lands
Monitor Animal Losses in Project Canals	PG&E (no measure #); California Fish and Wildlife (10j #7.2)	Adopt	\$0	\$0	\$10,000	\$0	\$10,000	Develop Wildlife Crossing Plan
Replacing Wildlife Escape and Wildlife Crossing Facilities	PG&E (no measure #); California Fish and Wildlife (10j #7.5)	Adopt	\$0	\$0	\$4,000	\$0	\$4,000	
Wildlife Crossing (Bear River and South Canal)	California Fish and Wildlife (10j #7.4)	Adopt	\$150,000	\$29,000	\$20,000	\$0	\$49,000	Develop Wildlife Crossing Plan

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Implement Bald Eagle Management Plan	PG&E (no measure #); California Fish and Wildlife (10j #7.7)	Adopt	\$5,000	\$1,000	\$3,000	\$0	\$4,000	
Special Status Species	California Fish and Wildlife (10j #7.8 and #12)	Do not adopt	\$0	\$0	\$0	\$0	\$0	Included in Integrated Vegetation Management Plan
Annual Review of Special Status Species	California Fish and Wildlife (10j #7.9)	Adopt	\$0	\$0	\$0	\$0	\$0	Included in Integrated Vegetation Management Plan
Project Powerlines	PG&E (12/20/13); California Fish and Wildlife (10j #7.10)	Adopt	\$0	\$0	\$40,000	\$0	\$40,000	

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Raptor Collision	PG&E (no measure #); California Fish and Wildlife (10j #7.11)	Adopt	\$5,000	\$1,000	\$5,000	\$0	\$6,000	Develop Avian Management Plan
Pesticide Use Restrictions	Reclamation (4e #b.9); California Fish and Wildlife (10j #16)	Adopt	\$0	\$0	\$0	\$0	\$0	Included in Integrated Vegetation Management Plan
Bat Management	PG&E (no measure #); California Fish and Wildlife (10j #7.12)	Adopt	\$5,000	\$1,000	\$3,000	\$0	\$4,000	Develop Bat Management Plan
Eradicate Bullfrogs	FWS (10a #2)	Do not adopt	\$0	\$0	\$0	\$0	\$0	
Wildlife Protection	FWS (10a #3)	Do not adopt	\$0	\$0	\$0	\$0	\$0	

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Protect and Maintain Natural Ecosystem Processes	FWS (10a #5)	Do not adopt	\$0	\$0	\$0	\$0	\$0	
Implement Recreation Plan	PG&E (no measure #); California Fish and Wildlife (10j #16)	Adopt	\$0	\$0	\$1,000	\$0	\$1,000	
Recreation Plan: Halsey Afterbay	PG&E (no measure #)	Adopt	\$0	\$0	\$1,000	\$0	\$1,000	
Recreation Plan: Wise Forebay Shoreline Parking Area (proposed)	PG&E (no measure #)	Adopt	\$28,000	\$5,000	\$6,000	\$0	\$11,000	
Recreation Plan: Halsey Forebay Picnic Area	PG&E (no measure #)	Adopt	\$9,000	\$2,000	\$78,000	\$0	\$80,000	
Recreation Plan: Rock Creek Reservoir	PG&E (no measure #)	Adopt	\$0	\$0	\$6,000	\$0	\$6,000	

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Recreation Survey, Monitoring, and Future Development Triggers	California Fish and Wildlife (10j #12)	Adopt	\$0		\$0	\$0	\$0	No separate costs associated with this measure which is already included as part of the Recreation Plan, which we recommend adopting
Annual Recreation Coordination Meeting	California Fish and Wildlife (10j #15)	Adopt	\$0	\$0	\$1,000	\$0	\$1,000	

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Public Information and Education	California Fish and Wildlife (10j #16)	Adopt with modification	\$	\$0	\$0	\$0	\$0	No separate costs associated with this measure which is already included as part of the Recreation Plan, which we recommend adopting; Staff modification: does not include brochures
Implement Historic Properties Management Plan	PG&E (DS-CR1); Reclamation (4e #b.11)	Adopt	\$616,000	\$117,000	\$7,900	\$125,000	\$771,000	
Revise the Project Boundary	PG&E (no measure #)	Adopt	\$0	\$0	\$0	\$0	\$0	

Table D-2. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Lower Drum Hydroelectric Project. (Source: staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Hazardous Substances Plan; Hazardous materials – take reasonable precautions as to prevent contamination or pollution of Federal lands and waters	Reclamation (4e #b.10); California Fish and Wildlife (10j #23)	Adopt	\$7,800	\$1,000	\$0	\$0	\$1,000	
Total Applicant's Proposal			\$1,941,000	\$369,000	\$215,000	\$1,264,000	\$584,000	
Staff Alternative			\$3,626,000	\$684,000	\$339,000	\$1,264,000	\$1,024,000	
Staff Alternative with 4(e) Mandatory Conditions			\$4\$3,626,000	\$690,163	\$333,000	\$1,264,000	\$1,024,000	

Appendix D-3

Capital and Annual Costs of Measures for the Deer Creek Project

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Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Annual Consultation with Forest Service and BLM	PG&E (DC-GEN1); Forest Service (4e #1); BLM (4e #23); Reclamation (4e #b.1); California Fish and Wildlife (10j #1)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	
Annual Employee Training	PG&E (DC-GEN2); Forest Service (4e #25); BLM (4e #1); California Fish and Wildlife (10j #1.1)	Adopt	\$0	\$0	\$4,000	\$0	\$4,000	

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Develop and Implement Coordinated Operations Plan for the Upper Drum-Spaulding, Lower Drum, Deer Creek, Yuba-Bear Projects	PG&E (DC-GEN3); Forest Service (4e #25); BLM (4e #2); California Fish and Wildlife (10j #1.2)	Adopt	\$10,000	\$2,000	\$2,000	\$0	\$4,000	
Implement Erosion and Sediment Control and Management; Canal Release Point Plan	PG&E (no measure #); Forest Service (4e #49 and #50); BLM (4e #19 and #50); California Fish and Wildlife (10j #22 and #27)	Adopt	\$750,000	\$143,000	\$6,000	\$0	\$149,000	

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Deer Creek Powerhouse Minimum Flow	PG&E (DC-AQR1); Forest Service (4e #29); California Fish and Wildlife (10j #2.2)	Adopt	\$0	\$0	\$10,000	\$0	\$10,000	
Canal Outages that Affect Minimum Streamflows—Coordination and Planning	PG&E (DC-AQR1); Forest Service (4e #29); California Fish and Wildlife (10j #2.5)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Implement Canals Outages Fish Rescue Plan	PG&E (DC-AQR2); Forest Service (4e #33); BLM (4e #5); California Fish and Wildlife (10j #3)	Adopt	\$12,000	\$2,000	\$12,000	\$0	\$14,000	
Streamflow Measurement (Gage Modifications and Additions)/Gaging Plan	PG&E (no measure #); Forest Service (4e #34); BLM (4e #9); California Fish and Wildlife (10j #4)	Adopt	\$3,000	\$500	\$1,500	\$0	\$2,000	

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Develop an Aquatic Invasive Species Management and Monitoring Plan	PG&E (no measure #); Forest Service (4e #37); California Fish and Wildlife (10j #6)	Adopt	\$2,000	\$500	\$1,500	\$0	\$2,000	
Western Pond Turtle Incidental Observation Monitoring	PG&E (no measure #); Forest Service (4e #51)	Adopt	\$0	\$0	\$1,000	\$0	\$1,000	
Penstock and Other Drainage Structure Emergency and Maintenance Release Points	California Fish and Wildlife (10j #11)	Adopt						Cost included in Canal Release Point Plan filed by Forest Service listed above

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Integrated Vegetation Management Plan	PG&E (no measure #); Forest Service (4e #38); BLM (4e #17 and 23); California Fish and Wildlife (10j #7.1)	Adopt	\$50,000	\$10,000	\$15,000	\$0	\$25,000	Consult with tribes and include culturally significant species and apply to all project lands
Monitor Animal Losses in Project Canals	PG&E (no measure #); Forest Service (4e #39); BLM (4e #12); California Fish and Wildlife (10j #7.2)	Adopt	\$0	\$0	\$1,000	\$0	\$1,000	

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Consult with California Fish and Wildlife When Replacing Wildlife Escape and Wildlife Crossing Facilities	PG&E (no measure #); Forest Service (4e #40); BLM (4e #11); California Fish and Wildlife (10j #7.5)	Adopt	\$0	\$0	\$2,000	\$0	\$2,000	
Develop a wildlife crossing plan for the Drum and South Yuba canals; build wildlife crossing structures in the canals according to minimum specifications.	PG&E (no measure #); Forest Service (4e #41); California Fish and Wildlife (recommendation 7.3)	Adopt	\$150,000	\$29,000	\$20,000	\$0	\$49,000	

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Implement Bald Eagle Management Plan	PG&E (no measure #); Forest Service (4e #43); BLM (4e #16); California Fish and Wildlife (10j #7.7)	Adopt	\$5,000	\$1,000	\$2,000	\$0	\$3,000	
Special Status Species	Forest Service (4e 44); BLM (4e #13); California Fish and Wildlife (10j #7.8 and #12)	Do not adopt	\$0	\$0	\$0	\$0	\$0	Included in Integrated Vegetation Management Plan
Annual Review of Special Status Species Lists and Assessment of New Species on Federal Land	Forest Service (4e #45); BLM (4e #13); California Fish and Wildlife (10j #7.9)	Adopt	\$0	\$0	\$0	\$0	\$0	

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Project Powerlines	PG&E (12/20/13); Forest Service (4e #46); BLM (4e #15); California Fish and Wildlife (10j #7.10)	Adopt	\$0	\$0	\$20,000	\$0	\$20,000	
Raptor Collision	PG&E (no measure #); Forest Service (4e #47); BLM (4e #15); California Fish and Wildlife (10j #7.11)	Adopt	\$5,000	\$1,000	\$5,000	\$0	\$6,000	Develop Avian Management Plan

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Bat Management	PG&E (12/20/13); Forest Service (4e #48); California Fish and Wildlife (10j #7.12)	Adopt	\$2,000	\$0	\$1,000	\$0	\$1,000	Develop Bat Management Plan
Implement Recreation Plan	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$0	\$0	\$1,000	\$0	\$1,000	
Recreation Plan: Deer Creek Forebay	PG&E (no measure #); Forest Service (4e #53); California Fish and Wildlife (10j #16)	Adopt	\$2,000	\$0	\$4,000	\$0	\$4,000	

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Licensee Contact	BLM (4e #48)	Adopt	\$0	\$0	\$700	\$0	\$700	
Recreation Survey, Monitoring, and Future Development Triggers	California Fish and Wildlife (10j #12)	Adopt	\$0	\$0	\$0	\$0	\$0	No separate costs associated with this measure which is already included as part of the Recreation Plan, which we recommend adopting
Annual Recreation Coordination Meeting	California Fish and Wildlife (10j #15)	Adopt	\$0	\$0	\$0	\$0	\$0	No separate costs associated with this measure which is already included as part of the Recreation Plan, which we recommend adopting
Recreation Agreement	BLM (4e #6)	Do not adopt	\$0	\$0	\$15,000	\$0	\$15,000	

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Pesticide-use restrictions on NFS and BLM lands	PG&E (Integrated Vegetation Management Plan) Forest Service (4e #22); BLM (4e #37; California Fish and Wildlife (10j #23)	Adopt	\$0	\$0	\$0	\$0	\$0	Costs included in implementation of Integrated Vegetation Management Plan
Implement Transportation Management Plan For Primary Project Roads	PG&E (DC-LU1); Forest Service (4e #57); BLM (4e #22)	Adopt	\$680,000	\$129,000	\$115,000	\$0	\$244,000	
Implement Fire Prevention and Response Plan on Federal Land	PG&E (DC-LU2); Forest Service (4e #58); BLM (4e #18)	Adopt	\$0	\$0	\$1,000	\$0	\$1,000	

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Implement Historic Properties Management Plan	PG&E (DC-CR1); Forest Service (4e #56); BLM (4e #21)	Adopt	\$57,000	\$11,000	\$2,000	\$0	\$13,000	
Implement Visual Resource Management Plan on Federal Land	PG&E (DC-AER1); Forest Service (4e #55); BLM (4e #20)	Adopt	\$0	\$0	\$3,000	\$0	\$3,000	
Hazardous Substances Plan; Hazardous materials – take reasonable precautions as to prevent contamination or pollution of Federal lands and waters	Forest Service (4e #21); BLM (4e #49); California Fish and Wildlife (10j #23); Reclamation (4e #b.10)	Adopt	\$4,000	\$1,000	\$0	\$0	\$1,000	
Total Applicant's Proposal			\$821,000	\$156,000	\$209,000	\$19,000	\$365,000	

Table D-3. Estimated capital and O&M costs of measures proposed by PG&E and recommended by staff and agencies for the Deer Creek Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2011 \$)	Annualized Capital Cost (2011 \$)	Annual O&M Cost (2011 \$)	Annual Energy Costs (2011 \$)	Total Annualized Cost (2011\$)	Comments
Staff Alternative			\$1,733,000	\$330,000	\$241,0000	\$19,000	\$570,000	
Staff Alternative with 4(e) Mandatory Conditions			\$1,733,000	\$330,000	\$256,000	\$19,000	\$585,000	

Appendix E

Capital and Annual Costs of Measures for the Yuba-Bear Project

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Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Annual Consultation with Forest Service and BLM	NID (YB-GEN1); Forest Service (4e #1); BLM (4e #42); California Fish and Wildlife (10j #1)	Adopt	\$0	\$0	\$15,000	\$0	\$15,000	
Employee Training	NID (YB-GEN2); Forest Service (4e #25); BLM (4e #1); California Fish and Wildlife (10j #1.1)	Adopt	\$0	\$0	\$20,000	\$0	\$20,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Consultation Regarding New Ground Disturbing Activities on Federal Land	NID (YB-GEN4); Forest Service (4e #17); BLM (4e #60)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	
Consultation Regarding New Facilities on Federal Land	NID (YB-GEN5)	Do not adopt	\$0	\$0	\$3,000	\$0	\$3,000	
Development and Implementation of Coordinated Operations Plan for Yuba-Bear Hydroelectric Project and Drum-Spaulding Project	NID (YB-GEN6); Forest Service (4e #25); BLM (4e #2); California Fish and Wildlife (10j #1.2)	Adopt	\$60,000	\$4,000	\$0	\$0	\$4,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Development and Implementation of Rollins Upgrade Construction Erosion Control and Restoration Plan ¹	NID (YB-G&S1)	Adopt	\$30,000	\$2,000	\$0	\$0	\$2,000	
Development and Implementation of Recreation Facilities Construction Erosion Control and Restoration Plan	NID (YB-G&S2)	Do not adopt	\$90,000	\$6,000	\$0	\$0	\$6,000	

¹ As part of its Amended Application, NID proposes to construct the Rollins no. 2 powerhouse adjacent to the existing Rollins powerhouse. Although the proposed powerhouse is included in NID's proposal, we have analyzed the costs and benefits of this project separately, so that the feasibility of the powerhouse construction project can be more accurately assessed. The cost associated with this PM&E measure is directly associated with the Rollins no. 2 powerhouse, and was analyzed separately from the Yuba-Bear Project in section 4.3.4.

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Implement Clear and Trap Creeks Stabilization Plans	NID (YB-G&S3); California Fish and Wildlife (10j #7.10)	Adopt	\$3,000,000	\$186,000	\$25,000	\$0	\$211,000	
Implement Erosion Control and Slope Maintenance Plan; Erosion and Sediment Control and Management; Slope Assessment and Facility Release Plan/Slope Stability Plan	NID (no measure #); Forest Service (4e #48, #49, and #50); BLM (4e #24 and #41); California Fish and Wildlife (10j #22 and #27)	Adopt	\$2,750,000	\$170,000	\$180,000	\$0	\$350,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Watershed Restoration Plan	California Fish and Wildlife (10j #28)	Do not adopt						Cost included under Erosion and Sediment Control and Management and Slope Assessment and Facility Release Plans
Penstock and Other Drainage Structure Emergency and Maintenance Release Points	California Fish and Wildlife (10j #11)	Adopt with modification	\$20,000	\$1,000	\$5,000	\$0	\$6,000	
Development and Implementation of Rollins Upgrade Construction Hazardous Material Spill Prevention, Control and Countermeasures Plan	NID (YB-WR1)	Adopt with modification	\$30,000	\$2,000	\$0	\$0	\$2,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Development and Implementation of Recreation Facilities Construction Hazardous Material Spill Prevention, Control and Countermeasures Plan	NID (YB-WR2)	Adopt with modification	\$30,000	\$2,000	\$0	\$0	\$2,000	
Water Year Types	NID (YB-AQR1); Forest Service (4e #26); BLM (4e #3)	Adopt with modification	\$0	\$0	\$1,000	\$0	\$1,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Minimum Streamflows for 13 Project-Affected Stream Reaches	(NID (YB-AQR1); Forest Service (4e #27); BLM (4e #4); California Fish and Wildlife (10j #2.2))	Adopt	\$35,000	\$2,000	\$24,000	\$0	\$26,000	
Bowman-Spaulding Diversion Conduit Outages and Drum-Spaulding Project's Drum Canal Outages	(NID (YB-AQR1); Forest Service (4e #28); BLM (4e #5); California Fish and Wildlife (10j #2.3))	Adopt	\$25,000	\$2,000	\$5,000	\$0	\$7,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Rollins Dam Overwintering Minimum Streamflow Adjustments	NID (YB-AQR1); Forest Service (4e #29); California Fish and Wildlife (10j # 2.4)	Adopt	\$0	\$0	\$0	\$0	\$0	
Wilson Creek Diversion Dam Flow Setting for Minimum Streamflows	NID (YB-AQR1); Forest Service (4e #30); California Fish and Wildlife (10j # 2.5)	Adopt	\$0	\$0	\$0	\$0	\$0	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Chicago Park Powerhouse Motoring	NID (YB-AQR1); Forest Service (10a #7); BLM (4e #6); California Fish and Wildlife (10j # 2.6)	Adopt	\$0	\$0	\$1,000	\$0	\$1,000	
Milton Diversion Dam, Bowman-Spaulding Diversion Dam and Dutch Flat Diversion Dam Spill Cessation Schedules	NID (YB-AQR1); Forest Service (4e #31; 10a #8); BLM (4e #7); California Fish and Wildlife (10j # 2.7)	Adopt	\$85,000	\$5,000	\$10,000	\$0	\$15,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Rollins Reservoir Elevation Control	NID (YB-AQR1); BLM (4e #8); California Fish and Wildlife (10j # 2.9)	Adopt	\$0	\$0	\$2,000	\$0	\$2,000	
Minimum flows below Milton Diversion Dam	NMFS (10j #3.1)	Do not adopt						
Minimum flows below Bowman Lake and Lake Spaulding to manage water temperature	NMFS (10j #4.1)	Do not adopt						

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Minimum flows below Milton Diversion Dam to manage water temperature for reintroduction of steelhead and Chinook salmon	NMFS (10j #5.1)	Do not adopt						
Minimum flows below Bowman Lake and Lake Spaulding to manage water temperature for reintroduction of steelhead in the absence of Chinook salmon	NMFS (10j #6.1)	Do not adopt						
Fish Stocking in Bowman Lake	NID (YB-AQR2)	Do not adopt	\$0	\$0	\$75,000	\$0	\$75,000	
Fish Stocking in Rollins Reservoir	NID (YB-AQR3)	Do not adopt	\$0	\$0	\$40,000	\$0	\$40,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Reservoir fish stocking/Fish Stocking Plan	Forest Service (10a #12); California Fish and Wildlife (10j #17)	Adopt with modification	\$10,000	\$1,000	\$242,000	\$0	\$242,000	\$236,000 annually; every other year for first 6 years after license issuance cost is estimated at \$236,000 + \$57,500 (\$293,500) Modified to include development of a fish stocking plan that includes annual stocking of Rollins reservoir, Jackson Meadows reservoir, Bowman Lake, and Faucherie Lake; stocking Sawmill Lake every other year until the first Form 80 reporting year.

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Steephollow Creek Foothill-Yellow Legged Frog Monitoring	NID (YB-AQR4); Forest Service (4e 10a #8); BLM (4e #10); California Fish and Wildlife (10j #2.11);	Adopt	\$174,000	\$11,000	\$6,000	\$0	\$17,000	
Implement Canal Fish Rescue Plan	NID (no measure #); Forest Service (4e #33); BLM (4e #11); California Fish and Wildlife (10j #3)	Adopt	\$25,000	\$2,000	\$50,000	\$0	\$52,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Milton-Bowman Conduit Fish Entrainment—design, construct and operate fish screen at Milton diversion dam impoundment	NID (no measure #); Forest Service (4e #29); California Fish and Wildlife (10j #2.12)	Adopt	\$2,500,000	\$155,000	\$90,000	\$0	\$245,000	
Rollins Dam Large Woody Material Management; Dutch Flat Afterbay Large Woody Material Management	NID (no measure #); Forest Service (4e #52, 10a #10); BLM (4e #9, #23); California Fish and Wildlife (10j #2.10 and #9)	Adopt	\$300,000	\$19,000	\$55,000	\$0	\$74,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Large Woody Material Management Plan	NMFS (10j #4.2.1 and #4.2.2)	Do not adopt						
Fall Creek Diversion Dam Minimum Streamflows	NID (YB-AQR8); Forest Service (4e #29)	Adopt	\$0	\$0	\$3,000	\$0	\$3,000	
Minimum Streamflows Compliance Monitoring and Measurement; Gaging Plan	NID (YB-AQR9); Forest Service (4e #34; 10a #13); BLM (4e #12); California Fish and Wildlife (10j #4)	Adopt	\$1,350,000	\$85,000	\$10,000	\$0	\$95,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Consultation Group Specific to Yuba-Bear for minimum streamflow and water temperature management	Forest Service (4e #2); BLM (4e #43); California Fish and Wildlife (10j #2.13)	Adopt	\$85,000	\$5,000	\$45,000	\$0	\$50,000	
Middle Yuba River Block Flow Release for Water Temperature Management w/ Water Temp Operations Group	California Fish and Wildlife (10j #2.8)	Do not adopt						
Aquatic Invasive Species Management	NID (no measure #)	Do not adopt	\$0	\$0	\$0	\$0	\$0	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Aquatic Invasive Species Management and Monitoring Plan	Forest Service (4e #37); BLM (4e #14); California Fish and Wildlife (10j #6)	Adopt	\$25,000	\$2,000	\$5,000	\$0	\$7,000	
Fish Population Monitoring Plan	NID (no measure #); Forest Service (4e #51); BLM (4e #22)	Adopt	\$300,000	\$19,000	\$185,000	\$0	\$204,000	
Foothill Yellow-legged Frog Monitoring Plan	NID (no measure #); Forest Service (4e #51); BLM (4e #22)	Adopt	\$35,000	\$2,000	\$55,000	\$0	\$57,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Channel Morphology Monitoring Plan	NID (no measure #); Forest Service (4e #51); BLM (4e #22)	Adopt	\$35,000	\$2,000	\$35,000	\$0	\$37,000	
Water Temperature and Stage Monitoring Plan	NID (no measure #); Forest Service (4e #51); BLM (4e #22)	Adopt	\$95,000	\$6,000	\$65,000	\$0	\$71,000	
Western Pond Turtle Incidental Observation Monitoring	Forest Service (4e #51); BLM (4e #22)	Adopt	\$0	\$0	\$2,000	\$0	\$2,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Aquatic Benthic Macroinvertebrates Monitoring Plan	NID (no measure #); Forest Service (4e #51); BLM (4e #22)	Adopt	\$100,000	\$6,000	\$20,000	\$0	\$26,000	
Monitoring Program for all Project-Affected Resources	California Fish and Wildlife (10j #8)	Adopt						Cost included in individual resource monitoring plans field by Forest Service and listed above.
Annual Review of Ecological Conditions	California Fish and Wildlife (10j #10)	Adopt						Recommend that review be performed as part of Annual Consultation Meeting

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Vegetation and Non-Native Invasive Plant Management Plan	NID (no measure #); Forest Service (4e #38); BLM (4e #15 and #31); California Fish and Wildlife (10j #7.1)	Adopt	\$135,000	\$8,000	\$40,000	\$0	\$48,000	Consult with tribes and add culturally significant species and apply to all project lands
Bowman-Spaulding Transmission Line Avian Protection	NID (no measure #); Forest Service (4e #45 and #46); California Fish and Wildlife (10j #7.10)	Adopt	\$10,000	\$1,000	\$4,000	\$0	\$5,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Consult when Replacing Canal Wildlife Escape Facilities	NID (YB-TR4); Forest Service (4e #40); BLM (4e #17); California Fish and Wildlife (10j #7.3)	Adopt	\$0	\$0	\$1,000	\$0	\$1,000	
Monitor Animal Losses in Project Canals	NID (YB-TR5); Forest Service (4e #39); BLM (4e #16); California Fish and Wildlife (10j #7.2)	Adopt	\$0	\$0	\$3,000	\$0	\$3,000	
Wildlife Crossing in Bowman-Spaulding Canal	NID (no measure #)	Do not adopt	\$30,000	\$2,000	\$20,000	\$0	\$22,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Wildlife Crossing in Bowman-Spaulding Canal	Forest Service (4e #41); California Fish and Wildlife (10j #7.4)	Adopt	\$40,000	\$2,000	\$20,000	\$0	\$22,000	
Bat Management	NID (YB-TR6)	Do not adopt	\$0	\$0	\$3,000	\$0	\$3,000	
Bat Management	Forest Service (4e #47); BLM (4e #21); California Fish and Wildlife (10j #7.9)	Adopt	\$5,000	\$0	\$3,000	\$0	\$3,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Implement Bald Eagle Management Plan	NID (YB-TR7) Forest Service (4e #42); BLM (4e #18); California Fish and Wildlife (10j #7.5)	Adopt	\$20,000	\$1,000	\$4,000	\$0	\$5,000	
Eradicate Bullfrogs	FWS (10a #2)	Do not adopt	\$0	\$0	\$0	\$0	\$0	
Wildlife Protection	FWS (10a #3)	Do not adopt	\$0	\$0	\$0	\$0	\$0	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Protection of Special Status Species	Forest Service (4e #43); BLM (4e #19); California Fish and Wildlife (10j #7.8 and #12)	Do not adopt	\$0	\$0	\$0	\$0	\$0	
Annual Review of Special Status Species Lists and Assessment of New Species on Federal Land	Forest Service (4e #44); BLM (4e #20); California Fish and Wildlife (10j #7.9)	Adopt with modification	\$0	\$0	\$0	\$0	\$0	
Protect and Maintain Natural Ecosystem Processes	FWS (10a #5)	Do not adopt	\$0	\$0	\$0	\$0	\$0	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Implement NID Proposed Recreation Plan	NID (YB-RR1); Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt with modifications	\$33,510,000	\$2,074,000	\$939,000	\$0	\$3,013,000	Costs for individual plan components are itemized below
East Meadow Campground	NID (YB-RR1); Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt with modification	\$2,145,000	\$133,000	\$5,000	\$0	\$138,000	Staff modification: removes specification for road reconstruction, including lengthening and widening of spurs

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Pass Creek Campground	NID (YB-RR1); Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt with modification	\$1,600,000	\$99,000	\$5,000	\$0	\$104,000	Staff modification: removes specification for lengthening and widening of spurs
Recreation Plan: Pass Creek Overflow Campground	NID (YB-RR1); Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$371,000	\$23,000	\$4,000	\$0	\$27,000	
Recreation Plan: Pass Creek Boat Launch	NID (YB-RR1)	Adopt with modification	\$1,818,000	\$113,000	\$4,000	\$0	\$117,000	Staff modification: removes specification for launch reconstruction

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Recreation Plan: Aspen Group Campground	NID (YB-RR1); Forest Service (10a #14); California Fish and Wildlife (10j #16)	Adopt	\$867,000	\$54,000	\$4,000	\$0	\$58,000	
Aspen Picnic Area	NID (YB-RR1); Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$490,000	\$30,000	\$4,000	\$0	\$34,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Recreation Plan: Jackson Meadows Dump Station	NID (YB-RR1); Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$200,000	\$12,000	\$4,000	\$0	\$16,000	
Recreation Plan: Jackson Meadows Vista	NID (YB-RR1); Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$86,000	\$5,000	\$4,000	\$0	\$9,000	
Recreation Plan: Findley Campground	NID (YB-RR1)	Do not adopt	\$727,000	\$45,000	\$4,000	\$0	\$49,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Findley Campground	Forest Service (4e #57) ; California Fish and Wildlife (10j #16)	Adopt	\$737,000	\$46,000	\$4,000	\$0	\$50,000	
Recreation Plan: Fir Top Campground	NID (YB-RR1)	Do not adopt	\$564,000	\$35,000	\$4,000	\$0	\$39,000	
Fir Top Campground	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt with modification	\$579,000	\$36,000	\$4,000	\$0	\$40,000	Staff modification: removes specification for rehabilitation/ reconstruction of the campground road and widening/ lengthening spurs

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Recreation Plan: Silvertip Group Campground	NID (YB-RR1) ; Forest Service (10a #14); California Fish and Wildlife (10j #16)	Adopt	\$396,000	\$25,000	\$4,000	\$0	\$29,000	
Recreation Plan: Woodcamp Campground	NID (YB-RR1)	Do not adopt	\$976,000	\$60,000	\$4,000	\$0	\$64,000	
Woodcamp Campground	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt with modification	\$991,000	\$61,000	\$4,000	\$0	\$65,000	Staff modification: removes the specification for reconstruction of the road and lengthening/widening of spurs in 10 years
Recreation Plan: Woodcamp Picnic Area	NID (YB-RR1)	Do not adopt	\$949,000	\$59,000	\$4,000	\$0	\$63,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Woodcamp Picnic Area	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$995,000	\$62,000	\$4,000	\$0	\$66,000	
Recreation Plan: Woodcamp Boat Launch	NID (YB-RR1)	Do not adopt	\$1,006,000	\$62,000	\$4,000	\$0	\$66,000	
Woodcamp Boat Launch	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$1,021,000	\$63,000	\$4,000	\$0	\$67,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Recreation Plan: Woodcamp Complex-Road & Trails	NID (YB-RR1); Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt with modification	\$1,404,000	\$87,000	\$4,000	\$0	\$91,000	Recommend that the proposed trail improvements be limited to the construction of, modification to, and maintenance of trails and trailheads that are necessary for project purposes
Woodcamp Complex Interpretive Trail (improvements that include interpretive trail)	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Do not adopt	\$15,000	\$1,000	\$1,000	\$0	\$2,000	
Additional Jackson Meadows Area Trails	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt with modification	\$50,000	\$3,000	\$4,000	\$0	\$7,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Recreation Plan: Jackson Point Boat-In Campground	NID (YB-RR1)	Do not adopt	\$99,000	\$6,000	\$4,000	\$0	\$10,000	
Jackson Point Boat-In Campground	Forest Service (4e #57) ; California Fish and Wildlife (10j #16)	Adopt	\$120,000	\$7,000	\$4,000	\$0	\$11,000	
Recreation Plan: Jackson Meadows Administrative Sites	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Do not adopt	\$30,000	\$2,000	\$0	\$0	\$2,000	
Jackson Meadows Development Plan	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Do not adopt	\$25,000	\$2,000	\$4,000	\$0	\$6,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Recreation Plan: Milton Diversion Impoundment Day Use Area & Hand Launch (proposed)	NID (YB-RR1)	Do not adopt	\$173,000	\$11,000	\$8,000	\$0	\$19,000	
Recreation Plan: Milton Diversion Impoundment Designated Primitive Campsites	NID (YB-RR1)	Do not adopt	\$114,000	\$7,000	\$8,000	\$0	\$15,000	
Milton Diversion Impoundment Area	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$287,000	\$18,000	\$16,000	\$0	\$34,000	
Jackson Creek Campground	Forest Service (4e #57); California Fish and wildlife (10j #16)	Do not adopt	\$976,000	\$60,000	\$4,000	\$0	\$64,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
French Lake (parking area improvements, barriers, and trailhead)	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$10,000	\$1,000	\$0	\$0	\$1,000	
Recreation Plan: Bowman Lake Campground (and informal boat ramp)	NID (YB RR-1)	Adopt	\$154,000	\$8,000	\$6,000	\$0	\$14,000	
Bowman Lake Campground (includes expanding by 20 campsites)	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Do not adopt	\$194,000	\$12,000	\$10,000	\$0	\$22,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Recreation Plan: Bowman Lake Designated Primitive Campsites (proposed)	NID (YB-RR1); Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$270,000	\$17,000	\$6,000	\$0	\$23,000	
Recreation Plan: Bowman Lake Day Use Areas (proposed)	NID (YB-RR1), Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$217,000	\$13,000	\$6,000	\$0	\$19,000	
Bowman Reservoir Area-Recreation Corridor Plan	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Do not adopt	\$25,000	\$2,000	\$4,000	\$0	\$6,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Recreation Plan; Group or Family campground adjacent to Bowman Lake Campground	Forest Service (4e #57 and 10a #14); California Fish and Wildlife (10j #16)	Do not adopt	\$527,000	\$33,000	\$8,000	\$0	\$41,000	
Other Trails Bowman Recreation Corridor	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt with modification	\$200,000	\$12,000	\$4,000	\$0	\$16,000	Staff modification: does not recommend construction of the trails at Sawmill Lake or French Lake, except for a walkway across the Sawmill spillway and a primitive trail from Faucherie Lake to Sawmill Lake
Recreation Plan: Sawmill Family Campground (proposed)	NID (YB-RR1)	Adopt	\$619,000	\$38,000	\$8,000	\$0	\$46,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Sawmill Family Campground (proposed)	Forest Service (4e #57 and 10a #14); California Fish and Wildlife (10j #16)	Do not adopt	\$770,000	\$48,000	\$10,000	\$0	\$58,000	
Recreation Plan: Sawmill Group Campground (proposed)	NID (YB-RR1); Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$435,000	\$27,000	\$8,000	\$0	\$35,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Recreation Plan: Sawmill Lake Dam Day Use Area	NID (YB-RR1); Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$76,000	\$5,000	\$8,000	\$0	\$13,000	
Recreation Plan: Canyon Creek Campground	NID (YB-RR1)	Do not adopt	\$565,000	\$35,000	\$7,000	\$0	\$42,000	
Canyon Creek Campground	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$847,000	\$52,000	\$10,000	\$0	\$62,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Canyon Creek Dispersed Sites	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Do not adopt	\$619,000	\$38,000	\$8,000	\$0	\$46,000	
Recreation Plan: Faucherie Lake Group Campground	NID (YB-RR1); Forest Service (10a #14); California Fish and Wildlife (10j #16)	Adopt	\$160,000	\$10,000	\$6,000	\$0	\$16,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Recreation Plan: Faucherie Lake Day Use and Boat Launch	NID (YB-RR1); Forest Service (10a #14); California Fish and Wildlife (10j #16)	Adopt	\$383,000	\$24,000	\$6,000	\$0	\$30,000	
Recreation Plan: Faucherie Lake Dam Parking Area	NID (YB-RR1)	Do not adopt	\$0	\$0	\$0	\$0	\$0	
Faucherie Lake Dam Parking Area	Forest Service (10a #14); California Fish and Wildlife (10j #16)	Adopt	\$10,000	\$1,000	\$0	\$0	\$1,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Recreation Plan : Dutch Flat No. 2 forebay (proposed kiosk)	NID (YB-RR1)	Adopt	\$7,000	\$0	\$7,000	\$0	\$7,000	
Recreation Plan: Dutch Flat Afterbay Day Use Area (proposed)	NID (YB-RR1); California Fish and Wildlife (10j #16); BLM (4e #32)	Adopt	\$259,000	\$16,000	\$7,000	\$0	\$23,000	
Langs Crossings	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Do not adopt	\$15,000	\$1,000	\$4,000	\$0	\$5,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Bear River Trail Project	Forest Service (10a #14); BLM (10a #1); California Fish and Wildlife (10j #16)	Adopt with modification	\$250,000	\$15,000	\$4,000	\$0	\$19,000	Staff modification: develop Rollins Reservoir shoreline portion of trail
Recreation Plan: Rollins Orchard Springs Recreation Complex ²	NID (YB-RR1)	Adopt	\$3,910,000	\$242,000	\$22,000	\$0	\$264,000	
Recreation Plan: Rollins Greenhorn Recreation Complex ³	NID (YB-RR1)	Adopt	\$2,502,000	\$155,000	\$22,000	\$0	\$177,000	

² Cost estimates provided by NID and no recommendation or improvements were provided in the Recreation Plan

³ Cost estimates provided by NID and no recommendation or improvements were provided in the Recreation Plan

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Recreation Plan: Rollins Peninsula Recreation Complex ⁴	NID (YB-RR1)	Adopt	\$4,628,000	\$287,000	\$277,000	\$0	\$564,000	
Recreation Plan: Rollins Long Ravine Recreation Complex ⁵	NID (YB-RR1)	Adopt	\$4,344,000	\$269,000	\$277,000	\$0	\$546,000	
Recreation Survey, Monitoring, and Future Development Triggers	NID (YB-RR1); Forest Service (4e #53); BLM (4e #29); California Fish and Wildlife (10j #12)	Adopt	\$0	\$0	\$20,000	\$0	\$20,000	

⁴ Cost estimates provided by NID and no recommendation or improvements were provided in the Recreation Plan

⁵ Cost estimates provided by NID and no recommendation or improvements were provided in the Recreation Plan

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Licensee Contact	NID (YB-RR1); Forest Service (4e #54); BLM (4e #26)	Adopt	\$0	\$0	\$10,000	\$0	\$10,000	
Review of Recreation Developments	NID (YB-RR1); Forest Service (4e #55); BLM (4e #28); California Fish and Wildlife (10a #14)	Adopt	\$0	\$0	\$10,000	\$0	\$10,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Annual Recreation Coordination Meeting	NID (YB-RR1); Forest Service (4e #56); BLM (4e #27); California Fish and Wildlife (10j #15)	Adopt	\$0	\$0	\$6,000	\$0	\$6,000	
Provide Potable Water (15 service connections or 25 persons)	NID (YB-RR1); Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt with modification	\$50,000	\$3,000	\$120,000	\$0	\$123,000	Staff modification: does not include Safe Drinking Water Act or specified connections

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Food Lockers	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt	\$12,000	\$1,000	\$0	\$0	\$1,000	
Public Information and Education	Forest Service (4e #57); California Fish and Wildlife (10j #16)	Adopt with modification	\$10,000	\$1,000	\$3,000	\$0	\$4,000	Staff modification: does not include specification for brochures

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Plan addressing Costs of Managing Project-Related Recreation/Recreation Costs of Managing Facilities	NID (no measure #); Forest Service (4e #57); BLM (4e #36); California Fish and Wildlife (10j #16)	Do not adopt	\$8,000	\$0	\$0	\$0	\$0	
Recreation Operation, Maintenance, and Administration Agreement	NID (no measure #); BLM (4e #34)	Do not adopt	\$0	\$0	\$30,000	\$0	\$30,000	
Chicago Park Power House and Connecting Facilities and Roads	NID (no measure #); BLM (4e #33)	Adopt	\$0	\$0	\$50,000	\$0	\$50,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Provide Recreation Flow Information	Forest Service (4e #58 and 10a #15); BLM (4e #37)	Adopt	\$10,000	\$1,000	\$6,840	\$0	\$8,000	Staff recommended additions: include 15-minute reporting interval for those stream reaches where streamflow information is currently provided in 15-minute intervals and submittal of plan to the Commission for approval
French Dam Supplemental Flows for Whitewater Boating	NID (YB-RR3)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	
Milton Diversion Dam Supplemental Flows for Whitewater Boating	NID (YB-RR4)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Bowman-Spaulding Diversion Dam Supplemental Flows for Whitewater Boating	NID (YB-RR5)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	
Implement Transportation Management Plan on Federal Land	NID (YB- LU #1); Forest Service (4e #61); BLM (4e #39); California Fish and Wildlife (10a #20)	Adopt	\$835,000	\$52,000	\$90,000	\$0	\$142,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Implement Fire Prevention and Response Plan on Federal Land	NID (YB- LU #2); Forest Service (4e #62); BLM (4e #40); California Fish and Wildlife (10a #21)	Adopt	\$30,000	\$2,000	\$2,000	\$0	\$4,000	
Project Boundary revision	NID (no measure #)	Adopt	\$50,000	\$3,000	\$0	\$0	\$3,000	
Implement Historic Properties Management Plan	NID (YB-CR1); Forest Service (4e #60); BLM (4e #38)	Adopt	\$1,650,000	\$102,000	\$14,000	\$0	\$116,000	

Table E-1. Estimated capital and O&M costs of measures proposed by NID and recommended by staff and agencies for the Yuba-Bear Project. (Source: Staff)

Measure	Entity and Measure No.	Staff Recommend ?	Capital Cost (2010 \$)	Annualized Capital Cost (2010 \$)	Annual O&M Cost (2010 \$)	Annual Energy Costs (2010 \$)	Total Annualized Cost (2010 \$)	Comments
Implement Visual Resource Management Plan	Staff; Forest Service (4e #59)	Adopt	\$0	\$0	\$5,000	\$0	\$5,000	
Hazardous Substances Plan	Forest Service (4e #21); BLM (4e #52); California Fish and Wildlife (10j #23)	Adopt	\$60,000	\$4,000	\$0	\$0	\$4,000	
Total Applicant's Proposal			\$43,666,000	\$2,705,000	\$2,016,000	\$2,280,000	\$4,721,000	
Staff Alternative			\$47,454,000	\$2,940,000	\$2,358,000	\$2,280,000	\$5,298,000	
Staff Alternative with 4(e) Mandatory Conditions			\$49,645,000	\$3,075,000	\$2,541,000	\$2,280,000	\$5,616,000	

Appendix F

Draft License Articles: Upper Drum-Spaulding, Lower Drum, and Deer Creek Projects

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Appendix F-1

Draft License Articles: Upper Drum-Spaulding Project

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DRAFT LICENSE ARTICLES: UPPER DRUM-SPAULDING PROJECT

I. MANDATORY CONDITIONS

On April 10, 2014, the U.S. Department of Agriculture, Forest Service (Forest Service) filed 59 revised final 4(e) conditions (described in section 2.2.4.1 of the environmental impact statement [EIS] and included in appendix H-1). We consider 58 conditions to be applicable to the Upper Drum-SpaULDing Project, and of those 58 conditions, we consider 23 of these conditions (3 through 20, 23, 24, 35, 36 and 59) to be administrative or legal in nature and not specific environmental measures. Of the 35 conditions we consider to be environmental measures, we include 32¹ of these conditions in the staff alternative as specified by the Forest Service. We recognize, however, that the Federal Energy Regulatory Commission (FERC or Commission) is required to include valid 4(e) conditions in any license issued for the project. As such, each of the measures that staff recommend be modified in the staff alternative (as discussed in section 5.1.2, *Comprehensive Development and Recommended Alternative*) would not be included in any license issued by the Commission. Instead, those conditions would be replaced with the Forest Service's corresponding conditions, as filed with the Commission.

II. ADDITIONAL LICENSE ARTICLES RECOMMENDED BY COMMISSION STAFF

We recommend including the following license articles in any license issued for the project in addition to the mandatory conditions.

Draft Article 4XX. Commission Approval, Notification, and Filing of Amendments.

(a) Requirement to File Plans for Commission Approval

Various mandatory conditions specified by the Forest Service under section 4(e) require Pacific Gas & Electric (PG&E) to prepare plans in consultation with other entities for approval by the Forest Service; some of these measures do not specify that Commission approval is required prior to implementation. Each such plan must also be submitted to the Commission for approval. These plans are listed below.

Forest Service condition	Plan name	Due date
21	Oil And Hazardous Substances Storage And Spill Prevention And Cleanup Plan	Within 1 year of license issuance
25	General Resource Measures-Coordinated Operations Plan	Within 90 days of license issuance
37	Aquatic Invasive Species Management Plan	Within 1 year of license issuance
41	Wildlife Crossing Plan for Drum canal	Within 5 years of license issuance

¹ As explained in section 5 of the EIS, we recommend modifying the following conditions specified by the Forest Service: (1) condition 53, Recreation Plan; and (2) condition 54, *Recreation Streamflow Information*. We do not recommend Forest Service's condition 44, biological evaluation of *Special Status Species*.

Forest Service condition	Plan name	Due date
51	Aquatic Benthic Invertebrate Monitoring Plan	Within 1 year of license issuance
52	Large Woody Debris Management Plan	Within 1 year of license issuance
54	Plan to provide real-time streamflow information	Beginning as soon as reasonably feasible, but within 1 year of license issuance

(b) Requirement to File Reports

Some Forest Service section 4(e) conditions require PG&E to file reports with other entities. These reports document compliance with requirements of this license and may have a bearing on future actions. Each such report must also be submitted to the Commission. These reports are listed in the following table.

Forest Service condition	Description	Due date
1	Reports documenting annual meetings with the Forest Service and other stakeholders	Within 60 days of the meeting
1	Reports documenting issues related to public safety and non-compliance	As soon as possible
28	Report documenting flow setting measures undertaken	Provide at annual consultation meeting
44	Biological evaluation for special status species and their habitats for construction of new project features	Prior to construction action
51	Annual report describing monitoring efforts of previous calendar year	June 30, final at least 30 days before annual meeting
51	5-Year summary monitoring report	Year 5, 10, 20, 30, etc.
53	6-year and 12-year Recreation Survey and Monitoring Reports (component of Recreation Plan required by condition 53)	At 6 and 12 years after license issuance to coincide with FERC Form 80 reporting cycle

(c) Requirement to Notify Commission of Planned and Unplanned Deviations from License Requirements

Certain Forest Service 4(e) conditions would allow PG&E to temporarily modify project operations under certain situations. The Commission must be notified prior to implementing such modifications, if possible, or in the event of an emergency, as soon as possible, but no later than 10 days after each such incident.

Forest Service condition	License requirement
29	Temporary modification of minimum streamflows following consultation or due to an emergency
29	Notification of schedule or change of schedule for routine and non-routine planned canal outages affecting minimum streamflows; notification within 1 business day of emergency canal outage
29	Notification and consultation on minimum streamflows during canal outages lasting longer than 30 days

(d) Requirement to File Amendment Applications

Certain Forest Service conditions appear to contemplate these agencies requiring unspecified long-term changes to project operations or facilities based on new information or results of monitoring but do not appear to require Commission approval for such changes (e.g., modification of supplemental flows, anadromous fish introduction). Such changes may not be implemented without prior Commission authorization granted after the filing of an application to amend the license.

Draft Article 4XX. Reservation of Authority to Prescribe Fishways. Authority is reserved by the Commission to require the licensee to construct, operate, and maintain or to provide for the construction, operation, and maintenance of such fishways as may be prescribed by the Secretaries of Interior or Commerce pursuant to section 18 of the Federal Power Act.

Draft Article 4XX. Jordan Creek Diversion Decommissioning Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, a plan to decommission the Jordan Creek diversion dam, Jordan Creek canal, and other appurtenant structures. The plan must: (1) detail the most appropriate measures to disable, deconstruct, and abandon in place all components of the diversion system; (2) provide a schedule for completion of decommissioning tasks; (3) identify all permits required; and (4) estimate costs for completion of the work. Proposed measures must take into consideration public safety during and following decommissioning. The plan must include site-specific erosion control and sediment management and site health and safety plans. The plan must identify potential environmental effects associated with decommissioning activities and measures that will be implemented to minimize, mitigate, and restore environmental impacts on aquatic and terrestrial resources including, if necessary, channel and bank stability and management of sediment trapped in the diversion dam impoundment.

The decommissioning plan must be developed after consultation with the Forest Service and the California Department of Fish and Wildlife. The licensee must include with the plan an implementation schedule, documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the entities above, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific reasons.

The Commission reserves the right to require changes to the plan. Land-disturbing activities associated with the decommissioning must not begin until the licensee is notified by the

Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Flow Release to the Bear River below Drum Canal at YB-137.

Within 3 years of license issuance, the licensee must construct and begin operation of two fixed-diameter orifice flow release devices near the existing spillway from the Drum canal at or adjacent to canal gate YB-137. Consistent with Forest Service recommendation 6, each flow device must be designed to provide up to 1 cfs. Design and construction plans should be submitted to the Commission; the Commission reserves the right to require modifications to the plans. Construction must begin following Commission approval of the plans and final as-built drawings must be filed with the Commission. Once the flow release devices are operational, the licensee must open the valves on these flow release devices whenever the Drum canal is in operation to provide a release of 2 cfs during wet, above normal, and below normal water years and 1 cfs in dry, critically dry, and extreme critically dry water years. The licensee's compliance with this article would be the act of opening the flow release device control valve (or valves) when the Drum canal is in operation. The licensee is not required to operate these flow release devices when the valves are inoperable or while the Drum canal is not in service.

The licensee must perform maintenance on these flow control devices, if necessary, during the annual Drum canal outage. If either or both flow control devices become inoperable for any reason, licensee must take reasonable steps to correct the malfunction.

Draft Article 4XX. Bear River Management Upstream of Forest Service Lands.

(a) Winter Operating Plan Spills at Drum Canal

Winter operational spills typically occur between November and May. During winter operations, the licensee must to the extent practicable:

- Limit operational flow release from Drum canal at YB-137 to no greater than 200 cubic feet per second (cfs), not including natural flow, calculated at Bear River at Highway 20 (YB-198).
- Implement a ramping rate for both increases and decreases, of 0.40 feet per hour as measured at the existing stream gage Bear River at Highway 20 (YB-198).
- Limit water that is spilled into the Bear River from Drum canal when Drum afterbay is forecast to spill and Dutch Flat No. 1 and No. 2 powerhouses are fully loaded.
- Except in an emergency or other project outages, limit flows into the Bear River that, when combined with accretion flows, are limited to 500 cfs as measured at the existing stream gage Bear River near Highway 20 (YB-198).

(b) Planned Outage Spills at Drum Canal

During outages of facilities (e.g., Drum canal, Drum 1 or 2 powerhouses), when Drum canal cannot be operated at full capacity for conveyance, the licensee must, to the extent reasonably possible:

- Distribute water spilled from the Drum canal between Bear River Spill (YB-137, RM 35.3 on the Bear River), Bear Valley Spill (RM 33.6), and Tahoe Spill (RM 31.75) to reduce the magnitude of flows through the Bear Valley Meadow (upper end of Bear River Reach #2).

- Implement a 2-day ramping rate when decreasing flows into the Bear River Reaches #1 and #2 from the Bear River Spill (YB-137), Bear Valley Spill, and Tahoe Spill – spills must be adjusted at each location, at a rate not to exceed 50 cfs over a 6 hour period.
- Notify the agencies that participate in the Annual Meeting (Condition No. 1), either at the Annual Meeting or as soon as reasonably practicable when Bear River Reach #1 or #2 were needed to convey water.

(c) Emergencies

The operational guidelines in this measure do not apply in emergencies. An emergency is defined as an event that is reasonably out of the control of the licensee and requires the licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life, damage to property, loss of project facilities, or water supply delivery infrastructure. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. During emergencies any Drum Canal spillway may be used without restriction.

(d) Water Supply Protection

The licensee may exceed the good faith flow limits described in this measure or utilize project spillways during planned or unplanned outages to the extent needed to avoid limiting downstream consumptive water deliveries.

(e) Channel Morphology and Riparian Vegetation Assessment in the Vicinity of Bear Valley

By no later than the first full water year after license issuance, the licensee must perform an assessment during the July to August period to establish a new baseline for conditions in the vicinity of the Bear Valley. Based on this baseline, the licensee must evaluate changes in riparian vegetation and channel stability in the portion of Bear River Reach #2 that runs through Bear Valley, an approximately 2.3-mile portion located between RM 35.0 (upstream end) to RM 32.7 (downstream end) according to the schedule of riparian and channel morphology assessments outlined in Table 1, below. The purpose must be to determine if project waters that are released into the Bear River adversely affect channel morphology and riparian vegetation in the vicinity of the Bear Valley, including the Bear Valley Meadow and, if adverse effects are determined to occur, to develop specific protection actions.

This assessment must include the following components:

Table 1. Riparian and channel morphology assessment periodicity for the Bear River Management Through Bear Valley Measure.

	By Year 1 / New Baseline	Annually, Years 2-4	Annually for Term of license	Year 5	Every 5 Years Beginning	Following Operational Flows Exceeding 250 cfs for a 24-hour period at gage YB-198
Quantitative						
Longitudinal Profile	X			X		
Level Loggers	X					
Monumented Cross-sections	X			X	X	
Qualitative						
Photo Monitoring	X	X	X	X	X	X
Riparian Vegetation	X			X	X	
Bank Stability	X			X	X	
Walking Survey— Bear Valley (to identify erosional areas)	X	X	X	X	X	
Spill Channel Evaluation (to identify erosional areas)	X	X	X	X	X	

- Quantitative assessment:
 - Longitudinal profile – The licensee must establish a longitudinal profile of the Bear River thalweg from RM 35.0 at the upstream end, to the bedrock control point at the downstream end of the meadow near RM 32.7 at the downstream (west) end of Bear Valley Meadow. The purpose of the longitudinal profile is to establish grade control locations throughout the Bear River in Bear Valley.
 - Install level loggers at three locations: Lower Meadow Channel Morphology Cross Section LM T2; Middle Meadow Channel Morphology Cross Section MM T5, and Upper Meadow Channel Morphology Cross Section UM T2 to compare against discharge as measured at YB-198. The purpose of the installation of the level loggers is to establish a stage-discharge relationship in the Bear Valley

meadow so that if erosion does occur within the meadow, the discharge at which it occurred could be estimated from the stage—discharge relation at these three locations. One barometric level logger must be placed at the Lower Meadow site to be able to adjust for air pressure effects on the level logger measurements.

- Monumented Cross Section: The licensee and Forest Service must collaboratively establish three monumented cross sections that are typical of the Bear River channel in the vicinity of Bear Valley. Profiles at each of these cross sections must be taken on year 1, 5, 10 and every 5 years after year 10 to monitor changes in channel width and depth.
- Qualitative assessment:
 - Photo Monitoring – The licensee must establish photo monitoring points at benchmark locations so that any year-to-year changes can be captured at recovering locations where channel processes appear to have stabilized historical disturbances, and at locations where channel processes are causing active erosion. The purpose of the photo monitoring is to visually track erosion and channel processes at specific locations over time.
 - Riparian Vegetation and Bank Stability – The licensee must perform a qualitative assessment of riparian vegetation and bank stability at cross sections that have been selected from existing channel morphology transects (established 2009) and reflect a variety of bank conditions. It is assumed that two to three long-term monitoring transects must be selected from the existing population of transects in the Lower, Middle and Upper Meadow study sites. For the purpose of these assessments, riparian vegetation is defined as wetland indicator species as identified by Reed (National List of Plant Species that Occur in Wetlands: California, Region 0, 1988) or a similar reference. The purpose of the riparian vegetation and bank stability assessments is to track the recruitment and growth of vegetation and the development of the channel processes governing erosion, and determine whether any degradation of ecological resources is occurring at actively-eroding sites.
 - Walking survey – The licensee must perform an annual qualitative assessment of the meadow and identify any locations where active erosion causing degradation of riparian or instream resources could be reasonably prevented or addressed by the licensee through operational changes or remediation. Photos must be taken at any new areas of concern.
 - Spill channel evaluation – The licensee must perform an annual qualitative assessment of three spill channels (if utilized during the previous calendar year): Bear River (RM 35.3), Bear Valley (RM 33.6) and Tahoe spills (RM 31.75). The purpose is to identify any locations where active erosion is occurring following spill flows.

Results of the annual assessment and any qualitative or quantitative monitoring from the prior water year must be provided at the annual consultation meeting and filed with the Commission. Based on monitoring results and the annual assessments, the licensee must work with appropriate agencies to identify and implement any collaboratively agreed upon remedial actions to address any new, adverse project-related effects such as:

- Vertical Bear River banks (locations where project-related bank erosion has caused vertical or slumped banks but tributary inflow has not caused development of a nick or

headcut); remediation may include laying back the banks and establishing bank protection by covering with fabric and planting with sedges and willow cuttings.

- Nicks (locations where project-related bank erosion along the Bear River could develop into a headcut that could migrate into the meadow due to a combination of bank erosion and tributary drainage inflow); remediation may include sloping of the bank face of nicks that occur on the channel banks and establishment of toe protection by laying fabric and willow wattles to prevent further erosion.
- Headcuts (locations where project-related bank erosion combined with tributary drainage have developed into a gully and/or tributary that has a headcut that is actively migrating away from the Bear River mainstem and into the terrace/meadow surface); remediation may include filling the gullies that have been formed by headcuts migrating away from the main Bear River channel, planting with willow and/or laying in fabric and rock to prevent further erosion and migration of the headcut.

The licensee must file with the Commission documentation of remedial work conducted under this article.

The licensee must consult with appropriate agencies and obtain necessary permits prior to undertaking the remediation activities. Any locations where the licensee has performed remediation efforts must be monitored annually using photo points for 5 years subsequent to the remediation activities.

Draft Article 4XX. *Integrated Vegetation Management Plan.* The Integrated Vegetation Management Plan, required by Forest Service condition 38, filed on November 21, 2013, must apply to all accessible lands within the project boundary, particularly recreation sites and sensitive habitats and lands disturbed by future construction, recreational use, and project maintenance.

Within 6 months of license issuance, the licensee must file for Commission approval a revised Integrated Vegetation Management Plan. The revised plan must include a list of culturally significant plant species that occur at the project and specific provisions the licensee will undertake to protect and preserve the culturally significant species or their habitats found within the project boundary.

The revised plan must be prepared after consultation with the Greenville Rancheria of Maidu Indians, Shingle Springs Band of Miwok Indians, the United Auburn Indian Community, and the Washoe Tribe of Nevada and California. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the tribes, and specific descriptions of how the tribes' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the tribes to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the revised plan. Implementation of the revised plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the revised plan, including any changes required by the Commission.

Draft Article 4XX. *Wildlife Crossing Plan.* Within 1 year of license issuance, the licensee must file, for Commission approval, a Wildlife Crossing Plan. The plan must include,

consistent with Forest Service condition 41: (1) provisions for the licensee to within 5 years of license issuance to retrofit existing footbridges or construct new wildlife crossings at or near specified locations on the Drum Canal and South Yuba Canal. The wildlife crossings must meet minimum specifications to be described in the plan; (2) a schedule for the installation of the wildlife crossings, as well as provisions for the licensee to submit final designs of newly constructed crossing facilities to the Forest Service, BLM and California Department of Fish and Wildlife (California Fish and Wildlife); (3) provisions for monitoring new or retrofitted wildlife crossings, using cameras or other appropriate means, so as to determine if adjustments to the crossings are needed; (4) provisions for preparing a written report and providing the report to the Commission and federal agencies annually; and (5) provisions for periodic (every 10 year) review of licensee-maintained wildlife crossings in consultation with the Forest Service, BLM, and California Fish and Wildlife.

The Wildlife Crossing Plan must also contain, consistent with Forest Service conditions 39 and 40, provisions for: (1) monitoring animal losses in project canals; and (2) replacement of wildlife escape and wildlife crossing facilities. The animal loss monitoring portion of the plan must detail the licensee's plans to record and report all dead animals found in the project canals, using a Wildlife Mortality data sheet. The plan must specify the information to be recorded, and how the information will be reported to the Commission and agencies, annually.

The Wildlife Crossing Plan must also contain provisions for the licensee to consult with California Fish and Wildlife prior to replacing or retrofitting existing wildlife escape or crossing facilities along project canals. The plan must indicate the licensee's plans to provide the Commission of evidence of such consultation within 60 days after the wildlife escape or crossing facility has been replaced or retrofitted. The Wildlife Crossing Plan must also contain provisions for the licensee to annually assess existing wildlife crossing or escape facilities to ensure that are functional and in proper working order.

The plan shall be prepared after consultation with the Forest Service, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Avian Management Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, an Avian Management Plan. The plan must include, and be consistent with Forest Service conditions 46 and 47: (1) provisions for the use of raptor-safe powerline design configurations described in Avian Protection on Powerline Interaction Committee's (APLIC) "Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006, or the most current edition of the APLIC document as a guideline for all new project powerlines, or when replacing existing poles, phase conductors, and associated equipment, at the project; and (2) recording of all incidental observations of bird collisions/electrocutions along project powerlines including, at minimum, (a) date of observation,

(b) location of observation, (c) species, if identifiable, (d) number of birds, (e) condition of birds, (f) suspected cause of injury or death, and (g) bird band number, if banded. The plan should include a schedule for implementing recording of bird collisions, as well as provisions for reporting the results of the bird collision recording to the Commission and agencies, annually.

The Avian Management Plan must also include, consistent with the Integrated Vegetation Management Plan, specific provisions for limited operating periods (LOPs) for activities that involve the use of heavy equipment, loud noises, or habitat alteration to protect special-status wildlife, including (1) for California spotted owl, maintain a limited operating period (LOP) within a buffer that includes the 300 acre Protected Activity Centers (PAC), plus an additional 0.25-mile area around the PAC during the breeding season (March 1 through August 15), unless surveys confirm that California spotted owls are not nesting; (2) for northern goshawk, maintain a LOP, prohibiting vegetation treatments within a 0.25 mile of the nest site during the breeding season (February 15 through September 15), unless protocol surveys confirm that northern goshawks are not nesting; and (3) for great gray owl, prohibit vegetation treatments and road construction within 0.25 mile of an active great gray owl nest stand during the nesting period (typically March 1 to August 15).

The Avian Management Plan must also include, consistent with Forest Service condition 51, specific provisions for monitoring and recording activities that may disturb the California spotted owl and northern goshawk PACs, and within suitable habitat for those species. The information to be recorded must include: (1) a description of the activity; (2) activity duration; (3) the location of the activity; and (4) a spatial display of the activity location proximity to the PAC and suitable habitat. The plan must also include provisions for additional sensitive raptor surveys to be conducted, if after the first 3 years of reporting, noise disturbances have been determined, in consultation with the agencies, to have the potential to disrupt more than two territories annually.

The plan shall be prepared after consultation with the Forest Service, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Bat Management Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, a Bat Management Plan. The plan must include, consistent with Forest Service condition 48: (1) provisions for the licensee to document all known bat roosts within project buildings or other project structures that may be used for roosting; (2) a schedule for completing the initial bat roosting documentation; and (3) provisions for installing appropriate exclusion devices, where feasible, to prevent occupation of the structure by bats. The plan must also include provisions for annually reporting the results of the licensee's bat roost inspections to the Commission and agencies, and for annual consultation with the agencies regarding the need for and installation of bat exclusionary devices.

The plan shall be prepared after consultation with the Forest Service, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Fish Stocking Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, a plan to evaluate and monitor the location, frequency, age, and number/weight of fish to be stocked annually in Lake Spaulding, Lake Valley reservoir, Fuller Lake, and Lower Lindsey Lake, and to be stocked in Fordyce Lake and Meadow Lake every other year until the first Form 80 reporting year after implementation of the plan. The plan must include provisions for periodic review of angling use levels, including fish stocking at additional reservoirs, specifically Carr, Culbertson, Feeley, Upper Lindsey, Lower Rock, Upper Rock, Blue and White Rock Lakes, and Lake Sterling, should the need arise based on the periodic review; annual consultation with California Department of Fish and Wildlife (California Fish and Wildlife), Forest Service, and U.S. Fish and Wildlife Service (FWS); and an annual summary report of fish stocking activities.

The Fish Stocking Plan must be developed after consultation with California Fish and Wildlife, Forest Service, and FWS. The licensee must include with the plan an implementation schedule, documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the entities above, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Recreation Streamflow Information. The plan to provide real-time streamflow information, required by Forest Service condition 54, must include providing real-time (15-minute intervals) streamflow information to the public on the internet for the four reaches (Fordyce Creek below Fordyce dam, South Yuba River below Kidd Lake and Lower Peak Lake dam [at Cisco Grove], South Yuba River below Lake Spaulding at Lang's Crossing, and the Bear River at Highway 20) where it is currently provided in 15-minute intervals, on a year-round basis.

The plan must be developed after consultation with California Department of Fish and Wildlife, the Forest Service, California Water Board, Foothills Water Network, and American Whitewater. The licensee must include with the plan an implementation schedule, documentation of consultation, copies of recommendations on the completed plan after it has been prepared and

provided to the entities above, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Fire Prevention and Response Plan. The Fire Prevention and Response Plan, required by Forest Service condition 58, filed on November 21, 2013, must apply to all lands within the project boundary and must include a period of review and revision. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Hazardous Substances Plan. The Hazardous Substances Plan required by Forest Service condition 21 must apply to all project lands. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Programmatic Agreement and Historic Properties Management Plan. The licensee must implement the "Programmatic Agreement Between the Federal Energy Regulatory Commission and the State of California Historic Preservation Officer for Managing Historic Properties that May be Affected by Issuing of Licenses to PG&E for the Upper Drum-Spaulding, Lower, and Deer Creek Hydroelectric Projects in Placer and Nevada Counties, California (FERC Nos. 2310, 14530, and 14531)," executed on _____, and including but not limited to the Historic Properties Management Plan (HPMP) for the project. In the event that the Programmatic Agreement is terminated, the licensee must continue to implement the provisions of its approved HPMP. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license.

Draft Article 4XX. Use and Occupancy. (a) In accordance with the provisions of this article, the licensee must have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee must also have continuing responsibility to supervise and control the use and occupancies, for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee must take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family

type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee must require multiple use and occupancy of facilities for access to project lands or waters. The licensee must also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee must: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the impoundment shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project impoundment. No later than January 31 of each year, the licensee must file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires

the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee must consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the licensee must determine that the proposed use of the lands to be conveyed is not inconsistent with any approved report on recreational resources of an Exhibit E; or, if the project does not have an approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed must not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee must take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee must not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project must be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this article must not apply to any part of the public lands and reservations of the United States included within the project boundary.

Appendix F-2

Draft License Articles: Lower Drum Project

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DRAFT LICENSE ARTICLES: LOWER DRUM PROJECT

I. MANDATORY CONDITIONS

On July 31, 2012, the U.S. Department of the Interior, Bureau of Reclamation (Reclamation) filed 15 4(e) conditions (described in section 2.2.4.2 of the EIS and included in appendix H-3). We consider 11 of these conditions (A, b.2 through b.8, b.12, b.13, and b.14) to be administrative or legal in nature and not specific environmental measures. Of the four conditions we consider to be environmental measures applicable to the Lower Drum Project, we include three¹ of these conditions in the staff alternative as specified by Reclamation. We recognize, however, that the Commission is required to include valid 4(e) conditions in any license issued for the project. As such, each of the measures that staff recommend be modified in the staff alternative (as discussed in section 5.1.2, *Comprehensive Development and Recommended Alternative*) would not be included in any license issued by the Commission. Instead, those conditions would be replaced with Reclamation's corresponding conditions, as filed with the Commission.

II. ADDITIONAL LICENSE ARTICLES RECOMMENDED BY COMMISSION STAFF

We recommend including the following license articles in any license issued for the project in addition to the mandatory conditions.

Draft Article 4XX. Coordinated Operations Plan. Within 6 months of license issuance, the licensee must file, for Commission approval, a Coordinated Operations Plan. The purpose of the Plan must be to provide for coordination between the Upper Drum-Spaulding, Lower Drum, and the Yuba-Bear projects regarding implementation of flow-related measures in each Project's license.

The plan must be prepared after consultation with Forest Service, Bureau of Land Management, Bureau of Reclamation, California Department of Fish and Wildlife, and California State Water Resources Control Board. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

¹ As explained in section 5 of the EIS, we recommend modifying the following condition specified by Reclamation: Discovery of Cultural Resources (condition b.11).

Draft Article 4XX. Annual Employee Training. The licensee must, beginning in the first full calendar year after license issuance, annually perform employee awareness training and must also perform such training when a staff member is first assigned to the project. The goal of the training must be to familiarize licensee's operations and maintenance staff with special-status species, noxious weeds and sensitive areas that are known to occur within or adjacent to the Project Boundary, and the procedures for reporting to each agency, as appropriate, to comply with the license requirements. It is not the intent of this measure that the licensee's staff perform surveys or become specialists in the identification of special-status species or noxious weeds. The licensee must direct its staff to avoid disturbance to sensitive areas, and to advise all licensee contractors to avoid sensitive areas. If the licensee determines that disturbance of a sensitive area is unavoidable, the licensee must consult with the agencies to minimize adverse effects to sensitive resources. This measure applies to employee training that is not otherwise covered by a specific plan.

Draft Article 4XX. Reservation of Authority to Prescribe Fishways. Authority is reserved by the Commission to require the licensee to construct, operate, and maintain or to provide for the construction, operation, and maintenance of such fishways as may be prescribed by the Secretaries of Interior or Commerce pursuant to section 18 of the Federal Power Act.

Draft Article 4XX. Canal Release Point Plan. The licensee must implement the Canal Release Point Plan filed on April 11, 2014. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Erosion and Sediment Control and Management Plan. The licensee must implement the Erosion and Sediment Control and Management Plan filed on April 11, 2014. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Water Year Types. Within 90 days of license issuance, the licensee must in each year in each of the months of February, March, April, May and October determine water year type as described in the Water Year Type table below. The licensee must use this determination in implementing articles and conditions of the license that are dependent on water year type. Water year types must be defined as:

(a) *Water Year types for the Lower Drum Project.*

Water Year Type	California Department of Water Resource (DWR) Forecast of Total Unimpaired Runoff in the Yuba River at Smartville in Thousand Acre-Foot or DWR Full Natural Flow Near Smartville for the Water Year in Thousand Acre-feet¹
Extreme Critically Dry	Equal to or less than 615
Critically Dry	616 to 900
Dry	901 to 1,460
Below Normal	1,461 to 2,190
Above Normal	2,191 to 3,240
Wet	Greater than 3,240

¹ DWR rounds the Bulletin 120 forecast to the nearest 1,000 acre-feet. The Full Natural Flow is provided to the nearest acre-foot, and the licensee will round DWR's Full Natural Flow to the nearest 1,000 acre-feet.

In each of the months of February, March, April and May, the water year type must be based on DWR water year forecast of unimpaired runoff in the Yuba River at Smartville as set forth in DWR's Bulletin 120 entitled "Water Year Conditions in California." DWR's forecast

published in February, March and April must apply from the 15th day of that month to the 14th day of the next month. From May 15 through October 14, the water year type must be based on DWR’s forecast published in May.

From October 15 through February 14 of the following year, the water year type must be based on the sum of DWR’s monthly (not daily) full natural flow for the full water year for the Yuba River near Smartville as made available by DWR on the California Data Exchange Center (CDEC) in the folder named “FNF Sum.” (Currently these data are available at: <http://cdec.water.ca.gov/cgi-progs/stages/FNFSUM>). If DWR does not make the full natural flow for the full water year available until after October 14 but prior to or on October 31, from 3 days after the date the full natural flow is made available until February 14 of the following year, the water year type must be based on the sum of DWR’s monthly full natural flow for the full water year as made available. If DWR does not make available the final full natural flow by October 31, the water year type from November 1 through February 14 of the following year must be based on DWR’s May Bulletin 120.

Draft Article 4XX. Minimum Streamflows. The licensee must release the following instantaneous minimum streamflows in Dry Creek, Rock Creek, Auburn Ravine, and Mormon Ravine:

Required minimum streamflows (cubic feet per second) for the Lower Drum Project – Dry Creek below Halsey afterbay dam (Compliance Point: Gage YB-62A)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	1	1	1	1
November	1	1	1	1	1	1
December	1	1	1	1	1	1
January	1	1	1	1	1	1
February	1	1	1	1	1	1
March	1	1	1	1	1	1
April	1	1	1	1	1	1
May	1	1	1	1	1	1
June	1	1	1	1	1	1
July	1	1	1	1	1	1
August	1	1	1	1	1	1
September	1	1	1	1	1	1

Required minimum streamflows (cubic feet per second) for the Lower Drum Project
 – Rock Creek below Rock Creek reservoir dam (Compliance Point: Gage YB 86)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1	1	1	1	2	3
November	1	1	1	1	2	3
December	1	1	1	1	2	3
January	1	1	1	1	2	3
February	1	1	1	1	2	3
March	3	3	3	3	3	3
April	1	1	1	1	2	3
May	1	1	1	1	2	3
June	1	1	1	1	2	3
July	1	1	1	1	2	3
August	1	1	1	1	2	3
September	1	1	1	1	2	3

Required minimum streamflows (cubic feet per second) for Auburn Ravine below South canal release point by month and water year type (Compliance Point: New gage as close downstream of South canal release point as reasonably possible).

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	2	2	4	4	4	4
November	2	2	4	4	4	4
December	2	2	4	4	4	4
January	2	2	4	4	4	4
February	2	2	4	4	4	4
March	2	4	6	6	13	18
April	2	4	6	6	13	18
May	2	2	4	4	4	4
June	2	2	4	4	4	4
July	2	2	4	4	4	4
August	2	2	4	4	4	4
September	2	2	4	4	4	4

Required minimum streamflows (cubic feet per second) for the Lower Drum Project – Mormon Ravine below Newcastle powerhouse header box (Compliance Point: Gage YB-292)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
October	1 or 5 ^a	5	5	5	5	5
November	1 or 5 ^a	5	5	5	5	5
December	1 or 5 ^a	5	5	5	5	5
January	1 or 5 ^a	5	5	5	5	5
February	1 or 5 ^a	5	5	5	5	5
March	1 or 5 ^a	5	5	5	5	5
April	1 or 5 ^a	5	5	5	5	5
May	1 or 5 ^a	5	5	5	5	5
June	1 or 5 ^a	5	5	5	5	5
July	1 or 5 ^a	5	5	5	5	5
August	1 or 5 ^a	5	5	5	5	5
September	1 or 5 ^a	5	5	5	5	5

^a 1 cfs if Newcastle powerhouse not operating; 5 cfs if Newcastle powerhouse is operating.

Except as otherwise provided, the licensee must implement the required minimum streamflows within 90 days of license issuance, unless facility modifications or construction are necessary. Where facilities must be modified or constructed to allow compliance with the required minimum streamflows, including flow measurement facilities, except as otherwise provided, the licensee must submit applications for permits to modify or construct the facilities as soon as reasonably practicable but no later than 2 years after license issuance and must complete the work as soon as reasonably practicable but no later than 2 years after receiving all required permits and approvals for the work. During the period before facility modifications or construction are completed, and starting within 90 days after license issuance, the licensee must to the extent practicable provide the required minimum streamflows within the reasonable capabilities of the existing facilities.

The minimum streamflow requirements may be temporarily modified if required by operating emergencies beyond the control of the licensee, and for short periods upon mutual agreement among the licensee, California Department of Fish and Wildlife, California State Water Resources Control Board, and U.S. Fish and Wildlife Service. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Draft Article 4XX. Coordination of the Lower Drum Project and the Yuba-Bear Project Operations Regarding the Yuba-Bear Project’s Streamflow Requirements in the Bear River

Below Rollins Reservoir at Gage YB-196. The licensee of the Lower Drum Project must not divert water to the Bear River canal that the licensee of the Yuba-Bear Project releases from Rollins reservoir to meet the Yuba-Bear Project's minimum streamflow requirement in the Bear River below the Rollins reservoir as measured at Nevada Irrigation District's (NID) YB-196 gage (USGS 11422500). The licensee's compliance with this measure will be the act of not diverting water into the Bear River canal that the licensee of the Yuba-Bear Project releases from Rollins reservoir to meet its minimum streamflow requirement in the Bear River below Rollins as determined utilizing data from NID's YB-196 gage in Bear River and PG&E's YB-50 gage in Bear River canal, and the coordinated operations flow forecasts for water that NID must provide at YB-196 and for water that PG&E must divert to the Bear River canal. If the minimum streamflow requirement is not being met at the YB-196 gage, the licensee of the Lower Drum Project must not divert water to the Bear River canal until such time as the minimum streamflow requirement at the YB-196 gage is met.

Draft Article 4XX. *Minimum Streamflow During Canal Outages.* During an outage of the Bear River, Upper Wise, Lower Wise, or South canals affecting the licensee's ability to release minimum streamflows the following minimum stream flows must be maintained in the project-affected reaches:

- Minimum streamflow in Dry Creek below Halsey afterbay dam must be no less than leakage from the Halsey afterbay dam measured at YB-62a.
- Minimum streamflow in Rock Creek below Rock Creek reservoir must be no less than inflow from Rock Creek above Rock Creek reservoir measured at YB-86.
- No minimum streamflow is required at YB-292 during outages of Bear River, Upper Wise, Lower Wise, or South canals.
- Minimum streamflow in Auburn Ravine below the release point from South canal must be the natural flow in Auburn Ravine measured as close as practicable upstream of the South canal release point.

Draft Article 4XX. *Canal Outage Fish Rescue Plan.* The licensee must implement the Canal Outage Fish Rescue Plan filed on November 21, 2013. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. *Gaging Plan.* The licensee must implement the Gaging Plan filed on April 11, 2014 by the Forest Service. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. *Aquatic Invasive Species Management and Monitoring Plan.* Within 1 year of license issuance, the licensee must file, for Commission approval, an Aquatic Invasive Species Management and Monitoring Plan. The plan must address the following species: Quagga mussel (*Dreissena bugensis*), zebra mussel (*Dreissina polymorpha*), New Zealand mud snail (*Potamopyrgus antipodarum*), Eurasian milfoil (*Myriophyllum spicatum*), Hydrilla (*Hydrilla verticillata*), and Asian clam (*Corbicula fluminea*). Other species may be added as necessary. The plan must include: (1) provisions for incidental observation and sampling, as necessary; (2) best management procedures for control of aquatic invasive species; (3) public education and control in recreation areas and access points; and (4) provisions describing reporting requirements.

The plan must be prepared after consultation with the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and Foothills Water Network. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Fish Population Monitoring Plan. The licensee must implement the Fish Population Monitoring Plan filed on November 21, 2013. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Incidental Observations of Western Pond Turtles. The licensee must implement procedures to document and report incidental observations of the western pond turtle to the California Department of Fish and Wildlife in conjunction with other monitoring and operations.

Draft Article 4XX. Aquatic Benthic Macroinvertebrate Monitoring Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, an Aquatic Benthic Macroinvertebrate Monitoring Plan. The plan must include provisions: (1) describing monitoring methods consistent with the Surface Water Ambient Monitoring Program (SWAMP) methods; (2) identifying sampling locations; (3) describing the schedule and frequency of monitoring; and (4) describing data handling and analysis and reporting requirements.

The plan must be prepared after consultation with the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and Foothills Water Network. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Water Temperature and Stage Monitoring Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, a Water Temperature and Stage Monitoring Plan. The plan must include provisions: (1) describing monitoring methods, instrumentation, and quality control; (2) identifying monitoring locations; (3) describing the schedule and frequency of monitoring; and (4) describing data handling and analysis and reporting requirements.

The plan must be prepared after consultation with the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, California State Water Resources Control Board, and Foothill Water Network. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the consulted entities, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information. The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Integrated Vegetation Management Plan. The licensee must implement the March 2013 Integrated Vegetation Management Plan filed on November 21, 2013. The plan must apply to all accessible lands within the project boundary, particularly recreation sites and sensitive habitats and lands disturbed by future construction, recreational use, and project maintenance.

Within 6 months of license issuance, the licensee must file for Commission approval a revised Integrated Vegetation Management Plan. The revised plan must include a list of culturally significant plant species that occur at the project and specific provisions the licensee will undertake to protect and preserve the culturally significant species or their habitats found within the project boundary.

The revised plan must be prepared after consultation with the Greenville Rancheria of Maidu Indians, Shingle Springs Band of Miwok Indians, the United Auburn Indian Community, and the Washoe Tribe of Nevada and California. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the tribes, and specific descriptions of how the tribes' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the tribes to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the revised plan. Implementation of the revised plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the revised plan, including any changes required by the Commission.

Draft Article 4XX. Wildlife Crossing Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, a Wildlife Crossing Plan. The plan must include: (1) provisions for the licensee to construct new wildlife crossings at or near specified locations on the Bear canal and South canal. The wildlife crossings must meet minimum specifications to be described in the plan; (2) a schedule for the installation of the wildlife crossings, as well as provisions for the licensee to submit final designs of newly constructed crossing facilities to the Bureau of Reclamation (Reclamation) and California Department of Fish and Wildlife (California Fish and Wildlife); (3) provisions for monitoring new or retrofitted wildlife crossings, using cameras or other appropriate means, so as to determine if adjustments to the crossings are needed; (4) provisions for preparing a written report and providing the report to the Commission and state

and federal agencies annually; and (5) provisions for periodic review of licensee-maintained wildlife crossings in consultation with the Reclamation and California Fish and Wildlife.

The Wildlife Crossing Plan must also contain provisions for: (1) monitoring animal losses in project canals; and (2) replacement of wildlife escape and wildlife crossing facilities. The animal loss monitoring portion of the plan must detail the licensee's plans to record and report all dead animals found in the project canals, using a Wildlife Mortality data sheet. The plan must specify the information to be recorded, and how the information will be reported to the Commission and agencies, annually.

The Wildlife Crossing Plan must also contain provisions for the licensee to consult with California Fish and Wildlife prior to replacing or retrofitting existing wildlife escape or crossing facilities along project canals. The plan must indicate the licensee's plans to provide the Commission of evidence of such consultation within 60 days after the wildlife escape or crossing facility has been replaced or retrofitted. The Wildlife Crossing Plan must also contain provisions for the licensee to annually assess existing wildlife crossing or escape facilities to ensure that are functional and in proper working order.

The plan must be prepared after consultation with the U.S. Fish and Wildlife Service, Reclamation, and California Fish and Wildlife. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Bat Management Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, a Bat Management Plan. The plan must include: (1) provisions for the licensee to document all known bat roosts within project buildings or other project structures that may be used for roosting; (2) a schedule for completing the initial bat roosting documentation; and (3) provisions for installing appropriate exclusion devices, where feasible, to prevent occupation of the structure by bats. The plan must also include provisions for annually reporting the results of the licensee's bat roost inspections to the Commission and agencies, and for annual consultation with the agencies regarding the need for and installation of bat exclusionary devices.

The plan must be prepared after consultation with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Bald Eagle Management Plan. The licensee must implement the Bald Eagle Management Plan filed on November 21, 2013. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Avian Management Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, an Avian Management Plan. The plan must include: (1) provisions for the use of raptor-safe powerline design configurations described in Avian Protection on Powerline Interaction Committee's (APLIC) "Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006, or the most current edition of the APLIC document as a guideline for all new project powerlines, or when replacing existing poles, phase conductors, and associated equipment, at the project; and (2) recording of all incidental observations of bird collisions/electrocutions along project powerlines including, at minimum, (a) date of observation, (b) location of observation, (c) species, if identifiable, (d) number of birds, (e) condition of birds, (f) suspected cause of injury or death, and (g) bird band number, if banded. The plan should include a schedule for implementing recording of bird collisions, as well as provisions for reporting the results of the bird collision recording to the Commission and agencies, annually.

The Avian Management Plan must also include, consistent with the Integrated Vegetation Management Plan, specific provisions for limited operating periods (LOPs) for activities that involve the use of heavy equipment, loud noises, or habitat alteration to protect special-status wildlife, including (1) for California spotted owl, maintain a limited operating period (LOP) within a buffer that includes the 300-acre Protected Activity Centers (PAC), plus an additional 0.25-mile area around the PAC during the breeding season (March 1 through August 15), unless surveys confirm that California spotted owls are not nesting; (2) for northern goshawk, maintain a LOP, prohibiting vegetation treatments within a 0.25 mile of the nest site during the breeding season (February 15 through September 15), unless protocol surveys confirm that northern goshawks are not nesting; and (3) for great gray owl, prohibit vegetation treatments and road construction within 0.25 mile of an active great gray owl nest stand during the nesting period (typically March 1 to August 15).

The Avian Management Plan must also include specific provisions for monitoring and recording activities that may disturb the California spotted owl and northern goshawk PACs, and within suitable habitat for those species. The information to be recorded must include: (1) a description of the activity; (2) activity duration; (3) the location of the activity; and (4) a spatial display of the activity location proximity to the PAC and suitable habitat. The plan must also include provisions for additional sensitive raptor surveys to be conducted, if after the first 3 years of reporting, noise disturbances have been determined, in consultation with the agencies, to have the potential to disrupt more than two territories annually.

The plan must be prepared after consultation with the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the

Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Fish Stocking Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, a plan to evaluate and monitor the location, frequency, age, and number/weight of fish to be stocked annually in Halsey forebay. The plan must include provisions for periodic review of angling use levels, including fish stocking at additional reservoirs, should the need arise based on the periodic review, specifically Rock Creek reservoir, and annual consultation with the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service (FWS).

The Fish Stocking Plan must be developed after consultation with California Department of Fish and Wildlife and FWS. The licensee must include with the plan an implementation schedule, documentation of consultation, copies of recommendations on the completed plan after it has been prepared and provided to the entities above, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Recreation Plan. The licensee must implement the Recreation Plan dated September 2013 and filed on November 18, 2013. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Transportation Plan. The licensee must implement the Transportation Plan filed on August 29, 2012. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Fire Prevention and Response Plan. The licensee must implement the Fire Prevention and Response Plan filed on November 21, 2013 and the plan must apply to all lands within the project boundary and must include a period of review and revision. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Hazardous Substances Plan. Within 1 year of license issuance or prior to undertaking activities on project lands, the licensee must file, for Commission approval, a Hazardous Substances Plan. The plan must require the licensee to: (1) maintain in the project area, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) inform affected parties of the location of the spill cleanup equipment and of the location, type, and quantity of oil and hazardous substances stored in the project area; and (3) inform affected parties immediately of the magnitude, nature, time, date, location, and action taken for any spill. The plan must include a monitoring plan that details corrective measures that will be taken if spills occur. The Hazardous Substances Plan must cover all project lands.

The plan must be prepared after consultation with Bureau of Reclamation, California State Water Resources Control Board, California Department of Fish and Wildlife, and the Regional Water Quality Control Board. The licensee must include with the plan documentation of consultation, copies of comments and recommendations, and a description of how the comments and recommendations are accommodated by the plan. The licensee must allow a minimum of 30 days for review and comment before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. *Programmatic Agreement and Historic Properties Management Plan.* The licensee must implement the "Programmatic Agreement Between the Federal Energy Regulatory Commission and the State of California Historic Preservation Officer (SHPO) for Managing Historic Properties that May be Affected by Issuing of Licenses to PG&E for the Upper Drum-Spaulding, Lower Drum, and Deer Creek Hydroelectric Projects in Placer and Nevada Counties, California (FERC Nos. 2310, 14530, and 14531)," executed on _____, and including but not limited to the Historic Properties Management Plan (HPMP) for the project. In the event that the Programmatic Agreement is terminated, the licensee must continue to implement the provisions of its approved HPMP. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license.

Draft Article 4XX. *Use and Occupancy.* (a) In accordance with the provisions of this article, the licensee must have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee must also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee must take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee must require multiple use and occupancy of facilities for access to project lands or waters. The licensee must also ensure, to the satisfaction of the

Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee must: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the impoundment shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project impoundment. No later than January 31 of each year, the licensee must file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee must consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the SHPO.

(2) Before conveying the interest, the licensee must determine that the proposed use of the lands to be conveyed is not inconsistent with any approved report on recreational resources of an Exhibit E; or, if the project does not have an approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed must not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee must take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee must not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project must be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this article must not apply to any part of the public lands and reservations of the United States included within the project boundary.

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Appendix F-3

Draft License Articles: Deer Creek Project

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DRAFT LICENSE ARTICLES: DEER CREEK PROJECT

I. MANDATORY CONDITIONS

On April 10, 2014, the U.S. Department of Agriculture, Forest Service (Forest Service) filed 59 revised final 4(e) conditions (described in section 2.2.4.3 of the environmental impact statement [EIS] and included in appendix H-1). We consider 51 conditions to be applicable to the Deer Creek Project, and of those 51 conditions, we consider 23 of these conditions (3 through 20, 23, 24, 35, 36, and 59) to be administrative or legal in nature and not specific environmental measures. Of the 28 conditions we consider to be environmental measures, we include 27¹ of these conditions in the staff alternative as specified by the Forest Service. We recognize, however, that the Federal Energy Regulatory Commission (FERC or Commission) is required to include valid 4(e) conditions in any license issued for the project. As such, each of the measures that staff recommend be modified in the staff alternative (as discussed in section 5.1.2, *Comprehensive Development and Recommended Alternative*) would not be included in any license issued by the Commission. Instead, those conditions would be replaced with the Forest Service's corresponding conditions, as filed with the Commission.

On April 14, 2014, the U.S. Department of the Interior, Bureau of Land Management (BLM) filed 50 4(e) conditions (described in section 2.2.4.3 of the EIS and included in appendix H-2). We consider 46 conditions to be applicable to the Deer Creek Project, and of those 46 conditions, we consider 23 of these conditions (8, 24 through 32, 34, 35, 36, and 38 through 47) to be administrative or legal in nature and not specific environmental measures. Of the 23 conditions we consider to be environmental measures, we include 21² of these conditions in the staff alternative as specified by BLM. We recognize, however, that the Commission is required to include valid 4(e) conditions in any license issued for the project. As such, each of the measures that staff recommend be modified in the staff alternative (as discussed in section 5.1.2, *Comprehensive Development and Recommended Alternative*) would not be included in any license issued by the Commission. Instead, those conditions would be replaced with BLM's corresponding conditions, as filed with the Commission.

II. ADDITIONAL LICENSE ARTICLES RECOMMENDED BY COMMISSION STAFF

We recommend including the following license articles in any license issued for the project in addition to the mandatory conditions.

¹ As explained in section 5 of the EIS, we do not recommend Forest Service's condition 44, biological evaluation of *Special Status Species*.

² As explained in section 5 of the EIS, we do not recommend BLM's condition 6, *Recreation Agreement*, and condition 13, preparation of a biological evaluation of *Special Status Species*.

Draft Article 4XX. Commission Approval, Notification, and Filing of Amendments.

(a) Requirement to File Plans for Commission Approval

Various mandatory conditions specified by the Forest Service and Bureau of Land Management (BLM) under section 4(e) require Pacific Gas & Electric (PG&E) to prepare plans in consultation with other entities for approval by the Forest Service and BLM; some of these measures do not specify that Commission approval is required prior to implementation. Each such plan must also be submitted to the Commission for approval. These plans are listed below.

Forest Service condition	Plan name	Due date
21	Oil And Hazardous Substances Storage And Spill Prevention And Cleanup Plan	Within 1 year of license issuance
37	Aquatic Invasive Species Management Plan	Within 1 year of license issuance
41	Wildlife Crossing Plan for South Yuba canal	Within 1 year of license issuance

BLM condition	Plan name	Due date
2	Coordinated Operations Plan	Within 90 days of license issuance
10	Wildlife Crossings Plan for the South Yuba and Chalk Bluff canals	Within 1 year of license issuance

(b) Requirement to File Reports

Some Forest Service and BLM section 4(e) conditions require PG&E to file reports with other entities. These reports document compliance with requirements of this license and may have a bearing on future actions. Each such report must also be submitted to the Commission. These reports are listed in the following table.

Forest Service condition	Description	Due date
1	Reports documenting annual meetings with the Forest Service and other stakeholders	Within 60 days of the meeting
1	Reports documenting issues related to public safety and non-compliance	As soon as possible
39	Recommendations and implementation schedule to reduce animal mortality in canal, if increasing mortality trend	Following direction from review at annual consultation meeting
44	Biological evaluation for special status species and their habitats for construction of new project features	Prior to construction action

Forest Service condition	Description	Due date
53	6-year and 12-year Recreation Survey and Monitoring Reports (component of Recreation Plan required by condition 53)	At 6 and 12 years after license issuance to coincide with FERC Form 80 reporting cycle

BLM condition	Description	Due date
11	Recommendations and implementation schedule to reduce animal mortality in canal, if increasing mortality trend	Following direction from review at annual consultation meeting
13	Biological evaluation for special status species and their habitats for construction of new project features	Prior to construction action
23	Reports documenting annual meetings with BLM and other stakeholders	Within 60 days of the meeting
23	Reports documenting issues related to public safety and non-compliance	As soon as possible

(c) Requirement to Notify Commission of Planned and Unplanned Deviations from License Requirements

Certain Forest Service and BLM 4(e) conditions would allow PG&E to temporarily modify project operations under certain situations. The Commission must be notified prior to implementing such modifications, if possible, or in the event of an emergency, as soon as possible, but no later than 10 days after each such incident.

Forest Service condition	License requirement
29	Temporary modification of minimum streamflows following consultation or due to an emergency
29	Notification of schedule or change of schedule for routine and non-routine planned canal outages affecting minimum streamflows; notification within 1 business day of emergency canal outage
29	Notification and consultation on minimum streamflows during canal outages lasting longer than 30 days

BLM condition	License requirement
4	Notification of schedule or change of schedule for routine and non-routine planned canal outages affecting minimum streamflows; notification within 1 business day of emergency canal outage

(d) Requirement to File Amendment Applications

Certain Forest Service and BLM conditions appear to contemplate these agencies requiring unspecified long-term changes to project operations or facilities based on new information or results of monitoring but do not appear to require Commission approval for such changes (e.g., modification of supplemental flows, anadromous fish introduction). Such changes may not be implemented without prior Commission authorization granted after the filing of an application to amend the license.

Draft Article 4XX. Integrated Vegetation Management Plan. The Integrated Vegetation Management Plan, required by Forest Service condition 38 and Bureau of Land Management condition 17, filed on November 21, 2013, must apply to all accessible lands within the project boundary, particularly recreation sites and sensitive habitats and lands disturbed by future construction, recreational use, and project maintenance.

Within 6 months of license issuance, the licensee must file for Commission approval a revised Integrated Vegetation Management Plan. The revised plan must a list of culturally significant plants that occur at the project and specific provisions the licensee will undertake to protect and preserve the culturally significant species or their habitats found within the project boundary.

The revised plan must be prepared after consultation with the Greenville Rancheria of Maidu Indians, Shingle Springs Band of Miwok Indians, the United Auburn Indian Community, and the Washoe Tribe of Nevada and California. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the revised plan. Implementation of the revised plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the revised plan, including any changes required by the Commission.

Draft Article 4XX. Avian Management Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, an Avian Management Plan. The plan must include, consistent with Forest Service conditions 46 and 47 and Bureau of Land Management condition 15: (1) provisions for the use of raptor-safe powerline design configurations described in Avian Protection on Powerline Interaction Committee's (APLIC) "Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006, or the most current edition of the APLIC document as a guideline for all new project powerlines, or when replacing existing poles, phase conductors, and associated equipment, at the project; and (2) recording of all incidental observations of bird collisions/electrocutions along project powerlines including, at minimum, (a) date of observation, (b) location of observation, (c) species, if identifiable, (d) number of birds,(e) condition of birds, (f) suspected cause of injury or death, and (g) bird band number, if banded.

The plan should include a schedule for implementing recording of bird collisions, as well as provisions for reporting the results of the bird collision recording to the Commission and agencies, annually.

The plan shall be prepared after consultation with the Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Wildlife Crossing Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, a Wildlife Crossing Plan. The plan must include, consistent with Forest Service condition 41: (1) provisions for the licensee to within 5 years of license issuance to retrofit existing footbridges or construct new wildlife crossings. The wildlife crossings must meet minimum specifications to be described in the plan; (2) a schedule for the installation of the wildlife crossings, as well as provisions for the licensee to submit final designs of newly constructed crossing facilities to the Forest Service, BLM and California Department of Fish and Wildlife (California Fish and Wildlife); (3) provisions for monitoring new or retrofitted wildlife crossings, using cameras or other appropriate means, so as to determine if adjustments to the crossings are needed; (4) provisions for preparing a written report and providing the report to the Commission and federal agencies annually; and (5) provisions for periodic (every 10 year) review of licensee-maintained wildlife crossings in consultation with the Forest Service, BLM, and California Fish and Wildlife.

The Wildlife Crossing Plan must also contain, consistent with Forest Service conditions 39 and 40, provisions for: (1) monitoring animal losses in project canals; and (2) replacement of wildlife escape and wildlife crossing facilities. The animal loss monitoring portion of the plan must detail the licensee's plans to record and report all dead animals found in the project canals, using a Wildlife Mortality data sheet. The plan must specify the information to be recorded, and how the information will be reported to the Commission and agencies, annually.

The Wildlife Crossing Plan must also contain provisions for the licensee to consult with California Fish and Wildlife prior to replacing or retrofitting existing wildlife escape or crossing facilities along project canals. The plan must indicate the licensee's plans to provide the Commission of evidence of such consultation within 60 days after the wildlife escape or crossing facility has been replaced or retrofitted. The Wildlife Crossing Plan must also contain provisions for the licensee to annually assess existing wildlife crossing or escape facilities to ensure that are functional and in proper working order.

The plan shall be prepared after consultation with the Forest Service, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions

of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Bat Management Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, a Bat Management Plan. The plan must include, consistent with Forest Service condition 48: (1) provisions for the licensee to document all known bat roosts within project buildings or other project structures that may be used for roosting; (2) a schedule for completing the initial bat roosting documentation; and (3) provisions for installing appropriate exclusion devices, where feasible, to prevent occupation of the structure by bats. The plan must also include provisions for annually reporting the results of the licensee's bat roost inspections to the Commission and agencies, and for annual consultation with the agencies regarding the need for and installation of bat exclusionary devices.

The plan shall be prepared after consultation with the Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Fire Prevention and Response Plan. The Fire Prevention and Response Plan required by Forest Service condition 58 and Bureau of Land Management condition 18, filed on November 21, 2013, must apply to all lands within the project boundary and must include a period of review and revision. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Hazardous Substances Plan. The Hazardous Substances Plan required by Forest Service condition 21 and Bureau of Land Management condition 49 must apply to all project lands. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Programmatic Agreement and Historic Properties Management Plan. The licensee must implement the "Programmatic Agreement Between the Federal Energy Regulatory Commission and the State of California Historic Preservation Officer (SHPO) for Managing Historic Properties that May be Affected by Issuing of Licenses to PG&E for the Upper Drum-Spaulding, Lower Drum, and Deer Creek Hydroelectric Projects in Placer and Nevada Counties, California (FERC Nos. 2310, 14530, and 14531)," executed on _____, and including but not limited to the Historic Properties Management Plan

(HPMP) for the project. In the event that the Programmatic Agreement is terminated, the licensee must continue to implement the provisions of its approved HPMP. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license.

Draft Article 4XX. Use and Occupancy. (a) In accordance with the provisions of this article, the licensee must have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee must also have continuing responsibility to supervise and control the use and occupancies, for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee must take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee must require multiple use and occupancy of facilities for access to project lands or waters. The licensee must also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee must: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the impoundment shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons

per day from a project impoundment. No later than January 31 of each year, the licensee must file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee must consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the SHPO.

(2) Before conveying the interest, the licensee must determine that the proposed use of the lands to be conveyed is not inconsistent with any approved report on recreational resources of an Exhibit E; or, if the project does not have an approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed must not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee must take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee must not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project must be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this article must not apply to any part of the public lands and reservations of the United States included within the project boundary.

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Appendix G

Draft License Articles: Yuba-Bear Project

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DRAFT LICENSE ARTICLES: YUBA-BEAR PROJECT

I. MANDATORY CONDITIONS

On April 10, 2014, the U.S. Department of Agriculture, Forest Service (Forest Service) filed 63 revised final conditions (described in section 2.2.4.2 of the environmental impact statement [EIS] and included in appendix I-1). We consider 23 of these conditions (conditions 3 through 20, 23, 24, 35, 36, and 63) to be administrative or legal in nature and not specific environmental measures. Of the 40 conditions we consider to be environmental measures, we include 37¹ of these conditions in the staff alternative as specified by the Forest Service. We recognize, however, that the Federal Energy Regulatory Commission (FERC or Commission) is required to include valid 4(e) conditions in any license issued for the project. As such, each of the measures that staff recommend be modified in the staff alternative (as discussed in section 5.2.2, *Comprehensive Development and Recommended Alternative*) would not be included in any license issued by the Commission. Instead, those conditions would be replaced with the Forest Service's corresponding conditions, as filed with the Commission.

On April 14, 2014, the U.S. Department of the Interior, Bureau of Land Management (BLM) filed 66 revised final conditions (described in section 2.2.4.2 of the EIS and included in appendix I-2). We consider 21 of these conditions (conditions 13, 44 through 51, 54, 55, 56, and 58 through 66) to be administrative or legal in nature and not specific environmental measures. Of the 44 conditions we consider to be environmental measures, we include 40² of these conditions in the staff alternative as specified by BLM. We recognize, however, that the Commission is required to include valid 4(e) conditions in any license issued for the project. As such, each of the measures that staff recommend be modified in the staff alternative (as discussed in section 5.2.2, *Comprehensive Development and Recommended Alternative*) would not be included in any license issued by the Commission. Instead, those conditions would be replaced with BLM's corresponding conditions, as filed with the Commission.

¹ As explained in section 5 of the EIS, we recommend modifying the following conditions specified by the Forest Service: (1) condition 26, *Water Year Type*; and (2) condition 58, *Recreation Streamflow Information*. We do not recommend condition 43 preparation of a biological evaluation for *Special-status Species*.

² As explained in section 5 of the EIS, we recommend modifying the following conditions specified by BLM: (1) condition 37, *Recreation Streamflow Information*. We do not recommend preparation of a biological evaluation for Special-status Species (condition 19/53), entering into a Recreation Operation and Maintenance Agreement with BLM to provide BLM \$30,000 annually for operation, maintenance, law enforcement patrolling, and administration (condition 34), and developing a plan in coordination with BLM to address the costs of managing project-related recreation on BLM lands (condition 36).

II. ADDITIONAL LICENSE ARTICLES RECOMMENDED BY COMMISSION STAFF

We recommend including the following license articles in any license issued for the project in addition to the mandatory conditions.

Draft Article 4XX. Commission Approval, Notification, and Filing of Amendments.

(a) Requirement to File Plans for Commission Approval

Various mandatory conditions specified by the Forest Service and Bureau of Land Management (BLM) under section 4(e) require the Nevada Irrigation District (NID) to prepare plans in consultation with other entities for approval by the Forest Service and BLM; some of these measures do not specify that Commission approval is required prior to implementation. Each such plan must also be submitted to the Commission for approval. These plans are listed below.

Forest Service condition	Plan name	Due date
21	Oil And Hazardous Substances Storage And Spill Prevention And Cleanup Plan	Within 1 year of license issuance
25	Coordinated Operations Plan	Within 90 days of license issuance
37	Aquatic Invasive Species Management Plan	Within 1 year of license issuance
51	Aquatic Benthic Macroinvertebrate Monitoring Plan	Within 1 year of license issuance

BLM condition	Plan name	Due date
2	Coordinated Operations Plan	Within 90 days of license issuance
14	Invasive Aquatic Species Management	Within 1 year of license issuance
22	Aquatic Benthic Macroinvertebrate Monitoring Plan	Within 1 year of license issuance
23	Large Woody Debris Management Plan for Dutch Flat reservoir	Within 1 year of license issuance
37	Plan to provide real-time streamflow information	Beginning as soon as reasonably feasible, but within 1 year of license issuance

(b) Requirement to File Reports

Some Forest Service and BLM section 4(e) conditions require NID to file reports with other entities. These reports document compliance with requirements of this license and may have a bearing on future actions. Each such report must also be submitted to the Commission. These reports are listed in the following table.

Forest Service condition	Description	Due date
1	Reports documenting annual meetings with the Forest Service and other stakeholders	Within 60 days of the meeting
1	Reports documenting issues related to public safety and non-compliance	As soon as possible
30	Report documenting flow setting measures at Wilson Creek diversion dam	Provide at annual consultation meeting
39	Monitor animal losses in project canals	Annually, 60 days prior to annual consultation meeting
40	File design of wildlife escape or crossing changes and documentation of consultation	Within 60 days of replacement or retrofit
41	Report on condition and maintenance activity for Bowman-Spaulding canal wildlife crossings	Annually
43	Biological evaluation for special-status species and their habitats for construction of new project features	Prior to construction action
46	Report record of observation of raptor collision	60 days before annual meeting
51	Annual report describing monitoring efforts of previous calendar year	June 30, final at least 30 days before annual meeting
51	5-Year summary monitoring report	Year 5, 10, 20, 30, etc.

BLM condition	Description	Due date
16	Monitor animal losses in project canals	Annually, 60 days prior to annual consultation meeting
19	Biological evaluation for special-status species and their habitats for construction of new project features	Prior to construction action
20	Annual Review of Special-status Species	As needed to report results of new special-status species surveys
22	Report results of foothill yellow-legged frog monitoring	At least 30 days before annual consultation meeting

BLM condition	Description	Due date
27	6-year and 12-year Recreation Survey and Monitoring Reports	At 6 and 12 years after license issuance to coincide with FERC Form 80 reporting cycle
42	Reports documenting annual meetings with BLM and other stakeholders	Within 60 days of the meeting
42	Reports documenting issues related to public safety and non-compliance	As soon as possible

(c) Requirement to Notify Commission of Planned and Unplanned Deviations from License Requirements

Certain Forest Service and BLM 4(e) conditions would allow NID to temporarily modify project operations under certain situations. The Commission must be notified prior to implementing such modifications, if possible, or in the event of an emergency, as soon as possible, but no later than 10 days after each such incident.

Forest Service condition	License requirement
29	Temporary modification of minimum streamflows following consultation or due to an emergency
29	Notification of schedule or change of schedule for routine and non-routine planned canal outages affecting minimum streamflows; notification within 1 business day of emergency canal outage
29	Notification and consultation on minimum streamflows during canal outages lasting longer than 30 days

BLM condition	License requirement
5	Notification of schedule or change of schedule for routine and non-routine planned canal outages affecting minimum streamflows; notification within 1 business day of emergency canal outage
5	Notification and consultation on minimum streamflows during canal outages lasting longer than 30 days

(d) Requirement to File Amendment Applications

Certain Forest Service and BLM conditions appear to contemplate these agencies requiring unspecified long-term changes to project operations or facilities based on new information or results of monitoring but do not appear to require Commission approval for such changes (e.g., modification of supplemental flows, anadromous fish introduction). Such changes

may not be implemented without prior Commission authorization granted after the filing of an application to amend the license.

Draft Article 4XX. Reservation of Authority to Prescribe Fishways. Authority is reserved by the Commission to require the licensee to construct, operate, and maintain or to provide for the construction, operation, and maintenance of such fishways as may be prescribed by the Secretaries of Interior or Commerce pursuant to section 18 of the Federal Power Act.

Draft Article 4XX. Integrated Vegetation Management Plan. The Integrated Vegetation Management Plan, required by Forest Service condition 38 and Bureau of Land Management condition 15, filed on November 11, 2013, must apply to all accessible lands within the project boundary, particularly recreation sites and sensitive habitats and lands disturbed by future construction, recreational use, and project maintenance.

Within 6 months of license issuance, the licensee must file for Commission approval a revised Integrated Vegetation Management Plan. The revised plan must include a list of culturally significant plants that occur at the project and specific provisions the licensee will undertake to protect and preserve the culturally significant species or their habitats found within the project boundary.

The revised plan must be prepared after consultation with the Greenville Rancheria of Maidu Indians, Shingle Springs Band of Miwok Indians, the United Auburn Indian Community, and the Washoe Tribe of Nevada and California. The licensee must include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the revised plan. Implementation of the revised plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the revised plan, including any changes required by the Commission.

Draft Article 4XX. Wildlife Crossing Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, a Wildlife Crossing Plan. The plan must include, consistent with Forest Service condition 41, provisions for the licensee to maintain existing wildlife crossings at specified locations on the Bowman-Spaulding canal. The wildlife crossings must meet minimum specifications to be described in the plan; (2) a schedule for the installation of the wildlife crossings, as well as provisions for the licensee to submit final designs of newly constructed crossing facilities to the Forest Service, Bureau of Land Management (BLM), and California Department of Fish and Wildlife; (3) provisions for monitoring new or retrofitted wildlife crossings, using cameras or other appropriate means, so as to determine if adjustments to the crossings are needed; (4) provisions for preparing a written report and providing the report to the Commission and federal agencies annually; and (5) provisions for periodic (every 10 year) review of licensee-maintained wildlife crossings in consultation with the Forest Service, BLM, and California Department of Fish and Wildlife.

The Wildlife Crossing Plan must also contain, consistent with Forest Service conditions 39 and 40 and BLM conditions 16 and 17, provisions for: (1) monitoring animal losses in the

Bowman-Spaulding canal; and (2) replacement of wildlife escape and wildlife crossing facilities. The animal loss monitoring portion of the plan must detail the licensee's plans to record and report all dead animals found in the Bowman-Spaulding canal, using a Wildlife Mortality data sheet. The plan must specify the information to be recorded, and how the information will be reported to the Commission and agencies, annually.

The Wildlife Crossing Plan must also contain provisions for the licensee to consult with California Department of Fish and Wildlife prior to replacing or retrofitting existing wildlife escape or crossing facilities along project canals. The plan must indicate the licensee's plans to provide the Commission of evidence of such consultation within 60 days after the wildlife escape or crossing facility has been replaced or retrofitted. The Wildlife Crossing Plan must also contain provisions for the licensee to annually assess existing wildlife crossing or escape facilities to ensure that are functional and in proper working order.

The plan shall be prepared after consultation with the Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. *Avian Management Plan.* Within 1 year of license issuance, the licensee must file for, Commission approval, an Avian Management Plan. The plan must include, consistent with Forest Service conditions 45 and 467 and Bureau of Land Management condition 15: (1) provisions for the use of raptor-safe powerline design configurations described in Avian Protection on Powerline Interaction Committee's (APLIC) "Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006, or the most current edition of the APLIC document as a guideline for all new project powerlines, or when replacing existing poles, phase conductors, and associated equipment, at the project; and (2) recording of all incidental observations of bird collisions/electrocutions along project powerlines including, at minimum, (a) date of observation, (b) location of observation, (c) species, if identifiable, (d) number of birds, (e) condition of birds, (f) suspected cause of injury or death, and (g) bird band number, if banded. The plan should include a schedule for implementing recording of bird collisions, as well as provisions for reporting the results of the bird collision recording to the Commission and agencies, annually. The Commission reserves the right to require changes to the plan.

The Avian Management Plan must also include, consistent with the Integrated Vegetation Management Plan, specific provisions for limited operating periods (LOPs) for activities that involve the use of heavy equipment, loud noises, or habitat alteration to protect special-status wildlife, including (1) for California spotted owl, maintain a limited operating period (LOP) within a buffer that includes the 300 acre Protected Activity Centers (PAC), plus an additional 0.25-mile area around the PAC during the breeding season (March 1 through August 15), unless surveys confirm that California spotted owls are not nesting; (2) for northern goshawk, maintain a

LOP, prohibiting vegetation treatments within a 0.25 mile of the nest site during the breeding season (February 15 through September 15), unless protocol surveys confirm that northern goshawks are not nesting; and (3) for great gray owl, prohibit vegetation treatments and road construction within 0.25 mile of an active great gray owl nest stand during the nesting period (typically March 1 to August 15).

The Avian Management Plan must also include, consistent with Forest Service condition 51, specific provisions for monitoring and recording activities that may disturb the California spotted owl and northern goshawk PACs, and within suitable habitat for those species. The information to be recorded must include: (1) a description of the activity; (2) activity duration, (3) the location of the activity; and (4) a spatial display of the activity location proximity to the PAC and suitable habitat. The plan must also include provisions for additional sensitive raptor surveys to be conducted, if after the first 3 years of reporting, noise disturbances have been determined, in consultation with the agencies, to have the potential to disrupt more than two territories annually.

The plan shall be prepared after consultation with the Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Bat Management Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, a Bat Management Plan. The plan must include, consistent with Forest Service condition 47 and BLM condition 21: (1) provisions for the licensee to document all known bat roosts within project buildings or other project structures that may be used for roosting; (2) a schedule for completing the initial bat roosting documentation; and (3) provisions for installing appropriate exclusion devices, where feasible, to prevent occupation of the structure by bats. The plan must also include provisions for annually reporting the results of the licensee's bat roost inspections to the Commission and agencies, and for annual consultation with the agencies regarding the need for and installation of bat exclusionary devices.

The plan shall be prepared after consultation with the Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Fish Stocking Plan. Within 1 year of license issuance, the licensee must file, for Commission approval, a plan to evaluate and monitor the location, frequency, age, and number/weight of fish to be stocked annually in Bowman Lake, Rollins reservoir, Faucherie Lake, and Jackson Meadows reservoir and to be stocked in Sawmill Lake every other year until the first Form 80 reporting year after implementation of the plan. The plan must include provisions for periodic review of angling use levels, including fish stocking at additional reservoirs, specifically French Lake, should the need arise based on the periodic review; annual consultation with the California Department of Fish and Wildlife (California Fish and Wildlife), Forest Service, U.S. Fish and Wildlife Service (FWS), and Bureau of Land Management (BLM); and an annual summary report of fish stocking activities.

The Fish Stocking Plan must be developed after consultation with the California Fish and Wildlife, Forest Service, FWS, and BLM. The licensee must include with the plan an implementation schedule, documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the entities above, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Recreation Plan. The Recreation Plan, required by Forest Service condition 57 and Bureau of Land Management condition 25, must include additional recreation facilities.

Within one year of license issuance, the licensee must file for Commission approval a revised Recreation Plan. The revised plan must include provisions for the following additional recreation facilities:

- (1) a parking and unloading area at Woodcamp picnic area;
- (2) a gravel parking area with vehicle barriers and an information board at inflow day-use area at Bowman Lake;
- (3) replacement of the flush restroom buildings at Fir Top campground with vault models;
- (4) replacement of the flush restroom buildings at Woodcamp campground with vault models;
- (5) day use only signage at the dam day-use area at Sawmill Lake;

- (6) a shoreline day-use area at Milton Diversion; and
- (7) an implementation schedule for all repairs, upgrades, and rehabilitation improvements to project recreation facility developments.

The revised plan must be prepared after consultation with the Forest Service, BLM, and California Department of Fish and Wildlife. The licensee must include with the plan an implementation schedule, documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies; and a specific description of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the revised plan. Implementation of the revised plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval, the licensee must implement the revised plan, including any changes required by the Commission.

Draft Article 4XX. Supplemental Flows for Whitewater Boating. Beginning in the first full calendar year after license issuance, the licensee must release a whitewater boating flow ranging from 100 to 150 cubic feet per second as measured at gage YB-306 in Canyon Creek below French dam. Between September 1 and September 30 of each year, the whitewater boating flow release must be provided over a continuous 24-hour period or until the water surface elevation of French Lake reaches 6,638 feet mean-sea-level.

If the whitewater boating flow cannot be released due to insufficient water (water surface elevation of less than 6,638 feet above mean sea level), equipment malfunction, or an emergency event, the licensee must notify the Commission of a modification to the release schedule.

Draft Article 4XX. Recreation Streamflow Information. Within 1 year of license issuance, the licensee must file, for Commission approval, a plan to provide real-time streamflow information, as required by BLM condition 37. The plan must include, consistent with Forest Service condition 58 and BLM condition 37: (1) providing real-time streamflow information to the public on the internet for the Middle Yuba River at Jackson Meadows reservoir dam, Middle Yuba River below Milton Reservoir dam, Canyon Creek below French dam, Canyon Creek below Bowman reservoir dam, Bear River below Dutch Flat afterbay dam, and Bear River below Rollins reservoir dam.

The plan must also contain provisions for providing real-time streamflow information in 15-minute intervals for these six reaches (Middle Yuba River at Jackson Meadows reservoir dam, Middle Yuba River below Milton Reservoir dam, Canyon Creek below French dam, Canyon Creek below Bowman reservoir dam, Bear River below Dutch Flat afterbay dam, and Bear River below Rollins reservoir dam) where it is currently provided in 15-minute intervals, on a year-round basis.

The plan must be developed after consultation with the Forest Service, Bureau of Land Management, California Fish and Wildlife, California Water Board, Foothills Water Network, and American Whitewater. The licensee must include with the plan an implementation schedule, documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the entities above, and specific descriptions of how the entities' comments are accommodated by the plan. The licensee must allow a minimum of 30

days for the entities to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Implementation of the plan must not begin until the licensee is notified by the Commission that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 4XX. Recreation Lake Level Information. Within 1 year of license issuance, the licensee must provide the public access via its webpage on the internet to year-round mean daily reservoir elevations for Jackson Meadows reservoir, and French, Faucherie, Sawmill, Jackson, Bowman, and Rollins Lakes.

Draft Article 4XX. Fire Prevention and Response Plan. The Fire Prevention and Response Plan required by Forest Service condition 62 and BLM condition 40, filed November on 21, 2013, must apply to all lands within the project boundary and must include a period of review and revision. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Hazardous Substances Plan. The Hazardous Substances Plan required by Forest Service condition 21 and Bureau of Land Management condition 52 must apply to all project lands. The Commission reserves the right to require changes to the plan.

Draft Article 4XX. Programmatic Agreement and Historic Properties Management Plan. The licensee must implement the "Programmatic Agreement Between the Federal Energy Regulatory Commission and the State of California Historic Preservation Officer for Managing Historic Properties that May be Affected by Issuing of a License to NID for the Yuba-Bear Hydroelectric Project in Nevada, Sierra, and Placer Counties, California (FERC No. 2266)," executed on _____, and including but not limited to the Historic Properties Management Plan (HPMP) for the project. In the event that the Programmatic Agreement is terminated, the licensee must continue to implement the provisions of its approved HPMP. The Commission reserves the authority to require changes to the HPMP at any time during the term of the license.

Draft Article 4XX. Use and Occupancy. (a) In accordance with the provisions of this article, the licensee must have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee must also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee must take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-

commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee must require multiple use and occupancy of facilities for access to project lands or waters. The licensee must also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee must: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the impoundment shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project impoundment. No later than January 31 of each year, the licensee must file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must submit a letter to the Director, Office of Energy Projects, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the

identity of any federal or state agency official consulted, and any federal or state approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee must consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the licensee must determine that the proposed use of the lands to be conveyed is not inconsistent with any approved report on recreational resources of an Exhibit E; or, if the project does not have an approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed must not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee must take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee must not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project must be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

(g) The authority granted to the licensee under this article must not apply to any part of the public lands and reservations of the United States included within the project boundary.

Appendix H

4(e) Conditions: Drum-Spaulding Project

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Appendix H-1

Forest Service 4(e) Conditions: Drum-Spaulling Project

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**Revised Forest Service Final Conditions and
Recommendations Provided Under 18 CFR § 4.34 (b)(1)
In Connection with the Application for Relicensing for the
Drum-Spauling Hydroelectric Project
(FERC No. 2310)**

10 April 2014

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INTRODUCTION

On July 31, 2012, the USDA Forest Service (FS) provided Preliminary Section 4(e) conditions for the Drum-Spaulding Hydroelectric Project, FERC No. 2310, in accordance with 18 CFR 4.34(b)(1)(i). After those conditions were filed, the Forest Service participated in several meetings and discussions with the Licensee, other resource agencies, and non-governmental organizations in an effort to reach agreement on conditions that one entity or another had concerns with. Based on these meetings and discussions, the Forest Service submitted revised Preliminary Section 4(e) conditions for the Drum-Spaulding Hydroelectric Project, FERC No. 2310, on August 22, 2013. Alternative Conditions, filed pursuant to 7 CFR 1.670 (and following sections) were filed by Pacific Gas and Electric Company, Licensee for the Drum-Spaulding Project, and Foothills Water Network. Pacific Gas and Electric Company withdrew some of their proposed alternative conditions. The FS provides a separate response to the remaining Alternative Conditions filed pursuant to 7 CFR 1.673. The FS' Final Section 4(e) Conditions follow.

FS submits the following Final Section 4(e) Conditions for the Drum-Spaulding Hydroelectric Project, FERC No. 2310, in accordance with 18 CFR 4.34(b)(1)(i). Section 4(e) of the Federal Power Act (FPA), which states the Commission may issue a license for a project within a reservation only if it finds that the License will not interfere or be inconsistent with the purpose for which such reservation was created or acquired. This is an independent threshold determination made by the Commission, with the purpose of the reservation defined by the authorizing legislation or proclamation (see *Rainsong v. FERC*, 106 F.3d 269 (9th Cir. 1977)). FS, for its protection and utilization determination under Section 4(e) of the FPA, may rely on broader purposes than those contained in the original authorizing statutes and proclamations in prescribing conditions (see *Southern California Edison v. FERC*, 116F.3d 507 (D.C. Cir. 1997)).

The following terms and conditions are based on those resource and management requirements enumerated in the Organic Administration Act of 1897 (30 Stat. 11), the Multiple-Use Sustained Yield Act of 1960 (74 Stat. 215), the National Forest Management Act of 1976 (90 Stat. 2949), and any other law specifically establishing a unit of the National Forest System or prescribing the management thereof (such as the Wild and Scenic Rivers Act), as such laws may be amended from time to time, and as implemented by regulations and approved by Land and Resource Management Plans prepared in accordance with the National Forest Management Act. Specifically, the 4(e) conditions in this document are based on the Land and Resource Management Plan (as amended) for the Tahoe National Forest, as approved by the Regional Forester of the Pacific Southwest Region.

Pursuant to Section 4(e) of the Federal Power Act, the Secretary of Agriculture, acting by and through FS, considers the following conditions necessary for the adequate protection and utilization of the land and resources of the Tahoe National Forest. License articles contained in the Federal Energy Regulatory Commission's (the Commission's) Standard Form L-1 (revised October 1975) issued by Order No. 540, dated October 31, 1975, cover general requirements. Part I of this document includes administrative conditions deemed necessary for the administration of National Forest System (NFS) lands. Part II of this document includes specific resource requirements for protection and utilization of NFS lands.

PART I: ADMINISTRATIVE CONDITIONS

Condition No. 1 – Consultation

Licensee shall annually consult with the United States Department of Agriculture, FS (FS). The date of the consultation meeting will be mutually agreed to by Licensee and FS but in general should be held by April 15. At least 30 days in advance of the meeting, Licensee shall notify Licensee for the Yuba-Bear Project, FERC No. 2266, and other interested stakeholders, confirming the meeting location, time and agenda. At the same time, Licensee shall also provide notice to United States Department of Interior (USDI) Bureau of Land Management (BLM), USDI Fish and Wildlife Service (FWS), and USDI National Park Service; California State Department of Fish and Wildlife (CDFW) and State Water Resources Control Board (SWRCB); United States Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fishery Service (NMFS), who may choose to participate in the meeting. Licensee shall attempt to coordinate the meeting so interested agencies and other stakeholders may attend.

Licensee shall make available to FS, BLM, CDFW, and SWRCB at least 2 weeks prior to the meeting, an operations and maintenance plan for the year in which the meeting occurs. In addition, Licensee shall present results from current year monitoring of noxious weeds and special status species as well as any additional information that has been compiled for the Project area, including progress reports on other resource measures. The goals of this meeting are to share information, mutually agree upon planned maintenance activities, identify concerns that FS may have regarding activities and their potential effects on sensitive resources, and any measures required to avoid or mitigate potential effects. In addition, the goal of the meeting shall be to review and discuss the results of implementing the streamflow and reservoir-related conditions, results of monitoring, and other issues related to preserving and protecting ecological values affected by the Project.

Consultation shall include, but not be limited to:

- A status report regarding implementation of license conditions.
- Results of any monitoring studies performed over the previous year in formats agreed to by FS and Licensee during development of implementation plans.
- Review of any non-routine maintenance.
- Discussion of any foreseeable changes to Project facilities or features.
- Discussion of any necessary revisions or modifications to implementation plans approved as part of this license.
- Discussion of needed protection measures for species newly listed as threatened, endangered, or sensitive, or changes to existing management plans that may no longer be warranted due to delisting of species or, to incorporate new knowledge about a species requiring protection. Discussion of needed protection measures for newly discovered cultural resource sites.
- Discussion of elements of current year maintenance plans, e.g. road and trail maintenance.
- Discussion of any planned pesticide use.

A record of the meeting shall be kept by Licensee and shall include any recommendations made by FS for the protection of NFS lands and resources. Licensee shall file the meeting record, if requested, with the Commission no later than 60 days following the meeting.

Copies of other reports related to Project safety and non-compliance shall be submitted to FS, BLM, CDFW, SWRCB, and other interested agencies and stakeholders concurrently with submittal to the Commission. These include, but are not limited to: any non-compliance report filed by Licensee, geologic or seismic reports, and structural safety reports for facilities located on or affecting NFS lands.

A copy of the record for the previous water year regarding streamflow, study reports, and other pertinent records shall be provided to FS, BLM, CDFW, SWRCB, and other interested agencies and stakeholders by Licensee at least 60 days prior to the meeting date, unless otherwise agreed.

Copies of other reports related to monitoring, Project safety, and non-compliance on NFS lands shall be submitted to FS concurrently with submittal to the Commission, with the goal of providing the material to FS no later than 90 days in advance of the Annual Meeting. These include, but are not limited to: any non-compliance report filed by Licensee, geologic or seismic reports, and structural safety reports for facilities.

During the first several years of license implementation, it is likely that more consultation than just one Annual Meeting will be required, given the complexity of these projects.

FS reserves the right, after notice and opportunity for comment, to require changes in the Project and its operation through revision of the Section 4(e) conditions to accomplish protection and utilization of NFS lands and resources.

Condition No. 2 – Consultation Group Specific to the Drum-SpaULDing Project

The Licensee shall, within 3 months of license issuance, establish a Consultation Group as follows.

Purpose

The primary purpose of Consultation Group is to provide a forum for the Licensee to consult with resource agencies and other interested parties on the following:

- The Annual Meeting as described in Condition No. 1, Consultation. To the extent topics covered in Condition No. 1 affect project-affected areas outside FS, BLM, or BOR jurisdiction, consultation with appropriate resource agencies on those same topics will occur at the Annual Meeting, other Consultation Group meetings, or as otherwise agreed with the Licensee and appropriate resource agencies. License shall provide copies of the meeting materials to those who request it.
- The review and evaluation of monitoring data related to the South Yuba River Supplemental Flows as described in Condition No. 32, South Yuba River Supplemental Flows.
- Plans that are developed as required by the new license and plans that require specific

- consultation processes during implementation.
- Proposed temporary or permanent modifications to license conditions.

Licensee shall also provide notification of license compliance deviations to the current members of the Consultation Group.

Decision Making

The Consultation Group will report its recommendations to the FS, BLM, and BOR. The FS shall be responsible for final addressing matters covered by the Section 4(e) Conditions. The BLM shall be responsible for final decisions within BLM jurisdiction, and BOR shall be responsible for final decisions within BOR jurisdiction. Licensee shall also ensure that consultation, permitting, and any necessary approvals within the jurisdiction of other agencies are completed. Licensee shall implement license conditions as approved and directed by the Commission.

Participation

In addition to the Licensee, FS, BLM, BOR, SWRCB, and CDFW, Consultation Group meetings shall be open to any organization or individual that notifies the Licensee in writing of interest in participating in the Annual Meeting or Consultation Group meetings. The Consultation Group should establish mutually agreeable process guidelines for conducting effective and efficient meetings no later than 1 year after license issuance. Each organization or individual shall be responsible for providing notification information to the Licensee and shall be responsible for keeping current a single point of contact for purposes of notification related to the Consultation Group. If a participant is interested in a particular meeting or topic, the participant is responsible for ensuring they are represented.

Meetings

Separate from the Annual Meeting, the Licensee shall organize four Consultation Group meetings per year. Additional meetings may be scheduled if the Consultation Group decides additional meetings are necessary. Fewer meetings shall also be scheduled if the Consultation Group decides that four meetings per year are not necessary.

Condition No. 3 – FS Approval of Final Design

Before any new construction of the Project occurs on National Forest System lands, Licensee shall obtain prior written approval of FS for all final design plans for Project components, which FS deems as affecting or potentially affecting National Forest System resources. Licensee shall follow the schedules and procedures for design review and approval specified in the conditions herein. As part of such written approval, FS may require adjustments to the final plans and facility locations to preclude or mitigate impacts and to insure that the Project is either compatible with on-the-ground conditions or approved by FS based on agreed upon compensation or mitigation measures to address compatibility issues. Should such necessary adjustments be deemed necessary by FS, the Commission, or Licensee to be a substantial

change, Licensee shall follow the procedures of FERC Standard Article 2 of the license. Any changes to the license made for any reason pursuant to FERC Standard Article 2 or Article 3 shall be made subject to any new terms and conditions of the Secretary of Agriculture made pursuant to Section 4(e) of the Federal Power Act.

Condition No. 4 – Approval of Changes

Notwithstanding any license authorization to make changes to the Project, when such changes directly affect NFS lands, Licensee shall obtain written approval from FS prior to making any changes in any constructed Project features or facilities, or in the uses of Project lands and waters or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from FS, and a minimum of 60 days prior to initiating any such changes, Licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of FS for such changes. Licensee shall file an exact copy of this report with FS at the same time it is filed with the Commission. This condition does not relieve Licensee from the amendment or other requirements of Article 2 or Article 3 of this license.

Condition No. 5 – Maintenance of Improvements on or Affecting National Forest System Lands

Licensee shall maintain all its improvements and premises on NFS lands to standards of repair, orderliness, neatness, sanitation, and safety acceptable to FS. Disposal of all materials will be at an approved existing location, except as otherwise agreed by FS.

Condition No. 6 – Existing Claims

License shall be subject to all valid claims and existing rights of third parties. The United States is not liable to Licensee for the exercise of any such right or claim.

Condition No. 7 – Compliance with Regulations

Licensee shall comply with the regulations of the Department of Agriculture for activities on National Forest System lands, and all applicable Federal, State, county, and municipal laws, ordinances, or regulations in regards to the area or operations on or directly affecting National Forest System lands, to the extent those laws, ordinances or regulations are not preempted by federal law.

Condition No. 8 – Surrender of License or Transfer of Ownership

Prior to any surrender of this license, Licensee shall provide assurance acceptable to FS that Licensee shall restore any project area directly affecting National Forest System lands to a condition satisfactory to FS upon or after surrender of the license, as appropriate. To the extent restoration is required, Licensee shall prepare a restoration plan which shall identify the measures to be taken to restore such National Forest System lands and shall include adequate

financial mechanisms to ensure performance of the restoration measures.

In the event of any transfer of the license or sale of the project, Licensee shall assure that, in a manner satisfactory to FS, Licensee or transferee will provide for the costs of surrender and restoration. If deemed necessary by FS to assist it in evaluating Licensee's proposal, Licensee shall conduct an analysis, using experts approved by FS, to estimate the potential costs associated with surrender and restoration of any project area directly affecting National Forest System lands to FS specifications. In addition, FS may require Licensee to pay for an independent audit of the transferee to assist FS in determining whether the transferee has the financial ability to fund the surrender and restoration work specified in the analysis.

Condition No. 9 – Protection of United States Property

Licensee, including any agents or employees of Licensee acting within the scope of their employment, shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with this license.

Condition No. 10 – Indemnification

Licensee shall indemnify, defend, and hold the United States harmless for:

- any violations incurred under any laws and regulations applicable to, or
- judgments, claims, penalties, fees, or demands assessed against the United States caused by, or
- costs, damages, and expenses incurred by the United States caused by, or
- the releases or threatened release of any solid waste, hazardous substances, pollutant, contaminant, or oil in any form in the environment related to the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license.

Licensee's indemnification of the United States shall include any loss by personal injury, loss of life or damage to property caused by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license. Indemnification shall include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. Upon surrender, transfer, or termination of the license, Licensee's obligation to indemnify and hold harmless the United States shall survive for all valid claims for actions that occurred prior to such surrender, transfer or termination.

Condition No. 11 – Damage to Land, Property, and Interests of the United States

Licensee has an affirmative duty to protect the land, property, and interests of the United States from damage arising from Licensee's construction, maintenance, or operation of the project works or the works appurtenant or accessory thereto under the license. Licensee's liability for fire

and other damages to National Forest System lands shall be determined in accordance with the Federal Power Act and standard Form L-1 Articles 22 and 24.

Condition No. 12 – Risks and Hazards on National Forest System Lands

As part of the occupancy and use of the project area, Licensee has a continuing responsibility to reasonably identify and report all known or observed hazardous conditions on or directly affecting National Forest System lands within the project boundary that would affect the improvements, resources, or pose a risk of injury to individuals. Licensee will abate those conditions, except those caused by third parties or not related to the occupancy and use authorized by the License. Any non-emergency actions to abate such hazards on National Forest System lands shall be performed after consultation with FS. In emergency situations, Licensee shall notify FS of its actions as soon as possible, but not more than 48 hours, after such actions have been taken. Whether or not FS is notified or provides consultation; Licensee shall remain solely responsible for all abatement measures performed. Other hazards should be reported to the appropriate agency as soon as possible.

Condition No. 13 – Access

Subject to the limitations set forth under the heading of “Access by the United States” in Condition No. 19 hereof, FS reserves the right to use or permit others to use any part of the licensed area on NFS lands for any purpose, provided such use does not interfere with the rights and privileges authorized by this license or the Federal Power Act.

Condition No. 14 – Crossings

Licensee shall maintain suitable crossings as required by FS for all roads and trails that intersect the right-of-way occupied by linear Project facilities (powerline, penstock, ditch, and pipeline).

Condition No. 15 – Surveys, Land Corners

Licensee shall avoid disturbance to all public land survey monuments, private property corners, and forest boundary markers. In the event that any such land markers or monuments on National Forest System lands are destroyed by an act or omission of Licensee, in connection with the use and/or occupancy authorized by this license, depending on the type of monument destroyed, Licensee shall reestablish or reference same in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of FS. Further, Licensee shall ensure that any such official survey records affected are amended as provided by law.

Condition No. 16 – Signs

Licensee shall consult with FS prior to erecting signs related to safety issues on NFS lands covered by the license. Prior to Licensee erecting any other signs or advertising devices on NFS lands covered by the license, Licensee must obtain the approval of FS as to location, design, size, color, and message. Licensee shall be responsible for maintaining all Licensee-erected signs to

neat and presentable standards.

Condition No. 17 – Ground Disturbing Activities

If Licensee proposes ground-disturbing activities on or directly affecting NFS lands that were not specifically addressed in the Commission's NEPA processes, Licensee, in consultation with FS, shall determine the scope of work and potential for Project-related effects, and whether additional information is required to proceed with the planned activity. Upon FS request, Licensee shall enter into an agreement with FS under which Licensee shall fund a reasonable portion of FS staff time and expenses for staff activities related to the proposed activities.

Condition No. 18 – Use of National Forest System Roads for Project Access

Licensee shall obtain suitable authorization for all project access roads and NFS roads needed for Project access. The authorization shall require road maintenance and cost sharing in reconstruction commensurate with Licensee's use and project-related use. The authorization shall specify road maintenance and management standards that provide for traffic safety, minimize erosion, and damage to natural resources and that are acceptable to FS as appropriate.

Licensee shall pay FS for its share of maintenance cost or perform maintenance or other agreed to services, as determined by FS for all use of roads related to project operations, project-related public recreation, or related activities. The maintenance obligation of Licensee shall be proportionate to total use and commensurate with its use. Any maintenance to be performed by Licensee shall be authorized by and shall be performed in accordance with an approved maintenance plan and applicable Best Management Practices (BMPs). In the event a road requires maintenance, restoration, or reconstruction work to accommodate Licensee's needs, Licensee shall perform such work at its own expense after securing FS authorization.

Licensee shall complete a condition survey and a proposed maintenance plan subject to FS review and approval as appropriate once each year. The plan may take the format of a road maintenance agreement provided all the above conditions are met as well as the conditions set forth in the proposed agreement.

In addition, all NFS roads used as Project Access roads (PAR) and Right-of-Way access roads (ROW) shall have:

- Current condition survey.
- Be mapped at a scale to allow identification of specific routes or segments.
- FS assigned road numbers are used for reference on the maps, tables, and in the field.
- GIS compatible files of GPS alignments of all roads used for Project access are provided to FS.
- Adequate signage is installed and maintained by Licensee at each road or route, identifying the road by FS road number.

Condition No. 19 – Access By The United States

The United States shall have unrestricted use of any road over which Licensee has control within the project area for all purposes deemed necessary and desirable in connection with the protection, administration, management, and utilization of Federal lands or resources. When needed for the protection, administration, and management of Federal lands or resources the United States shall have the right to extend rights and privileges for use of the right-of-way and road thereon to States and local subdivisions thereof, as well as to other users. The United States shall control such use so as not to unreasonably interfere with the safety or security uses, or cause Licensee to bear a share of costs disproportionate to Licensee's use in comparison to the use of the road by others.

Condition No. 20 – Road Use

Licensee shall confine all vehicles being used for project purposes, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, as identified in the Transportation System Management Plan (refer to Condition No. 57). FS reserves the right to close any and all such routes where damages is occurring to the soil or vegetation or, if requested by Licensee, to require reconstruction/construction by Licensee to the extent needed to accommodate Licensee's use. FS agrees to provide notice to Licensee and the Commission prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.

Condition No. 21 – Hazardous Substances Plan

Within 1 year of license issuance or prior to undertaking activities on NFS lands, Licensee shall file with the Commission a plan approved by FS for oil and hazardous substances storage and spill prevention and cleanup. The plan shall show evidence of consultation with SWRCB, CDFW, and the Regional Water Quality Control Board (RWQCB). In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, Licensee shall notify FS, and in consultation with SWRCB, CDFW, and RWQCB, FS shall make a determination whether a plan approved by FS for oil and hazardous substances storage and spill prevention and cleanup is needed. Any such plan shall be filed with the Commission.

At a minimum, the plan must require Licensee to (1) maintain in the project area, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform FS of the location of the spill cleanup equipment on NFS lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; and (3) to inform FS immediately of the magnitude, nature, time, date, location, and action taken for any spill. The plan shall include a monitoring plan that details corrective measures that will be taken if spills occur. The plan shall include a requirement for a weekly written report during construction documenting the results of the monitoring.

Condition No. 22 – Pesticide-Use Restrictions on National Forest System Lands

Pesticides may not be used on NFS lands or in areas affecting NFS lands to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, non-native fish, etc., without the prior written approval of FS. During the Annual Meeting described in Condition No. 1, Licensee shall submit a request for approval of planned uses of pesticides for the upcoming year. Licensee shall provide at a minimum the following information essential for review:

- Whether pesticide applications are essential for use on NFS lands;
- Specific locations of use;
- Specific herbicides proposed for use;
- Application rates;
- Dose and exposure rates; and
- Safety risk and timeframes for application.

Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures that were not anticipated at the time the report was submitted. In such an instance, an emergency request and approval may be made.

Any pesticide use that is deemed necessary to use on NFS lands within 500 feet of known locations of Western Pond Turtles, Sierra Nevada Yellow-Legged Frog, Foothill Yellow Legged Frog, or known locations of FS Special Status or culturally significant plant populations will be designed to avoid adverse effects to individuals and their habitats. Application of pesticides must be consistent with FS riparian conservation objectives.

On NFS lands, Licensee shall only use those materials registered by the U.S. Environmental Protection Agency and consistent with those applied by FS and approved through FS review for the specific purpose planned. Licensee must strictly follow label instructions in the preparation and application of pesticides and disposal of excess materials and containers. Licensee may also submit Pesticide Use Proposal(s) with accompanying risk assessment and other FS required documents to use pesticides on a regular basis for the term of the license as addressed further in Condition No. 38, Vegetation and Non-Native Invasive Plant Management Plan. Submission of this plan will not relieve Licensee of the responsibility of annual notification and review.

Condition No. 23 – Construction Inspections

Within 60 days of planned ground-disturbing activity on or affecting NFS lands, Licensee shall file with the Commission a Safety During Construction Plan that identifies potential hazard areas and measures necessary to address public safety. Areas to consider include construction activities near public roads, trails, and recreation areas and facilities.

Licensee shall perform daily (or on a schedule otherwise agreed to by FS in writing) inspections of Licensee's construction operations on NFS lands and Licensee adjoining property while construction is in progress. Licensee shall document these inspections (informal writing sufficient) and shall deliver such documentation to FS on a schedule agreed to by FS. The

inspections must specifically include fire plan compliance, public safety, and environmental protection. Licensee shall act immediately to correct any items found to need correction.

A registered professional engineer or other qualified employee of the appropriate specialty shall regularly conduct construction inspections of structural improvements on a schedule approved by FS.

Condition No. 24 – Unattended Construction Equipment

Licensee shall not place construction equipment on NFS lands prior to actual use or allow it to remain on NFS lands subsequent to actual use, except for a reasonable mobilization and demobilization period agreed to by FS.

PART II: RESOURCE CONDITIONS

Condition No. 25 – General Resource Measures

Annual Employee Training

Licensee shall, beginning in the first full calendar year after license issuance, annually perform employee awareness training and shall also perform such training when a staff member is first assigned to the Project. The goal of the training shall be to familiarize Licensee's operations and maintenance (O&M) staff with special-status species, noxious weeds and sensitive areas (e.g., special-status plant populations and noxious weed populations) that are known to occur within or adjacent to the Commission Project Boundary on NFS lands, and the procedures for reporting to each agency, as appropriate, to comply with the license requirements. It is not the intent of this measure that Licensee's O&M staff perform surveys or become specialists in the identification of special-status species or noxious weeds. Licensee shall direct its O&M staff to avoid disturbance to sensitive areas, and to advise all Licensee contractors to avoid sensitive areas. If Licensee determines that disturbance of a sensitive area is unavoidable, Licensee shall consult with FS to minimize adverse effects to sensitive resources. This measure applies to employee training that is not otherwise covered by a specific plan.

Coordinated Operations Plan

Licensee shall, within 90 days of the issuance of the new license for the Drum-Spaulding Project or the Yuba-Bear Hydroelectric Project, whichever is later, file with the Commission for approval a Coordinated Operations Plan (Plan). Licensee shall develop the Plan in consultation with Licensee for the Yuba-Bear Hydroelectric Project. The purpose of the Plan shall be to provide for coordination between the Drum-Spaulding Project and the Yuba-Bear Hydroelectric Project regarding implementation of flow-related measures in each Project's license. Licensee shall file the Plan, with evidence of consultation as the Plan relates to compliance with flow-related measures, with FS, BLM, CDFW, SWRCB, and Licensee of the Yuba-Bear Hydroelectric Project, with the Commission. Licensee shall implement those portions of the Plan approved by the Commission.

Condition No. 26 – Water Year Types

Within 90 days of license issuance, Licensee shall in each year in each of the months of February, March, April, May and October determine water year type as described in the Water Year Type table below. Licensee shall use this determination in implementing articles and conditions of the license that are dependent on water year type. Water year types shall be defined as:

Water Year types for the Drum-Spauling Project.

Water Year Type	DWR Forecast of Total Unimpaired Runoff in the Yuba River at Smartville in Thousand Acre-Feet or DWR Full Natural Flow Near Smartville for the Water Year in Thousand Acre-Feet ¹
Extreme Critically Dry	Equal to or Less than 615 or second year of back-to-back Critically Dry Water Years (<=900)
Critically Dry	616 to 900
Dry	901 to 1,460
Below Normal	1,461 to 2,190
Above Normal	2,191 to 3,240
Wet	Greater than 3,240

¹ DWR rounds the Bulletin 120 forecast to the nearest 1,000 acre-feet. The Full Natural Flow is provided to the nearest acre-foot, and Licensee will round DWR’s Full Natural Flow to the nearest 1,000 acre-feet.

In each of the months of February, March, April and May, the water year type shall be based on California Department of Water Resources (DWR) water year forecast of unimpaired runoff in the Yuba River at Smartville as set forth in DWR’s Bulletin 120 entitled “Water Year Conditions in California.” DWR’s forecast published in February, March and April shall apply from the 15th day of that month to the 14th day of the next month. From May 15 through October 14, the water year type shall be based on DWR’s forecast published in May.

From October 15 through February 14 of the following year, the water year type shall be based on the sum of DWR’s monthly (not daily) full natural flow for the full water year for the Yuba River near Smartville as made available by DWR on the California Data Exchange Center (CDEC) in the folder named “FNF Sum.” (Currently these data are available at: <http://cdec.water.ca.gov/cgi-progs/stages/FNFSUM>). If DWR does not make the full natural flow for the full water year available until after October 14 but prior to or on October 31, from 3 days after the date the full natural flow is made available until February 14 of the following year, the water year type shall be based on the sum of DWR’s monthly full natural flow for the full water year as made available. If DWR does not make available the final full natural flow by October 31, the water year type from November 1 through February 14 of the following year shall be based on DWR’s May Bulletin 120.

Condition No. 27 – Minimum Streamflows

Licensee shall meet the minimum streamflows shown in the Minimum Streamflow table below.

Minimum streamflows shall mean the instantaneous flow except as otherwise provided below, Licensee shall record instantaneous streamflow as required by United States Geological Survey (USGS) standards at all gages:

- Minimum streamflows may be temporarily modified for short periods upon consultation with CDFW, SWRCB, FS, and BLM and approval by FS and notification to the Commission.
- Minimum streamflows may be temporarily modified due to an emergency. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. If the minimum streamflows are so modified, Licensee shall notify the Commission, CDFW, SWRCB, FS, and BLM as soon as reasonably possible, but no later than the end of the next business day (business days do not include weekends and federal or state holidays) after such modification.

Except as otherwise provided, Licensee shall implement minimum streamflows within 90 days of license issuance, unless facility modifications or construction are necessary. Where facilities must be modified or constructed to allow compliance with the required minimum streamflows, including flow measurement facilities, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facilities as soon as reasonably practicable but no later than two years after license issuance and will complete the work as soon as reasonably practicable but no later than two years after receiving all required permits and approvals for the work. During the period before facility modifications or construction are completed, and starting within 90 days after license issuance, Licensee shall make a good faith effort to provide the specified minimum streamflows within the reasonable capabilities of the existing facilities.

Minimum Streamflows in cubic feet per second (cfs) for specified reaches by month and water year type.

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SOUTH YUBA RIVER – BELOW KIDD LAKE DAM AND LOWER PEAK LAKE DAM (AT CISCO GROVE) (COMPLIANCE POINT: YB-316; USGS STREAMFLOW GAGE 11414000)						
October	5	5	5	5	5	5
November	5	5	5	5	5	5
December	5	5	5	5	5	5
January	5	5	5	5	5	5
February	5	5	5	5	5	5
March	5	5	5	5	5	5
April	5	5	5	5	5	5
May	5	5	5	5	5	5
June	5	5	5	5	5	5
July	5	5	5	5	5	5
August	5	5	5	5	5	5
September	5	5	5	5	5	5
FORDYCE CREEK – BELOW FORDYCE LAKE DAM (COMPLIANCE POINT: YB-200; USGS STREAMFLOW GAGE 11414100)						
October	20	20	20	25	25	25
November	15	15	15	20	25	25
December	15	15	15	20	25	25
January	15	15	15	20	25	25
February	15	15	15	20	25	25
March	15	15	15	20	25	25
April	15	15	15	20	25	25
May	40	40	40	40	45	45
June	30	30	30	30	45	45
July	25	25	25	25	30	30
August	20	20	20	25	25	25
September	20	20	20	25	25	25
SOUTH YUBA RIVER – BELOW LAKE SPAULDING DAM (COMPLIANCE POINT: YB-29; USGS STREAMFLOW GAGE 11414250)						
October	10*/20	20	20	25	25	30
November	10*/20	20	20	25	25	30
December	10*/20	20	20	25	25	30
January	10*/20	20	20	25	25	30
February	10*/20	25	25	35	40	50
March	10*/20	25	30	40	55	75
April	10*/20	30	40	60	80	90
May	10*/20	40	60	90	90	90
June 1-14	10*/20	35	40	50	90	90
June 15-30	20	35	40	50	90	90
July	20	25	30	35	40	40
August	20	20	23	25	40	40
September 1-15	10*/20	20	23	25	40	40
September 16 - 30	10*/20	20	20	25	28	30

* In the case where an EC water year (less than 615,000 ac-ft at Smartsville) is preceded by an EC or CD water year, the minimum streamflow shall be 10 cfs from September 1 to June 14.

Minimum Streamflows in cubic feet per second (cfs) for specified reaches by month and water year type. (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SOUTH FORK DEER CREEK – BELOW DEER CREEK POWERHOUSE (COMPLIANCE POINT: YB-34 IN SOUTH YUBA CANAL)						
October	5	5	5	5	5	5
November	5	5	5	5	5	5
December	5	5	5	5	5	5
January	5	5	5	5	5	5
February	5	5	5	5	5	5
March	5	5	5	5	5	5
April	5	5	5	5	5	5
May	5	5	5	5	5	5
June	5	5	5	5	5	5
July	5	5	5	5	5	5
August	5	5	5	5	5	5
September	5	5	5	5	5	5
NORTH FORK OF NORTH FORK AMERICAN RIVER – BELOW LAKE VALLEY RESERVOIR DAM (COMPLIANCE POINT: YB-104)						
October	2	2	3	3	3	4
November	2	2	3	3	3	4
December	2	2	3	3	3	4
January	2	2	3	3	3	4
February	2	2	3	3	3	4
March	2	2	3	3	3	4
April	2	4	4	6	8	10
May	2	6	6	9	11	15
June	2	5	5	6	8	10
July	2	3	3.5	5	5.5	6
August	2	3	3.5	5	5.5	6
September	2	3	3.5	5	5.5	6
NORTH FORK OF NORTH FORK AMERICAN RIVER – BELOW LAKE VALLEY CANAL DIVERSION DAM (COMPLIANCE POINT: YB-236)						
October	2.2	2.2	3.2	3.5	3.5	4.5
November	2.2	2.2	3.2	3.5	3.5	4.5
December	2.2	2.2	3.2	3.5	3.5	4.5
January	2.2	2.2	3.2	3.5	3.5	4.5
February	2.2	2.2	3.2	3.5	3.5	4.5
March	2.2	2.2	3.2	3.5	3.5	4.5
April	2.2	4.2	4.2	6.5	8.5	10.5
May	2.2	6.2	6.2	9.5	11.5	15.5
June	2.2	5.2	5.2	6.5	8.5	10.5
July	2.2	3.2	3.7	5.5	6	6.5
August	2.2	3.2	3.7	5.5	6	6.5
September	2.2	3.2	3.7	5.5	6	6.5

Condition No. 28 – Flow Setting

For each location set forth in the Flow Setting Minimum Streamflow table below, by no later than November 1 of each year, Licensee shall set the low-level outlet opening to make the flow release (“the Winter Setting”). 3 The following year, Licensee shall not be required to reset the low-level outlet opening at any of the locations below until Licensee can safely access the outlet works (typically in the late spring or early summer), at which time Licensee shall set the low-

level outlet for the flow release for that month, as is more fully described in the paragraphs below. Licensee's license compliance requirement is the act of setting the low-level outlet works for the Winter Setting by no later than November 1 of each year at each location to the applicable flow release, as set forth in the Flow Setting Minimum Streamflow table below. Licensee does not have any additional flow release or flow-setting requirement at these locations between the time that Licensee makes the Winter Setting and the time that Licensee is able to safely access the outlet works the following year. Licensee also has no requirement to collect streamflow compliance data from the time Licensee makes the Winter Setting until Licensee is able to safely access and reset the outlet works the following year.

With the exception of below Lake Sterling Dam and below Fuller Lake Dam, from the time Licensee first accesses each of the following outlet works each year until Licensee makes the Winter Setting the same year, Licensee shall check the outlet works for each location twice each week approximately 3 days apart (from Sunday to Saturday) and, if needed, re-set the outlet works to make the flow release for that location for that month as set forth in the Flow Setting Minimum Streamflow table. During this time period each year (approximately late spring or early summer until Licensee makes the Winter Setting the same year), Licensee's license compliance requirement is the act of setting the low-level outlet works at each location twice each week consistent with the flows for that month as set forth in the Flow Setting Minimum Streamflow table, and Licensee does not have any additional flow release or flow-setting requirements at these locations.

For below Lake Sterling Dam, from the time Licensee first accesses the outlet works each year until Licensee makes the Winter Setting the same year, Licensee shall check the outlet works for each location twice every 30 days approximately two weeks apart and, if needed, re-set the outlet works to make the flow release for that location for that month as set forth in the Flow Setting Minimum Streamflow table. During this time period each year (approximately late spring or early summer until Licensee makes the Winter Setting the same year), Licensee's license compliance requirement is the act of setting the low-level outlet works at Lake Sterling Dam twice each month consistent with the flows for that month as set forth in the Flow Setting Minimum Streamflow table, using a Licensee determined theoretical valve set-point reference (head versus flow calibration curve) and Licensee does not have any additional flow release or flow-setting requirements at Lake Sterling Dam.

For below Fuller Lake Dam, when Licensee is able to safely access the low-level outlet (typically in the late spring or early summer), Licensee shall, as needed, re-set the outlet works to release the flow for that location for that month. From approximately late spring or early summer until Licensee makes the Winter Setting the same year, Licensee shall comply with the minimum streamflows for below Fuller Lake Dam as set forth in the Flow Setting Minimum Streamflow table of this measure as measured at a continuously measured recording gage, YB-211, downstream of the dam. Minimum streamflows below Fuller Lake Dam in this measure shall have the same meaning and shall be applied as described and defined in this measure.

At the Annual Meeting, Licensee shall provide CDFW, SWRCB, FS, and BLM a report documenting: (1) the dates Licensee checked the outlet works for each site in the Flow Setting Minimum Streamflow table during the time Licensee first accessed each site until the Winter

Setting, (2) the flow at each location in the Flow Setting Minimum Streamflow table each time Licensee checked the outlet works, and (3) documentation showing Licensee reset the outlet works (if necessary) at each site in the Flow Setting Minimum Streamflow table during each time the outlet works were checked.

Minimum Streamflows in cubic feet per second for specified reaches by month and water year type. (Flow Setting)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
TEXAS CREEK – BELOW UPPER ROCK LAKE DAM (COMPLIANCE POINT: YB-201; USGS STREAMFLOW GAGE 11416585)						
October	0.1	0.1	0.25	0.25	0.25	0.25
November	0.1	0.1	0.25	0.25	0.25	0.25
December	0.1	0.1	0.25	0.25	0.25	0.25
January	0.1	0.1	0.25	0.25	0.25	0.25
February	0.1	0.1	0.25	0.25	0.25	0.25
March	0.1	0.1	0.25	0.25	0.25	0.25
April	0.1	0.1	0.25	0.25	0.25	0.25
May	0.1	0.1	0.25	0.25	0.25	0.25
June	0.1	0.1	0.25	0.25	0.25	0.25
July	0.1	0.1	0.25	0.25	0.25	0.25
August	0.1	0.1	0.25	0.25	0.25	0.25
September	0.1	0.1	0.25	0.25	0.25	0.25
TEXAS CREEK – BELOW LOWER ROCK LAKE DAM (COMPLIANCE POINT: YB-202; USGS STREAMFLOW GAGE 11416610)						
October	0.1	0.1	0.25	0.25	0.25	0.25
November	0.1	0.1	0.25	0.25	0.25	0.25
December	0.1	0.1	0.25	0.25	0.25	0.25
January	0.1	0.1	0.25	0.25	0.25	0.25
February	0.1	0.1	0.25	0.25	0.25	0.25
March	0.1	0.1	0.25	0.25	0.25	0.25
April	0.1	0.1	0.25	0.25	0.25	0.25
May	0.1	0.1	0.25	0.25	0.25	0.25
June	0.1	0.1	0.25	0.25	0.25	0.25
July	0.1	0.1	0.25	0.25	0.25	0.25
August	0.1	0.1	0.25	0.25	0.25	0.25
September	0.1	0.1	0.25	0.25	0.25	0.25
UNNAMED TRIBUTARY – BELOW CULBERTSON LAKE DAM (COMPLIANCE POINT: YB-203; USGS STREAMFLOW GAGE 11416620)						
October	0.3	0.3	0.75	0.75	1.5	1.5
November	0.3	0.3	0.75	0.75	1	1
December	0.3	0.3	0.75	0.75	1	1
January	0.3	0.3	0.75	0.75	1	1
February	0.3	0.3	0.75	0.75	1	1
March	0.3	0.3	0.75	0.75	1	1
April	0.3	0.3	0.75	0.75	1	1
May	0.3	0.3	0.75	0.75	1	1
June	0.3	0.3	0.75	0.75	1.5	1.5
July	0.3	0.3	0.75	0.75	1.5	1.5
August	0.3	0.3	0.75	0.75	1.5	1.5
September	0.3	0.3	0.75	0.75	1.5	1.5

Minimum Streamflows in cubic feet per second for specified reaches by month and water year type. (Flow Setting) (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
LINDSEY CREEK – BELOW MIDDLE LINDSEY LAKE DAM (COMPLIANCE POINT: YB-205; USGS STREAMFLOW GAGE 11416670)						
October	0.1	0.1	0.1	0.2	0.2	0.2
November	0.1	0.1	0.1	0.2	0.2	0.2
December	0.1	0.1	0.1	0.2	0.2	0.2
January	0.1	0.1	0.1	0.2	0.2	0.2
February	0.1	0.1	0.1	0.2	0.2	0.2
March	0.1	0.1	0.1	0.2	0.2	0.2
April	0.1	0.1	0.1	0.2	0.2	0.2
May	0.1	0.1	0.1	0.2	0.2	0.2
June	0.1	0.1	0.1	0.2	0.2	0.2
July	0.1	0.1	0.1	0.2	0.2	0.2
August	0.1	0.1	0.1	0.2	0.2	0.2
September	0.1	0.1	0.1	0.2	0.2	0.2
LINDSEY CREEK – BELOW LOWER LINDSEY LAKE DAM (COMPLIANCE POINT: YB-206B; USGS STREAMFLOW GAGE 11416700)						
October	0.2	0.2	0.5	0.7	0.7	0.7
November	0.2	0.2	0.5	0.7	0.7	0.7
December	0.2	0.2	0.5	0.7	0.7	0.7
January	0.2	0.2	0.5	0.7	0.7	0.7
February	0.2	0.2	0.5	0.7	0.7	0.7
March	0.2	0.2	0.5	0.7	0.7	0.7
April	0.2	0.2	0.5	0.7	0.7	0.7
May	0.2	0.2	0.5	0.7	0.7	0.7
June	0.2	0.2	0.5	0.7	0.7	0.7
July	0.2	0.2	0.5	0.7	0.7	0.7
August	0.2	0.2	0.5	0.7	0.7	0.7
September	0.2	0.2	0.5	0.7	0.7	0.7
LAKE CREEK – BELOW FEELEY LAKE DAM (COMPLIANCE POINT: YB-207; USGS STREAMFLOW GAGE 11414350)						
October	0.2	0.2	0.5	1	1	1
November	0.2	0.2	0.5	1	1	1
December	0.2	0.2	0.5	1	1	1
January	0.2	0.2	0.5	1	1	1
February	0.2	0.2	0.5	1	1	1
March	0.2	0.2	0.5	1	1	1
April	0.2	0.2	0.5	1	1	1
May	0.2	0.2	0.5	1	1	1
June	0.2	0.2	0.5	1	1	1
July	0.2	0.2	0.5	1	1	1
August	0.2	0.2	0.5	1	1	1
September	0.2	0.2	0.5	1	1	1

Minimum Streamflows in cubic feet per second for specified reaches by month and water year type. (Flow Setting) (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
LAKE CREEK – BELOW CARR LAKE DAM (COMPLIANCE POINT: YB-208; USGS STREAMFLOW GAGE 11414360)						
October	0.2	0.2	0.5	1	1	1
November	0.2	0.2	0.5	1	1	1
December	0.2	0.2	0.5	1	1	1
January	0.2	0.2	0.5	1	1	1
February	0.2	0.2	0.5	1	1	1
March	0.2	0.2	0.5	1	1	1
April	0.2	0.2	0.5	1	1	1
May	0.2	0.2	0.5	1	1	1
June	0.2	0.2	0.5	1	1	1
July	0.2	0.2	0.5	1	1	1
August	0.2	0.2	0.5	1	1	1
September	0.2	0.2	0.5	1	1	1
RUCKER CREEK – BELOW BLUE LAKE DAM (COMPLIANCE POINT: YB-209; USGS STREAMFLOW GAGE 11414265)						
October	0.2	0.2	0.3	0.5	0.5	0.5
November	0.2	0.2	0.3	0.5	0.5	0.5
December	0.2	0.2	0.3	0.5	0.5	0.5
January	0.2	0.2	0.3	0.5	0.5	0.5
February	0.2	0.2	0.3	0.5	0.5	0.5
March	0.2	0.2	0.3	0.5	0.5	0.5
April	0.2	0.2	0.3	0.5	0.5	0.5
May	0.2	0.2	0.3	0.5	0.5	0.5
June	0.2	0.2	0.3	0.5	0.5	0.5
July	0.2	0.2	0.3	0.5	0.5	0.5
August	0.2	0.2	0.3	0.5	0.5	0.5
September	0.2	0.2	0.3	0.5	0.5	0.5
RUCKER CREEK – BELOW RUCKER LAKE DAM (COMPLIANCE POINT: YB-210; USGS STREAMFLOW GAGE 11414280)						
October	0.2	0.2	0.5	0.75	1	1.5
November	0.2	0.2	0.5	0.75	1	1.5
December	0.2	0.2	0.5	0.75	1	1.5
January	0.2	0.2	0.5	0.75	1	1.5
February	0.2	0.2	0.5	0.75	1	1.5
March	0.2	0.2	0.5	0.75	1	1.5
April	0.2	0.2	0.5	0.75	1	1.5
May	0.2	0.2	0.5	0.75	1	1.5
June	0.2	0.2	0.5	0.75	1	1.5
July	0.2	0.2	0.5	0.75	1	1.5
August	0.2	0.2	0.5	0.75	1	1.5
September	0.2	0.2	0.5	0.75	1	1.5

Minimum Streamflows in cubic feet per second for specified reaches by month and water year type. (Flow Setting) (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
UNNAMED TRIBUTARY – BELOW FULLER LAKE DAM (COMPLIANCE POINT: YB-211)						
October	0.25	0.25	0.25	0.25	0.25	0.25
November	0.25	0.25	0.25	0.25	0.25	0.25
December	0.25	0.25	0.25	0.25	0.25	0.25
January	0.25	0.25	0.25	0.25	0.25	0.25
February	0.25	0.25	0.25	0.25	0.25	0.25
March	0.25	0.25	0.25	0.25	0.25	0.25
April	0.25	0.25	0.25	0.25	0.25	0.25
May	0.25	0.25	0.25	0.25	0.25	0.25
June	0.25	0.25	0.25	0.25	0.25	0.25
July	0.25	0.25	0.25	0.25	0.25	0.25
August	0.25	0.25	0.25	0.25	0.25	0.25
September	0.25	0.25	0.25	0.25	0.25	0.25
UNNAMED TRIBUTARY – BELOW MEADOW LAKE DAM (COMPLIANCE POINT: YB-217)						
October	1	1	1	1	1	1
November	1	1	1	1	1	1
December	1	1	1	1	1	1
January	1	1	1	1	1	1
February	1	1	1	1	1	1
March	1	1	1	1	1	1
April	1	1	1	1	1	1
May	1	1	1	1	1	1
June	1	1	1	1	1	1
July 1 – 8	5	5	5	5	5	5
July 9 – 17	11	11	11	11	11	11
July 18 – 31	5	5	5	5	5	5
August	1	1	1	1	1	1
September	1	1	1	1	1	1
WHITE ROCK CREEK – BELOW WHITE ROCK DIVERSION DAM (COMPLIANCE POINT: YB-218)						
October	0.5	0.5	0.5	0.5	1	1
November	0.5	0.5	0.5	0.5	1	1
December	0.5	0.5	0.5	0.5	1	1
January	0.5	0.5	0.5	0.5	1	1
February	0.5	0.5	0.5	0.5	1	1
March	0.5	0.5	0.5	0.5	1	1
April	0.5	0.5	0.5	0.5	1	1
May	0.5	0.5	0.5	0.5	1	1
June	0.5	0.5	0.5	0.5	1	1
July	0.5	0.5	0.5	0.5	1	1
August	0.5	0.5	0.5	0.5	1	1
September	0.5	0.5	0.5	0.5	1	1

Minimum Streamflows in cubic feet per second for specified reaches by month and water year type. (Flow Setting) (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
BLOODY CREEK – BELOW LAKE STERLING DAM (COMPLIANCE POINT: LOW-LEVEL OUTLET WORKS AT LAKE STERLING DAM)						
October	0.5	0.5	0.5	0.5	1	1.5
November	0.5	0.5	0.5	0.5	1	1
December	0.5	0.5	0.5	0.5	1	1
January	0.5	0.5	0.5	0.5	1	1
February	0.5	0.5	0.5	0.5	1	1
March	0.5	0.5	0.5	0.5	1	1
April	0.5	0.5	0.5	0.5	1	1
May	0.5	0.5	0.5	0.5	1	1
June	0.5	0.5	0.5	0.5	1	1.5
July	0.5	0.5	0.5	0.5	1	1.5
August	0.5	0.5	0.5	0.5	1	1.5
September	0.5	0.5	0.5	0.5	1	1.5
UNNNAMED TRIBUTARY – BELOW KIDD LAKE DAM (COMPLIANCE POINT: YB-220)						
October	0.5	0.5	0.5	0.5	0.5	0.5
November	0.5	0.5	0.5	0.5	0.5	0.5
December	0.5	0.5	0.5	0.5	0.5	0.5
January	0.5	0.5	0.5	0.5	0.5	0.5
February	0.5	0.5	0.5	0.5	0.5	0.5
March	0.5	0.5	0.5	0.5	0.5	0.5
April	0.5	0.5	0.5	0.5	0.5	0.5
May	0.5	0.5	0.5	0.5	0.5	0.5
June	0.5	0.5	0.5	0.75	1	1
July	0.5	0.5	0.5	0.5	0.5	0.5
August	0.5	0.5	0.5	0.5	0.5	0.5
September	0.5	0.5	0.5	0.5	0.5	0.5
CASCADE CREEK – BELOW LOWER PEAK LAKE DAM (COMPLIANCE POINT: YB-222)						
October	0.5	0.5	0.5	0.5	0.5	0.5
November	0.5	0.5	0.5	0.5	0.5	0.5
December	0.5	0.5	0.5	0.5	0.5	0.5
January	0.5	0.5	0.5	0.5	0.5	0.5
February	0.5	0.5	0.5	0.5	0.5	0.5
March	0.5	0.5	0.5	0.5	0.5	0.5
April	0.5	0.5	0.5	0.5	0.5	0.5
May	0.5	0.5	0.5	0.5	0.5	0.5
June	0.5	0.5	0.5	0.75	1	1
July	0.5	0.5	0.5	0.5	0.5	0.5
August	0.5	0.5	0.5	0.5	0.5	0.5
September	0.5	0.5	0.5	0.5	0.5	0.5

Minimum Streamflows in cubic feet per second for specified reaches by month and water year type. (Flow Setting) (continued)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
SIXMILE CREEK – BELOW KELLY LAKE DAM (COMPLIANCE POINT: YB-226)						
October	0.2	0.2	0.2	0.5	0.5	0.5
November	0.2	0.2	0.2	0.5	0.5	0.5
December	0.2	0.2	0.2	0.5	0.5	0.5
January	0.2	0.2	0.2	0.5	0.5	0.5
February	0.2	0.2	0.2	0.5	0.5	0.5
March	0.2	0.2	0.2	0.5	0.5	0.5
April	0.2	0.2	0.2	0.5	0.5	0.5
May	0.2	0.2	0.2	0.5	0.5	0.5
June	0.2	0.2	0.2	0.5	0.5	0.5
July	0.2	0.2	0.2	0.5	0.5	0.5
August	0.2	0.2	0.2	0.5	0.5	0.5
September	0.2	0.2	0.2	0.5	0.5	0.5

Condition No. 29 – Canal Outages

This measure pertains to canal outages that affect minimum streamflows described in this measure. For the purpose of this measure, there are three types of canal outages: (1) annual planned outages; (2) non-routine planned outages; and (3) emergency outages. For the purpose of this measure: an “annual planned outage” is defined as an outage that is typically taken around the same time each year for routine maintenance; a “non-routine planned outage” is defined as an outage for work that is high priority work (often major maintenance) and performed under planned conditions but is not performed during the annual planned outage period; and an “emergency outage” is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

During the Annual Meeting (Condition No. 1), Licensee will inform meeting participants about annual planned outages, including the anticipated time-frame the annual planned outages will occur, and any non-routine planned outages that are already planned at the time of the Annual Meeting, for the upcoming year. Licensee will in good faith provide CDFW, SWRCB, FS, and BLM as much notice as reasonably possible for any annual planned outages or non-routine planned outages that were not noted in the Annual Meeting or that become anticipated to occur at a time that is different than reported in the Annual Meeting or different from the approximate time of year listed in the Canal Outages table below. For all annual planned outages and non-routine planned outages, Licensee will comply with the Canal Outages Fish Rescue Plan (Condition No. 29) as well as all laws and permitting requirements, as applicable. Licensee will provide CDFW, SWRCB, FS, and BLM notice by electronic mail as soon as reasonably possible, but no later than the end of the next business day (business days do not include weekends and federal or state holidays) after an emergency outage occurs.

The Canal Outages table below lists canals where outages may affect minimum streamflows in this measure and provides the minimum streamflows required during the first 30 days of annual planned outages, non-routine planned outages or emergency outages. If an annual planned outage, non-routine planned outage, or emergency outage is anticipated to extend past 30 days, Licensee shall consult with the CDFW, SWRCB, FS, and BLM regarding minimum streamflows for the remainder of the outage after the first 30 days and Licensee shall implement the collaboratively agreed upon minimum streamflows as soon as it is reasonably possible to do so for the remainder of the outage. Licensee shall also file any collaboratively agreed upon changes in minimum streamflows with the Commission. The Canal Outages table below also lists the approximate time of year and typical duration that each annual planned outage occurs. However, annual planned outages may in any given year last longer or occur outside of the approximate time frame identified in the Canal Outages table below. Licensee will not take the Drum Canal and the Bear River Canal out of service simultaneously unless there is an emergency that requires this action.

Locations where canal outages affect Minimum Streamflows.

Location (Stream – Facility)	Typical historical outage period/duration	Minimum Streamflows During Annual Planned Outages, Non-Routine Planned Outages and Emergency Outages
Bear River – YB-198	Approximately 2 weeks in late September and early October (Drum Canal) or approximately 2 weeks from late March to early April (South Yuba Canal)	In the event that the total flow in the Drum Canal upstream of YB-137 and South Yuba Canal upstream of YB-139 is less than required for the Minimum Streamflow at YB-198, the Minimum Streamflow shall be no less than the natural flow in Bear River at YB-198, and Licensee shall also release as much water as is available in the two canals to meet as much of the Minimum Streamflow as set forth in this Measure as possible.
South Yuba Canal above Deer Creek Forebay – YB-34	Approximately 2 weeks in late March to early April (South Yuba Canal and/or Chalk Bluff Canal)	When the South Yuba Canal or Chalk Bluff Canal are out of service, no Minimum Streamflows shall be required at YB- 34.

Condition No. 30 – Fordyce Lake Drawdown

For the purposes of this measure, a “High Target Flow” is a flow of approximately 475 cfs to 250 cfs. Licensee shall make a good faith effort to manage flows released from Fordyce Dam (measured at YB-200) after spills cease at both Fordyce Dam and at Lake Spaulding, and Fordyce Dam can be safely accessed, consistent with the parameters set forth below.

- Implementation of this measure shall not cause additional spills at Lake Spaulding when transferring water from Fordyce Reservoir to Lake Spaulding;
- The end of year carryover target storage for minimum flow requirements at Fordyce Reservoir is 7,500 to 10,000 acre-feet;
- When Lake Spaulding has ceased spilling (or in a year when Lake Spaulding has not spilled) and as soon as there is sufficient storage space available in Lake Spaulding, Licensee shall begin the High Target Flow;
- The High Target Flow shall commence at an initial magnitude between 450 cfs and 475 cfs, and its magnitude shall be reduced principally by leaving the outlet valve at Fordyce Reservoir as far open as is necessary to achieve the initial magnitude, thereafter allowing the drop in head from declining storage in the reservoir to reduce the flow.

- Once Licensee begins the High Target Flow, Licensee shall maintain those flows until storage in Fordyce Reservoir reaches 29,000 acre-feet;
- After Fordyce Reservoir reaches 29,000 acre-feet, Licensee shall determine the subsequent release rates by calculating the difference between 29,000 acre-feet and the end of year target pool level of 7,500-10,000 acre-feet. This amount shall be apportioned equally and released until the end of year target pool level is reached;
- Licensee shall initiate a special event flow of approximately 50 cfs for approximately 10 days beginning the end of the 3rd week in August (unless FS otherwise informs Licensee of a different date); and
- Following the special event flow, Licensee shall provide no less than the flows set forth in the minimum streamflows in this measure.

Licensee shall make a good faith effort to provide the target flows measured as mean daily flow. The target flows set forth in this measure cannot be guaranteed and may be beyond Licensee's reasonable control. The target flows are subject to modification in emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. Licensee may increase and/or decrease flows set forth in this measure in a manner consistent with public safety and operational needs.

Condition No. 31 – Spill Cessation and Minimization of Flow Fluctuations at South Yuba River

Licensee shall make a good faith effort to adhere to the Lake Spaulding spill cessation schedules in Table 1 and Table 2 of this measure if and when the following criteria occur:

- The spill flows below Lake Spaulding as measured at USGS Streamflow Gage 11414250 (YB-29) reach the flow threshold specified in Table 1 and/or Table 2, as applicable; and
- When and if the water surface elevation of Lake Spaulding as measured at USGS Reservoir Storage Gage 11414140 (Lake Spaulding near Emigrant Gap) (YB-15) meets or exceeds 5,005.6 feet (i.e., 6 feet of head on the 15-foot-high radial gates).

The spill cessation schedule in Table 1 of this measure is intended to address recreation interests in the Project (including boating) and shall apply in Wet, Above Normal, and Below Normal water years only and does not apply in Dry, Critically Dry or Extreme Critically Dry water years. The spill cessation schedule in Table 2 shall apply in all water year types. The requirements in this measure are not subject to a ramping rate.

If the above criteria and the flow threshold in Table 1 of this measure occur between May 2 and September 30, the flow schedule for the applicable Water Year Type in Table 1 will be implemented once between May 2 and September 30.

If the above criteria and the flow threshold in Table 2 of this measure are met anytime between

May 2 and September 30, the Table 2 flow schedule will be implemented when reducing spill flow to a base flow (approaching the applicable Minimum Streamflow as set forth in this measure).

Licensee will use good faith efforts to implement the Target Flows in Table 1 of this measure during spill conditions and will attempt to make these flows prior to or during Memorial Day weekend each year if the above criteria occur at that time. If Licensee is in the process of implementing the Target Flows set forth in Table 1 on or after May 15, and Lake Spaulding is not forecast to have additional or uncontrolled spill after the Table 1 Target Flows have been made, Licensee will make a good faith effort to release between 250 and 275 cfs on the last day of the spill cessation schedule for Table 1 and Licensee will then immediately begin implementing the Table 2 flows.

If there is not enough head on the radial gates to implement the full spill cessation schedule in Table 2 (i.e., Licensee cannot release the higher flows), Licensee will make a good faith effort to implement whatever portion of the spill cessation schedule in Table 2 Licensee reasonably can implement.

Table 1. Higher flow spill cessation schedule in the South Yuba River downstream of Lake Spaulding Dam.

Water Year Type:	Wet	Above Normal	Below Normal	Dry
Target Flow	Target Number of Days to Hold Target Flows			
250- 420 cfs	No less than 6 consecutive days	No less than 4 consecutive days	No less than 2 consecutive days	--

Table 2. Lower flow spill cessation schedule in the South Yuba River downstream of Lake Spaulding Dam.

Target Flow, +/- 20% ¹	Target Number of Days to Hold Target Flows
250 cfs	1 day
200 cfs	2 days
150 cfs	2 days
125 cfs	3 days
100 cfs	3 days
75 cfs	4 days
60 cfs	4 days
50 cfs ²	2 days

¹ Once the facility modifications (discussed later in this measure) are completed, Target Flows at or below 75 cfs will be ± 10%.

² If the Minimum Streamflow in this measure is greater than 50 cfs, the spill cessation will stop at the Minimum Streamflow.

Licensee shall make a good faith effort to provide the Target Flows measured as mean daily flow shown in Tables 1 and 2 above for at least the target number of days specified. However, some conditions (e.g., rain on snow event and unusual temperature variations) are outside Licensee’s control, and flows may increase or decrease significantly during such conditions.

Where facility modifications are needed to provide the Target Flows in the spill cessation schedules, Licensee shall complete such modifications as soon as reasonably practicable and no later than 5 years after license issuance. Prior to making such facility modifications, Licensee will have very limited ability to make the Target Flow releases in either Table 1 or Table 2. However, Licensee shall make a good faith effort to provide the Target Flows within the limited

capabilities of the existing facilities. Once Licensee has completed the needed facility modifications as discussed above, Licensee shall make a good faith effort to provide the Target Flows measured as mean daily flow within 10 percent (plus or minus) of the Target Flows at or below 75 cfs in Table 2; Target Flows above 75 cfs in Table 2 will still be subject to the 20 percent (plus or minus) variation after the facility modifications are completed.

Licensee shall make available to FS the streamflow records related to this spill cessation schedule upon FS's request.

In years where this spill cessation schedule is implemented, for the period of time from the end of the spill cessation schedule in Table 2 through September 30, with the exception of emergencies or when otherwise required by law, Licensee shall make a good faith effort to not make releases from Lake Spaulding/Spaulding Dam that result in short-term, high-flow fluctuations defined as a 100 percent or greater increase in a 12-hour period in the South Yuba River downstream of Lake Spaulding/Spaulding Dam. In non-spill cessation years, Licensee shall make a good faith effort to not make releases from Lake Spaulding/Spaulding Dam that result in short-term, high flow fluctuations as defined above in the South Yuba River downstream of Lake Spaulding/Spaulding Dam from May 2 through September 30.

These Spill Cessation Schedules cannot be guaranteed and may be beyond Licensee's reasonable control. The Spill Cessation Schedules are subject to modification if required by emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction by law enforcement, emergency services, or other regulatory agency staff, including actions to prevent imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; and public safety incidents.

Condition No. 32 – South Yuba River Supplemental Flows

Licensee shall, within one year of license issuance, in coordination with FS, CDFW, SWRCB, Licensee for the Yuba-Bear Hydroelectric Project, and other interested stakeholders as identified by the FS, establish a meeting schedule with the Consultation Group (Condition No. 2, Consultation Group) for the purpose of evaluating the monitoring data as collected pursuant to the Monitoring Program (Condition No. 51) as approved by the Commission for the South Yuba River, including the data related to foothill yellow-legged frogs (FYLF) and resident rainbow trout, and assessing the effect of any Supplemental Flows, if applicable, on habitat, including water temperatures, for FYLF and native fish species (e.g., resident trout, hardhead, pike-minnow). Consistent with the approved Monitoring Plan, Licensee will collect data regarding FYLF and fish populations, including rainbow trout, in the South Yuba River below Lake Spaulding and will provide those data to the Consultation Group on an annual basis (no later than January 31 of each year, for the previous year's data), if applicable, during the term of the license. Water temperature monitoring data will be provided to the Consultation Group every two weeks from June 1 through August 15 unless otherwise agreed to. For the first 5 years after license issuance, or until the low-level outlet at Lake Spaulding Dam is retrofitted, whichever is sooner, Licensee will make a good faith effort to meet Supplemental Flows in the South Yuba

River below Lake Spaulding as measured at YB- 29.

For the purposes of this measure, Supplemental Flows mean water Licensee may be required to release in addition to the minimum streamflows into South Yuba River below Lake Spaulding annually between July 1 and September 15 in CD, Dry, and BN water year types so that the total minimum flow (i.e., the minimum streamflows plus Supplemental Flows) as measured at YB-29 shall be no greater than 30 cfs. The purpose of the Supplemental Flows, coupled with the minimum streamflows, is to increase the amount of suitable habitat for resident rainbow trout without decreasing habitat or otherwise negatively impacting FYLF or other native species, such as hardhead. Key habitat metrics are flow related attributes such as depth, velocity, cover, and water temperature.

The Consultation Group will be responsible for providing annual recommendations to FS, and FS shall then determine, whether in CD, Dry, and BN water year types any Supplemental Flows shall be implemented each year. If FS determines that any Supplemental Flows are needed during any year of the license term, FS shall inform Licensee of that determination in writing (electronic communications acceptable) no later than June 1 of the same calendar year for which the Supplemental Flows shall be implemented and shall inform Licensee of the requested total flow release (e.g., the minimum streamflow plus the supplemental flow up to a maximum of 30 cfs) for each month between July 1 and September 15. With reasonable notice (10 days), FS may request two adjustments to these flows during this time period. The Supplemental Flow table below provides the monthly Supplemental Flow range and the total minimum flow range for the South Yuba River as measured at YB-29 in CD, Dry, and BN water year types. Although Supplemental Flows do not apply to the month of June, minimum streamflows for June are included in the Supplemental Flow table below to provide a reference for the time period immediately preceding the period when Supplemental Flows may be implemented.

Minimum Streamflows in South Yuba River below Lake Spaulding Dam as Measured at YB-29 with Supplemental Flow Range and Total Minimum Flow Range

Period	Minimum Streamflow (cfs)	Supplemental Flow Range (cfs)	Total Minimum Flow Range (cfs)
CRITICALLY DRY WATER YEARS			
June 15 – 30	35	--	35
July	25	0-5	25-30
August	20	0-10	20-30
September 1 – 15	20	0-10	20-30
DRY WATER YEARS			
June 15 – 30	40	--	40
July	30	--	30
August	23	0-7	23-30
September 1 – 15	23	0-7	23-30
BELOW NORMAL WATER YEARS			
June 15 – 30	50	--	50
July	35	--	35
August	25	0-5	25-30
September 1 – 15	25	0-5	25-30

If FS does not inform Licensee by June 1 of the need to implement Supplemental Flows in the South Yuba River for that calendar year, Licensee shall implement the minimum streamflows for the South Yuba River as set forth in the Streamflows Measure. Nothing in this measure shall require Licensee to release flows above 30 cfs in CD, Dry, and BN water year types unless a new

plan or revision to this condition is determined necessary as described below. Nothing in this measure shall allow the Licensee to release flows in the South Yuba River that are lower than the minimum streamflows, as measured at YB- 29 as set forth in the Streamflows Measure.

If, after at least three years of monitoring (including at least one Dry or CD water year), data indicate that daily average water temperatures immediately above Canyon Creek are exceeding 20°C mean daily, an important transition temperature for rainbow trout and other native species, for two consecutive days, FS may require that the Licensee develop a plan to amend this South Yuba River Supplemental Flow measure for the South Yuba River above Canyon Creek. This plan, if required, will describe methods for providing flows below Lake Spaulding from July 1 through September 15 to quickly reduce water temperatures if they exceed 20°C for two consecutive days (daily average, measured as close to Canyon Creek as reasonably possible). The plan shall be approved by FS and then filed with the Commission within one year of the request by the FS and shall include empirical data from at least one Dry or CD water year type. The plan shall include recommendations to meet the rainbow trout water temperature objective without negatively impacting, as determined by FS, FYLF and other native species. The plan shall be based on stream temperature monitoring and existing modeling of the affected reach from immediately below Lake Spaulding Dam downstream to Canyon Creek. The plan shall also propose empirically determined ramping rates and Total Minimum Flows not to exceed 40 cfs that will avoid negative effects to FYLF and other native species within this reach. The plan will also consider potential impacts to generation and water supply. Licensee shall submit the plan for FS approval prior to submission to the Commission. Licensee shall implement the plan upon Commission approval. If the new plan is implemented and, after three years of monitoring (including at least one Dry or CD water year), data indicate that daily average water temperatures immediately above Canyon Creek are exceeding 20°C mean daily for two consecutive days, FS reserves the authority to revise this condition to achieve the 20°C mean daily temperature objective on the South Yuba River immediately above Canyon Creek.

Condition No. 33 – Canal Outages Fish Rescue Plan

Upon Commission approval, Licensee shall implement the Canal Outages Fish Rescue Plan, filed separately with the Commission (FERC Library Accession No. 201311215017).

Condition No. 34 – Gaging Plan

Upon Commission approval, Licensee shall implement the Gaging Plan, filed separately with the Commission (FERC Library Accession No. 201404115039).

Condition No. 35 – Modifications of 4(e) Conditions after Biological Opinion or Water Quality Certification

FS reserves the right to modify these conditions, if necessary, to respond to any Final Biological Opinion issued for this Project by the National Marine Fisheries Service, United States Fish and Wildlife Service; or any Certification issued for this Project by the State Water Resources Control Board.

Condition No. 36 – Modifications of 4(e) Conditions in the Event of Anadromous Fish Re-introduction

FS reserves the right to modify these conditions to respond to any reintroduction of Chinook salmon or steelhead trout listed under the Endangered Species Act to stream reaches through NFS lands where the flow is controlled by this Commission licensed facility.

Condition No. 37 – Aquatic Invasive Species Management and Monitoring Plan

Within one year of license issuance, Licensee shall develop an Aquatic Invasive Species (AIS) Plan that meets applicable State and Federal laws and regulations. The plan shall be approved by FS after consultation with BLM, CDFW, and SWRCB. The applicable State and Federal resource agencies shall be responsible for making the determination as to whether the AIS Plan complies with the State and/or Federal regulations of their respective agencies.

The AIS Plan shall initially address the following AIS: dreissenid mussels (*Dreissena bugensis* and *Dreissena polymorpha*); New Zealand mudsnail (*Potamopyrgus antipodarum*); Eurasian milfoil (*Myriophyllum spicatum*); Hydrilla (*Hydrilla verticillata*); and Asian clam (*Corbicula fluminea*). However, other AIS may be identified through monitoring.

Additionally, invasive algae (*Didymosphenia geminata*) were found throughout the Project area. If future studies document a safe method of reducing this invasive algae in rivers, Licensee may be asked to implement this task in Project-related locations.

The AIS Plan shall include the following elements:

Public Education Program

The AIS Plan shall include a public education program, including appropriate signage and information pamphlets at designated public boat access sites on Lake Spaulding, Fordyce Lake, Fuller Lake, Lake Valley Reservoir. The AIS Plan shall include appropriate educational signage at boat launch areas at Meadow Lake, Lower Lindsay Lake, Carr Lake, Feeley Lake, Rucker Lake, White Rock Lake, Kidd Lake, Upper Peak Lake, Lower Peak Lake, and Kelly Lake. The following shall be addressed:

- Draining water from boat, motor, bilge, live well and bait containers before leaving a water access site.
- Removing visible plants, animals and mud from boat before leaving waterbody.
- Cleaning and drying boats and fishing equipment using California Department of Fish and Wildlife (CDFW) accepted protocols for the prevention of all AIS before entering any waterbody area.
- Disposing of unwanted bait in trash, including earthworms.
- Avoiding the release of plants and animals into a waterbody unless they originally came from that waterbody.

AIS information shall be included on Project websites that provide public information on Project facilities. The public information website will also include information on the amphibian chytrid fungus.

Best Management Practices

The AIS Plan shall specify that Licensee is responsible for developing BMPs for individual Project O&M activities, performed by PG&E and/or its contractors, which activities have the potential to introduce AIS into a Project reservoir, to prevent the spread of AIS, and submitting them to FS, BLM, SWRCB, and CDFW for review at the Annual Consultation Meeting required in the FERC license.

Development of BMPs for Project activities shall include but not be limited to the following:

- List of AIS with potential to be introduced.
- Control or preventive measures for AIS.
- Identification of critical control points in the Project activity sequence at which to prevent the introduction of AIS.
- Any necessary implementation monitoring for potential AIS to ensure BMPs are followed.
- Actions that will be taken if an introduction of AIS is found.

If invasive aquatic species are detected within any reservoir, Licensee will consult with the appropriate agencies and institute an appropriate plan of action.

Monitoring and Reporting

The AIS Plan shall include a specific monitoring program that addresses all reservoirs that have a boat launch, or identified as having boating access, and that follows State and/or Federal laws, regulations, and policies. The following initial monitoring methods shall be discussed in the monitoring section of the AIS Plan, and the plan shall include observations for the species listed in the “Incidental Observations Monitoring” section below.

- Zebra/Quagga Mussel Surface Surveys
- Zebra and Quagga Mussel Veliger Sampling
- Zebra and Quagga Mussel Artificial Substrate Monitoring

Mapping and monitoring results shall be provided to FS, BLM, CDFW, and SWRCB.

Incidental Observations Monitoring

The AIS plan shall include Incidental Observations Monitoring as follows: During AIS and other license-related aquatic monitoring in project reservoirs and project-affected stream reaches (e.g., fish, foothill yellow-legged frogs (*Rana boylei*), riparian, and geomorphology), Licensee shall record incidental observations of the following species: Quagga or Zebra Mussel, New Zealand Mudsnailed, Asian clam, Eurasian milfoil, Hydrilla, *Didymosphenia geminata* and

American bullfrog (*Lithobates catesbeianus*). This initial list may be revised if other potential AIS in project-affected reservoirs and stream reaches are identified. The following practices will be implemented:

- Field personnel performing the license-related aquatic monitoring will be trained in the identification of the species listed above.
- Field crews working in aquatic environments (reservoirs, creeks, or rivers) conducting other biological monitoring will complete a checklist data form at the end of each day indicating the presence/absence (detect/non-detect) of the species listed above. It is recommended that at least one field crew member make a full pass of the survey area each day focusing exclusively on the species on the checklist.

Plan Revisions

Licensee, in consultation with FS, CDFW, SWRCB, and BLM shall review, update, and/or revise the AIS Plan, as determined necessary by FS in consultation with CDFW, SWRCB and BLM, when substantial changes in the existing conditions occur. Additional monitoring may be part of any plan revisions. Changes or revisions to the Plan would be expected if AIS conditions change as a result of unforeseen effects, either from new or existing Project-related activities, the potential for new AIS to occur, or from natural events or if other regulatory or legal requirements are established. Changes in the existing conditions could include such things as new methods for the treatment of *Didymosphenia geminata*. Licensee shall include all relevant documentation of coordination/consultation with the updated Plan filed with the Commission.

Condition No. 38 – Vegetation and Non-Native Invasive Plant Management Plan

Upon Commission approval, Licensee shall implement the Integrated Vegetation Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215025).

Condition No. 39 – Monitor Animal Losses in Project Canals

Beginning in the first full calendar year after license issuance, Licensee shall record animal losses in all Project canals. Specifically, Licensee's operators shall record in log books all dead animals observed on canal trash racks and otherwise in the canals using the Wildlife Mortality data sheets found in Appendix 4-2A of the Wildlife Movement Technical Memorandum (4-2) included in Appendix E12 of Licensee's application for new license. Licensee shall make a good faith effort to record the location of the dead animal (i.e. which Project canal, where in the canal the dead animal was found, and the associated structure), species, date and time of the observation, suspected cause of death if it can be determined from visual observation only, photograph if available, estimated size, estimated age, and sex if known, and other pertinent information. The information will include the cumulative years and preceding year's mortality by canal segment, and a map showing segments (defined by location of trash racks). Licensee shall provide this information to CDFW, FS, and BLM at least 60 days prior to the Annual Meeting described in Condition No. 1.

Licensee shall consult with FS, BLM, and CDFW and other interested parties during the Annual Meeting, regarding the protection and utilization of the wildlife resources affected by the Project. If there is an increasing trend in animal mortalities in a canal, additional measures to address suspected Project-related causes for that canal may be developed by Licensee in consultation with CDFW, FS, and BLM. The Licensee shall prepare a report that includes the Licensee’s recommendations for measures to address animal mortalities, and a schedule of implementation. Licensee shall provide the report to FS, BLM, and CDFW, as appropriate, for review and approval. The Licensee shall file the report, including evidence of consultation, with the Commission, and shall implement those resource management measures required by the Commission.

Condition No. 40 – Replacement of Wildlife Escape and Wildlife Crossing Facilities

Prior to replacing or retrofitting existing wildlife escape facilities and wildlife crossings along Project canals, Licensee shall consult with CDFW regarding specifications and design and with FS, as appropriate. Licensee shall file the design, including evidence of consultation, with the Commission within 60 days after the wildlife escape facility or wildlife crossing facility has been replaced or retrofitted. Licensee shall also assess existing wildlife escape facilities and wildlife crossing facilities annually to ensure they are functional and in proper working order. Inspections shall occur at the same time other types of maintenance activities or canal assessments are being conducted.

Condition No. 41 – Wildlife Crossings—Drum and South Yuba Canals

Wildlife Crossing Plan

Within 5 years of license issuance, Licensee shall retrofit existing footbridges or construct new wildlife crossings at or near the following locations on the Drum Canal and South Yuba Canal:

Location of new or retrofitted wildlife crossings for the Drum Canal and South Yuba Canal.

Canal	Crossing Location ¹	Retrofit Existing Footbridge or Construct New Crossing	Land Ownership
Drum Canal	Mile 0.5	Construct New Crossing	PG&E
	Mile 2	Construct New Crossing	PG&E
	Mile 5	Construct New Crossing	PG&E
	Mile 5.3	Retrofit Existing Footbridge	PG&E
	Mile 6	Construct New Crossing	PG&E
	Mile 6.7	Retrofit Existing Footbridge	Tahoe National Forest
	Mile 8	Retrofit Existing Footbridge	Tahoe National Forest
South Yuba Canal	Mile 4.3	Retrofit Existing Footbridge	Tahoe National Forest
	Mile 5.1	Retrofit Existing Footbridge	Tahoe National Forest
	Mile 8.1	Retrofit Existing Footbridge	Tahoe National Forest
	Mile 8.8	Construct New Crossing	PG&E
	Mile 9.4	Retrofit Existing Footbridge	PG&E
	Mile 10.6	Construct New Crossing	PG&E
	Mile 11.5	Construct New Crossing	PG&E

¹ Canal miles have been designated from canal terminus upstream to its origin. The location of each wildlife crossing is identified by mile.

Unless otherwise approved by FS, BLM, and CDFW, for crossings in the Wildlife Crossing table above that are identified as “New Crossings,” Licensee shall maximize the continuity of native soils adjacent to and on the wildlife crossing and meet the following minimum specifications: (1) new overcrossings shall be a minimum of 8 feet wide, with fenced side railings a minimum of 4 feet high, and unobstructed access ramps with a grade that is less than or equal to 40 percent or (2) new undercrossings shall be a minimum of 10 feet high by 10 feet wide (with a 2 feet wide dry path above the high water mark if a perennial stream) with natural substrate. The above specifications shall also apply to any existing crossings that are replaced.

For those crossings listed in the above Wildlife Crossing table above that are identified as “Retrofit Existing Footbridge,” Licensee shall replace or cover existing metal footbridge decks with wood or similar synthetic material (synthetic material may only be used if approved by FS, BLM and CDFW), and replace stairs with an unobstructed access ramp.

Within 1 year of completion, Licensee shall submit to FS, BLM and CDFW the final design of each newly constructed crossing and retrofit of existing crossing.

Structures shall be identified as Licensee-maintained wildlife crossings and geo- referenced in a map and provided to FS, BLM, and CDFW.

Monitoring

- At the Annual Consultation Meeting required in Condition 1, Consultation, Licensee will provide a written report on each crossing’s condition, maintenance, and repair activities.
- When crossings are retrofitted (i.e., change in design or material) or newly constructed, Licensee shall conduct camera monitoring for 1 year to determine if adjustments, which may include fencing, are needed if determined necessary by FS, BLM and CDFW. If monitoring shows that a new design or material is effective, Licensee may request at the Annual Consultation Meeting required in Condition 1, Consultation, that monitoring be waived at crossing or fencing locations where the new design or material is implemented. Such monitoring may be waived if approved by FS, BLM, and CDFW.
- Additional monitoring may be required as determined necessary by FS, BLM and CDFW.
- Ten years following license issuance, and every 10 years thereafter, Licensee shall arrange a meeting with FS, BLM, and CDFW, to review the location and design of Licensee-maintained crossings and natural landscape features that provide wildlife passage across Licensee’s conduits, in context with changes in land use patterns, human development, and road improvements or decommissioning, that may affect wildlife use of crossings. If FS, BLM, and CDFW determine that the existing crossings are not adequate based on this review, Licensee shall develop plans to address additional needs for crossings, enclosures, and escape structures. The final plans shall be submitted to Commission for approval.

Condition No. 42 – Wildlife Crossings—Bear River and South Canals

Wildlife Crossing Plan

Within 1 year of license issuance, Licensee shall complete, approved by FS, BLM, and CDFW, a Wildlife Crossing Plan (Plan) for placing wildlife crossings for the Bear River Canal and the South Canal that is integrated with wildlife escape structures and exclusion fencing to reduce wildlife mortality.

Unless otherwise approved by FS, BLM, and CDFW, new crossings shall maximize the continuity of native soils adjacent to and on the wildlife crossing and meet the following minimum specifications: (1) new overcrossing shall be a minimum of 8 feet wide, with fenced 8-foot high side railings, and unobstructed access ramps with a grade that is less than or equal to 40 percent; or (2) new undercrossing shall be a minimum of 10 feet high by 10 feet wide (with 2 feet wide dry path above the high water mark if a perennial stream) with natural substrate. If existing footbridges are retrofitted for the purpose of wildlife crossings, Licensee shall replace or cover existing metal footbridge decks with wood or similar synthetic material (synthetic material may only be used if approved by FS, BLM and CDFW), and replace stairs with an unobstructed access ramp. The above specifications shall also apply to any existing crossings that are replaced.

The Plan will include an implementation schedule, with implementation beginning 2 years from license issuance, and completion within 5 years, unless otherwise agreed to by FS, BLM, and CDFW. Minimum components of the Plan include, but may not be limited to:

- Locations for planned and existing Licensee-maintained wildlife crossings, as a target, to provide movement approximately every 1 mile in combination with natural landscape features that also meet the above specifications
- Overpass or underpass design
- Map of all conduits, with segments identified by canal mile
- Map of all crossing structures, wildlife escape ramps and flashers with corresponding GPS coordinates
- Implementation schedule

Monitoring

- At the Annual Consultation Meeting required in Condition 1, Consultation, Licensee will provide a written report on each crossing's condition, maintenance, and repair activities.
- When crossings are retrofitted (i.e., change in design or material) or newly constructed, Licensee shall conduct camera monitoring for 1 year to determine if adjustments, which may include fencing, are needed if determined necessary by FS, BLM and CDFW. If monitoring shows that a new design or material is effective, Licensee may request at the Annual Consultation Meeting required in Condition 1, Consultation, that monitoring be waived at crossing or fencing locations where the new design or material is implemented. Such monitoring may be waived if approved by FS, BLM, and CDFW.
- Additional monitoring may be required as determined necessary by FS, BLM and CDFW.
- Ten years following license issuance, and every 10 years thereafter, Licensee shall arrange a

meeting with FS, BLM, and CDFW, to review the location and design of Licensee-maintained crossings and natural landscape features that provide wildlife passage across Licensee's conduits, in context with changes in land use patterns, human development, and road improvements or decommissioning, that may affect wildlife use of crossings. If FS, BLM, and CDFW determine that the existing crossings are not adequate based on this review, Licensee shall develop plans to address additional needs for crossings, exclosures, and escape structures. The final plans shall be submitted to Commission for approval.

Condition No. 43 – Bald Eagle Management Plan

Upon Commission approval, Licensee shall implement the Bald Eagle Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215015).

Condition No. 44 – Special Status Species

Before taking actions to construct new project features on NFS lands that may affect FS special status species or their critical habitat on NFS land, Licensee shall prepare and submit a biological evaluation (BE) for FS approval. The BE shall evaluate the potential impact of the action on the species or its habitat. FS may require mitigation measures for the protection of the affected species on NFS land.

The BE shall:

- Include procedures to minimize or avoid adverse effects to special status species.
- Ensure project-related activities shall meet restrictions included in site management plans for special status species.
- Develop implementation and effectiveness monitoring of measures taken or employed to reduce effects to special status species.

Condition No. 45 – Annual Review of Special-Status Species Lists and Assessment of New Species on Federal Land

Licensee shall, beginning the first full calendar year after license issuance, in consultation with FS annually review the current lists of special status species (species that are Federally Endangered or Threatened, Proposed Threatened or Endangered, FS Sensitive, or Tahoe National Forest Watch Lists, State Threatened or Endangered, State Species of Special Concern, and CDFW Fully Protected) that might occur on National Forest System lands, as appropriate, in the Project area that may be directly affected by Project operations. When a species is added to one or more of the lists, FS, in consultation with Licensee shall determine if the species or unsurveyed suitable habitat for the species is likely to occur on such NFS lands, as appropriate. For such newly added species, if FS determines that the species is likely to occur on such NFS lands, Licensee shall develop and implement a study plan in consultation with FS to reasonably assess the effects of the project on the species. Licensee shall prepare a report on the study including objectives, methods, results, recommended resource measures where appropriate, and a schedule of implementation, and shall provide a draft of the final report to FS for review and approval. Licensee shall file the report, including evidence of consultation, with the Commission and shall

implement those resource management measures required by the Commission.

If new occurrences of FS special status plant or wildlife species as defined above are detected prior to or during ongoing construction, operation, or maintenance of the Project or during Project operations, Licensee shall immediately notify FS. If FS determines that the Project-related activities are adversely affecting FS sensitive or watch list species, Licensee shall, in consultation with FS, develop and implement appropriate protection measures.

If new occurrences of state or federally listed or proposed threatened or endangered species are detected prior to or during ongoing construction, operation, or maintenance of the Project or during Project operations, Licensee shall immediately notify FS and the relevant Service Agency (United States Fish and Wildlife Service or National Marine Fisheries Service or CDFW) for consultation or conference in accordance with the Endangered Species Act. If state listed or fully protected species are affected, CDFW shall be notified.

Condition No. 46 – Project Powerlines

Raptor-safe powerline design configurations described in Avian Protection on Powerline Interaction Committee's (APLIC) "Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006" (APLIC 2006), or the most current edition of this APLIC document, will be used as a guideline for all new powerlines or when replacement of existing poles, phase conductors, and associated equipment is required.

If raptor monitoring performed as Condition No. 47 (Raptor Collisions) indicates a substantial raptor-Project transmission line interaction issue, the poles where the interaction issue occurs on NFS Land will be replaced or retrofitted, as agreed to via consultation with FWS, FS, and CDFW.

Condition No. 47 – Raptor Collisions

Licensee shall, beginning in the first full calendar year after license issuance, record annually all incidental observations by Licensee's operations staff of bird collisions/electrocutions along Project powerlines. The reported incidental observations shall include the following information:

- Date of observation.
- Location of observation (i.e., nearest pole number).
- Species, if identifiable.
- Number of birds.
- Condition of bird(s) (i.e., dead or injured).
- Suspected cause of injury or death (i.e., electrocution or collision).
- Was the bird banded and, if so, band number.

Licensee shall provide this information for each year to FS, FWS, and CDFW at least 60 days prior to the Annual Meeting (Condition No. 1).

Condition No. 48 – Bat Management

In the first full calendar year after license issuance, Licensee shall document all known bat roosts within Project buildings (e.g., powerhouses, storage buildings, valve houses), dams, or other structures that may be used as a roosting structure. The results of the inspection will be provided to CDFW and FS if the facility is located on NFS lands, at least 90 days prior to the Annual Meeting (described in Condition No. 1) that follows collection of the information. If bats or signs of roosting are present where staff have a routine presence (i.e., at least daily or weekly), Licensee will attempt, where feasible, and in the calendar year following the Annual Meeting described above, to place humane exclusion devices to prevent occupation of the structure by bats. Humane exclusion devices will be placed when bats are absent from the facility, generally between November 1 and February 28. Prior to installation of the humane exclusion devices, Licensee shall perform an inspection of the facility to ensure that overwintering bats are not trapped. If overwintering bats are present during the inspection, installation of humane exclusion measures shall be delayed. Licensee shall notify FS of the overwintering bats. Licensee shall consult with the CDFW, FS, or BLM during the Annual Meeting described in Condition No. 1 to identify future dates that would be suitable for installation of humane exclusion devices. All exclusion devices will be inspected on an annual basis and the facility will be reevaluated for roosting bats every 3 years after the initial exclusion devices are installed to insure that no new roosts or entry points have been established.

Condition No. 49 – Canal Release Point Plan

Upon Commission approval, Licensee shall implement the Canal Release Point Plan, filed separately with the Commission (FERC Library Accession No. 201404115048).

Condition No. 50 – Erosion and Sediment Control and Management

Erosion and Sediment Control Management Plan

Upon Commission approval, Licensee shall implement the Erosion and Sediment Control Management Plan, filed separately with the Commission (FERC Library Accession No. 201404115294).

Bear River Management Plan in Bear River Above Drum Afterbay on National Forest System Lands

Separate from the Erosion Control and Sediment Management Plan described above, Licensee shall develop a plan to assess riparian vegetation and bank stability conditions on National Forest System lands in Bear River above Drum Afterbay at locations approved by FS (Plan). The Plan shall be submitted to FS for approval within 1 year of license issuance and shall be implemented by Licensee upon the Commission's approval. The Plan shall include the following components:

Baseline Monitoring

- Develop stage-discharge relationships for the Bear River stream channel at target sites in the

Bear River to correlate flow releases from project facilities to flows at the target sites. This may include development of a HEC-RAS model or other appropriate models to model flows through the stream channel. Classify stream bank stratigraphy and plot on cross sections (Stage-Q) to correlate flow levels, flow volume, and erosive areas in the stream bank. Also conduct longitudinal profile characterization (thalweg elevations).

- Conduct an analysis that characterizes sediment distribution and morphology. This analysis will include characterization of the channel conditions both in the types of substrate present and the condition of the active channel and overbank areas.
- Generate a qualitative bank stability erosion analysis to determine sensitive areas and those most susceptible to erosion.

Ongoing Monitoring

- Qualitative monitoring (visual and photograph monitoring) of erosion prone areas within NFS lands through monitoring stream banks for sloughing, fissures that may lead to sloughing, uprooted trees, slides and nicks to the banks.
- Establishment of up to five channel cross-sections with monumented pins to enable measurements and changes over time.
- For the first 5 years, an annual and event-triggered (flows greater than 400 cfs at YB-198) survey of sediment distribution and morphology with comparison to baseline monitoring.
- After the first 5 years, surveys will occur every 3 years and following event-triggered flows, unless FS informs Licensee at the Annual Consultation Meeting each year that an annual survey is still necessary. Event triggered flow levels will be determined collaboratively by the FS and Licensee, but will not be less than 400cfs at YB-198.

Report and Recommendations

For the first five years following the year the Plan is approved by the Commission, and each year thereafter during which monitoring has occurred, Licensee shall prepare a report summarizing the monitoring results from the previous calendar year, which shall be provided to FS at the Annual Consultation meeting with FS. Based on the results of baseline monitoring, the report will include Licensee's preliminary recommendations to address Project-related adverse effects, if any, on National Forest System lands along the Bear River above Drum Afterbay. Licensee and FS shall collaborate regarding such preliminary recommendations, if any, and Licensee shall submit to the Commission the final recommendations, as approved by FS. Licensee shall implement such recommendations as approved by the Commission. Any recommendation that results from the monitoring referenced above shall include evaluation of economic effects on power generation and potential impacts to water supply. Recommendations may include revegetation and/or other physical remedial actions and may also include flow-related alternatives, if appropriate, to protect or mitigate Project-related adverse effects. Any recommendation shall include the following language regarding Emergencies:

“Emergencies

Any flow limitations that may be required by FS do not apply in emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee

to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life, or damage to property, or loss of water supply delivery infrastructure. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. During emergencies any Drum Canal spillway may be used without restriction.”

In addition, any recommendation approved by FS and submitted to the Commission for approval that is related to flows shall avoid limiting downstream consumptive water deliveries during outages. An outage is defined as routine or non-routine (scheduled or unscheduled) events that are required to maintain or repair Project infrastructure such as canals or powerhouses that are not defined as Emergencies.

Condition No. 51 – Monitoring Program

Licensee shall implement a Monitoring Program after license issuance and until a new license is issued, in coordination with FS, BLM, CDFW, and SWRCB. The years in which each resource is monitored are identified in each specific monitoring element of the Monitoring Program. For purposes of the Monitoring Program, each year is defined on a calendar year basis (January through December).

The Monitoring Program has been designed to monitor those items that will assist in determining if the resource objectives described in the Rationale Reports previously filed with the Commission by FS and BLM as a supporting document (not part of a license condition) are being met. Within the scope of the specified Monitoring Program, FS, BLM, CDFW, and SWRCB may select an equal number of alternative years to ensure that surveys occur during a range of water year types if the same number of alternative years are deleted from the current Monitoring Program schedule, and the resource agencies provide to Licensee adequate notice for Licensee to schedule and perform the work. FS, CDFW, BLM, and SWRCB, after consultation with Licensee, have the flexibility to alter the Monitoring Program methodologies and frequencies of data collection if it is determined that: (a) there is a more appropriate or preferable methodology or site to use than that described in the monitoring plan or (b) monitoring may be reduced or terminated because the relevant ecological resource objective has been met or no change in resource response is expected. Any alterations will be filed with the Commission.

Licensee will provide a draft Annual Report to FS, BLM, CDFW, and SWRCB and other parties who submit a written request for a copy of the draft report for a 30-day comment period. The draft Annual Report shall fully describe the monitoring efforts required in FS Condition No. 51 as well as monitoring results of the previous calendar year. The Annual Report shall also document all non-compliance events/variances from the license conditions. Although specific reporting and consultation is required in specific monitoring elements in Condition No. 51, no other Annual Reports for this condition are required. At least 30 days prior to the Annual Consultation meeting, Licensee shall file with the Commission the final Annual Report. Comments shall be addressed in the final report, or as appropriate, comments shall be included with the filing to the Commission. Licensee shall provide copies of the Annual Report to FS,

CDFW, BLM, and SWRCB. Every 5 years, Licensee shall provide in the Annual Report a summary report of the monitoring results of the previous 5-year period.

The following guidelines shall be used in implementing the monitoring program: (a) monitoring and studies shall be relevant to the Project, (b) monitoring and studies shall be conducted such that they provide useful information for management decisions or establishing compliance with license conditions, and (c) monitoring and studies shall be as cost-effective as possible.

Fish Populations

Upon Commission approval, Licensee shall implement the Fish Populations Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201311215020).

Foothill Yellow-Legged Frog

Upon Commission approval, Licensee shall implement the Foothill Yellow-legged Frog Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201311215021).

Western Pond Turtle Incidental Observations

Licensee shall perform incidental observations for Western Pond Turtle as follows:

- Crews shall be trained on identification of Western Pond Turtle.
- Incidental sightings of Western Pond Turtles during all monitoring field work in rivers and lakes/reservoirs shall be recorded.
- Data shall include location, GPS if available, or location shown on USGS map.
- A written report (including location data) shall be compiled annually and provided at Annual Consultation meeting.
- The report shall be filed with the Commission.

Channel Morphology

Upon Commission approval, Licensee shall implement the Channel Morphology Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201311215018).

Water Temperature and Stage

Upon Commission approval, Licensee shall implement the Water Temperature and Stage Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201404115035).

Aquatic Benthic Macroinvertebrates

Licensee shall, within 1 year following license issuance, develop and file with the Commission an Aquatic Macroinvertebrate Monitoring Plan that has been approved by FS, BLM, CDFW, and

SWRCB. The licensee shall implement the plan upon approval.

Method: Surface Water Ambient Monitoring Program (SWAMP) at a minimum of nine stream temperature stations as designated below, as soon as weather and flow conditions allow safe installation of these devices. Determination of final monitoring site locations shall be made by FS, BLM, CDFW, and SWRCB.

At a minimum, the Aquatic Benthic Macroinvertebrate plan shall include the following locations:

- South Yuba River: Three sites co-located with fish sampling sites.
- Fordyce Creek: One site co-located with fish sampling site.
- North Fork North Fork American River: Two sites co-located with fish sampling sites.

Frequency:

Annual Fish Sites: Once in each water year type for first 10 years and then follow Fish Population Monitoring Plan schedule.

All Other Sites: Same frequency as Fish Population Monitoring Plan schedule for that site.

Data Analysis and Reporting: The plan shall describe data analysis and reporting methods.

Riparian Vegetation

Upon Commission approval, Licensee shall implement the Revised Riparian Vegetation Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201404115032).

Sensitive Raptor Monitoring

This monitoring is specifically directed towards annual planned outages and non-routine planned outages as defined in Condition No. 29 along the South Yuba Canal. Licensee will record Licensee's activities that may generate noise disturbances (i.e. operate machine-powered equipment, vehicles off of public access roads, construction, maintenance and repairs to the canal) that occur between February 15 through September 15 within 0.25 miles of California spotted owl and northern goshawk Protected Activity Centers (PACs), and within suitable habitat for these species. The information will include a general description of the type of activity, its approximate duration, the location of activities, and spatially displayed in proximity to the PAC and suitable habitat. This information will be submitted to FS and CDFG at least 60 days prior to the Annual Meeting, and reviewed at the Annual Meeting. If, after the first 3 years of reporting, noise disturbances have the potential to disrupt more than two territories annually (or two nests, if nest locations are known within the territory), Licensee shall, in consultation with FS, prepare a survey plan for conducting surveys to protocol, with the purpose of identifying nest locations that may occur within 0.25 miles of the South Yuba Canal, to be approved by FS. The survey plan will include: (1) maps showing the habitat to be surveyed, the canal, access roads and trails,

and other identifiable topographic features, (2) the most recent compilation of species sighting data that is available from FS and the State of California (CNDDDB), and (3) reporting format for results. Licensee shall initiate surveys within two years following the Annual Meeting where the need is identified, or as otherwise agreed to by FS. Ongoing monitoring of noise-generating activities that occur within the breeding season will continue to inform the need for updating surveys for these species and/or confirming the location of nest sites every 5 years. Licensee shall propose potential mitigations, where practical, to further reduce disturbances in proximity to nests, to be discussed and agreed upon, at the Annual Meeting.

Condition No. 52 – Large Woody Debris

Within 1 year of license issuance, Licensee shall, in consultation with FS, BLM, CDFW, and SWRCB, prepare a Large Woody Debris (LWD) Management Plan approved by FS. The Plan will specify:

- Describe existing locations of LWD collection by Project facilities.
- Describe potential options for moving LWD below Project facilities and keeping the LWD within the river corridor.
- Identify suitable locations where LWD can be placed within the active channel to be mobilized by 2- to 5-year high flow events.

Upon Commission approval, Licensee shall implement the Plan.

Condition No. 53 – Recreation Plan

Upon Commission approval, Licensee shall implement the Recreation Plan, filed separately with the Commission (FERC Library Accession No. 201311215022).

Condition No. 54 – Recreation Streamflow Information

Beginning as soon as reasonably feasible, but not later than one year after license issuance, Licensee shall develop a plan to provide real-time streamflow information, in cfs, for the following Project-related stream reaches:

- Fordyce Creek below Fordyce Dam
- South Yuba River below Kidd Lake and Lower Peak Lake Dam (at Cisco Grove)
- South Yuba River below Lake Spaulding (at Lang's Crossing)
- Bear River at Highway 20

The streamflow information will be from the streamflow gage to document compliance with minimum and spill cessation streamflow requirements in the reach. If that gage is not USGS rated above the compliance flow, Licensee shall make a good faith effort to estimate the flow above the USGS rating. The flow information shall be made available to the public via the Internet; the publication of the information may be accomplished through a third party. The preference is that data shall be reported in 15-minute intervals; however, data that is reported no less than in hourly intervals is acceptable.

See Condition No. 51 (Water Temperature and Stage) for additional information regarding streamflow on the South Yuba River upstream of Canyon Creek.

Condition No. 55 – Visual Resource Management Plan

Upon Commission approval, Licensee shall implement the Visual Resource Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215026).

Condition No. 56 – Historic Properties Management Plan

Upon Commission approval, Licensee shall implement the Historic Properties Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215023).

Condition No. 57 – Transportation System Management

Upon Commission approval, Licensee shall implement the Transportation System Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215024).

Condition No. 58 – Fire Management and Response Plan

Upon Commission approval, Licensee shall implement the Fire Management and Response Plan, filed separately with the Commission (FERC Library Accession No. 201311215019).

Condition No. 59 – Review of Improvements on National Forest System Lands

If during the term of the License the Commission determines that the project involves the use of any additional National Forest System (NFS) lands, outside the current project boundary, Licensee shall obtain a special use authorization from FS for the occupancy and use of such additional NFS lands. Licensee shall obtain the executed authorization before beginning any ground-disturbing activities on NFS lands outside the FERC boundary covered by the special use authorization, and shall file that authorization with the Commission if the activity is related to the Project. Licensee shall be responsible for the costs of collecting all information directly related to the evaluation of the effects of the proposed occupancy and use that FS needs in order to make a decision concerning issuance of a special use authorization.

If, during the term of the License, Licensee proposes to perform any project construction work, Licensee shall obtain a construction temporary special use authorization from FS before beginning any ground-disturbing activities on NFS lands outside the FERC boundary. The special use authorization will include appropriate vegetation management and erosion control measures as needed to protect NFS lands and resources. Licensee shall be responsible for the costs of collecting all information directly related to the evaluation of the effects of the proposed construction that FS needs in order to make a decision concerning issuance of a construction temporary special use authorization. Licensee may commence ground-disturbing activities authorized by the License and construction temporary special use authorization no sooner than 60 days following the date Licensee files FS temporary special use authorization with the

Commission, if the temporary special use authorization is related to Project activity, unless the Commission prescribes a different commencement schedule. In the event there is a conflict between any provisions of the License and FS special use authorization, the special use authorization shall prevail to the extent that FS, in consultation with the Commission, deems necessary to protect and utilize NFS resources.

Appendix H-2

Bureau of Land Management 4(e) Conditions: Drum- Spaulding Project

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**Revised Bureau of Land Management Final Conditions and
Recommendations Provided Under 18 CFR § 4.34 (b)(1)
In Connection with the Application for Relicensing for the
Drum-Spauldung Hydroelectric Project
(FERC No. 2310)**

14 April 2014

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FINAL RECOMMENDATIONS, TERMS AND CONDITIONS FOR THE DRUM-SPAULDING PROJECT

BLM through its Final recommendations, terms and conditions, and prescriptions seeks to ensure appropriate levels of resource protection are incorporated in any new license. BLM recommends that FERC include in any new license issued for the DS Project the following BLM Final recommendations, terms and conditions. BLM believes that the resource measures presented in this section adequately address impacts to the ecological and cultural resources impacted by the DS Project.

FINAL LICENSE ARTICLES FOR THE DRUM-SPAULDING HYDROELECTRIC PROJECT, FERC NO. 2310-173

These Final License Articles are submitted to FERC as 4(e) Conditions (both specific and general/administrative) and 10(a) Recommendations.

a. FINAL 4(e) Conditions

Condition No. 1 - Annual Employee Training

Licensee shall, beginning in the first full calendar year after license issuance, annually perform employee awareness training, and shall also perform such training when a staff member is first assigned to the Project. The goal of the training shall be to familiarize Licensee's operations and maintenance (O&M) staff with special-status species, non-native invasive plants, and sensitive areas (e.g. special-status plant populations and non-native invasive plant locations) that are known to occur within or adjacent to the FERC Project Boundary on BLM lands, and procedures for reporting to each agency, as appropriate, to comply with the license requirements. Licensee shall provide to each O&M staff a confidential map showing these sensitive areas including GPS coordinates, as well as pictures and other guides to assist staff in recognizing special-status species, non-native invasive plants, and sensitive areas. It is not the intent of this measure that Licensee's O&M staff performs surveys or become specialists in the identification of special-status species or noxious weeds. Licensee shall direct its O&M staff to avoid disturbance to sensitive areas, and to advise all Licensee contractors to avoid sensitive areas. If Licensee determines that disturbance of a sensitive area is unavoidable, Licensee shall consult with BLM to minimize adverse effects to sensitive resources. This measure applies to employee training that is not otherwise covered by a specific plan.

Condition No. 2 - Coordinated Operations Plan

Licensee shall, within 90 days after issuance of new licenses for the Yuba-Bear Hydroelectric Project or Drum-SpaULDing Project, whichever is later, file with FERC for approval a Coordinated Operations Plan (Plan). Licensee shall develop the Plan in consultation with the licensee for the (Yuba-Bear Hydroelectric Project). The purpose of the Plan shall be to provide for coordination between the Yuba-Bear Hydroelectric Project and Drum-SpaULDing Hydroelectric Project to assure implementation of flow-related measures in the two project licenses. Licensee shall file the Plan, with evidence of consultation as the Plan relates to

compliance with flow-related measures, with FS, BLM, CDFW, SWRCB, and Licensee of the Yuba- Bear Hydroelectric Project, with FERC. Licensee shall implement those portions of the Plan approved by FERC.

Condition No. 3 - Coordination of the Drum-SpaULDing Project and the Yuba-Bear Hydroelectric Project Operation Regarding the Yuba-Bear Hydroelectric Project's Streamflow Requirements in the Bear River Below Rollins Reservoir at YB-196

Licensee of the Drum-SpaULDing Project shall not divert water to the Bear River Canal that Licensee of the Yuba-Bear Hydroelectric Project releases from Rollins Reservoir to meet the Yuba-Bear Hydroelectric Project's Flow Measures in the Bear River below the Rollins Reservoir as measured at Nevada Irrigation District's (NID) YB-196 gage (USGS 11422500). Licensee's compliance with this measure will be the act of not diverting water into the Bear River Canal that Licensee of the Yuba-Bear Hydroelectric Project releases from Rollins Reservoir to meet its Flow Measures in the Bear River below Rollins as determined utilizing data from NID's YB-196 gage in Bear River and PG&E's YB-50 gage in Bear River Canal, and the coordinated operations flow forecasts for water that NID will provide at YB-196 and for water that PG&E will divert to the Bear River Canal. Licensee's Coordinated Operations Plan with the licensee of the Yuba-Bear Hydroelectric Project shall specifically require coordination between the two licensees of both projects to effectuate compliance with this measure.

Condition No. 4 - Canal Outages

This measure pertains to canal outages that affect Minimum Streamflows described in this measure. For the purpose of this measure, there are three types of canal outages: 1) annual planned outages; 2) non-routine planned outages; and 3) emergency outages. For the purpose of this measure: an "annual planned outage" is defined as an outage that is typically taken around the same time each year for routine maintenance; a "non-routine planned outage" is defined as an outage for work that is high priority work (often major maintenance) and performed under planned conditions but is not performed during the annual planned outage period; and an "emergency outage" is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

During the Annual Meeting (Condition No.23), Licensee will inform meeting participants about annual planned outages, including the anticipated time-frame the annual planned outages will occur, and any non-routine planned outages that are already planned at the time of the Annual Meeting, for the upcoming year. Licensee will in good faith provide CDFW, SWRCB, FS, and BLM as much notice as reasonably possible for any annual planned outages or non-routine planned outages that were not noted in the Annual Meeting or that become anticipated to occur at a time that is different than reported in the Annual Meeting or different from the approximate time of year listed in the Canal Outages table below. For all annual planned outages and non-

routine planned outages, Licensee will comply with the Canal Outages Fish Rescue Plan (Condition No.5) as well as all laws and permitting requirements, as applicable. Licensee will provide CDFW, SWRCB, FS, and BLM notice by electronic mail as soon as reasonably possible, but no later than the end of the next business day (business days do not include weekends and federal or state holidays) after an emergency outage occurs.

The Canal Outages table below lists canals where outages may affect minimum streamflows in this measure and provides the minimum streamflows required during the first 30 days of annual planned outages, non-routine planned outages or emergency outages. If an annual planned outage, non-routine planned outage, or emergency outage is anticipated to extend past 30 days, Licensee shall consult with the CDFW, SWRCB, FS, and BLM regarding minimum streamflows for the remainder of the outage after the first 30 days and Licensee shall implement the collaboratively agreed upon minimum streamflows as soon as it is reasonably possible to do so for the remainder of the outage. Licensee shall also file any collaboratively agreed upon changes in minimum streamflows with FERC. The Canal Outages table below also lists the approximate time of year and typical duration that each annual planned outage occurs. However, annual planned outages may in any given year last longer or occur outside of the approximate time frame identified in the Canal Outages table below. Licensee will not take the Drum Canal and the Bear River Canal out of service simultaneously unless there is an emergency that requires this action.

Locations where canal outages affect Minimum Streamflows

Location (Stream – Facility)	Typical historical outage period/duration	Minimum Streamflows During Annual Planned Outages, Non-Routine Planned Outages and Emergency Outages
Bear River – YB-198	Approximately 2 weeks in late September and early October (Drum Canal) or approximately 2 weeks from late March to early April (South Yuba Canal)	In the event that the total flow in the Drum Canal upstream of YB-137 and South Yuba Canal upstream of YB-139 is less than required for the Minimum Streamflow at YB-198, the Minimum Streamflow shall be no less than the natural flow in Bear River at YB-198, and Licensee shall also release as much water as is available in the two canals to meet as much of the Minimum Streamflow as set forth in this Measure as possible.
South Yuba Canal above Deer Creek Forebay – YB-34	Approximately 2 weeks in late March to early April (South Yuba Canal and/or Chalk Bluff Canal)	When the South Yuba Canal or Chalk Bluff Canal are out of service, no Minimum Streamflows shall be required at YB- 34.

Condition No. 5 - Canal Outages Fish Rescue Plan

Upon Commission approval, Licensee shall implement the Canal Outages Fish Rescue Plan filed separately with the Commission (FERC Library Accession No. 201311215017).

Condition No. 6 - Recreation Agreement

PG&E’s One-Time Payment to BLM

PG&E shall fund a portion of BLM recreation improvements on the South Yuba River (SYR) downstream of Lake Spaulding by making a one-time payment of \$95,000 within 90 days of the date the License becomes Final for the Drum-Spaulding Project. Payment instructions shall be provided by BLM to PG&E within 30 days of the License becoming final. PG&E shall make the payment pursuant to such instructions.

PG&E's Annual Payment Obligation to BLM

PG&E shall, beginning on or before the initial October 1 following the date the Drum-Spaulding New Project License becomes Final, annually pay to BLM \$30,000, which amount shall be adjusted annually based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP) (year 2012 cost basis), for BLM to partially fund the annual operation, maintenance, and administration costs for BLM's management of public river access, lands, and river-related recreation facilities along the SYR downstream of Lake Spaulding as well as BLM lands found within the project boundary. These annual payments shall be made for the term of the new Drum-Spaulding Project License. The initial payment shall be made pursuant to instructions provided by BLM to PG&E within 30 days of the FERC New Project License becoming Final for Drum Spaulding.”

Condition No. 7 - Water Temperature and Stage Monitoring

Upon Commission approval, Licensee shall implement the Water Temperature and Stage Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201404115035).

Condition No. 8 - Modifications of 4(e) Conditions in the Event of Anadromous Fish Re-introduction

BLM, reserves the right to modify these conditions to respond to any reintroduction of Chinook salmon or steelhead trout listed under the Endangered Species Act to stream reaches through BLM lands where the flow is controlled by FERC licensed facility.

Condition No. 9 - Gaging Plan

Upon Commission approval, Licensee shall implement the Gaging Plan filed separately with the Commission (FERC Library Accession No. 201404115039).

Condition No. 10 - Wildlife Crossings - Drum Canal and South Yuba Canal

Wildlife Crossing Plan

Within 5 years of license issuance, Licensee shall retrofit existing footbridges or construct new wildlife crossings at or near the following locations on the Drum Canal and South Yuba Canal:

Table 1. Location of new or retrofitted wildlife crossings for the Drum Canal and South Yuba Canal.

Canal	Crossing Location ¹	Retrofit Existing Footbridge or Construct New Crossing	Land Ownership
Drum Canal	Mile 0.5	Construct New Crossing	PG&E
	Mile 2	Construct New Crossing	PG&E
	Mile 5	Construct New Crossing	PG&E
	Mile 5.3	Retrofit Existing Footbridge	PG&E
	Mile 6	Construct New Crossing	PG&E
	Mile 6.7	Retrofit Existing Footbridge	Tahoe National Forest
	Mile 8	Retrofit Existing Footbridge	Tahoe National Forest
South Yuba Canal	Mile 4.3	Retrofit Existing Footbridge	Tahoe National Forest
	Mile 5.1	Retrofit Existing Footbridge	Tahoe National Forest
	Mile 8.1	Retrofit Existing Footbridge	Tahoe National Forest
	Mile 8.8	Construct New Crossing	PG&E
	Mile 9.4	Retrofit Existing Footbridge	PG&E
	Mile 10.6	Construct New Crossing	PG&E
	Mile 11.5	Construct New Crossing	PG&E

¹ Canal miles have been designated from canal terminus upstream to its origin. The location of each wildlife crossing is identified by mile

Unless otherwise approved by FS, BLM, and CDFW, for crossings in the above table that are identified as “New Crossings,” Licensee shall maximize the continuity of native soils adjacent to and on the wildlife crossing and meet the following minimum specifications: 1) new overcrossings shall be a minimum of 8 feet wide, with fenced side railings a minimum of 4 feet high, and unobstructed access ramps with a grade that is less than or equal to 40 percent; or 2) new undercrossing shall be a minimum of 10 feet high by 10 feet wide with a 2 feet wide dry path above the high water mark if a perennial stream with natural substrate. The above specifications shall also apply to any existing crossings that are replaced.

For those crossings listed in the above table that are identified as “Retrofit Existing Footbridge,” Licensee shall replace or cover existing metal footbridge decks with wood or similar synthetic material (synthetic material may only be used if approved by FS, BLM and CDFW), and replace stairs with an unobstructed access ramp.

Within 1 year of completion, Licensee shall submit to FS, BLM and CDFW the final design of each newly constructed crossing and retrofit of existing crossing.

Structures shall be identified as Licensee-maintained wildlife crossings and geo-referenced in a map and provided to FS, BLM, and CDFW.

Monitoring

- At the Annual Consultation Meeting required in Condition23, Consultation, Licensee will provide a written report on each crossing’s condition, maintenance, and repair activities.
- When crossings are retrofitted (i.e., change in design or material) or newly constructed, Licensee shall conduct camera monitoring for 1 year to determine if adjustments, which may include fencing, are needed if determined necessary by FS, BLM and CDFW. If monitoring shows that a new design or material is effective, Licensee may request at the Annual Consultation Meeting required in Condition23, Consultation, that monitoring be waived at crossing or fencing locations where the new design or material is implemented.

Such monitoring may be waived if approved by FS, BLM, and CDFW.

- Additional monitoring may be required as determined necessary by FS, BLM and CDFW.
- Ten years following license issuance, and every 10 years thereafter, Licensee shall arrange a meeting with FS, BLM, and CDFW, to review the location and design of Licensee-maintained crossings and natural landscape features that provide wildlife passage across Licensee's conduits, in context with changes in land use patterns, human development, and road improvements or decommissioning, that may affect wildlife use of crossings. If FS, BLM, and CDFW determine that the existing crossings are not adequate based on this review, Licensee shall develop plans to address additional needs for crossings, exclosures, and escape structures. The final plans shall be submitted to the Commission for approval.

Bear River and South Canals

Within 1 year of license issuance, Licensee shall complete, approved by FS, BLM, and CDFW, a Wildlife Crossing Plan (Plan) for placing wildlife crossings for the Bear River Canal and the South Canal that is integrated with wildlife escape structures and exclusion fencing to reduce wildlife mortality.

Unless otherwise approved by FS, BLM, and CDFW, new crossings shall maximize the continuity of native soils adjacent to and on the wildlife crossing and meet the following minimum specifications: (1) new overcrossing shall be a minimum of 8 feet wide, with fenced 8-foot high side railings, and unobstructed access ramps with a grade that is less than or equal to 40 percent; or (2) new undercrossing shall be a minimum of 10 feet high by 10 feet wide (with 2 feet wide dry path above the high water mark if a perennial stream) with natural substrate. If existing footbridges are retrofitted for the purpose of wildlife crossings, Licensee shall replace or cover existing metal footbridge decks with wood or similar synthetic material (synthetic material may only be used if approved by FS, BLM and CDFW), and replace stairs with an unobstructed access ramp. The above specifications shall also apply to any existing crossings that are replaced.

The Plan will include an implementation schedule, with implementation beginning 2 years from license issuance, and completion within 5 years, unless otherwise agreed to by FS, BLM, and CDFW. Minimum components of the Plan include, but may not be limited to:

- Locations for planned and existing Licensee-maintained wildlife crossings, as a target, to provide movement approximately every 1 mile in combination with natural landscape features that also meet the above specifications
- Overpass or underpass design
- Map of all conduits, with segments identified by canal mile
- Map of all crossing structures, wildlife escape ramps and flashers with corresponding GPS coordinates
- Implementation schedule

Monitoring

- At the Annual Consultation Meeting required in Condition 23, Consultation, Licensee will provide a written report on each crossing's condition, maintenance, and repair activities.
- When crossings are retrofitted (i.e., change in design or material) or newly constructed, Licensee shall conduct camera monitoring for 1 year to determine if adjustments, which may include fencing, are needed if determined necessary by FS, BLM and CDFW. If monitoring shows that a new design or material is effective, Licensee may request at the Annual Consultation Meeting required in Condition 23, Consultation, that monitoring be waived at crossing or fencing locations where the new design or material is implemented. Such monitoring may be waived if approved by FS, BLM, and CDFW.
- Additional monitoring may be required as determined necessary by FS, BLM and CDFW.
- Ten years following license issuance, and every 10 years thereafter, Licensee shall arrange a meeting with FS, BLM, and CDFW, to review the location and design of Licensee-maintained crossings and natural landscape features that provide wildlife passage across Licensee's conduits, in context with changes in land use patterns, human development, and road improvements or decommissioning, that may affect wildlife use of crossings. If FS, BLM, and CDFW determine that the existing crossings are not adequate based on this review, Licensee shall develop plans to address additional needs for crossings, exclosures, and escape structures. The final plans shall be submitted to FERC for approval.

Condition No. 11- Replacement of Wildlife Escape and Wildlife Crossing Facilities

Prior to replacing or retrofitting existing wildlife escape facilities and wildlife crossings along Project canals, Licensee shall consult with CDFW and BLM regarding specifications and design. Licensee shall file the design, including evidence of consultation, with FERC within 60 days after the wildlife escape facility or wildlife crossing facility has been replaced or retrofitted. Licensee shall also assess existing wildlife escape facilities and wildlife crossing facilities annually to ensure they are functional and in proper working order. Inspections shall occur at the same time other types of maintenance activities or canal assessments are being conducted.

Condition No. 12 - Monitor Animal Losses in Project Canals

Beginning in the first full calendar year after license issuance, Licensee shall record animal losses in all Project canals. Specifically, Licensee's operators shall record in log books all dead animals observed on canal trash racks and otherwise in the canals using the Wildlife Mortality data sheets found in Appendix 4-2A of the Wildlife Movement Technical Memorandum (4-2) included in Appendix E12 of Licensee's application for new license. Licensee shall make a good faith effort to record the location of the dead animal (i.e. which Project canal, where in the canal the dead animal was found, and the associated structure), species, date and time of the observation, suspected cause of death if it can be determined from visual observation only, photograph if available, estimated size, estimated age, and sex if known, and other pertinent information. The information will include the cumulative years and preceding year's mortality

by canal segment, and a map showing segments (defined by location of trash racks). Licensee shall provide this information to CDFW, FS, and BLM at least 60 days prior to the annual consultation meeting described in Condition 23.

Licensee shall consult with FS, BLM, and CDFW and other interested parties during the annual consultation meeting, regarding the protection and utilization of the wildlife resources affected by the Project. If there is an increasing trend in animal mortalities in a canal, additional measures to address suspected Project-related causes for that canal may be developed by Licensee in consultation with CDFW, FS, and BLM. The Licensee shall prepare a report that includes the Licensee's recommendations for measures to address animal mortalities, and a schedule of implementation. Licensee shall provide the report to FS, BLM, and CDFW, as appropriate, for review and approval. The Licensee shall file the report, including evidence of consultation, with FERC, and shall implement those resource management measures required by FERC.

Condition No. 13 - Special Status Species

Before taking actions to construct new project features on BLM lands that may affect BLM special status species or their critical habitat on BLM land, the Licensee shall prepare and submit a biological evaluation (BE) for BLM approval. The BE shall evaluate the potential impact of the action on the species or its habitat. BLM may require mitigation measures for the protection of the affected species on BLM administered land.

The biological evaluation shall:

- Include procedures to minimize or avoid adverse effects to special status species.
- Ensure project-related activities shall meet restrictions included in site management plans for special status species.
- Develop implementation and effectiveness monitoring of measures taken or employed to reduce effects to special status species.

Condition No. 14 - Annual Review of Special-Status Species Lists and Assessment of New Species on Federal Land

Licensee shall, beginning the first full calendar year after license issuance, in consultation with BLM, annually review the current list of special-status plant and wildlife species (species that are Federally Endangered or Threatened, Proposed Threatened or Endangered, BLM's Sensitive, State Threatened or Endangered, State Species of Special Concern, and CDFW Fully Protected) that might occur on public land administered by BLM in the Project area) that may be directly affected by Project operations. When a species is added to one or more of the lists, BLM in consultation with the Licensee shall determine if the species or un-surveyed suitable habitat for the species is likely to occur on public land administered by BLM. For such newly added species, if BLM determines that the species is likely on such public land administered by BLM, as appropriate, in the Project area that may be directly affected by the Project, Licensee shall develop and implement a study plan in consultation with BLM, as appropriate, to reasonably assess the effects of the project on the species. Licensee shall prepare a report on the study,

including objectives, methods, results, recommended resource measures where appropriate, and a schedule of implementation, and shall provide a draft of the final report to BLM for review and approval. Licensee shall file the report, including evidence of consultation, with FERC and shall implement those resource management measures required by FERC.

If new occurrences of BLM special status plant or wildlife species as defined above are detected prior to or during ongoing construction, operation, or maintenance of the Project or during Project operations, Licensee shall immediately notify BLM. If BLM determines that the Project-related activities are adversely affecting BLM sensitive or watch list species, Licensee shall, in consultation with BLM, develop and implement appropriate protection measures

If new occurrences of state or federally listed or proposed threatened or endangered species are detected prior to or during ongoing construction, operation, or maintenance of the Project or during Project operations, Licensee shall immediately notify BLM and the relevant Service Agency (United States Fish and Wildlife Service or National Marine Fisheries Service or CDFW) for consultation or conference in accordance with the Endangered Species Act. If state listed or fully protected species are affected, CDFW shall be notified.

Condition No. 15 - Project Power Lines and Raptor Collisions

Project Power Lines

Raptor-safe power line design configurations described in Avian Protection on Power Line Interaction Committee's (APLIC) "Suggested Practices for Avian Protection Power Lines: The State of the Art in 2006 (APLIC 2006) or the most current edition of this APLIC document, will be used as a guideline for all new power lines or when replacement of existing poles, phase conductors, and associated equipment is required.

If raptor monitoring performed as Condition No. 15 (Terrestrial Protection Measures, Raptor Collisions) indicates a substantial raptor-transmission line interaction issue, the poles where the interaction issue occurs on BLM land will be replaced or retrofitted, as agreed to via consultation with FWS, BLM, and CDFW.

Raptor Collisions

Licensee shall, beginning in the first full calendar year after license issuance, record annually all incidental observations by Licensee's operations staff of bird collisions/electrocutions at the Bowman-Spaulding Transmission Line. The reported incidental observations shall include the following information: 1) date of observation; 2) location of observation (i.e., nearest pole number); 3) species, if identifiable; 4) number of birds; 5) condition of bird(s) (i.e., dead or injured); 6) suspected cause of injury or death (i.e., electrocution or collision); and 7) was the bird banded and, if so, band number. Licensee shall provide this information for each year to BLM, FWS, and CDFW at least 60 days prior to the Annual Meeting (Condition No. 23).

Condition No. 16 - Bald Eagle Management Plan

Upon Commission approval, Licensee shall, implement the Bald Eagle Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215015).

Condition No. 17 - Terrestrial Protection Measures

Vegetation and Non-Native Invasive Plant Management Plan

Upon Commission approval, Licensee shall implement the Integrated Vegetation Management Plan filed separately with the Commission (FERC Library Accession No. 201311215025).

Condition No. 18 - Fire Management and Response Plan

Upon Commission approval, Licensee shall implement the Fire Management and Response Plan, filed separately with the Commission (FERC Library Accession No. 201311215019).

Condition No. 19 - Canal Release Point Plan

Upon Commission approval, Licensee shall implement the Canal Release Point Plan, filed separately with the Commission (FERC Library Accession No. 201404115048).

Condition No. 20 - Visual Resource Management Plan

Upon Commission approval, Licensee shall implement the Visual Resource Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215026).

Condition No. 21- Historic Properties Management Plan

Upon Commission approval, Licensee shall implement the Historic Properties Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215023).

Condition No. 22 - Transportation System Management

Upon Commission approval, Licensee shall implement the Transportation System Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215024).

b. FINAL 4(e) General Conditions

The following Section 4(e) Conditions include requirements that serve to address the statutory and administrative rights and responsibilities of BLM pursuant to Federal, State, and local laws. These Section 4(e) Conditions should be included in both the YB and DS Projects.

Condition No. - 23 Consultation

Licensee shall annually consult with BLM. The date of the joint consultation meeting will be mutually agreed to by Licensee and BLM but in general should be held by April 15. At least 30 days in advance of the meeting, Licensee shall notify Nevada Irrigation District (NID) Licensee of the Yuba-Bear Hydroelectric Project, FERC 2266, and other interested stakeholders, confirming the meeting location, time and agenda. At the same time, Licensee shall also provide notice to the: United States Department of Agriculture (USFS); United States Fish and Wildlife Service (FWS); (USDI) National Park Service; United States Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fishery Service (NMFS), ; California State Department of Fish and Game (CDFW); and the State Water Resources Control Board, SWRCB who may choose to participate in the meeting. Licensee shall attempt to coordinate the meeting so interested agencies and other stakeholders may attend.

The Licensee shall make available to FS, BLM, CDFW, and SWRCB at least 2 weeks prior to the meeting, an operations and maintenance plan for the year in which the meeting occurs. In addition, Licensee shall present results from current year monitoring of noxious weeds and special status species as well as any additional information that has been compiled for the Project area, including progress reports on other resource measures. The goals of this meeting are to share information, mutually agree upon planned maintenance activities, identify concerns that BLM may have regarding activities and their potential effects on sensitive resources, and any measures required to avoid or mitigate potential effects. In addition, the goal of the meeting shall be to review and discuss the results of implementing the streamflow and reservoir-related conditions, results of monitoring, and other issues related to preserving and protecting ecological values affected by the Project.

Consultation shall include, but not be limited to:

- A status report regarding implementation of license conditions.
- Results of any monitoring studies performed over the previous year in formats agreed to by BLM and the Licensee during development of implementation plans.
- Review of any non-routine maintenance.
- Discussion of any foreseeable changes to Project facilities or features.
- Discussion of any necessary revisions or modifications to implementation plans approved as part of this license.
- Discussion of needed protection measures for species newly listed as threatened, endangered, or sensitive, or changes to existing management plans that may no longer be warranted due to delisting of species or, to incorporate new knowledge about a species requiring protection. Discussion of needed protection measures for newly discovered cultural resource sites.
- Discussion of elements of current year maintenance plans, e.g. road and trail maintenance.
- Discussion of any planned pesticide use.

A record of the meeting shall be kept by the Licensee and shall include any recommendations made by BLM for the protection of BLM land and resources. The Licensee shall file the meeting record, if requested, with FERC no later than 60 days following the meeting.

Copies of other reports related to Project safety and non-compliance shall be submitted to FS, BLM, CDFW, and SWRCB concurrently with submittal to the FERC. These include, but are not limited to: any non-compliance report filed by the Licensee, geologic or seismic reports, and structural safety reports for facilities located on or affecting BLM lands.

A copy of the record for the previous water year regarding streamflow, study reports, and other pertinent records shall be provided to FS, BLM, CDFW, and SWRCB by Licensee at least 60 days prior to the meeting date, unless otherwise agreed.

Copies of other reports related to monitoring, Project safety and non-compliance on BLM land shall be submitted to BLM concurrently with submittal to the FERC, with the goal of providing the material to BLM no later than 90 days in advance of the annual meeting. These include, but are not limited to: any non-compliance report filed by Licensee, geologic or seismic reports, and structural safety reports for facilities.

During the first several years of license implementation, it is likely that more consultation than just one annual meeting will be required, given the complexity of these projects.

The BLM reserves the right, after notice and opportunity for comment, to require changes in the Project and its operation through revision of the Section 4(e) conditions to accomplish protection and utilization of BLM lands and resources.

Condition No. 24 - Consultation Group Specific to the Drum-Spaulding Project

The Licensee shall, within 3 months of license issuance, establish a Consultation Group as follows.

Purpose

The primary purpose of Consultation Group is to provide a forum for the Licensee to consult with resource agencies and other interested parties on the following:

- The Annual Meeting as described in Condition No.23, Consultation. To the extent topics covered in Condition No. 23 affect project-affected areas outside FS, BLM, or BOR jurisdiction, consultation with appropriate resource agencies on those same topics will occur at the Annual Meeting, other Consultation Group meetings, or as otherwise agreed with the Licensee and appropriate resource agencies. License shall provide copies of the meeting materials to those who request it.
- The review and evaluation of monitoring data related to the South Yuba River Supplemental Flows as described in FS Condition No. 32, South Yuba River Supplemental Flows.
- Plans that are developed as required by the new license and plans that require specific consultation processes during implementation.
- Proposed temporary or permanent modifications to license conditions.

Licensee shall also provide notification of license compliance deviations to the current members

of the Consultation Group.

Decision Making

The Consultation Group will make recommendations to the FS, BLM, and BOR. The FS shall be responsible for final decisions within FS jurisdiction. The BLM shall be responsible for final decisions within BLM jurisdiction, and BOR shall be responsible for final decisions within BOR jurisdiction. Licensee shall also ensure that consultation, permitting, and any necessary approvals within the jurisdiction of other agencies are completed. Licensee shall implement license conditions as approved and directed by FERC.

Participation

In addition to the Licensee, FS, BLM, BOR, SWRCB, and CDFW, Consultation Group meetings shall be open to any organization or individual that notifies the Licensee in writing of interest in participating in the Annual Meeting or Consultation Group meetings. The Consultation Group should establish mutually agreeable process guidelines for conducting effective and efficient meetings no later than 1 year after license issuance. Each organization or individual shall be responsible for providing notification information to the Licensee and shall be responsible for keeping current a single point of contact for purposes of notification related to the Consultation Group. If a participant is interested in a particular meeting or topic, the participant is responsible for ensuring they are represented.

Meetings

Separate from the Annual Meeting, the Licensee shall organize four Consultation Group meetings per year. Additional meetings may be scheduled if the Consultation Group decides additional meetings are necessary. Fewer meetings shall also be scheduled if the Consultation Group decides that four meetings per year are not necessary.

Condition No. 25 - Approval of Changes

Notwithstanding any license authorization to make changes to the Project, when such changes directly affect BLM lands the Licensee shall obtain written approval from BLM prior to making any changes in any constructed Project features or facilities, or in the uses of Project lands and waters or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from BLM, and a minimum of 60 days prior to initiating any such changes, the Licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of BLM for such changes. The Licensee shall file an exact copy of this report with BLM at the same time it is filed with the Commission. This condition does not relieve the Licensee from the amendment or other requirements of Article 2 or Article 3 of this license.

Condition No. 26 - Maintenance of Improvements on or Affecting Bureau of Land Management Lands

The Licensee shall maintain all its improvements and premises on BLM lands to standards of repair, orderliness, neatness, sanitation, and safety acceptable to BLM. Disposal of all materials will be at an approved existing location, except as otherwise agreed by BLM.

Condition No. 27 - Existing Claims

The license shall be subject to all valid claims and existing rights of third parties. The United States is not liable to the Licensee for the exercise of any such right or claim.

Condition No. 28 - Compliance with Regulations

The Licensee shall comply with the regulations of the Department of Interior for activities on BLM lands, and all applicable Federal, State, county, and municipal laws, ordinances, or regulations in regards to the area or operations on or directly affecting BLM lands, to the extent those laws, ordinances or regulations are not preempted by federal law.

Condition No. 29 - Surrender of License or Transfer of Ownership

Prior to any surrender of this license, the Licensee shall provide assurance acceptable to BLM that Licensee shall restore any Project area directly affecting BLM lands to a condition satisfactory to BLM upon or after surrender of the license, as appropriate. To the extent restoration is required; Licensee shall prepare a restoration plan which shall identify the measures to be taken to restore such BLM lands and shall include adequate financial mechanisms to ensure performance of the restoration measures.

In the event of any transfer of the license or sale of the Project, the Licensee shall assure that, in a manner satisfactory to BLM, the Licensee or transferee will provide for the costs of surrender and restoration. If deemed necessary by BLM to assist it in evaluating the Licensee's proposal, the Licensee shall conduct an analysis, using experts approved by BLM, to estimate the potential costs associated with surrender and restoration of any Project area directly affecting BLM lands to BLM specifications. In addition, BLM may require the Licensee to pay for an independent audit of the transferee to assist BLM or FS in determining whether the transferee has the financial ability to fund the surrender and restoration work specified in the analysis.

Condition No. 30 - Protection of United States Property

The Licensee, including any agents or employees of the Licensee acting within the scope of their employment, shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with this license.

Condition No. 31 Indemnification

The Licensee shall indemnify, defend, and hold the United States harmless for:

- any violations incurred under any laws and regulations applicable to, or
- judgments, claims, penalties, fees, or demands assessed against the United States caused by, or
- costs, damages, and expenses incurred by the United States caused by, or
- the releases or threatened release of any solid waste, hazardous substances, pollutant, contaminant, or oil in any form in the environment related to the construction, maintenance, or operation of the Project works or of the works appurtenant or accessory thereto under the license.

The Licensee's indemnification of the United States shall include any loss by personal injury, loss of life or damage to property caused by the construction, maintenance, or operation of the Project works or of the works appurtenant or accessory thereto under the license. Indemnification shall include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. Upon surrender, transfer, or termination of the license, the Licensee's obligation to indemnify and hold harmless the United States shall survive for all valid claims for actions that occurred prior to such surrender, transfer or termination.

Condition No. 32- Damage to Land, Property, and Interests of the United States

The Licensee has an affirmative duty to protect the land, property, and interests of the United States from damage arising from the Licensee's construction, maintenance, or operation of the Project works or the works appurtenant or accessory thereto under the license. The Licensee's liability for fire and other damages to BLM lands shall be determined in accordance with the Federal Power Act and standard Form L-1 Articles 22 and 24.

Condition No. 33 - Risks and Hazards on Bureau of Land Management Lands

As part of the occupancy and use of the Project area, the Licensee has a continuing responsibility to reasonably identify and report all known or observed hazardous conditions on or directly affecting BLM lands within the Project boundary that would affect the improvements, resources, or pose a risk of injury to individuals. Licensee will abate those conditions, except those caused by third parties or not related to the occupancy and use authorized by the License. Any non-emergency actions to abate such hazards on BLM lands shall be performed after consultation with BLM. In emergency situations, the Licensee shall notify BLM of its actions as soon as possible, but not more than 48 hours, after such actions have been taken. Whether or not BLM is notified or provides consultation, the Licensee shall remain solely responsible for all abatement measures performed. Other hazards should be reported to the appropriate agency as soon as possible.

Condition No. 34 - Access

Subject to the limitations set forth under the heading of "Access by the United States" in Condition No. 42 hereof, BLM reserves the right to use or permit others to use any part of the licensed area on BLM lands for any purpose, provided such use does not interfere with the rights and privileges authorized by this license or the Federal Power Act.

Condition No. 35 - Crossings

The Licensee shall maintain suitable crossings as required by BLM for all roads and trails that intersect the right-of-way occupied by linear Project facilities (powerline, penstock, ditch, and pipeline).

Condition No. 36 - Surveys, Land Corners

The Licensee shall avoid disturbance to all public land survey monuments, private property corners, and forest boundary markers. In the event that any such land markers or monuments on BLM lands are destroyed by an act or omission of the Licensee, in connection with the use and/or occupancy authorized by this license, depending on the type of monument destroyed, the Licensee shall reestablish or reference same in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of BLM. Further, the Licensee shall ensure that any such official survey records affected are amended as provided by law.

Condition No. 37– Pesticide Use Restrictions on Bureau of Land Management Lands

Pesticides may not be used on BLM lands or in areas affecting BLM lands to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, non-native fish, etc., without the prior written approval of BLM. During the annual Consultation Meeting described in Condition No.23, the Licensee shall submit a request for approval of planned uses of pesticides for the upcoming year. The Licensee shall provide at a minimum the following information essential for review:

- whether pesticide applications are essential for use on BLM lands;
- specific locations of use;
- specific herbicides proposed for use;
- application rates;
- dose and exposure rates; and
- safety risk and timeframes for application.

Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures that were not anticipated at the time the report was submitted. In such an instance, an emergency request and approval may be made.

Any pesticide use that is deemed necessary to use on BLM lands within 500 feet of known locations of Western Pond Turtles, Sierra Nevada Yellow-Legged Frog, Foothill Yellow Legged Frog, or known locations of BLM Special Status or culturally significant plant populations will be designed to avoid adverse effects to individuals and their habitats. Application of pesticides must be consistent with BLM riparian conservation objectives.

On BLM lands, the Licensee shall only use those materials registered by the U.S. Environmental Protection Agency and consistent with those applied by BLM and approved through BLM review for the specific purpose planned. The Licensee must strictly follow label instructions in the preparation and application of pesticides and disposal of excess materials and containers. The Licensee may also submit Pesticide Use Proposal(s) with accompanying risk assessment and other BLM required documents to use pesticides on a regular basis for the term of the license as addressed further in Condition No. 17: Terrestrial Protection Measures. Submission of this plan will not relieve the Licensee of the responsibility of annual notification and review.

Condition No. 38 - Modifications of 4(e) Conditions after Biological Opinion or Water Quality Certification

BLM reserves the right to modify these conditions, if necessary, to respond to any Final Biological Opinion issued for this Project by the National Marine Fisheries Service, United States Fish and Wildlife Service; or any Certification issued for this Project by the State Water Resources Control Board.

Condition No. 39 - Signs

The Licensee shall consult with BLM prior to erecting signs related to safety issues on BLM lands covered by the license. Prior to the Licensee erecting any other signs or advertising devices on BLM lands covered by the license, the Licensee must obtain the approval of BLM as to location, design, size, color, and message. The Licensee shall be responsible for maintaining all Licensee-erected signs to neat and presentable standards.

Condition No. 40 - Ground Disturbing Activities

If the Licensee proposes ground-disturbing activities on or directly affecting BLM lands that were not specifically addressed in the Commission's NEPA processes, the Licensee, in consultation with BLM, shall determine the scope of work and potential for Project-related effects, and whether additional information is required to proceed with the planned activity. Upon BLM request, the Licensee shall enter into an agreement with BLM under which the Licensee shall fund a reasonable portion of BLM staff time and expenses for staff activities related to the proposed activities time and expenses for staff activities related to the proposed activities.

Condition No. 41 - Use of Bureau of Land Management Roads for Project Access

The Licensee shall obtain suitable authorization for all project access roads and BLM roads needed for Project access. The term of the permit shall be the same as the term of the license. The authorization shall require road maintenance and cost sharing in reconstruction commensurate with the Licensee's use and project-related use. The authorization shall specify road maintenance and management standards that provide for traffic safety, minimize erosion, and damage to natural resources and that are acceptable to BLM as appropriate.

The Licensee shall pay BLM for its share of maintenance cost or perform maintenance or other agreed to services, as determined by BLM for all use of roads related to project operations, project-related public recreation, or related activities. The maintenance obligation of the Licensee shall be proportionate to total use and commensurate with its use. Any maintenance to be performed by the Licensee shall be authorized by and shall be performed in accordance with an approved maintenance plan and applicable BMPs. In the event a road requires maintenance, restoration, or reconstruction work to accommodate the Licensee's needs, the licensee shall perform such work at its own expense after securing BLM authorization.

The Licensee shall complete a condition survey and a proposed maintenance plan subject to BLM review and approval as appropriate once each year. The plan may take the format of a road maintenance agreement provided all the above conditions are met as well as the conditions set forth in the proposed agreement.

In addition, all BLM roads used as Project Access roads (PAR) and Right-of-Way access roads (ROW) shall have:

- Current condition survey.
- Be mapped at a scale to allow identification of specific routes or segments.
- BLM assigned road numbers are used for reference on the maps, tables, and in the field.
- GIS compatible files of GPS alignments of all roads used for Project access are provided to BLM.
- Adequate signage is installed and maintained by the Licensee at each road or route, identifying the road by BLM road number.

Condition No. 42 - Access By The United States

The United States shall have unrestricted use of any road over which the Licensee has control within the project area for all purposes deemed necessary and desirable in connection with the protection, administration, management, and utilization of Federal lands or resources. When needed for the protection, administration, and management of Federal lands or resources the United States shall have the right to extend rights and privileges for use of the right-of-way and road thereon to States and local subdivisions thereof, as well as to other users. The United States shall control such use so as not to unreasonably interfere with the safety or security uses, or cause the Licensee to bear a share of costs disproportionate to the Licensee's use in comparison to the use of the road by others.

Condition No. 43 - Road Use

The Licensee shall confine all vehicles being used for project purposes, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, as identified in the Transportation System Management Plan (Condition 22). BLM, as appropriate, reserve the right to close any and all such routes where damage is occurring to the soil or vegetation, or, if requested by Licensee, to require construction/construction by the Licensee to the extent needed to accommodate the Licensee's use. BLM agree to provide notice to the Licensee and the Commission prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.

Condition No. 44 - Bureau of Land Management Approval of Final Design

Before any new construction of the Project occurs on Bureau of Land Management lands, the Licensee shall obtain prior written approval of BLM for all final design plans for Project components, which BLM deems as affecting or potentially affecting Bureau of Land Management lands within the Project boundary. The Licensee shall follow the schedules and procedures for design review and approval specified in the conditions herein. As part of such written approval, BLM may require adjustments to the final plans and facility locations to preclude or mitigate impacts and to insure that the Project is either compatible with on-the-ground conditions or approved by BLM based on agreed upon compensation or mitigation measures to address compatibility issues. Should such necessary adjustments be deemed by BLM, the Commission, or the Licensee to be a substantial change, the Licensee shall follow the procedures of FERC Standard Article 2 of the license. Any changes to the license made for any reason pursuant to FERC Standard Article 2 or Article 3 shall be made subject to any new terms and conditions of the Secretary of Interior made pursuant to Section 4(e) of the Federal Power Act to address Project effects within the Project boundary.

Condition No. 45 - Unattended Construction Equipment

The Licensee shall not place construction equipment on BLM lands prior to actual use or allow it to remain on BLM lands subsequent to actual use, except for a reasonable mobilization and demobilization period agreed to by BLM.

Condition No. 46 - Maintenance of Improvements

The Licensee shall maintain the improvements and premises on BLM lands to standards of repair, orderliness, neatness, sanitation, and safety acceptable to BLM. Disposal of all materials will be at an approved existing location, except as otherwise agreed to by BLM.

Condition No. 47 - Construction Inspections

Within 60 days of planned ground-disturbing activity on or affecting BLM lands, Licensee shall file with the Commission a Safety Construction Plan that identifies potential hazard areas and measures necessary to address public safety. Areas to consider include construction activities near public roads, trails, and recreation areas and facilities.

Licensee shall perform daily (or on a schedule otherwise agreed to by BLM in writing) inspections of Licensee's construction operations on BLM lands and Licensee adjoining property while construction is in progress. Licensee shall document these inspections (informal writing sufficient) and shall deliver such documentation to BLM on a schedule agreed to by BLM. The inspections must specifically include fire plan compliance, public safety, and environmental protection. Licensee shall act immediately to correct any items found to need correction.

A registered professional engineer or other qualified employee of the appropriate specialty shall regularly conduct construction inspections of structural improvements on a schedule approved by BLM.

Condition No. 48 - Licensee Contact

Licensee shall provide a contact with BLM, whenever planning or construction of recreation facilities, other Project improvements, and routine and other maintenance activities are taking place within the BLM lands. Licensee agrees to cooperate with BLM through this individual in contract review and work inspection.

Condition No. 49 - Hazardous Substances Plan

Within 1 year of license issuance or prior to undertaking activities on BLM lands, Licensee shall file with the Commission a plan approved by BLM for oil and hazardous substances storage and spill prevention and cleanup. The plan shall show evidence of consultation with State Water Board, CDFW, and the Regional Water Quality Control Board (RWQCB). In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, Licensee shall notify BLM, and in consultation with State Water Board, CDFW, and RWQCB, BLM shall make a determination whether a plan approved by BLM for oil and hazardous substances storage and spill prevention and cleanup is needed. Any such plan shall be filed with the Commission.

At a minimum, the plan must require Licensee to (1) maintain in the project area, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform BLM of the location of the spill cleanup equipment on BLM lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; and (3) to inform BLM immediately of the magnitude, nature, time, date, location, and action taken for any spill. The plan shall include a monitoring plan that details corrective measures that will be taken if spills occur. The plan shall include a requirement for a weekly written report during construction documenting the results of the monitoring.

Condition No. 50 - Erosion and Sediment Control and Management

Upon Commission approval, Licensee shall implement the Erosion and Sediment Control Management Plan, filed separately with the Commission (FERC Library Accession No.201404115294).

Appendix H-3

Bureau of Reclamation 4(e) Conditions: Drum-Spaulling Project

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**Bureau of Reclamation Final Conditions and
Recommendations Provided Under 18 CFR § 4.34 (b)(1)
In Connection with the Application for Relicensing for the
Drum-Spauling Hydroelectric Project
(FERC No. 2310)**

30 July 2012; modified 21 October 2013

A-1 – Reservation of Authority to Modify Conditions

Reclamation reserves the authority to modify these Section 4(e) FPA conditions, as necessary, to respond to any changes to the license application approved by FERC, any Certificate issued by the SWRCB for this Project, or any other new, relevant information.

B. Operation and Maintenance of Newcastle Powerhouse

Condition No. b.1 – Consultation

The Licensee shall, beginning the first full calendar year after license issuance, participate in annual meetings with Reclamation and State Parks to present operation and maintenance (O&M) activities, associated with Newcastle Powerhouse and premises, planned for the next calendar year. In addition, Licensee shall present results from current year monitoring of noxious weeds and special status species as well as any additional information that has been compiled for the Newcastle Powerhouse and premises, including progress reports on other resource measures. The goals of the meeting are to share information as mutually agreed upon for planned maintenance activities, and identify concerns that Reclamation and State Parks may have regarding O&M activities and their potential effects on sensitive resources, and any measures required to avoid or mitigate potential effects.

The date of the consultation meeting(s) will be mutually agreed upon by the Licensee, Reclamation, and State Parks. Representatives from the Service, CDFG, SWRCB, or other interested agency representatives concerned with O&M of the Newcastle Powerhouse may request to attend the meeting.

Consultation shall include, but not be limited to:

- A status report regarding implementation of license conditions;
- Results of any monitoring studies performed over the previous year in formats agreed to by Reclamation and State Parks and PG&E during development of study plans;
- Review of any non-routine maintenance;

- Discussion of any foreseeable changes to Newcastle Powerhouse facilities and/or its appurtenances;
- Discussion of any necessary revisions or modifications to plans approved as part of PG&E's FERC license pertaining to Newcastle Powerhouse;
- Discussion of elements of current year maintenance plans, e.g., road maintenance; and
- Discussion of any planned pesticide use.

A record of the meeting shall be kept by Licensee and shall include any recommendations made by Reclamation and State Parks for the protection of Reclamation lands, water bodies, and resources. Copies of other reports related to safety and security at Newcastle Powerhouse shall be submitted to Reclamation concurrently with submittal to the FERC. These include, but are not limited to: any non-compliance report filed by Licensee, geologic or seismic reports, and structural safety reports for facilities located on or affecting Reclamation lands, water bodies, and resources.

Condition No. b.2 – Approval of Changes

Notwithstanding any license authorization to make changes to the Newcastle Powerhouse and premises, Licensee shall obtain written approval from Reclamation prior to making any changes or in the uses of Reclamation lands, water bodies, and resources. Following receipt of such approval from Reclamation, and a minimum of 90-days prior to initiating any such changes, Licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of Reclamation for such changes. Licensee shall file an exact copy of the report with Reclamation at the same time it is filed with the Commission.

Condition No. b.3. – O&M of Newcastle Powerhouse and Appurtenances

Licensee shall operate and maintain the Newcastle Powerhouse and premises and appurtenances in a good and safe condition and to the reasonable satisfaction of Reclamation at the expense of Licensee. Licensee shall at all times exercise its rights herein in accordance with all applicable statutes, orders, rules and regulations of any public authority having jurisdiction, including but not limited to all those related to or concerned with the environment. Licensee shall, from time to time, upon reasonable request from Reclamation promptly repair or alter any part of Licensee's facilities to preclude damage to Reclamation facilities, and Licensee shall perform all such repair or alteration without regard to the cause, to the extent not inconsistent with other agreements, except where caused or necessitated by an act or omission of the United States. This provision shall not, however, relieve Licensee from the duty of inspecting and keeping its facilities in a proper and safe condition without the request of Reclamation, nor place upon Reclamation the duty of inspecting or maintaining any of the facilities installed by or for Licensee.

Condition No. b.4. – Surrender of License or Transfer of Ownership

Licensee's license shall not construed as granting to the Licensee any right, title, or interest in lands or water bodies of the United States. Prior to surrender of this license, the Licensee shall

provide assurance acceptable to Reclamation that Licensee shall restore the Newcastle Powerhouse premises to a condition satisfactory to Reclamation upon or after surrender of the license, as appropriate. To the extent restoration is required, Licensee shall prepare a restoration plan which shall identify the measures to be taken to restore such Reclamation lands and waters and shall include or identify adequate financial mechanisms to ensure performance of the restoration measures.

In the event of any transfer of the license or sale of the Project, the Licensee shall assure that, in a manner satisfactory to Reclamation, the Licensee or transferee will provide for the costs of surrender and restoration. If deemed necessary by Reclamation to assist it in evaluating the Licensee's proposal, the Licensee shall conduct an analysis, using experts approved by Reclamation, to estimate the potential costs associated with surrender and restoration of the premises to Reclamation specifications. In addition, the Licensee shall, if requested by Reclamation, pay for an independent audit of the transferee to assist Reclamation in determining whether the transferee has the financial ability to fund the surrender and restoration work specified in the analysis.

Condition No. b.5. – Protection of United States Property

The Licensee and its contractors shall execute and maintain their work so as to avoid injury or damage to any person or property. All work shall be done in conformance with all Federal, State, and local health and safety regulations and laws.

Condition No. b.6 – Indemnification and Hold Harmless (modified October 21, 2013)

Licensee shall indemnify, defend, and hold the United States and State Parks harmless for:

- Any violations incurred under any laws and regulations applicable to, or
- judgments, claims, penalties, fees, or demands assessed against the United States caused by, or
- costs, damages, and expenses incurred by the United States caused by, or
- the releases or threatened release of any solid waste, hazardous substances, pollutant, contaminant, or oil in any form in the environment related to the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license.

Licensee's indemnification of the United States and State Parks shall include any loss by personal injury, loss of life, or damage to property caused by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license. Indemnification shall include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. Upon surrender, transfer, or termination of the license, Licensee's obligation to indemnify and hold harmless the United States and State Parks shall survive for all valid claims for actions that

occurred prior to such surrender, transfer or termination.

Condition No. b.7. – Damage to Land, Property, and Interests of the United States

Licensee shall repair any damages it causes to the property or equipment of Reclamation and State Parks. No waste materials of any kind shall be left on United States property. Any damage to lands or facilities of the United States shall be restored to the reasonable satisfaction of Reclamation.

Condition No. b.8. – Unrestricted Access (modified October 21, 2013)

The United States reserves the right of its officers, agents, and employees at all times to have unrestricted access and ingress to, passage over, and egress from Reclamation lands, to make investigations of all kinds, dig test pits and drill test holes, to survey for any construct reclamation and irrigation works and other structures incident to Federal Reclamation Projects, or for any purpose whatsoever. Reclamation will make every reasonable effort to keep damages to a minimum.

Condition No. b.9. – Pesticide-Use Restrictions on Reclamation Lands

The Licensee shall not permit the use of any pesticides on Federal lands without prior written approval by Reclamation. The Licensee shall submit to Reclamation for approval an Integrated Pest Management Plan sixty (60) days in advance of pesticide application.

All pesticides used shall be in accordance with the current registration, label direction, or other directives regulating their use (State Department of Agriculture, Department of Ecology, Occupational Safety and Health Administration, etc.) and with applicable Reclamation policy and directives and standards. Applicators will meet applicable State training or licensing requirements. Records maintenance shall be in accordance with State requirements and such records shall be furnished to Reclamation not later than five (5) working days after any application of a pesticide.

Any equipment, tools, and machines used for pesticide application shall be in good repair and suitable for such use. Equipment shall be calibrated prior to the spraying season and as deemed necessary by Reclamation.

Mixing, disposal, and cleaning shall be done where pesticides residues cannot enter storm drains, sewers, or other non-target areas.

The Licensee shall initiate any necessary measures for containment and clean up of pesticide spills. Spills shall be reported to Reclamation with full details of the actions taken. Reporting may be within a reasonable time period. A reasonable time period means: within twenty-four (24) hours of the spill if it is an emergency or by the first working day if it is a nonemergency.

An emergency is any situation that requires immediate action to reduce or avoid endangering

public health and safety or the environment.

Aerial application of pesticides is prohibited without prior written consent by Reclamation's designated representative.

The Licensee agrees to include the provisions contained in this Condition (No. B.9.) in any subcontract or third party contract it may enter into pursuant to these conditions.

Condition No. b.10. – Hazardous Materials (modified October 21, 2013)

Within 1 year of license issuance or prior to undertaking activities on Reclamation lands, Licensee shall file with the Commission a plan approved by the Bureau of Reclamation for oil and hazardous substances storage and spill prevention and cleanup. The plan shall show evidence of consultation with State Water Board, California Department of Fish and Wildlife (CDFW), and the Regional Water Quality Control Board (RWQCB). In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, Licensee shall notify Reclamation, and in consultation with State Water Board, CDFW, and RWQCB, Reclamation shall make a determination whether a plan approved by Reclamation for oil and hazardous substances storage and spill prevention and cleanup is needed. Any such plan shall be filed with the Commission.

At a minimum, the plan must require Licensee to: (1) maintain in the project area, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform Reclamation of the location of the spill cleanup equipment on Reclamation lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; and (3) to inform Reclamation immediately of the magnitude, nature, time, date, location, and action taken for any spill. The plan shall include a monitoring plan that details corrective measures that will be taken if spills occur. The plan shall include a requirement for weekly written report during construction documenting the results of the monitoring.

Condition No. b.11 – Discovery of Cultural Resources

The Licensee shall immediately provide an oral notification to Reclamation's authorized official of the discovery of any and all antiquities, and paleontological items, or other objects of archaeological, cultural, historic, or scientific interest on Reclamation lands. The Licensee shall follow up with a written report of their finding(s) to Reclamation's authorized official within forty-eight (48) hours. Objects under consideration include, but are not limited to, historic or prehistoric ruins, human remains, funerary objects, and artifacts discovered as a result of activities under this authorization.

Condition No. b.12 – Health and Safety

The Licensee and its contractors shall execute and maintain their work so as to avoid injury or damage to any person or property. All work shall be done in conformance with all Federal, State and local health and safety regulations and laws.

Condition No. b.13 – Reclamation Land Use Stipulation

There is reserved from the rights granted in new license, the prior rights of the United States acting through the Bureau of Reclamation, Department of the Interior, to construct, operate, and maintain public works now or hereafter authorized by the Congress in association with the American River Division of the CVP, consistent with applicable Federal law and policies, during the term of the new license.

Condition No. b.14. – Removal of Structures

The Licensee shall not abandon personal property of any kind, including project works, in or on Reclamation facilities, lands, or water bodies. Upon the surrender, expiration, termination, or revocation of the FERC license, the Licensee shall coordinate with Reclamation on the removal of all structures, equipment, or other improvements made by the Licensee. The Licensee shall bear the burden of any such costs. The United States will not incur any costs associated with the removal of improvements and/or site restoration activities within the license premises on Federal lands owned by Reclamation.

Appendix I

4(e) Conditions: Yuba-Bear Project

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Appendix I-1

Forest Service 4(e) Conditions: Yuba-Bear Project

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Forest Service Final Conditions and Recommendations
Provided Under 18 CFR § 4.34 (b)(1)
In Connection with the Application for Relicensing for the
Yuba-Bear Hydroelectric Project
(FERC No. 2266)

10 April 2014

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INTRODUCTION

On July 31, 2012, the USDA Forest Service (FS) provided Preliminary Section 4(e) conditions for the Yuba-Bear Hydroelectric Project, FERC No. 2266, in accordance with 18 CFR 4.34(b)(1)(i). After those conditions were filed, the Forest Service participated in several meetings and discussions with the Licensee, other resource agencies, and non- governmental organizations in an effort to reach agreement on conditions that one entity or another had concerns with. Based on these meetings and discussions, the Forest Service submitted revised Preliminary Section 4(e) conditions for the Yuba-Bear Hydroelectric Project, FERC No. 2266, on August 22, 2012. Alternative Conditions, filed pursuant to 7 CFR 1.670 (and following sections) were filed by Nevada Irrigation District, Licensee for the Yuba-Bear Project, and Foothills Water Network to 7 CFR 1.673. The FS' Final Section 4(e) Conditions follow.

FS submits the following Final Section 4(e) Conditions for the Yuba-Bear Hydroelectric Project, FERC No. 2266, in accordance with 18 CFR 4.34(b)(1)(i). Section 4(e) of the Federal Power Act (FPA), which states the Commission may issue a license for a project within a reservation only if it finds that the License will not interfere or be inconsistent with the purpose for which such reservation was created or acquired. This is an independent threshold determination made by the Commission, with the purpose of the reservation defined by the authorizing legislation or proclamation (see *Rainsong v. FERC*, 106 F.3d 269 (9th Cir. 1977)). FS, for its protection and utilization determination under Section 4(e) of the FPA, may rely on broader purposes than those contained in the original authorizing statutes and proclamations in prescribing conditions (see *Southern California Edison v. FERC*, 116F.3d 507 (D.C. Cir. 1997)).

The following terms and conditions are based on those resource and management requirements enumerated in the Organic Administration Act of 1897 (30 Stat. 11), the Multiple-Use Sustained Yield Act of 1960 (74 Stat. 215), the National Forest Management Act of 1976 (90 Stat. 2949), and any other law specifically establishing a unit of the National Forest System or prescribing the management thereof (such as the Wild and Scenic Rivers Act), as such laws may be amended from time to time, and as implemented by regulations and approved by Land and Resource Management Plans prepared in accordance with the National Forest Management Act. Specifically, the 4(e) conditions in this document are based on the Land and Resource Management Plan (as amended) for the Tahoe National Forest, as approved by the Regional Forester of the Pacific Southwest Region.

Pursuant to Section 4(e) of the Federal Power Act, the Secretary of Agriculture, acting by and through FS, considers the following conditions necessary for the adequate protection and utilization of the land and resources of the Tahoe National Forest. License articles contained in the Federal Energy Regulatory Commission's (the Commission) Standard Form L-1 (revised October 1975) issued by Order No. 540, dated October 31, 1975, cover general requirements. Part I of this document includes administrative conditions deemed necessary for the administration of National Forest System (NFS) lands. Part II of this document includes specific resource requirements for protection and utilization of NFS lands.

PART I: ADMINISTRATIVE CONDITIONS

Condition No. 1 – Consultation

Licensee shall annually consult with the United States Department of Agriculture, FS (FS). The date of the consultation meeting will be mutually agreed to by Licensee and FS but in general should be held by April 15. At least 30 days in advance of the meeting, Licensee shall notify Licensee for the Drum-Spaulding Project, FERC No. 2310, and other interested stakeholders, confirming the meeting location, time and agenda. At the same time, Licensee shall also provide notice to United States Department of Interior (USDI) Bureau of Land Management (BLM), USDI Fish and Wildlife Service (FWS), and USDI National Park Service; California State Department of Fish and Wildlife (CDFW) and State Water Resources Control Board (SWRCB); United States Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fishery Service (NMFS), who may choose to participate in the meeting. Licensee shall attempt to coordinate the meeting so interested agencies and other stakeholders may attend.

Licensee shall make available to FS, BLM, CDFW, and SWRCB at least 2 weeks prior to the meeting, an operations and maintenance plan for the year in which the meeting occurs. In addition, Licensee shall present results from current year monitoring of noxious weeds and special status species as well as any additional information that has been compiled for the Project area, including progress reports on other resource measures. The goals of this meeting are to share information, mutually agree upon planned maintenance activities, identify concerns that FS may have regarding activities and their potential effects on sensitive resources, and any measures required to avoid or mitigate potential effects. In addition, the goal of the meeting shall be to review and discuss the results of implementing the streamflow and reservoir-related conditions, results of monitoring, and other issues related to preserving and protecting ecological values affected by the Project.

Consultation shall include, but not be limited to:

- A status report regarding implementation of license conditions.
- Results of any monitoring studies performed over the previous year in formats agreed to by FS and Licensee during development of implementation plans.
- Review of any non-routine maintenance.
- Discussion of any foreseeable changes to Project facilities or features.
- Discussion of any necessary revisions or modifications to implementation plans approved as part of this license.
- Discussion of needed protection measures for species newly listed as threatened, endangered, or sensitive, or changes to existing management plans that may no longer be warranted due to delisting of species, or to incorporate new knowledge about a species requiring protection. Discussion of needed protection measures for newly discovered cultural resource sites.
- Discussion of elements of current year maintenance plans, e.g. road and trail maintenance.
- Discussion of any planned pesticide use.

A record of the meeting shall be kept by Licensee and shall include any recommendations made by FS for the protection of NFS lands and resources. Licensee shall file the meeting record, if requested, with the Commission no later than 60 days following the meeting.

Copies of other reports related to Project safety and non-compliance shall be submitted to FS, BLM, CDFW, SWRCB, and other interested agencies and stakeholders concurrently with submittal to the Commission. These include, but are not limited to: any non-compliance report filed by Licensee, geologic or seismic reports, and structural safety reports for facilities located on or affecting NFS lands.

A copy of the record for the previous water year regarding streamflow, study reports, and other pertinent records shall be provided to FS, BLM, CDFW, SWRCB, and other interested agencies and stakeholders by Licensee at least 60 days prior to the meeting date, unless otherwise agreed.

Copies of other reports related to monitoring, Project safety, and non-compliance on NFS lands shall be submitted to FS concurrently with submittal to the Commission, with the goal of providing the material to FS no later than 90 days in advance of the Annual Meeting. These include, but are not limited to: any non-compliance report filed by Licensee, geologic or seismic reports, and structural safety reports for facilities.

During the first several years of license implementation, it is likely that more consultation than just one Annual Meeting will be required, given the complexity of these projects.

FS reserves the right, after notice and opportunity for comment, to require changes in the Project and its operation through revision of the Section 4(e) conditions to accomplish protection and utilization of NFS lands and resources.

Condition No. 2 – Consultation Group Specific to the Yuba-Bear Project

The Licensee shall, within 3 months of license issuance, establish a Consultation Group as follows.

Purpose

The primary purpose of Consultation Group is to provide a forum for the Licensee to consult with resource agencies and other interested parties on the following:

- The Annual Meeting as described in Condition No. 1, Consultation. To the extent topics covered in Condition No. 1 affect project-affected areas outside FS or BLM jurisdiction, consultation with appropriate resource agencies on those same topics will occur at the Annual Meeting, other Consultation Group meetings, or as otherwise agreed with the Licensee and appropriate resource agencies. Licensee shall provide copies of the meeting materials to those who request it.
- Plans that are developed as required by the new license and plans that require specific consultation processes during implementation.
- Proposed temporary or permanent modifications to license conditions.

Licensee shall also provide notification of license compliance deviations to the current members of the Consultation Group.

Decision Making

The Consultation Group will report its recommendations to the FS and BLM. The FS shall be responsible for final addressing matters covered by the Section 4(e) Conditions. The BLM shall be responsible for final decisions within BLM jurisdiction. Licensee shall also ensure that consultation, permitting, and any necessary approvals within the jurisdiction of other agencies are completed. Licensee shall implement license conditions as approved and directed by the Commission.

Participation

In addition to the Licensee, FS, BLM, SWRCB, and CDFW, Consultation Group meetings shall be open to any organization or individual that notifies the Licensee in writing of interest in participating in the Annual Meeting or Consultation Group meetings. The Consultation Group should establish mutually agreeable process guidelines for conducting effective and efficient meetings no later than 1 year after license issuance. Each organization or individual shall be responsible for providing notification information to the Licensee and shall be responsible for keeping current a single point of contact for purposes of notification related to the Consultation Group. If a participant is interested in a particular meeting or topic, the participant is responsible for ensuring they are represented.

Meetings

Separate from the Annual Meeting, the Licensee shall organize four Consultation Group meetings per year. Additional meetings may be scheduled if the Consultation Group decides additional meetings are necessary. Fewer meetings shall also be scheduled if the Consultation Group decides that four meetings per year are not necessary.

Condition No. 3 – FS Approval of Final Design

Before any new construction of the Project occurs on National Forest System lands, Licensee shall obtain prior written approval of FS for all final design plans for Project components, which FS deems as affecting or potentially affecting National Forest System resources. Licensee shall follow the schedules and procedures for design review and approval specified in the conditions herein. As part of such written approval, FS may require adjustments to the final plans and facility locations to preclude or mitigate impacts and to insure that the Project is either compatible with on-the-ground conditions or approved by FS based on agreed upon compensation or mitigation measures to address compatibility issues. Should such necessary adjustments be deemed necessary by FS, the Commission, or Licensee to be a substantial change, Licensee shall follow the procedures of FERC Standard Article 2 of the license. Any changes to the license made for any reason pursuant to FERC Standard Article 2 or Article 3 shall be made subject to any new terms and conditions of the Secretary of Agriculture made pursuant to Section 4(e) of the Federal Power Act.

Condition No. 4 – Approval of Changes

Notwithstanding any license authorization to make changes to the Project, when such changes directly affect NFS lands, Licensee shall obtain written approval from FS prior to making any changes in any constructed Project features or facilities, or in the uses of Project lands and waters or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from FS, and a minimum of 60 days prior to initiating any such changes, Licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of FS for such changes. Licensee shall file an exact copy of this report with FS at the same time it is filed with the Commission. This condition does not relieve Licensee from the amendment or other requirements of Article 2 or Article 3 of this license.

Condition No. 5 - Maintenance of Improvements on or Affecting National Forest System or Bureau of Land Management Lands

Licensee shall maintain all its improvements and premises on NFS lands to standards of repair, orderliness, neatness, sanitation, and safety acceptable to FS. Disposal of all materials will be at an approved existing location, except as otherwise agreed by FS.

Condition No. 6 – Existing Claims

License shall be subject to all valid claims and existing rights of third parties. The United States is not liable to Licensee for the exercise of any such right or claim.

Condition No. 7 – Compliance with Regulations

Licensee shall comply with the regulations of the Department of Agriculture for activities on National Forest System lands, and all applicable Federal, State, county, and municipal laws, ordinances, or regulations in regards to the area or operations on or directly affecting National Forest System lands, to the extent those laws, ordinances or regulations are not preempted by federal law.

Condition No. 8 – Surrender of License or Transfer of Ownership

Prior to any surrender of this license, Licensee shall provide assurance acceptable to FS that Licensee shall restore any project area directly affecting National Forest System lands to a condition satisfactory to FS upon or after surrender of the license, as appropriate. To the extent restoration is required, Licensee shall prepare a restoration plan which shall identify the measures to be taken to restore such National Forest System lands and shall include adequate financial mechanisms to ensure performance of the restoration measures.

In the event of any transfer of the license or sale of the project, Licensee shall assure that, in a manner satisfactory to FS, Licensee or transferee will provide for the costs of surrender and restoration. If deemed necessary by FS to assist it in evaluating Licensee's proposal, Licensee

shall conduct an analysis, using experts approved by FS, to estimate the potential costs associated with surrender and restoration of any project area directly affecting National Forest System lands to FS specifications. In addition, FS may require Licensee to pay for an independent audit of the transferee to assist FS in determining whether the transferee has the financial ability to fund the surrender and restoration work specified in the analysis.

Condition No. 9 – Protection of United States Property

Licensee, including any agents or employees of Licensee acting within the scope of their employment, shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with this license.

Condition No. 10 – Indemnification

Licensee shall indemnify, defend, and hold the United States harmless for:

- any violations incurred under any laws and regulations applicable to, or
- judgments, claims, penalties, fees, or demands assessed against the United States caused by, or
- costs, damages, and expenses incurred by the United States caused by, or
- the releases or threatened release of any solid waste, hazardous substances, pollutant, contaminant, or oil in any form in the environment related to the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license.

Licensee's indemnification of the United States shall include any loss by personal injury, loss of life or damage to property caused by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license. Indemnification shall include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. Upon surrender, transfer, or termination of the license, Licensee's obligation to indemnify and hold harmless the United States shall survive for all valid claims for actions that occurred prior to such surrender, transfer or termination.

Condition No. 11 – Damage to Land, Property, and Interests of the United States

Licensee has an affirmative duty to protect the land, property, and interests of the United States from damage arising from Licensee's construction, maintenance, or operation of the project works or the works appurtenant or accessory thereto under the license. Licensee's liability for fire and other damages to National Forest System lands shall be determined in accordance with the Federal Power Act and standard Form L-1 Articles 22 and 24.

Condition No. 12 – Risks and Hazards on National Forest System Lands

As part of the occupancy and use of the project area, Licensee has a continuing responsibility to reasonably identify and report all known or observed hazardous conditions on or directly affecting National Forest System lands within the project boundary that would affect the improvements, resources, or pose a risk of injury to individuals. Licensee will abate those conditions, except those caused by third parties or not related to the occupancy and use authorized by the License. Any non-emergency actions to abate such hazards on National Forest System lands shall be performed after consultation with FS. In emergency situations, Licensee shall notify FS of its actions as soon as possible, but not more than 48 hours, after such actions have been taken. Whether or not FS is notified or provides consultation; Licensee shall remain solely responsible for all abatement measures performed. Other hazards should be reported to the appropriate agency as soon as possible.

Condition No. 13 – Access

Subject to the limitations set forth under the heading of “Access by the United States” in Condition No. 19 hereof, FS reserves the right to use or permit others to use any part of the licensed area on NFS lands for any purpose, provided such use does not interfere with the rights and privileges authorized by this license or the Federal Power Act.

Condition No. 14 – Crossings

Licensee shall maintain suitable crossings as required by FS for all roads and trails that intersect the right-of-way occupied by linear Project facilities (powerline, penstock, ditch, and pipeline).

Condition No. 15 - Surveys, Land Corners

Licensee shall avoid disturbance to all public land survey monuments, private property corners, and forest boundary markers. In the event that any such land markers or monuments on National Forest System lands are destroyed by an act or omission of Licensee, in connection with the use and/or occupancy authorized by this license, depending on the type of monument destroyed, Licensee shall reestablish or reference same in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of FS. Further, Licensee shall ensure that any such official survey records affected are amended as provided by law.

Condition No. 16 – Signs

Licensee shall consult with FS prior to erecting signs related to safety issues on NFS lands covered by the license. Prior to Licensee erecting any other signs or advertising devices on NFS lands covered by the license, Licensee must obtain the approval of FS as to location, design, size, color, and message. Licensee shall be responsible for maintaining all Licensee-erected signs to neat and presentable standards.

Condition No. 17 – Ground Disturbing Activities

If Licensee proposes ground-disturbing activities on or directly affecting NFS lands that were not specifically addressed in the Commission's NEPA processes, Licensee, in consultation with FS, shall determine the scope of work and potential for Project-related effects, and whether additional information is required to proceed with the planned activity. Upon FS request, Licensee shall enter into an agreement with FS under which Licensee shall fund a reasonable portion of FS staff time and expenses for staff activities related to the proposed activities.

Condition No. 18 – Use of National Forest System Roads for Project Access

Licensee shall obtain suitable authorization for all project access roads and NFS roads needed for Project access. The authorization shall require road maintenance and cost sharing in reconstruction commensurate with Licensee's use and project-related use. The authorization shall specify road maintenance and management standards that provide for traffic safety, minimize erosion, and damage to natural resources and that are acceptable to FS as appropriate.

Licensee shall pay FS for its share of maintenance cost or perform maintenance or other agreed to services, as determined by FS for all use of roads related to project operations, project-related public recreation, or related activities. The maintenance obligation of Licensee shall be proportionate to total use and commensurate with its use. Any maintenance to be performed by Licensee shall be authorized by and shall be performed in accordance with an approved maintenance plan and applicable Best Management Practices (BMPs). In the event a road requires maintenance, restoration, or reconstruction work to accommodate Licensee's needs, Licensee shall perform such work at its own expense after securing FS authorization.

Licensee shall complete a condition survey and a proposed maintenance plan subject to FS review and approval as appropriate once each year. The plan may take the format of a road maintenance agreement provided all the above conditions are met as well as the conditions set forth in the proposed agreement.

In addition, all NFS roads used as Project Access roads (PAR) and Right-of-Way access roads (ROW) shall have:

- Current condition survey.
- Be mapped at a scale to allow identification of specific routes or segments.
- FS assigned road numbers are used for reference on the maps, tables, and in the field.
- GIS compatible files of GPS alignments of all roads used for Project access are provided to FS.
- Adequate signage is installed and maintained by Licensee at each road or route, identifying the road by FS road number.

Condition No. 19 – Access By The United States

The United States shall have unrestricted use of any road over which Licensee has control within the project area for all purposes deemed necessary and desirable in connection with the

protection, administration, management, and utilization of Federal lands or resources. When needed for the protection, administration, and management of Federal lands or resources the United States shall have the right to extend rights and privileges for use of the right-of-way and road thereon to States and local subdivisions thereof, as well as to other users. The United States shall control such use so as not to unreasonably interfere with the safety or security uses, or cause Licensee to bear a share of costs disproportionate to Licensee's use in comparison to the use of the road by others.

Condition No. 20 – Road Use

Licensee shall confine all vehicles being used for project purposes, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, as identified in the Transportation System Management Plan (refer to Condition No. 61). FS reserves the right to close any and all such routes where damage is occurring to the soil or vegetation, or, if requested by Licensee, to require reconstruction/construction by Licensee to the extent needed to accommodate Licensee's use. FS agrees to provide notice to Licensee and the Commission prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.

Condition No. 21 – Hazardous Substances Plan

Within 1 year of license issuance or prior to undertaking activities on NFS lands, Licensee shall file with the Commission a plan approved by FS for oil and hazardous substances storage and spill prevention and cleanup. The plan shall show evidence of consultation with SWRCB, CDFW, and the Regional Water Quality Control Board (RWQCB). In addition, during planning and prior to any new construction or maintenance not addressed in an existing plan, Licensee shall notify FS, and in consultation with SWRCB, CDFW, and RWQCB, FS shall make a determination whether a plan approved by FS for oil and hazardous substances storage and spill prevention and cleanup is needed. Any such plan shall be filed with the Commission.

At a minimum, the plan must require Licensee to (1) maintain in the project area, a cache of spill cleanup equipment suitable to contain any spill from the project; (2) to periodically inform FS of the location of the spill cleanup equipment on NFS lands and of the location, type, and quantity of oil and hazardous substances stored in the project area; and (3) to inform FS immediately of the magnitude, nature, time, date, location, and action taken for any spill. The plan shall include a monitoring plan that details corrective measures that will be taken if spills occur. The plan shall include a requirement for a weekly written report during construction documenting the results of the monitoring.

Condition No. 22 - Pesticide-Use Restrictions on National Forest System Lands

Pesticides may not be used on NFS lands or in areas affecting NFS lands to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, non-native fish, etc., without the prior written approval of FS. During the Annual Meeting described in Condition No. 1,

Licensee shall submit a request for approval of planned uses of pesticides for the upcoming year. Licensee shall provide at a minimum the following information essential for review:

- Whether pesticide applications are essential for use on NFS lands;
- Specific locations of use;
- Specific herbicides proposed for use;
- Application rates;
- Dose and exposure rates; and
- Safety risk and timeframes for application.

Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures that were not anticipated at the time the report was submitted. In such an instance, an emergency request and approval may be made.

Any pesticide use that is deemed necessary to use on NFS lands within 500 feet of known locations of Western Pond Turtles, Sierra Nevada Yellow-Legged Frog, Foothill Yellow Legged Frog, or known locations of FS Special Status or culturally significant plant populations will be designed to avoid adverse effects to individuals and their habitats. Application of pesticides must be consistent with FS riparian conservation objectives.

On NFS lands, Licensee shall only use those materials registered by the U.S. Environmental Protection Agency and consistent with those applied by FS and approved through FS review for the specific purpose planned. Licensee must strictly follow label instructions in the preparation and application of pesticides and disposal of excess materials and containers. Licensee may also submit Pesticide Use Proposal(s) with accompanying risk assessment and other FS required documents to use pesticides on a regular basis for the term of the license as addressed further in Condition No. 38, Vegetation and Non-Native Invasive Plant Management Plan. Submission of this plan will not relieve Licensee of the responsibility of annual notification and review.

Condition No. 23 – Construction Inspections

Within 60 days of planned ground-disturbing activity on or affecting NFS lands, Licensee shall file with the Commission a Safety During Construction Plan that identifies potential hazard areas and measures necessary to address public safety. Areas to consider include construction activities near public roads, trails, and recreation areas and facilities.

Licensee shall perform daily (or on a schedule otherwise agreed to by FS in writing) inspections of Licensee's construction operations on NFS lands and Licensee adjoining property while construction is in progress. Licensee shall document these inspections (informal writing sufficient) and shall deliver such documentation to FS on a schedule agreed to by FS. The inspections must specifically include fire plan compliance, public safety, and environmental protection. Licensee shall act immediately to correct any items found to need correction.

A registered professional engineer or other qualified employee of the appropriate specialty shall regularly conduct construction inspections of structural improvements on a schedule approved by FS.

Condition No. 24 – Unattended Construction Equipment

Licensee shall not place construction equipment on NFS lands prior to actual use or allow it to remain on NFS lands subsequent to actual use, except for a reasonable mobilization and demobilization period agreed to by FS.

PART II: RESOURCE CONDITIONS

Condition No. 25 – General Resources Measures

Annual Employee Training

Licensee shall, beginning in the first full calendar year after license issuance, annually perform employee awareness training and shall also perform such training when a staff member is first assigned to the Project. The goal of the training shall be to familiarize Licensee's operations and maintenance (O&M) staff with special-status species, noxious weeds and sensitive areas (e.g., special-status plant populations and noxious weed populations) that are known to occur within or adjacent to the FERC Project Boundary on NFS lands, and the procedures for reporting to each agency, as appropriate, to comply with the license requirements. It is not the intent of this measure that Licensee's O&M staff perform surveys or become specialists in the identification of special-status species or noxious weeds. Licensee shall direct its O&M staff to avoid disturbance to sensitive areas, and to advise all Licensee contractors to avoid sensitive areas. If Licensee determines that disturbance of a sensitive area is unavoidable, Licensee shall consult with FS to minimize adverse effects to sensitive resources. This measure applies to employee training that is not otherwise covered by a specific plan.

Coordinated Operations Plan

Licensee shall, within 90 days after issuance of new licenses for the Yuba-Bear Hydroelectric Project or Drum-Spaulding Project, whichever is later, file with the Commission for approval a Coordinated Operations Plan (Plan). Licensee shall develop the Plan in consultation with Licensee for the Drum-Spaulding Project. The purpose of the Plan shall be to provide for coordination between the Yuba-Bear Hydroelectric Project and Drum-Spaulding Project to assure implementation of flow-related measures in the two project licenses. Licensee shall file the Plan, with evidence of consultation as the Plan relates to compliance with flow-related measures, with FS, BLM, CDFW, and SWRCB, and Licensee of the Drum-Spaulding Project, with the Commission and Licensee shall implement those portions of the Plan approved by the Commission.

Condition No. 26 – Water Year Types

Within 90 days of license issuance, Licensee shall in each year in each of the months of February, March, April, May and October determine water year type as described in the Water Year Type table below. Licensee shall use this determination in implementing articles and conditions of the license that are dependent on water year type. Water year types shall be defined as:

Water Year Types for the Yuba-Bear Project

Water Year Type	DWR Forecast of Total Unimpaired Runoff in the Yuba River at Smartville in Thousand Acre-Feet or DWR Full Natural Flow Near Smartville for the Water Year in Thousand Acre-Fee ¹
Extreme Critically Dry	Equal to or Less than 615
Critically Dry	616 to 900
Dry	901 to 1,460
Below Normal	1,461 to 2,190
Above Normal	2,191 to 3,240
Wet	Greater than 3,240

¹ DWR rounds the Bulletin 120 forecast to the nearest 1,000 acre-feet. The Full Natural Flow is provided to the nearest acre-foot, and Licensee will round DWR's Full Natural Flow to the nearest 1,000 acre-feet.

In each of the months of February, March, April and May, the water year type shall be based on California Department of Water Resources (DWR) water year forecast of unimpaired runoff in the Yuba River at Smartville as set forth in DWR's Bulletin 120 entitled "Water Year Conditions in California." DWR's forecast published in February, March and April shall apply from the 15th day of that month to the 14th day of the next month. From May 15 through October 14, the water year type shall be based on DWR's forecast published in May.

From October 15 through February 14 of the following year, the water year type shall be based on the sum of DWR's monthly (not daily) full natural flow for the full water year for the Yuba River near Smartville as made available by DWR on the California Data Exchange Center (CDEC) in the folder named "FNF Sum." (Currently these data are available at: <http://cdec.water.ca.gov/cgi-progs/stages/FNFSUM>). If DWR does not make the full natural flow for the full water year available until after October 14 but prior to or on October 31, from 3 days after the date the full natural flow is made available until February 14 of the following year, the water year type shall be based on the sum of DWR's monthly full natural flow for the full water year as made available. If DWR does not make available the final full natural flow by October 31, the water year type from November 1 through February 14 of the following year shall be based on DWR's May Bulletin 120.

Condition No. 27 – Minimum Streamflows

Licensee shall meet the minimum streamflows shown in the Minimum Streamflow table below.

Minimum streamflows in this part of the measure shall mean the instantaneous flow except as otherwise provided below, and Licensee shall record instantaneous streamflow at all gages as required by USGS (Article 8 of FERC's Form L-5, Standard Articles):

- Minimum streamflows may be temporarily modified for short periods upon consultation with CDFW, SWRCB, FS, and BLM and approval by SWRCB and FS or BLM, as applicable, and notification to the Commission.
- Minimum streamflows may be temporarily modified due to an emergency. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. If the minimum streamflows are so modified, Licensee shall notify the Commission, CDFW, SWRCB, FS, and BLM as soon as reasonably possible, but no later than the end of the next business day (business days do not include weekends and federal or state holidays) after such modification.

Except as otherwise provided, Licensee shall implement minimum streamflows shown in the Minimum Streamflow table in this measure within 90 days of license issuance unless a facility modification or construction is necessary. Where a facility must be modified or constructed to allow compliance with the required minimum streamflows, including flow measurement facilities, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facility as soon as reasonably practicable but no later than 2 years after license issuance and will complete the work as soon as reasonably practicable but no later than 2 years after receiving all required permits and approvals for the work. During the period before facility modifications or construction are completed, and starting within 90 days after license issuance, Licensee shall make a good faith effort to provide the specified minimum streamflows within the reasonable capabilities of the existing facilities.

Minimum Streamflows¹ in cubic feet per second (cfs)

Mouth	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
MIDDLE YUBA RIVER – BELOW JACKSON MEADOWS DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11407815)						
October	11	11	13	15	20	35
November	11	11	13	15	20	35
December	11	11	13	15	20	35
January	11	11	13	15	20	35
February	11	11	13	15	25	40
March	11	11	16	25	35	60
April	30	30	30	50	60	100
May	60	60	75	90	110	120
June	21	21	30	50	75	100
July	11	11	16	25	35	60
August	11	11	13	15	25	40
September	11	11	13	15	25	40
MIDDLE YUBA RIVER - BELOW MILTON MAIN DIVERSION DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11408550)						
October	4	6	6	10	10	15
November	4	6	6	10	10	10 or 15 ¹
December	4	6	6	10	10	10 or 15 ¹
January	4	6	6	10	10	10 or 15 ¹
February	4	6	6	10	15	15
March	4	6	6	20	25	30
April	6	10	15	30	35	40
May ^{2,3}	6	20	30	50	60	70
June	6	15	20	30	35	40
July	4	6	10	15	20	20
August	4	6	6	10	15	15
September	4	6	6	10	15	15
¹ Refer to Condition No. 29 regarding adjustment of Minimum Streamflows below Milton Diversion Dam in November, December and January of Wet WYs. ² Refer to Condition No. 29 regarding Milton Diversion Dam spill cessation schedule. ³ Refer to Condition No. 29 regarding Milton Diversion Dam recreation streamflow events.						
WILSON CREEK – BELOW WILSON CREEK DIVERSION DAM (COMPLIANCE POINT: ACT OF SETTING OUTLET WORKS)⁴						
October	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}
November	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}
December	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}
January	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}
February	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}
March	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}
April	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}
May	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}
June	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}
July	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}
August	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}
September	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}	0.25 or NF ^{4,5}
⁴ Refer to YB-AQR1, Part 5, regarding setting of the Wilson Creek Diversion Dam outlet works as the act of compliance. ⁵ NF means natural flow. The Minimum Streamflow requirement below Wilson Creek Diversion Dam shall be 0.25 cfs or the natural flow at the dam, whichever is less.						

Minimum Streamflows¹ in cubic feet per second (cfs)

Mouth	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
JACKSON CREEK – BELOW JACKSON DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11414700)						
October	0.5	0.5	0.75	0.75	1	2
November	0.5	0.5	0.75	0.75	0.75	0.75
December	0.5	0.5	0.75	0.75	0.75	0.75
January	0.5	0.5	0.75	0.75	0.75	0.75
February	0.5	0.5	0.75	0.75	0.75	0.75
March	0.5	0.5	0.75	0.75	0.75	0.75
April	0.5	0.5	0.75	0.75	0.75	0.75
May	0.5	0.5	0.75	0.75	0.75	0.75
June	0.5	0.5	1	1	2	3
July	0.5	0.5	0.75	0.75	1	2
August	0.5	0.5	0.75	0.75	1	2
September	0.5	0.5	0.75	0.75	1	2
CANYON CREEK – BELOW FRENCH DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11414410)						
October	5	5	6	9	9	9
November	5	5	6	9	9	9
December	5	5	6	9	9	9
January	5	5	6	9	9	9
February	5	5	6	9	14	18
March	5	5	6	9	14	18
April	5	5	6	9	14	18
May	5	5	6	9	14	18
June	5	5	6	9	14	18
July	5	5	6	9	14	18
August	5	5	6	9	14	18
September	5	5	6	9	14	18
CANYON CREEK – BELOW FAUCHERIE DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11414450)						
October	5	5	6	9	9	9
November	5	5	6	9	9	9
December	5	5	6	9	9	9
January	5	5	6	9	9	9
February	5	5	6	9	14	18
March	5	5	6	9	14	18
April	5	5	6	9	14	18
May	5	5	6	9	14	18
June	5	5	6	9	14	18
July	5	5	6	9	14	18
August	5	5	6	9	14	18
September	5	5	6	9	14	18
CANYON CREEK – BELOW SAWMILL DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11414470)						
October	5	5	6	9	14	18
November	5	5	6	9	14	18
December	5	5	6	9	14	18
January	5	5	6	9	14	18
February	5	5	6	9	14	18

Minimum Streamflows¹ in cubic feet per second (cfs)

Mouth	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
March	5	5	6	9	14	18
April	5	5	6	9	14	18
May	5	5	6	9	14	18
June	5	5	6	9	14	18
July	5	5	6	9	14	18
August	5	5	6	9	14	18
September	5	5	6	9	14	18
CANYON CREEK – BELOW BOWMAN DAM						
There is no Minimum Streamflow release requirement for Bowman Dam						
CANYON CREEK – BELOW BOWMAN-SPAULDING DIVERSION DAM (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11416500)						
October	4	6	10	10	10	15
November	4	6	10	10	10	15
December	4	6	10	10	10	15
January	4	6	10	10	10	15 or 20 ⁶
February	4	6	10	15	20	25
March	4	6	10	15	20	25
April	6	13	15	30	35	40
May ^{7, 8}	6	15	20	40	50	60
June	6	13	15	30	35	40
July	4	10	15	15	25	30
August	4	10	15	15	20	20
September	4	10	15	15	20	20
⁶ Refer to Condition No. 29 regarding adjustment of Minimum Streamflows requirement below the Bowman-Spaulling Diversion Dam in January of Wet WYs. ⁷ Refer to Condition No. 31 regarding Bowman Dam spill cessation schedule. ⁸ Refer to Condition No. 31 regarding Bowman-Spaulling Diversion Dam recreation streamflow event.						
TEXAS CREEK – BELOW TEXAS CREEK DIVERSION DAM⁹ (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	0.6	1	1	2	3	3
November	0.6	1	1	2	3	3
December	0.6	1	1	2	3	3
January	0.6	1	1	2	3	3
February	0.6	1	1	2	3	3
March	0.6	1	1	2	3	3
April	0.6	1	1	2	3	3
May	0.6	1	1	2	3	3
June	0.6	1	1	2	3	3
July	0.6	1	1	2	3	3
August	0.6	1	1	2	3	3
September	0.6	1	1	2	3	3
⁹ Refer to Condition No. 28 regarding Minimum Streamflows during Bowman-Spaulling Conduit outages.						
CLEAR CREEK – BELOW BOWMAN-SPAULDING DIVERSION CONDUIT¹⁰ (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	1	1	1	1	2	2
November	1	1	1	1	2	2
December	1	1	1	1	2	2
January	1	1	1	1	2	2
February	1	1	1	1	2	2
March	1	1	1	1	2	2

Minimum Streamflows¹ in cubic feet per second (cfs)

Mouth	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
April	1	1	1	2	3	3
May	1	1	1	2	4	6
June	1	1	1	2	3	3
July	1	1	1	1	2	2
August	1	1	1	1	2	2
September	1	1	1	1	2	2

¹⁰Refer to Condition No. 28 regarding Minimum Streamflows during Bowman-Spaulling Conduit outages.

FALL CREEK – BELOW FALL CREEK DIVERSION DAM (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	2 ¹¹	2 ¹¹	2 ¹¹	4 ¹¹	6 ¹¹	8 ¹¹
November	2 ¹¹	2 ¹¹	2 ¹¹	4 ¹¹	6 ¹¹	8 ¹¹
December	2 ¹¹	2 ¹¹	2 ¹¹	4 ¹¹	6 ¹¹	8 ¹¹
January	2 ¹¹	2 ¹¹	2 ¹¹	4 ¹¹	6 ¹¹	8 ¹¹
February	2 ¹¹	2 ¹¹	2 ¹¹	4 ¹¹	6 ¹¹	8 ¹¹
March	2 ¹¹	2 ¹¹	2 ¹¹	8 ¹¹	10 ¹¹	10 ¹¹
April	10 ¹¹	10 ¹¹	10 ¹¹	15 ¹¹	20 ¹¹	20 ¹¹
May	12.5 ¹¹	12.5 ¹¹	15 ¹¹	20 ¹¹	30 ¹¹	30 ¹¹
June	4 ¹¹	4 ¹¹	10 ¹¹	15 ¹¹	20 ¹¹	25 ¹¹
July	2 ¹¹	2 ¹¹	2 ¹¹	6 ¹¹	8 ¹¹	10 ¹¹
August	2 ¹¹	2 ¹¹	2 ¹¹	6 ¹¹	6 ¹¹	8 ¹¹
September	2 ¹¹	2 ¹¹	2 ¹¹	6 ¹¹	6 ¹¹	8 ¹¹

¹¹The Minimum Streamflow shall be the flow specified in the table above or inflow, whichever is less.

TRAP CREEK – BELOW BOWMAN-SPAULDING DIVERSION CONDUIT¹² (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	0.25	0.25	0.5	0.5	1	1.5
November	0.25	0.25	0.5	0.5	1	1.5
December	0.25	0.25	0.5	0.5	1	1.5
January	0.25	0.25	0.5	0.5	1	1.5
February	0.25	0.25	0.5	0.5	1	1.5
March	0.25	0.25	0.5	1	1.5	1.5
April	0.25	0.75	0.75	2	3	3
May	0.25	0.75	0.75	3	3	3
June	0.25	0.75	0.75	2	3	3
July	0.25	0.25	0.5	0.5	1	1.5
August	0.25	0.25	0.5	0.5	1	1.5
September	0.25	0.25	0.5	0.5	1	1.5

¹²Refer to Condition No. 28 regarding Minimum Streamflows during Bowman-Spaulling Conduit outages.

RUCKER CREEK – BELOW BOWMAN-SPAULDING DIVERSION CONDUIT¹⁵ (COMPLIANCE POINT: NEW STREAMFLOW GAGE TO BE CONSTRUCTED)						
October	0.3	0.3	0.5	2	2	2
November	0.3	0.3	0.5	2	2	2
December	0.3	0.3	0.5	2	2	2
January	0.3	0.3	0.5	2	2	2
February	0.3	0.3	0.5	2	2	2
March	0.3	0.3	0.5	2	2	2
April	0.3	0.3	0.5	2	2	2
May	0.3	0.3	0.5	2	3	3
June	0.3	0.3	0.5	2	2	2
July	0.3	0.3	0.5	2	2	2

Minimum Streamflows¹ in cubic feet per second (cfs)

Mouth	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
August	0.3	0.3	0.5	2	2	2
September	0.3	0.3	0.5	2	2	2

¹⁵ Refer to Condition No. 28 regarding Minimum Streamflows during Bowman-Spaulding Conduit outages.

Condition No. 28 – Canal Outages

This part of the measure pertains to outages of the Project’s Bowman-Spaulding Diversion Conduit and outages of the Drum-Spaulding Project’s Drum Canal that affect minimum streamflows described in this measure. For the purpose of this part of the measure, there are three types of canal outages: (1) annual planned outages; (2) nonroutine planned outages; and (3) emergency outages. For the purpose of this part: an “annual planned outage” is defined as an outage that is typically taken around the same time each year for routine maintenance; a “non-routine planned outage” is defined as an outage for work that is high priority work (often major maintenance) and performed under planned conditions but is not performed during the annual planned outage period; and an “emergency outage” is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

Bowman-Spaulding Diversion Conduit

During the Annual Meeting (Condition No. 1) Licensee shall inform meeting participants about annual planned outages of the Bowman-Spaulding Conduit, including the anticipated time-frame that the annual planned outages will occur, and any non-routine planned outages that are already planned at the time of the Annual Meeting for the upcoming year. Annual planned outages of the Bowman-Spaulding Conduit are normally, but not always, taken for approximately a 2-week period sometime between mid-June and early July. Licensee shall in good faith provide FS, BLM, CDFW and SWRCB as much notice as is reasonably possible for any annual planned outages or nonroutine planned outages of the conduit that were not noted in the Annual Meeting or that become anticipated to occur at a time that is different than reported in the Annual Meeting. For all annual planned outages and non-routine planned outages, Licensee shall comply with the Canal Fish Rescue Plan (Condition No. 28) as well as all applicable laws and permitting requirements. Licensee shall provide FS, BLM, CDFW and SWRCB notice by electronic mail as soon as reasonably possible, but no later than the end of the next business day (business days do not include weekends and federal or state holidays) after an emergency outage occurs.

The table below provides the minimum streamflows required during the first 30 days of annual planned outages and non-routine planned outages of the Bowman-Spaulding Conduit. In an emergency outage of the Bowman-Spaulding Conduit, Licensee shall make a good faith effort to implement the minimum streamflows in the table below as soon as possible once the emergency

occurs, and shall maintain the minimum streamflows for 30 days or until the emergency outage concludes. If an annual planned outage, non-routine planned outage, or emergency outage is anticipated to extend past 30 days, Licensee shall consult with FS, BLM, CDFW and SWRCB regarding minimum streamflows for the remainder of the outage after the first 30 days, and Licensee shall implement the collaboratively agreed upon minimum streamflows as soon as it is reasonably possible to do so for the remainder of the outage. Licensee shall also file any collaboratively agreed upon changes in minimum streamflows, as identified in the table below, with the Commission.

Minimum streamflow requirements during outages of the Bowman-Spaulling Diversion Conduit.

Stream – Facility	Minimum Streamflow during Annual Planned Outages, Non-Routine Planned Outages and Emergency Outages
Texas Creek – Below Texas Creek Diversion Dam	Flow in Texas Creek downstream of the Texas Creek Diversion Dam shall equal flow in Texas Creek upstream of the Texas Creek Diversion Dam. Licensee shall comply with this requirement by not diverting any water from Texas Creek into the Bowman-Spaulling Conduit during the outage (i.e., monitoring streamflow upstream in Texas Creek upstream of Texas Creek Diversion Dam during the outage shall not be required).
Clear Creek – Below Bowman-Spaulling Diversion Conduit	Flow in Clear Creek below the Bowman-Spaulling Conduit shall equal flow in Clear Creek upstream of the Bowman-Spaulling Conduit. Licensee shall comply with this requirement by not diverting any water from Clear Creek into the Bowman-Spaulling Conduit during the outage (i.e., monitoring of the streamflow in Clear Creek upstream of Bowman-Spaulling Conduit during the outage shall not be required).
Trap Creek – Below Bowman-Spaulling Diversion Conduit	Flow in Trap Creek below the Bowman-Spaulling Conduit shall equal flow in Trap Creek upstream of the Bowman-Spaulling Conduit. Licensee shall comply with this requirement by not diverting any water from Trap Creek into the Bowman-Spaulling Conduit during the outage (i.e., monitoring of the streamflow in Trap Creek upstream of Bowman-Spaulling Conduit during the outage shall not be required).
Rucker Creek – Below Bowman- Spaulding Diversion Conduit	Flow in Rucker Creek below the Bowman-Spaulling Conduit shall equal flow in Rucker Creek upstream of the Bowman-Spaulling Conduit. Licensee shall comply with this requirement by not diverting any water from Rucker Creek into the Bowman-Spaulling Conduit during the outage (i.e., monitoring of the streamflow in Rucker Creek upstream of Bowman-Spaulling Conduit during the outage shall not be required).

Condition No. 29 – Overwintering Minimum Streamflow Adjustments

This part pertains to adjustments in the minimum streamflows described in this measure at Milton Diversion Dam in November, December and January of Wet Water Years and at Bowman-Spaulling Diversion Dam in January of Wet Water Years.

Middle Yuba River Below Milton Diversion Dam

In November, December, and January of Wet water years, the Minimum Streamflow in the Middle Yuba River downstream of Milton Diversion Dam shall be 15 cfs unless the precipitation as measured at Licensee’s weather station at Bowman Lake from the previous July 1 up to but not including the first day of the month is equal to or less than 75 percent of the annual average precipitation for the same period for the most recent 30 years. In that case, the Minimum Streamflow shall be 10 cfs.

Canyon Creek Below Bowman-Spaulding Diversion Dam

In January of Wet water years, the Minimum Streamflow in the Canyon Creek downstream of Bowman-Spaulding Diversion Dam shall be 20 cfs unless the precipitation as measured at Licensee's weather station at Bowman Lake from the previous July 1 up to but not including the first day of the month is equal to or less than 75 percent of the annual average precipitation for the same period for the most recent 30 years. In that case, the Minimum Streamflow shall be 15 cfs.

Condition No. 30 – Wilson Creek Diversion Dam Flow Setting

This part pertains to compliance with the minimum streamflows described in this measure at Wilson Creek Diversion Dam.

Non-Winter Period

Licensee shall, within 90 days of license issuance and except for the "Winter Period" described below, check the outlet works at the Wilson Creek Diversion Dam once each week (i.e., from Sunday to Saturday) and, if needed, re-set the outlet works to make the Minimum Streamflow release for the Wilson Creek Diversion Dam set forth in the Minimum Streamflow table in Condition No. 27. During this time period, Licensee's compliance requirement is the act of setting the outlet works once each week consistent with the minimum streamflows for that month as set forth in the Minimum Streamflow table in Condition No. 27; that is, as long as Licensee has set the outlet works once each week, Licensee shall be deemed to be in compliance with the Wilson Creek Diversion Dam Minimum Streamflow requirements of Condition No. 27.

Winter Period

The Winter Period is defined as the period from no later than November 1 of each year until the following year when Licensee is able to safely access the Wilson Creek Diversion Dam. Within 90 days of license issuance, during each Winter Period Licensee shall by no later than November 1 set the outlet works at Wilson Creek Diversion Dam to make the Minimum Streamflow release for the Wilson Creek Diversion Dam set forth in Table 2 of this measure. Licensee shall not be required to re-set the outlet works until the end of the Winter Period, at which time Licensee shall set the outlet works for the flow release for that month as set forth in the Water Year Type table in Condition No. 26.

During the Winter Period, Licensee's license compliance requirement is the act of setting the outlet works no later than November 1; that is, as long as Licensee has set the outlet works, Licensee shall be deemed to be in compliance with the Wilson Creek Diversion Dam Minimum Streamflow requirements of this measure for the Winter Period.

Condition No. 31 – Spill Cessation Measures

This part pertains to spill cessation and operations at Middle Yuba River below Milton Diversion Dam, Canyon Creek below Bowman-Spaulding Diversion Dam, and Bear River below Dutch Flat Afterbay Dam.

Licensee shall make a good faith effort to provide the target flows, measured as mean daily flow, within 10 percent of the target flows shown in Tables 1 and 2 of this condition. However, it is recognized that some conditions (e.g., storm conditions) may result in flows outside Licensee's ability to control. The target flows are targets only, and as long as Licensee shall make a good faith effort to meet the target flows, failure to meet the target flows shall not be considered a violation of this part of the measure. The requirements in this part are not subject to a ramping rate. Licensee shall make available to SWRCB, CDFW, FS, and BLM the streamflow records related to the spill cessation schedules upon request.

In years where a spill cessation schedule is implemented, for the period of time from the end of the spill cessation schedule in Tables 4, 5, 6, and 7 through September 30, with the exception of emergencies or when otherwise required by law or directed by regulatory agencies, Licensee shall make a good faith effort to not make releases from Milton Diversion Dam and Bowman-Spaulding Diversion Dam that result in short-term, high flow fluctuations defined as a 100 percent or greater increase in a 12-hour period in the river downstream of the dam. In non-spill cessation years, Licensee shall make a good faith effort to not make releases from Milton Diversion Dam and Bowman-Spaulding Diversion Dam that result in short-term, high flow fluctuations as defined above in the river downstream of the dam from May 1 through September 30.

This measure does not apply in instances when Licensee is directed by the Commission or California Division of Safety of Dams to test (i.e., exercise) valves at Milton Diversion and Bowman-Spaulding Diversion dams (i.e., quickly open and close the valve). Licensee will make a good faith effort to schedule such inspections or outlet testing after September of each calendar year to avoid negative effects on aquatic species.

The dam spill cessation schedule requirements in this part are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. If Licensee temporarily modifies the requirements of this condition, Licensee shall make all reasonable efforts to promptly resume performance of the requirements and shall notify BLM, FS, SWRCB, and CDFW within 48 hours of the modification.

Licensee shall commence the dam spill cessation schedules in this part within 90 days of license issuance unless a facility modification or construction is required. Where a facility must be

modified or constructed to allow compliance with the required spill cessation schedule, including flow measurement facilities, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facilities as soon as reasonably practicable but no later than 2 years after license issuance and will complete the work as soon as reasonably practicable but no later than 2 years after receiving all required permits and approvals for the work. During the period before facility modifications or construction are completed, and starting within 90 days after license issuance, Licensee shall make a good faith effort to provide the specified spill cessation schedules within the reasonable capabilities of the existing facilities.

Middle Yuba River Below Milton Diversion Dam

Licensee shall adhere to the Middle Yuba River below Milton Diversion Dam spill cessation schedule described in Table 1 of this condition after May 1 of each calendar year, or as soon as Licensee closes the Jackson Meadows Dam spill gates, whichever comes later. The first five days of this schedule (at 300 cfs) also provide flows for recreational whitewater boating. The spill cessation schedule is intended to be connected to the recreational whitewater boating days such that the spill cessation schedule is implemented immediately following the recreational whitewater boating flows.

Table 1. Spill cessation schedule in the Middle Yuba River downstream of Milton Diversion Dam after May 1. If the peak of the spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of spill flow is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the spill cessation schedule continuing until Target Flows are 50 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11408550
6 Days	300 cfs
3 Days	225 cfs
3 Days	150 cfs
3 Days	100 cfs
3 Days	80 cfs
2 Days	60 cfs
2 Days	50 cfs

Canyon Creek Below Bowman-Spaulling Diversion Dam

Licensee shall adhere to the Canyon Creek spill cessation schedule described in Table 2 of this measure after April 1 of each calendar year. This condition is intended to provide recreational whitewater boating flows during the spill cessation schedule, such that the spill cessation schedule is implemented immediately following whitewater boating flows.

Table 2. Spill cessation schedule in the Canyon Creek downstream of the Bowman- Spaulding Diversion Dam after April 1. If the peak of the spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of spill flow is less than the highest flow on the schedule, then the spill flows will be decreased according to the

schedule from the observed flow downward. While the table shows the spill cessation schedule continuing until Target Flows are 45 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in this measure; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Target Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11408550
1 Day	275 cfs
1 Day	230 cfs
1 Day	200 cfs
2 Days	160 cfs
2 Days	130 cfs
2 Days	100 cfs
2 Days	85 cfs
3 Days	70 cfs
3 Days	55 cfs
4 Days	45 cfs

Condition No. 32 – Mitigation for Entrainment

Licensee shall, within 1 year of license issuance, develop a Fish Entrainment Protection Plan (Plan) for a fish screen for rainbow trout fry at or near the Milton-Bowman Diversion Dam on the Middle Yuba River in consultation with FS, CDFW, SWRCB, and file the plan, which has been approved by FS, with the Commission for approval. The Plan shall include evidence of consultation with USDI Fish and Wildlife Service and USDOC National Marine Fisheries Service. The overall objective of the plan is to reduce mortality of all life stages of resident rainbow trout due to the entrainment and impingement at the Milton-Bowman Diversion Conduit intake. Specific entrainment objectives will be developed as part of the plan in consultation with CDFW, SWRCB, and Licensee. The Plan shall specify that Licensee shall construct and maintain a retractable cylindrical fish screen system to be installed in the Milton Diversion Impoundment in front of the existing Milton-Bowman Conduit Intake, unless a different system is otherwise agreed to during development of the Plan.

The Plan shall include but not be limited to the following:

- Local, state, and Federal permitting requirements.
- Fish screen design information
- Schedule for implementing the construction elements of the Plan.
- Estimated costs.
- Consultation with FS, CDFW, and SWRCB during the planning, permitting, and construction phases of the Plan.

Schedule

Licensee shall submit applications for permits and appropriate approvals to modify or construct the facilities described in the Plan within 1 year of the Commission’s approval of the Plan, and will complete the work as soon as reasonably practicable but no later than 2 years after receiving all required permits and approvals for the work or as otherwise designated by the Commission.

Licensee shall provide annual Progress Reports(due December 31 of each year after the Commission's approval of the Plan),, which detail the annual progress of implementing the Plan, and a Final Report(which would include design validation), upon completion of all fish screening facilities in the Plan, to FS, CDFW, and State Water Board and file these annual and final reports with the Commission.

Fish Screen Design

The design of the fish screening facilities in the Plan should allow for a design flow (Design Flow) of 170 cfs.

The fish screen should be designed using as guidelines the Environmental and Operational Objectives and Design Criteria identified below and as found in "CDFW Fish Screening Criteria" (CDFG 2000).

The fish screen design objectives are:

- Reduce entrainment of all life-stages of trout from the Middle Yuba River (at Milton-Bowman Diversion Conduit intake) into the Project's conduit system to less than significant levels.
- No reduction in reliability or hydraulic or electrical capacity of the Project's Powerhouses.
- No reduction in NID's existing SWRCB licensed and permitted water rights on the Middle Yuba River.
- Ensure consistency with providing the streamflow requirements in the Middle Yuba River, downstream of Milton Diversion Dam as described in Condition No. 27, Minimum Streamflows.
- Provide for automated cleaning of the fish screens to avoid clogging.
- Provide for removal of fish screen(s) during winter icing conditions from October 31 through April 1. The screens may be removed as early as November 1 of each year until the following year when Licensee is able to safely access the Milton-Bowman Conduit intake area.
- In the event that either fish screen becomes clogged, provide for continued flow in the
- Project's conduit system to maintain the operational reliability of the Project's
- Powerhouses and avoid large, rapid fluctuations in stream flows below the Milton-Bowman Diversion Conduit intake.
- Allow flexibility to determine fish screen maintenance and outage schedule after obtaining operating experience.
- Allow removal or opening of fish screen during periods of high levels of potentially screen-clogging debris.
- Provide for opening of fish screen to assure continued flow in the Project's conduit system in the event the fish screen becomes clogged with debris.
- Design Flow Capacity: Fish screen flow capacity is based on screening a flow of 170 cfs.
- Approach Velocity (Fry Criteria - < 2.36 inches or < 60 millimeters (mm) in length): Reservoir: 0.33 fps (measured 3 inches in front of fish screen).
- Total Submerged Screen Area: Design Flow divided by Approach Velocity.

- Fish Screen Openings (Fry Criteria):
 - Screen material should provide a minimum of 27 percent open area.
 - Perforated Plate: Screen openings should not exceed 3/32 inches (2.38 mm), measured in diameter.
 - Woven Wire: Screen openings should not exceed 3/32 inches (2.38 mm), measured diagonally (e.g.: 6-14 mesh).
 - Profile Bar: Screen openings should not exceed 0.0689 inches (1.75 mm) in width

Condition No. 33–Canal Outages Fish Rescue Plan

Upon the Commission approval, Licensee shall implement the Canal Outages Fish Rescue Plan, filed separately with the Commission (FERC Library Accession No. 201311215034).

Condition No. 34 – Gaging Plan

Upon Commission approval, Licensee shall implement the Gaging Plan, filed separately with the Commission (FERC Library Accession No. 201404115045).

Condition No. 35 – Modifications of 4(e) Conditions after Biological Opinion or Water Quality Certification

FS reserves the right to modify these conditions, if necessary, to respond to any Final Biological Opinion issued for this Project by the National Marine Fisheries Service, United States Fish and Wildlife Service; or any Certification issued for this Project by the State Water Resources Control Board.

Condition No. 36– Modifications of 4(e) Conditions in the Event of Anadromous Fish Re-introduction

FS reserves the right to modify these conditions to respond to any reintroduction of Chinook salmon or steelhead trout listed under the Endangered Species Act to stream reaches through NFS lands where the flow is controlled by this Commission licensed facility.

Condition No. 37 - Aquatic Invasive Species Management and Monitoring Plan

Within one year of license issuance, Licensee shall develop an Aquatic Invasive Species (AIS) Plan that meets applicable State and Federal laws and regulations. The plan shall be approved by FS after consultation with BLM, CDFW, and SWRCB. The applicable State and Federal resource agencies shall be responsible for making the determination as to whether the AIS Plan complies with the State and/or Federal regulations of their respective agencies.

The AIS Plan shall initially address the following AIS: dreissenid mussels (*Dreissena bugensis* and *Dreissena polymorpha*); New Zealand mudsnail (*Potamopyrgus antipodarum*); Eurasian

milfoil (*Myriophyllum spicatum*); Hydrilla (*Hydrilla verticillata*); and Asian clam (*Corbicula fluminea*). However, other AIS may be identified through monitoring.

Additionally, invasive algae (*Didymosphenia geminata*) were found throughout the Project area. If future studies document a safe method of reducing this invasive algae in rivers, Licensee may be asked to implement this task in Project-related locations.

The AIS Plan shall include the following elements:

Public Education Program

The AIS Plan shall include a public education program, including appropriate signage and information pamphlets at designated public boat access sites on Jackson Meadows Reservoir, Milton Diversion Dam impoundment, and Bowman Lake. The AIS Plan shall include appropriate educational signage at boat launch areas at Faucherie Lake, French Lake, and Sawmill Lake. The following shall be addressed:

- Draining water from boat, motor, bilge, live well and bait containers before leaving a water access site.
- Removing visible plants, animals and mud from boat before leaving waterbody.
- Cleaning and drying boats and fishing equipment using California Department of Fish and Wildlife (CDFW) accepted protocols for the prevention of all AIS before entering any waterbody area.
- Disposing of unwanted bait in trash, including earthworms.
- Avoiding the release of plants and animals into a waterbody unless they originally came from that waterbody.

AIS information shall be included on Project websites that provide public information on Project facilities. The public information website will also include information on the amphibian chytrid fungus.

Best Management Practices

The AIS Plan shall specify that Licensee is responsible for developing BMPs for individual Project O&M activities, performed by PG&E and/or its contractors, which activities have the potential to introduce AIS into a Project reservoir, to prevent the spread of AIS, and submitting them to FS, BLM, SWRCB, and CDFW for review at the Annual Consultation Meeting required in the FERC license.

Development of BMPs for Project activities shall include but not be limited to the following:

- List of AIS with potential to be introduced.
- Control or preventive measures for AIS.
- Identification of critical control points in the Project activity sequence at which to prevent the introduction of AIS.
- Any necessary implementation monitoring for potential AIS to ensure BMPs are followed.

- Actions that will be taken if an introduction of AIS is found.

If invasive aquatic species are detected within any reservoir, Licensee will consult with the appropriate agencies and institute an appropriate plan of action.

Monitoring and Reporting

The AIS Plan shall include a specific monitoring program that addresses all reservoirs that have a boat launch, or identified as having boating access, and that follows State and/or Federal laws, regulations, and policies. The following initial monitoring methods shall be discussed in the monitoring section of the AIS Plan, and the plan shall include observations for the species listed in the “Incidental Observations Monitoring” section below.

- Zebra/Quagga Mussel Surface Surveys
- Zebra and Quagga Mussel Veliger Sampling
- Zebra and Quagga Mussel Artificial Substrate Monitoring

Mapping and monitoring results shall be provided to FS, BLM, CDFW, and SWRCB.

Incidental Observations Monitoring

The AIS plan shall include Incidental Observations Monitoring as follows: During AIS and other license-related aquatic monitoring in project reservoirs and project-affected stream reaches (e.g., fish, foothill yellow-legged frogs (*Rana boylei*), riparian, and geomorphology), Licensee shall record incidental observations of the following species: Quagga or Zebra Mussel, New Zealand Mudsnail, Asian clam, Eurasian milfoil, Hydrilla, *Didyomosphenia geminata* and American bullfrog (*Lithobates catesbeianus*). This initial list may be revised if other potential AIS in project-affected reservoirs and stream reaches are identified. The following practices will be implemented:

- Field personnel performing the license-related aquatic monitoring will be trained in the identification of the species listed above.
- Field crews working in aquatic environments (reservoirs, creeks, or rivers) conducting other biological monitoring will complete a checklist data form at the end of each day indicating the presence/absence (detect/non-detect) of the species listed above. It is recommended that at least one field crew member make a full pass of the survey area each day focusing exclusively on the species on the checklist.

Plan Revisions

Licensee, in consultation with FS, CDFW, SWRCB, and BLM shall review, update, and/or revise the AIS Plan, as determined necessary by FS in consultation with CDFW, SWRCB and BLM, when substantial changes in the existing conditions occur. Additional monitoring may be part of any plan revisions. Changes or revisions to the Plan would be expected if AIS conditions change as a result of unforeseen effects, either from new or existing Project-related activities, the potential for new AIS to occur, or from natural events or if other regulatory or legal requirements

are established. Changes in the existing conditions could include such things as new methods for the treatment of *Didymosphenia geminata*. Licensee shall include all relevant documentation of coordination/consultation with the updated Plan filed with the Commission.

Condition No. 38 – Vegetation and Non-Native Invasive Plant Management Plan

Upon the Commission approval, Licensee shall implement the Integrated Vegetation Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215040).

Condition No. 39 – Monitor Animal Losses in Project Canals

Beginning in the first full calendar year after license issuance, Licensee shall record animal losses in all Project canals. Specifically, Licensee's operators shall record in log books all dead animals observed on canal trash racks and otherwise in the canals using the Wildlife Mortality data sheets found in Appendix 4-2A of the Wildlife Movement Technical Memorandum (4-2) included in Appendix E12 of Licensee's application for new license. Licensee shall make a good faith effort to record the location of the dead animal (i.e. which Project canal, where in the canal the dead animal was found, and the associated structure), species, date and time of the observation, suspected cause of death if it can be determined from visual observation only, photograph if available, estimated size, estimated age, and sex if known, and other pertinent information. The information will include the cumulative years and preceding year's mortality by canal segment, and a map showing segments (defined by location of trash racks). Licensee shall provide this information to CDFW, FS, and BLM at least 60 days prior to the annual consultation meeting described in Condition No. 1.

Licensee shall consult with FS, BLM, and CDFW and other interested parties during the annual consultation meeting, regarding the protection and utilization of the wildlife resources affected by the Project. If there is an increasing trend in animal mortalities in a canal, additional measures to address suspected Project-related causes for that canal may be developed by Licensee in consultation with CDFW, FS, and BLM. The Licensee shall prepare a report that includes the Licensee's recommendations for measures to address animal mortalities, and a schedule of implementation. Licensee shall provide the report to FS, BLM, and CDFW, as appropriate, for review and approval. The Licensee shall file the report, including evidence of consultation, with the Commission, and shall implement those resource management measures required by the Commission.

Condition No. 40 – Replacement of Wildlife Escape and Wildlife Crossing Facilities

Prior to replacing or retrofitting existing wildlife escape facilities and wildlife crossings along Project canals, Licensee shall consult with CDFW regarding specifications and design and with FS, as appropriate. Licensee shall file the design, including evidence of consultation, with the Commission within 60 days after the wildlife escape facility or wildlife crossing facility has been replaced or retrofitted. Licensee shall also assess existing wildlife escape facilities and wildlife

crossing facilities annually to ensure they are functional and in proper working order. Inspections shall occur at the same time other types of maintenance activities or canal assessments are being conducted.

Condition No. 41 – Wildlife Crossings—Bowman-Spaulling Canal

Wildlife Crossing Plan

Upon license issuance, Licensee shall maintain the following crossings (cross-referenced as GPSID in the metadata for Technical Memo 4-2 Wildlife Movement) in a functional condition for wildlife use: YDWMBS023/FS ID Point 143 within Section 30, T18N, R12E (Canal mile 5.8, UTM 10N 699846E, 4363875N) and YDWMBS056/FS ID Point 147 located within Section 7, T17N, R12E (Canal mile 1.5 UTM 10N 700073E, 4359312N). Licensee shall also maintain the following crossing, once it is constructed, which will be located in the vicinity of the following existing crossing: YDWMBS037/FS ID Point 144 within the NE ¼ of Section 1, T17N, R11E (Canal mile 3.5, UTM 10N 699550E 4360760N). Licensee will not be required to remove or maintain the existing crossing at Point 144.

These three structures shall be identified as Licensee-maintained wildlife crossings and georeferenced in a map and provided to FS, BLM, and CDFW.

Monitoring

- At the Annual Consultation Meeting required in Condition 1, Consultation, Licensee will provide a written report on each crossing's condition, maintenance, and repair activities.
- When crossings are retrofitted (i.e., change in design or material) or newly constructed, Licensee shall conduct camera monitoring for 1 year to determine if adjustments, which may include fencing, are needed if determined necessary by FS, BLM and CDFW. If monitoring shows that a new design or material is effective, Licensee may request at the Annual Consultation Meeting required in Condition 1, Consultation, that monitoring be waived at crossing or fencing locations where the new design or material is implemented. Such monitoring may be waived if approved by FS, BLM, and CDFW.
- Additional monitoring may be required as determined necessary by FS, BLM and CDFW.
- Ten years following license issuance, and every 10 years thereafter, Licensee shall arrange a meeting with FS, BLM, and CDFW, to review the location and design of Licensee-maintained crossings and natural landscape features that provide wildlife passage across Licensee's conduits, in context with changes in land use patterns, human development, and road improvements or decommissioning, that may affect wildlife use of crossings. If FS, BLM, and CDFW determine that the existing crossings are not adequate based on this review, Licensee shall develop plans to address additional needs for crossings, exclosures, and escape structures. The final plans shall be submitted to the Commission for approval.

Condition No. 42 – Bald Eagle Management Plan

Upon Commission approval, Licensee shall implement the Bald Eagle Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215033).

Condition No. 43 – Special Status Species

Before taking actions to construct new project features on NFS lands that may affect FS special status species or their critical habitat on NFS land, Licensee shall prepare and submit a biological evaluation (BE) for FS approval. The BE shall evaluate the potential impact of the action on the species or its habitat. FS may require mitigation measures for the protection of the affected species on NFS land.

The BE shall:

- Include procedures to minimize or avoid adverse effects to special status species.
- Ensure project-related activities shall meet restrictions included in site management plans for special status species.
- Develop implementation and effectiveness monitoring of measures taken or employed to reduce effects to special status species.

Condition No. 44 – Annual Review of Special-Status Species Lists and Assessment of New Species on Federal Land

Licensee shall, beginning the first full calendar year after license issuance, in consultation with FS annually review the current lists of special status species (species that are Federally Endangered or Threatened, Proposed Threatened or Endangered, FS Sensitive, or Tahoe National Forest Watch Lists, State Threatened or Endangered, State Species of Special Concern, and CDFW Fully Protected) that might occur on National Forest System lands, as appropriate, in the Project area that may be directly affected by Project operations. When a species is added to one or more of the lists, FS, , in consultation with Licensee shall determine if the species or unsurveyed suitable habitat for the species is likely to occur on such NFS lands, as appropriate. For such newly added species, if FS determines that the species is likely to occur on such NFS lands, Licensee shall develop and implement a study plan in consultation with FS to reasonably assess the effects of the project on the species. Licensee shall prepare a report on the study including objectives, methods, results, recommended resource measures where appropriate, and a schedule of implementation, and shall provide a draft of the final report to FS for review and approval. Licensee shall file the report, including evidence of consultation, with the Commission and shall implement those resource management measures required by the Commission.

If new occurrences of FS special status plant or wildlife species as defined above are detected prior to or during ongoing construction, operation, or maintenance of the Project or during Project operations, Licensee shall immediately notify FS. If FS determines that the Project-related activities are adversely affecting FS sensitive or watch list species, Licensee shall, in consultation with FS, develop and implement appropriate protection measures

If new occurrences of state or federally listed or proposed threatened or endangered species are detected prior to or during ongoing construction, operation, or maintenance of the Project or during Project operations, Licensee shall immediately notify FS and the relevant Service Agency (United States Fish and Wildlife Service or National Marine Fisheries Service or CDFW) for

consultation or conference in accordance with the Endangered Species Act. If state listed or fully protected species are affected, CDFW shall be notified.

Condition No. 45– Project Powerlines

Raptor-safe powerline design configurations described in Avian Protection on Powerline Interaction Committee’s (APLIC) “Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006), or the most current edition of this APLIC document, will be used as a guideline for all new powerlines or when replacement of existing poles, phase conductors, and associated equipment is required.

If raptor monitoring performed as Condition No. 46 (Raptor Collisions) indicates a substantial raptor-Project transmission line interaction issue, the poles where the interaction issue occurs on NFS Land will be replaced or retrofitted, as agreed to via consultation with FWS, FS, and CDFW.

Condition No. 46 – Raptor Collisions

Licensee shall, beginning in the first full calendar year after license issuance, record annually all incidental observations by Licensee’s operations staff of bird collisions/electrocutions at the Bowman-Spaulding Transmission Line. The reported incidental observations shall include the following information:

- Date of observation.
- Location of observation (i.e., nearest pole number).
- Species, if identifiable.
- Number of birds.
- Condition of bird(s) (i.e., dead or injured).
- Suspected cause of injury or death (i.e., electrocution or collision).
- Was the bird banded and, if so, band number.

Licensee shall provide this information for each year to FS, FWS, and CDFW at least 60 days prior to the Annual Meeting (Condition No. 1).

Condition No. 47 - Bat Management

In the first full calendar year after license issuance, Licensee shall document all known bat roosts within Project buildings (e.g., powerhouses, storage buildings, valve houses), dams, or other structures that may be used as a roosting structure. The results of the inspection will be provided to CDFW and FS if the facility is located on NFS lands, at least 90 days prior to the Annual Consultation Meeting (described in Condition No. 1) that follows collection of the information. If bats or signs of roosting are present where staff have a routine presence (i.e., at least daily or weekly), Licensee will attempt, where feasible, and in the calendar year following the annual consultation meeting described above, to place humane exclusion devices to prevent occupation of the structure by bats. Human exclusion devices will be placed when bats are absent from the facility, generally between November 1 and February 28. Prior to installation of the humane

exclusion devices, Licensee shall perform an inspection of the facility to ensure that overwintering bats are not trapped. If overwintering bats are present during the inspection, installation of humane exclusion measures shall be delayed. Licensee shall notify FS of the overwintering bats. Licensee shall consult with the CDFW, FS, or BLM during the Annual Consultation Meeting described in Condition No. 1 to identify future dates that would be suitable for installation of humane exclusion devices. All exclusion devices will be inspected on an annual basis and the facility will be reevaluated for roosting bats every 3 years after the initial exclusion devices are installed to insure that no new roosts or entry points have been established.

Condition No. 48 - Channel Stabilization Plan

Within 1 year of license issuance, Licensee shall complete a stabilization plan to address channel areas location on National Forest System lands identified by the FS that are undergoing resource damage and need stabilization due to Project operations. The plan shall be approved by FS and shall be implemented upon approval by the Commission. The plan shall include the following locations, at a minimum: Clear Creek, Trap Creek, and Christmas Tree Wasteway.

Condition No. 49 –Canal Release Point Plan

Upon Commission approval, Licensee shall implement the Canal Release Point Plan, filed separately with the Commission (FERC Library Accession No. 201404115041).

Condition No. 50 – Erosion and Sediment Control and Management

Upon Commission approval, Licensee shall implement the Erosion and Sediment Control Management Plan, filed separately with the Commission (FERC Library Accession No. 201404115283).

Condition No. 51 – Monitoring Program

Licensee shall implement a Monitoring Program after license issuance and until a new license is issued, in coordination with FS, BLM, CDFW, and SWRCB. The years in which each resource is monitored are identified in each specific monitoring element of the Monitoring Program. For purposes of the Monitoring Program, each year is defined on a calendar year basis (January through December).

The Monitoring Program has been designed to monitor those items that will assist in determining if the resource objectives described in the Rationale Reports previously filed with the Commission by FS and BLM as a supporting document (not part of a license condition) are being met. Within the scope of the specified Monitoring Program, FS, BLM, CDFW, and SWRCB may select an equal number of alternative years to ensure that surveys occur during a range of water year types if the same number of alternative years are deleted from the current Monitoring Program schedule, and the resource agencies provide to Licensee adequate notice for Licensee to schedule and perform the work. FS, CDFW, BLM, and SWRCB, after consultation with Licensee, have the flexibility to alter the Monitoring Program methodologies and frequencies of data collection if it is determined that: (a) there is a more appropriate or preferable

methodology or site to use than that described in the monitoring plan or (b) monitoring may be reduced or terminated because the relevant ecological resource objective has been met or no change in resource response is expected. Any alterations will be filed with the Commission.

Licensee will provide a draft Annual Report to FS, BLM, CDFW, and SWRCB and other parties who submit a written request for a copy of the draft report for a 30-day comment period. The draft Annual Report shall fully describe the monitoring efforts required in FS Condition No. 51 as well as monitoring results of the previous calendar year. The Annual Report shall also document all non-compliance events/variances from the license conditions. Although specific reporting and consultation is required in specific monitoring elements in Condition No. 51, no other Annual Reports for this condition are required. At least 30 days prior to the Annual Consultation meeting, Licensee shall file with the Commission the final Annual Report. Comments shall be addressed in the final report, or as appropriate, comments shall be included with the filing to the Commission. Licensee shall provide copies of the Annual Report to FS, CDFW, BLM, and SWRCB. Every 5 years, Licensee shall provide in the Annual Report a summary report of the monitoring results of the previous 5-year period.

The following guidelines shall be used in implementing the monitoring program: (a) monitoring and studies shall be relevant to the Project, (b) monitoring and studies shall be conducted such that they provide useful information for management decisions or establishing compliance with license conditions, and (c) monitoring and studies shall be as cost-effective as possible.

Fish Populations

Upon Commission approval, Licensee shall implement the Fish Populations Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201311215037).

Foothill Yellow-Legged Frog

Upon Commission approval, Licensee shall implement the Foothill Yellow-legged Frog Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201311215092).

Western Pond Turtle Incidental Observations

Licensee shall perform incidental observations for Western Pond Turtle as follows:

- Crews shall be trained on identification of Western Pond Turtle.
- Incidental sightings of Western Pond Turtles during all monitoring field work in rivers and lakes/reservoirs shall be recorded.
- Data shall include location, GPS if available, or location shown on USGS map.
- A written report (including location data) shall be compiled annually and provided at Annual Consultation meeting.
- The report shall be filed with the Commission.

Channel Morphology

Upon Commission approval, Licensee shall implement the Channel Morphology Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201311215035).

Water Temperature and Stage

Upon Commission approval, Licensee shall implement the Water Temperature and Stage Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201404115044).

Aquatic Benthic Macroinvertebrates

Licensee shall, within 1 year following license issuance, develop and file with the Commission an Aquatic Macroinvertebrate Monitoring Plan that has been approved by FS, BLM, CDFW, and SWRCB. The licensee shall implement the plan upon approval.

Method: Surface Water Ambient Monitoring Program (SWAMP) at a minimum of eight stream temperature stations as designated below, as soon as weather and flow conditions allow safe installation of these devices. Determination of final monitoring site locations shall be made by FS, BLM, CDFW, and SWRCB.

At a minimum, the temperature plan shall include the following locations:

- Middle Yuba River: Three sites co-located with fish sampling sites.
- Canyon Creek: One site co-located with fish sampling site.
- Texas Creek (below Bowman-Spaulding Canal): One site at original sampling site.
- Clear Creek: One site to be identified after stabilization.
- Trap Creek: One site to be identified after stabilization.

Frequency:

Annual Fish Sites: Once in each water year type for first 10 years, or upon the first occurrence of a water year type, and then follow Fish Population Monitoring Plan schedule.

All Other Sites: Same frequency as Fish Population Monitoring Plan schedule for that site.

Data Analysis and Reporting: The plan shall describe data analysis and reporting methods.

Riparian Vegetation

Upon Commission approval, Licensee shall implement the Revised Riparian Vegetation Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201404115043). Please note that the Riparian Vegetation Monitoring Plan includes both FS and BLM lands. FS recommends that the BLM locations be included by the Commission as part of the Riparian Vegetation Plan.

Condition No. 52– Large Woody Material

Licensee shall ensure, provided conditions permit safe and reasonable access and working conditions, mobile instream large woody material (LWM) continues downstream beyond Jackson Meadows Dam, Milton Diversion Dam, Sawmill Dam, French Dam, Faucherie Dam and Bowman Dam. Licensee shall make a good faith effort to pass all LWM past project impoundments.

At Jackson Meadows Dam, at a minimum, all sizes greater than 8 inches in diameter and less than 14 feet in length shall be allowed to continue downstream beyond the dam. If the LWM is greater than 8 inches in diameter, but longer than 14 feet, LWM shall be safely cut to approximately 14 feet and allowed to continue downstream. Smaller sized LWM will also be allowed to be moved beyond the dam.

At Milton Diversion Dam, Sawmill Dam, French Dam and Faucherie Dam, at a minimum, all sizes greater than 8 inches in diameter and less than 36 feet in length shall be allowed to continue downstream beyond the dams. If the LWM is greater than 8 inches in diameter, but longer than 36 feet, LWM shall be safely cut to approximately 36 feet and allowed to continue downstream. Smaller sized LWM will also be allowed to be moved beyond the dams.

At Bowman Dam, at a minimum, all sizes greater than 8 inches in diameter and less than 4 feet in length shall be allowed to continue downstream beyond the dam. If the LWM is greater than 8 inches in diameter, but longer than 4 feet, LWM shall be safely cut to approximately 4 feet and allowed to continue downstream. Smaller sized LWM will also be allowed to be moved beyond the dam.

At each of the above dams, if Licensee determines that a root wad would not present a risk to the safety of the dam, the root wad will be allowed to continue downstream beyond the dam.

Notwithstanding this requirement, if the Commission or the California Division of Safety of Dams requires Licensee remove large woody material from the dams or dam spillways, Licensee shall do so.

Condition No. 53 - Facility Occupancy Indicators and Standards

Facility indicators focus on occupancy rates at developed Project recreation facilities, and include groupings of developed family campgrounds, group campgrounds, picnic areas, boat launches, parking areas, and primitive camping areas. A facility's occupancy rate is calculated by dividing the number of occupied sites by the number of sites at the facility (only when a facility is open), and is expressed as a percentage from 0-to-100. Overflow use is not included in the occupancy calculation of a recreation facility.

The Project's proposed facility occupancy standards combine the occupancy of groups of similar types of recreation facilities (i.e. family campgrounds, picnic areas.) that are relatively close in proximity and, from a user's perspective, are generally interchangeable recreation facilities (i.e.

reasonable substitutes). The proposed standards are identified in Tables 1 and 2, below, the proposed recreation facility groupings are identified in Table 3, below.

When the occupancy standard for the grouping is reached or exceeded, a suitability-feasibility analysis is conducted to determine if, site development is feasible and suitable at one of the Project reservoirs within a facility monitoring grouping or other agreed upon area. If site development is not suitable or feasible, agreed upon actions and policies to manage recreation use levels at the reservoirs will be implemented.

A proposed development will be considered suitable and feasible, if the development is:

- Practical and reasonable based on the site conditions;
- Appropriate for the ROS Class, regulations, standards and policy; and
- Appropriate for the level of use desired based on direction by applicable land and resource management plans, including revisions or amendments to land management plans.

On NFS land, FS will make the final determination as to whether a proposed development is considered suitable and feasible. Once a new or expanded development is deemed suitable and feasible, the recreation improvement planning process will begin.

Examples actions and policies to manage recreation use levels that will be implemented when development is not suitable or feasible, include:

- Educating visitors about other regional day-use areas and campgrounds.
- Implementing more on-site management.
- Implementing a fee for use.

Implementation of these management actions or policies could also be used to alleviate management issues that often arise as occupancy levels near full capacity.

Table 1. Monitoring indicators, data collection methods, standards (triggers) and management actions for Project hosted and/or reservation campgrounds.

Hosted and/or Reservation Campgrounds	
Indicator Season	June 15 through August 15
Indicator Occupancy	Average indicator season occupancy for non-holiday weekends (Fri/Sat) combined for a trigger grouping (Table 4.1-3)
Indicator Conditions	<ul style="list-style-type: none"> • The single highest and lowest occupancy during the indicator season will be omitted from the trigger calculation to minimize the influence of anomalous days (i.e. bad weather, events, etc.). For a typical year, this will result in 14 days for the trigger calculation. • If the indicator season results in less than 10 days to calculate the indicator season combined average occupancy, then this year will not be considered for trigger monitoring purposes. • The occupancy will only be calculated for days when the facility is open during the indicator season. • Campground host sites are exempt from this indicator season combined average occupancy calculation. • Occupancy data will be collected annually.
Data Collection Methods	<ul style="list-style-type: none"> • <u>Family Campgrounds</u>: daily occupancy collected by host/caretaker combined with reservation records, if applicable, or other agreed upon methods. • <u>Group Campgrounds</u>: daily paid reservation records. • Any unoccupied, but reserved site will be considered “occupied” for the trigger calculation.
Trigger Threshold	90% or above indicator occupancy is reached in any 3 years out of a 6-year rolling period. (Do not have to wait for a complete 6 years if the trigger is met sooner) at all sites except Jackson Meadows, where the trigger threshold is 95% or above
Actions if Trigger is Met	<ul style="list-style-type: none"> • Required Action 1: Licensee will complete a <i>Suitability-Feasibility Analysis</i> in the calendar year after the year the trigger is met. • Required Action 2: Depending on the results of the <i>Suitability-Feasibility Analysis</i>, Licensee will either: <ul style="list-style-type: none"> ➢ Start the <i>Recreation Improvement Planning</i> process for a new facility (see Section 3.2 of the Plan) if site development is determined to be suitable and feasible (this process will begin immediately after the <i>Suitability-Feasibility Analysis</i> is completed); or, ➢ Develop a strategy (in partnership with the Forest Service on NFS land) to manage recreation use if site development is determined to be unsuitable or infeasible.
Action if Trigger is Not Met	Continue with annual monitoring and data collection.

Table 2. Monitoring indicators, data collection methods, standards (triggers) and management actions for Project self-pay/no-host campgrounds, day use facilities and primitive campsites.

Self-Pay/No Host Campgrounds, Day Use Facilities, and Primitive Campsites	
Indicator Season	June 15 through August 15
Indicator Occupancy	Average indicator season occupancy for non-holiday Saturdays combined for a trigger grouping (Table 4.1-3)
Indicator Conditions	<ul style="list-style-type: none"> • The single highest and lowest indicator occupancy during the indicator season will be omitted from the trigger calculation to minimize the influence of anomalous days (i.e. bad weather, events...). For a typical year, this will result in 6 Saturdays for the indicator occupancy calculation. • If the a indicator season results in less than 6 days to calculate the indicator occupancy for a trigger grouping, then: <ul style="list-style-type: none"> ➢ The monitoring year will be disregarded and monitoring will continue up to 2 more indicator seasons; ➢ If monitoring during two additional indicator seasons still result in less than 6 days to calculate the indicator occupancy, then monitoring will revert back to the 6-year monitoring schedule that is concurrent with the Form 80 monitoring cycle. • The indicator occupancy will only be calculated for days when the facility is open during the indicator season.
PHASE 1 MONITORING	
Data Collection Method	Frequency: on-site observations every 6 th year (concurrent with the Form 80 cycle). Period: during the peak 4-hour period of the day ¹ .
Trigger Threshold	90% or above the indicator occupancy at all sites except Jackson Meadows, where the trigger threshold is 95% or above
Action if Trigger is Met	Required Action: conduct Phase 2 Monitoring (monitoring in the next three consecutive years).
Action if Trigger is Not Met	Continue with Phase 1 monitoring every 6 th year (concurrent with the Form 80 monitoring year).
PHASE 2 MONITORING	
Data Collection Method	Frequency: on-site observations annually for three more years. Period: during the peak 4-hour period of the day ¹ .
Trigger Threshold	90% or above the indicator occupancy for 1 out of the next 3 consecutive years of monitoring at all sites except Jackson Meadows, where the trigger threshold is 95% or above
Actions if Trigger is Met	<ul style="list-style-type: none"> • Required Action 1: Licensee will complete a <i>Suitability-Feasibility Analysis</i> in the calendar year after the year the trigger is met. • Required Action 2: Depending on the results of the <i>Suitability-Feasibility Analysis</i>, Licensee will either: <ul style="list-style-type: none"> ➢ Start the <i>Recreation Improvement Planning</i> process for a new facility (see Section 3.2 of the Plan) if site development is determined to be suitable and feasible (this process will begin immediately after the <i>Suitability-Feasibility Analysis</i> is completed); or, ➢ Develop a strategy (in partnership with the Forest Service on NFS land) to manage recreation use if site development is determined to be unsuitable or infeasible.
Action if Trigger is Not Met	Go back to Phase 1 monitoring every 6 th year (concurrent with the Form 80 monitoring year).

¹The “peak 4-hour period” for each facility will be agreed upon by Licensee and the Forest Service at the Annual Recreation Coordination Meeting prior to implementation of the upcoming year’s data collection.

Table 3. Yuba-Bear Hydroelectric Project: Monitoring Trigger Groupings.

	Facility Type	Grouping	Reservoir	Facility	Indicator Capacity*
FAMILY AND GROUP CGs	Family Campground	Jackson Meadows	Jackson Meadows	East Meadow Campground	45 units
				Pass Creek Campground	29 units
				Findley Campground	14 units
				Fir Top Campground	12 units
				Woodcamp Campground	19 units
		Jackson Meadows	Jackson Meadows	Pass Creek Overflow**	TBD**
		Rollins	Rollins	Orchard Springs Campground	101 units
				Greenhorn Campground	79 units
				Peninsula Campground	67 units
				Long Ravine Campground	85 units
		Bowman Recreation Corridor	Bowman	Bowman Lake Campground	10 units
			Canyon Creek	Canyon Creek Campground	16 units
			Sawmill	Sawmill Lake Campground (proposed)	15-20 units
				Jackson Creek Campground	12-units
		Group Campground	Jackson Meadows	Jackson Meadows	Aspen Group Campground
	Silvertip Group Campground				2 units (50 PAOT)
	Bowman Area		Sawmill	Sawmill Lake Group Campground (proposed)	1 unit (25 PAOT)
			Faucherie	Faucherie Lake Group Campground	2 units (50 PAOT)
			Bowman	Bowman Lake Group Campground (proposed)	1 unit (25 PAOT)
				Bowman	Canyon Creek Group Campground (proposed)

* Site capacities will change as Project development plans are implemented. Use current available capacity at time of survey.

**

Jackson Meadows overflow sites will be included in the occupancy totals of closest campground to the overflow site. For example if Pass Creek Campground (29 units) has 27 sites occupied the occupancy rate would be 93%, assuming no sites at the Pass Creek Overflow are occupied. However, if four sites at the Pass Creek Overflow are occupied the occupancy of Pass Creek Campground would be calculated at 107% (31 units occupied sites out of a total of 29 available sites).

Condition No. 54 - Licensee Contact

Licensee will provide a contact for FS whenever planning or constructing new recreation facilities, major maintenance on existing recreation facilities or other major Project improvements placed on NFS lands within the Project Boundary. Licensee agrees to cooperate with FS through this individual in contract review and work inspection. Licensee contact person may not always be the same person.

Condition No. 55 - Review of Recreation Developments

At least every 6 years, Licensee will meet with FS to review the conditions of Project recreation facilities located on NFS land and agree upon necessary replacement and major maintenance (i.e. reconstruction) work that is currently or in the future will likely be needed and agree on the timing of this work. For Project recreation facilities located on NFS lands, Licensee will use FS's standards for the frequency of rehabilitation or heavy maintenance as a guideline, but not a prescription, for scheduling replacement and major maintenance work. Standard life of recreation facilities ranges from 20 to 30 years. The criteria for project selection will depend on the amount and type of use, current FS recreation facility policy, condition of facilities, effects on surrounding areas, and other factors. Following the review, Licensee will develop a 6-year schedule for replacement and/or reconstruction of Project recreation facilities on NFS lands that will be approved by FS and implemented upon Commission approval. This schedule may be updated with FS approval after consultation during Annual Recreation Coordination Meeting. Any updates will be filed with the Commission. The Implementation columns in Attachment 6 are the targeted year for construction to be completed.

Condition No. 56 – Annual Recreation Coordination Meeting

Each year during the term of the license, Licensee will arrange to meet with interested agencies (FS at a minimum) for an Annual Recreation Coordination Meeting to discuss issues regarding Project recreation facilities, use and management, public safety, and recreation related resource protection. For recreation resources, this meeting replaces the Project wide April 15 meeting and reporting requirement. Licensee and the agencies will mutually agree to the date of the meeting, but in general, the meeting will be held within the first 90 days of each calendar year. Licensee will provide an agenda and a proposed meeting date to the interested agencies in advance. In addition, for Project recreation facilities located on NFS lands, Licensee will also provide FS a draft annual recreation operation and maintenance plan prior to the meeting.

The following, at a minimum, will be discussed at the Annual Recreation Coordination Meeting:

- Need for additional garbage collection and/or other trash management actions based on the results of visitor surveys, evidence of wildlife habituation and the status of garbage and litter left on site by users.
- Need for toilet facilities where dispersed camping is occurring will be discussed at least every 6 years (following submittal of the Project's monitoring report), and more frequently if warranted.
- Report on significant changes in sanitation issues and the number and size of user created dispersed camping areas.
- Other O&M issues identified by FS or Licensee.
- Schedule and invite FS to the recreation resource impact field evaluations and facility condition assessment to be conducted on NFS lands.
- Report on relevant monitoring results, such as if monitoring triggers are being met from the previous year(s).
- Significant issues raised by the public.
- Any Licensee proposal for new or increases in recreation fees on NFS lands to help cover the costs of recreation facility construction, operation, and maintenance, as allowed by Commission regulations, will be discussed and approved by the Forest Service.
- Recreation use data that is available from Licensee or the Forest Service, which includes summary data, at a minimum; and, upon request, raw data.
- Licensee will provide FS a copy of all documentation associated with the Commission inspections of Project recreation facilities and use on NFS lands, including follow-up action taken by the Licensee.
- Status of recreation projects from the previous year, including rehabilitation of existing recreation facilities, the establishment of new recreation facilities, and any other recreation measures or programs that were implemented.
- List and review the existing recreation facilities scheduled for reconstruction as well as any new facilities proposed for construction and other measures to be implemented as part of this Plan, including:
 - Logistical and coordination planning.
 - Implementation schedule, including potential adjustments
 - Coordination needs.
 - Permitting requirements.
 - Key resources that will need to be protected from potential impacts associated with the implementation of the scheduled recreation projects.

Licensee and the agencies will identify any coordination needed with other projects being implemented in the area. Permitting requirements, additional required environmental documentation and key resources that will need to be protected from potential impacts associated with the implementation of the scheduled recreation projects will be addressed. FS must approve any revisions to the Project's Recreation Facilities Plan schedule when NFS land is involved, and the revised schedule will be submitted to the Commission. Within 60 days following the meeting, Licensee will file with the Commission evidence of the meeting, which will summarize comments made by the agencies, and Plan revisions or other agreements that were reached by

Licensee and the agencies. The Annual Recreation Coordination Meeting is a minimum requirement and it is anticipated that meetings may occur throughout each year as needed to implement the Recreation Plans.

Condition No. 57 – Recreation Plan

Within one year of license issuance, Licensee will, in consultation and coordination with FS, develop a Recreation Plan and submit for FS approval. Licensee shall submit the Recreation Plan to the Commission following FS approval. The following elements shall be addressed in the Recreation Plan:

General Measures For All Recreation Sites

Routine Recreation Facility Maintenance

On NFS lands, the standards for cleaning, operating and maintaining recreation sites shall be consistent with current FS standards and policies.

Licensee shall ensure that the following routine maintenance occurs at Project recreation facilities on NFS lands:

- At the beginning of each recreation season, and as needed throughout the season, replace, reset, improve, straighten, and reinstall barriers within and adjacent to all project recreation sites; along the roads surrounding Project lakes, and along Project roads and trails where there is uncontrolled vehicle use.
- If tables have sunk during the winter due to snow loads, they will be brought up to the level of the surrounding ground and placed on level ground.
- Maintain all recreation facilities in good working order. This includes keeping toilet doors and hardware in operating and locking conditions. If a structure is deemed to be unsafe, it will be closed until repairs are completed.
- Developed sites will be free of litter, human, and domestic animal waste.
- During the prime season all facilities will be inspected on a regular basis (as much as daily or more).
- Litter and trash collection shall be of a frequency that does not encourage animal encroachment, is not overflowing and does not emit offensive odors. The frequency will depend on the type of container. Two to four-yard dumpsters need to be dumped at least once a week. Receptacles shall be animal resistant.
- Ashes are to be removed from fire rings and grills, cooled and extinguished and disposed of at a county landfill. Ashes are not to be disposed of onsite and ashes which have been previously disposed of onsite (including those disposed of onsite by users) shall be properly disposed of as described above.
- Developed boat ramps will be inspected for obstacles and deterioration.
- Once a facility has been rehabilitated to provide for accessibility, clear floor space surrounding constructed features, graded tent pads and Outdoor Recreation Accessibility Routes shall be maintained.

- Rocks removed from unauthorized fire rings should be turned burned side down outside of the campsite.
- Remove trash from toilet vaults when pumped.
- Remove trash from (road accessed) dispersed sites on a weekly basis between Memorial Day and Labor Day and twice monthly after Labor Day, until the facilities are closed for the winter. Remove trash from non-road accessed dispersed sites on a monthly basis between Memorial Day and Labor Day. Throughout the season, dismantle user created fire rings at lakes where camping is limited to designated sites only.
- Annually maintain site identification markers.

Drinking Water Standards for Recreation Sites that Provide Potable Water

Licensee shall ensure that recreation facilities that provide drinking water as well as new drinking water systems be managed as public drinking water systems (i.e. serve at least 15 service connections or 25 persons) under the federal Safe Drinking Water Act (SDWA) that was signed into law in 1974, and reauthorized in 1996 (or its replacement).

Vegetation Management in Recreation Sites

Licensee shall ensure that vegetation management, including but not limited to hazard tree and branch removal, vegetative screening, brushing, or pruning occurs at Project recreation facilities located on NFS lands. Licensee shall ensure that the following vegetation management elements occur:

- Hazardous trees or branches must be actively searched for and identified by qualified personnel (Land Management Planners, Foresters, Arborists) and removed in a timely manner. In early spring, a qualified person will survey developed recreational facility boundaries, parking lots and immediate access routes to recreation areas for hazard trees and hazardous branches. Identified trees are to be removed before the campgrounds are occupied by the public. If time allows, hazard tree clearing should be conducted in the late fall to remove the bulk of the trees ahead of the spring camping rush.
- For visual mitigation stumps remaining within developed campgrounds shall be no greater than 6 inches in height and preferably cut to ground flush to ground level.
- The slash from hazard tree/branch removal will be chipped or lopped and scattered (<18 inches in depth) at least 100 feet away from the recreation site boundary, and the trunk is either hauled away or cut into rounds no larger than 8 inches in diameter and 18 inches long for use by campers. Larger rounds will be removed from the recreation site or split into firewood size pieces and either stacked for use by campers, or bundled and sold to the campers.
- All freshly-cut conifer stumps within 2 hours after the tree is felled will be treated to prevent the spread of Annosus Root Disease. In no case shall stumps be left untreated at the end of the shift during which the tree was felled. FS approved stump treatment compound, when applied properly, should cover the entire stump surface with a thin layer and also other areas of the stump where the bark has been knocked off. Where a liquid stump treatment compound is used, the spraying of a thin film of the solution on the stumps surface is all that is needed. A dye, mixed in with this solution, is useful to show where stumps have been

sprayed. Handling directions are provided on the labels of stump treatment product containers and should always be followed. Only pesticides registered in California can be used on NFS lands, and all FS policies and practices and California regulations relating to pesticide use must be followed. To avoid adverse effects to aquatic species and their habitats, Licensee will work with FS regarding pesticide use within recreational facilities that are within 500 feet of aquatic habitats.

- Licensee will maintain 5-foot radius clearance to bare mineral soil around all fire rings, and remove overhanging branches to a height of 10 feet. This includes fire rings within developed recreation sites and those located at dispersed sites. Because wildfires do not stop at land ownership boundaries, fire ring clearance standards need to apply to NFS, BLM, and Licensee lands.
- During new construction and reconstruction work, Licensee will use care to protect existing vegetation through the incorporation of the Construction Specification Institute (CSI) Section 02233 – Tree Protection, or other specifications that provide equal or better vegetation protection.
- Within and adjacent to all developed project recreation sites, provide for periodic silvicultural evaluation, stand improvement, view enhancement and vegetative planting work to identify unseen hazard trees, assure stand health, provide for screening within and between sites and enhance views or project lakes and other scenic features.

Food Lockers

- Within 2 years of license issuance, at sites with garbage service, all garbage containers will be animal resistant. Adjacent to the garbage containers, provide a clear, level, compacted ground space (aka clear floor space) meeting dimensions and cross slopes specified in the FSORAG requirements for “Trash, Recycling and other Essential Containers” (or current requirements).
- Within 5 years of license issuance (unless specified sooner at a specific site), replace all existing plastic food storage lockers with metal animal proof food storage lockers large enough (30-cubic feet) to hold a large cooler and install new metal animal proof food storage lockers at all remaining (Development Scale 2 and above) campgrounds (except Milton) where food storage lockers are missing (regardless of land ownership). Adjacent to the locker, provide a clear, level, compacted ground space meeting dimensions and cross slopes specified in the FSORAG requirements for “Trash, Recycling and other Essential Containers” (or current requirements). These lockers need not be installed in remote, primitive campsites (which consist of a fire ring and site marker only).

Fire Rings

Every 2 years inspect all fire rings, maintain in good condition or replace. Good condition includes a level grill with a usable grate.

Recreation Facility Ownership

Unless otherwise agreed to, all improvements on NFS lands shall become the property of FS upon completion, final inspection, and acceptance by the agency.

Facility Plans

Within 5 years of license issuance, provide as-builts drawing of all project facilities. As-builts should reflect current dimensions and layouts, including underground utilities. As alteration, improvement, new construction or expansion occurs, provide updated as-builts. As-built drawings should be provided in hard copy and an electronic format (".dwg" format).

Public Information and Education

- Within 2 years of license issuance, provide information about how the public can help prevent the spread of amphibian chytrid fungus and other water-borne pathogens at all information kiosks and boat launches (both formal and informal) in the Project.
- Within 1 year of license issuance, provide signs addressing applicable lake surface regulations at all recreation sites that are located on project lakes and in compliance with land management agency management plans.
- Within 2 years of license issuance, in coordination with FS develop an information strategy which includes maps, information, brochures, signs, websites etc. to provide information to enhance the project recreation opportunities and protect and interpret the area natural and cultural resources. An implementation schedule shall be part of this strategy, with all actions implemented within 5 years of the license issuance. Include educational material aimed at preventing animal habituation; leave no trace camping and other resource protection messages, appropriate to the individual facility. At each Project recreation site, provide an information display with a map and information illustrating the recreational opportunities in the area as well as emergency contact information, proper food storage and other salient information. For facilities on NFS lands identify that the facility is on the Tahoe National Forest. Develop all displays in consultation with the applicable resource agency. Review and, as needed, update recreation information signs on a 6 year cycle. Replace signs as needed.

Minimum Features Required at Newly Constructed and Reconstructed Campground Facilities

All newly constructed and reconstructed campgrounds on NFS lands shall contain a minimum of the following constructed features unless specifically excluded in this Plan (or subsequently agreed to the contrary):

- Roads and spurs with barriers to prevent off road travel.
- Tables.
- Fire rings.
- Animal resistant food lockers.
- Bulletin boards.
- Entrance station and sign.
- Toilets.
- Site markers.
- Leveled tent pads.
- Routes between site features, which would include Outdoor Recreation Accessibility Routes (ORARs—at Development Scale 3 and above).

- To meet the intent of FS accessibility direction, all new or rehabilitated/reconstructed Project recreational areas and facilities on NFS lands will meet FS Outdoor Recreation Accessibility Guidelines (FSORAG 2006) and FS Trail Accessibility Guidelines (FSTAG 2006), or their replacement, current at the time of design.

Heavy Maintenance

Licensee will be responsible for the cost of the necessary maintenance, rehabilitation, and reconstruction, including the costs of design and administration, as determined through the Review of Recreation Developments (as described in Condition No. 55) for the Project recreation facilities. Heavy maintenance and rehabilitation are defined as work that is necessary to keep existing facilities in serviceable condition to meet FS standards and includes components of recreation facilities such as water systems, traffic control barriers, roads, spurs, and associated drainage structures, grills and fire rings, picnic tables, toilets, and signboards. Licensee shall use FS standards for the frequency of heavy maintenance as a guideline, but not a prescription, for Licensee's performance of its heavy maintenance responsibilities. As determined through the Review of Recreation Developments (as described in Condition No. 55), heavy maintenance projects may be deferred that would otherwise be timely under FS frequency standards, if FS determines that actual conditions indicate that the project is not yet necessary.

General Reconstruction

Prior to reconstruction of a recreation facility, Licensee shall meet with FS to review the design of the facility in light of changes in use and design standards since the facility was constructed. Modifications will be made to the facility design to address the functionality of the facility and compliance of the facility with current design standards. This will include, but not necessarily limited to: road widths and geometry and spur width and length (in light of the current vehicle use of the facility); providing additional campsites when warranted by demand; and compliance with current federal and agency accessibility standards: NFS lands - Forest Service Outdoor Recreation Accessibility Guide (FSORAG), Architectural Barrier Act (ABA) Accessibility Standards (ABAAS) and agency facility design standards, or other applicable standards at the time of design, and; Licensee lands - Americans with Disabilities Act (ADA 1990). Modification of the design may involve land beyond the existing footprint.

Additional features (such as gates) may be added as part of the design modification.

Reconstruction will address site grading and other site modifications including, but not limited to:

- Reconstruction, or replacement of constructed features, including - toilets, gates, table, fire rings, septic systems, water system features, barriers, retaining walls, unit markers, bulletin boards, signs, entrance and fee stations, animal resistant food lockers etc.
- Accessibility - Evaluate opportunity to provide accessibility at all campsites and (to the degree topographically feasible) implement these opportunities. At Development Scale 3 or higher recreation facilities provide Outdoor Recreation Access Routes between constructed features, campsites, toilets and spurs.
- Regrading and graveling non-paved roads and spurs.

- Resurfacing paved road, including providing asphalt treatment of roads and spurs and sufficient subgrade and (where appropriate) providing turn outs at entrance stations, toilets, trash bid pads etc. Providing asphalt treatment of spurs when the circulation road is paved.
- Address opportunities to lengthen and widen spurs as needed.
- Replacement of wood barriers with rock barriers and of sufficient quantity to prevent off road travel. Install additional barriers as needed.
- Remove protrusions and provide a graded living space including tent pads and clear floor space around tables, food storage lockers and grills.
- Installation of gates.
- Upgrade of host sites with a minimum of septic and water to improve public service and campground management by allowing the manager to attract high quality hosts.
- Providing enhancements such as extra parking when there is a demand.
- Installing signing that meet FS standards and address recreation area opportunities (including trails), maps of facilities, resource protection information (appropriate for the area), emergency contacts, safety, and regulations (including water surface regulations).

All work should be completed within the year specified below.

Licensee and National Forest System Land Facilities

The following Specific Facilities are required on National Forest System (NFS) lands. In some cases, the Licensee may prefer to construct similar facilities on Licensee lands in lieu of the facilities on NFS lands. FS is amenable to considering any Licensee proposals to construct the following facilities on Licensee lands if they meet the same objectives.

Specific Facilities - Jackson Meadows Reservoir Area

Continue to limit camping to developed sites only around Jackson Meadows Reservoir.

Jackson Meadows Development Plan

Within 1 year of license issuance develop a plan for facility expansion that identifies locations for the following facilities in the Jackson Meadows Reservoir Area. The Development Plan shall be approved by FS. The Development Plan shall include acquiring enough land to assure optimum development of the recreational resources in the Jackson Meadows Area. This includes providing public access to the Jackson Point Peninsula to allow recreational development of this part of the reservoir.

Group Campgrounds Construction

- Within 4 years of license issuance, construct group campground facilities with potable water to accommodate at least 50 PAOT.
- Construct the remaining group campground 50 PAOT called for in the Jackson Meadow Development Plan within 20 years of license issuance. Construct additional sites when triggers are reached.

Family Campgrounds Construction

- Within 8 years of license issuance, construct a minimum of 20 additional family campsites with potable water. This may include expansion of existing campgrounds. Include a host site in each new family campground. The host site should include water and septic.
- As existing facilities are reconstructed, implement opportunities to construct additional campsites as part of the reconstruction (such as providing additional tent and walk-in campsites at East Meadow).
- Construct the remaining family campsites called for in the Jackson Meadow Development Plan within 20 years of license issuance. Construct additional sites when triggers are reached.

Water Sources

The licensee will provide potable water during all seasons that facilities are open, with the exception of Jackson Point Boat-in Campground. An adequate supply will be provided to insure the facilities will operate at capacity during peak season. This will include flush toilets in operation during peak season.

Jackson Sanitary Dump Station

Licensee will provide a functioning RV dump station with potable water. The dump station shall include a leach field, preferably in the vicinity of the eastern portion of the reservoir. The dump station shall be designed with sufficient space so that if a decontamination-station (for aquatic invasive species) is needed in the future, it can be co-located with this facility (unless this potential need for a decontamination station is addressed elsewhere). The current dump station on licensee land meets the need for a dump station as long as it is properly functioning. The determination of the need for a new dump station would include but not be limited to at least one of the following items:

- Water system not sufficient for demand.
- The holding tank is leaking as evidenced through such things as the lack of liquids (indicating that the fluids are leaking out) or being full in the spring after being drawn down over the winter (indicating that liquids are leaking in from the nearby wetland)
- Subgrade failure of the road.

Future Shower Construction

Additionally, the Development Plan should address the potential for future shower facilities, one on each side of the lake.

Sanitary Surveys

Within 2 years of license issuance, conduct sanitary surveys of all septic tanks and disposal fields. Locating, potholing, and excavating will be required. Depending on the results of this investigation, additional work will be specified, which may include improvements, or complete redesign and installation of new systems at some point in the license. When this survey is

completed on a septic system, inspection tubes shall be installed in the disposal field, risers shall be installed on the septic tanks and paddle markers shall be installed identifying the underground utility locations.

Jackson Meadows Existing Facilities

All facilities in the Jackson Meadows complex, except Jackson Point Boat-in Campground, will be managed as Development Scale 4. Jackson Point Boat-in Campground will be managed as Development Scale 3.

- Provide road surface treatments consistent with the Pavement Management System on all recreation facility roads and upon reconstruction provide sufficient road subgrade.
- Upon reconstruction of family campgrounds, provide additional vehicle and trailer parking where topography allows.

Aspen Picnic Area

Within 8 years of license:

- Construct a non-motorized, trail (Trail Class 3) from Aspen Group Camp to Aspen Picnic Area parking area.
- Replace 4-unit vault toilet with a 2-unit vault toilet.
- Designate accessible parking.
- Meet Forest Service Outdoor Accessibility Guidelines at a minimum of two sites. Provide accessible tables and pedestal grills at these sites. At a minimum, provide a clear, level compacted ground surface with flattened area picnic area around tables, hydrants, and grills to meet Forest Service Outdoor Accessibility Guidelines. Provide Outdoor Recreation Access Route between accessible sites, constructed features, toilet, and parking area.

Within 8 years of license issuance, reconstruct picnic area, including:

- Reconstruct road.
- Review appropriate number of sites based demand. Adjust number of sites appropriately.

Pass Creek Campground

Within 8 years of license issuance:

- Replace two flush toilet buildings with fully accessible flush toilets.
- Upgrade the host site to include septic/holding tank or leach system.

Within 15 years of license issuance, reconstruct campground, including:

- Provide additional vehicle and trailer parking.
- Lengthen and widen spurs. At a minimum provide five spurs that are 16 feet and eleven spurs that are 13 feet wide.

- Replace or rehabilitate vault toilets, as needed.

Pass Creek Boat Ramp

Within 1 year of license issuance:

- Provide asphalt treatment on the high water launch asphalt surface and parking area (referred to as ramp A on Licensee's condition surveys).
- Replace wooden barriers with boulders.
- Provide more prominent signing regarding submerged stumps and rocks.

Within 5 years of license issuance:

- Provide 21 additional parking spaces primarily for vehicles with trailers by converting the Pass Creek Overflow sites to boat ramp parking. Construct additional parking spaces by expanding the pavement (up to the total of 21 vehicle/ trailer spaces) as topography allows. At a minimum provide 12 additional spaces for vehicles with trailer and 9 additional spaces for single vehicles.
- Construct a non-motorized, accessible trail from Pass Creek Boat Launch to Aspen Picnic Area beach area. Provide additional accessible parking spaces at boat launch for trail parking.
- Provide low-water boat launching access below the constructed ramp to provide for fishing access until September 30 in Critically Dry water year types. Maintain this low water access whenever the lake drops below the constructed ramp prior to September 30. (This could include work such as clearing, grading, and installing gravel, but is not intended to be a major capital improvement.)
- Develop at least six RV overflow paved parking sites, potable water, table, fire rings, and access to a toilet similar to and to replace the overflow parking at Pass Creek Overflow. These sites should be located in an area that will not require the users to drive on an unpaved road to access the sites.

Within 15 years of license issuance, reconstruct boat ramp to California Boating and Waterways standards; replace toilet and other facilities as needed.

Pass Creek Overflow (aka Hennes Pass Campground)

Within 5 years of license issuance:

- Construct new 1-unit vault accessible toilet.
- Provide picnic tables (replacing the remaining wood tables) and fire rings around the edge of the parking area so that overflow camping can be provided at this site when the lake levels drop. The number of overflow sites will be determined during the site design.
- Provide removable unit markers. Manage the site for boat ramp parking until lower parking area is useable, and this area is not needed for boat launch parking. Then install removable site markers at each overflow campsite and allow overflow camping.

East Meadows Campground

Within 1 year of license issuance, replace two entrance signs (one in campground and one on the 07 road).

Within 5 years of license issuance:

- Expand existing parking, and provide additional trailer and vehicle parking. At a minimum:
 - Expand the existing parking area near the campground entrance to 15-25 feet by 60 feet and provide gravel surfacing
 - Install a second parking area near site #34. This parking area should be at least 30feet by 60 feet with a gravel surface.
- Construct/maintain a non-motorized trail (~0.1 mi.) from the campground to the river. The trail should be designed for pedestrian with a native surface.
- Convert the two-unit flush toilet building in the lower loop to a two unit vault toilet.
- Upgrade the host site to include septic or holding tank.

Within 15 years of license issuance, reconstruct campground including:

- ☐☐Lengthen/widen spurs (at a minimum, expand seven spurs to 16 feet wide and nineteen spurs to 13 feet wide).
- Rehabilitate/reconstruct road.

Firtop Campground

Within 10 years of license issuance, reconstruct the campground including:

- Rehabilitate/reconstruct road.
- Lengthen/widen spurs and provide pull-through spurs, where feasible.
- Construct and maintain non-motorized pedestrian native surface trails between Woodcamp Interpretative Trail and Woodcamp, Firtop, and Findley Campgrounds, and Woodcamp Picnic Area. Install and maintain directional signing.
- Add a single unit vault toilet.

Woodcamp Campground

Within 3 years of license issuance:

- Replace one wooden 2-unit vault toilet with new double unit accessible vault toilet and provide ORAR to the toilet entrance.
- Replace entrance sign.

Within 10 years of license issuance, reconstruct campground including:

- Lengthen/widen spurs and provide pull-through spurs, where topography allows.
- Provide additional trailer and vehicle parking,

- Reconstruct road.
- Upgrade the host site to include septic/holding tank.

Woodcamp Picnic Area

Within 5 years of license issuance reconstruct picnic area including:

- Replace six picnic tables with accessible tables.
- Provide six accessible pedestal grills.
- Replace one 4-unit toilet (by the beach) with 2-unit vault.
- Develop vehicle access via one-way road to lower toilet with parking for up to four vehicles and signing. Two of the spaces will be signed as accessible parking spaces and up to two spaces will be designated for loading/unloading. The purpose of this road would be to facilitate the use of the beach. The surface of this road should be at a minimum aggregate base to prevent erosion and road base damage.
- Construct Outdoor Recreation Access Routes from the parking area to toilet and picnic sites; and from lower accessible parking spaces to beach area and toilet.
- Reconstruct road.

Woodcamp Boat Ramp

Within 5 years of license issuance, reconstruct the boat ramp to meet California Department of Boating and Waterways and current accessibility standards to provide a 2- lane ramp with an accessible courtesy dock and sidewalk. To the degree topographically feasible, the ramp should provide for launching in Dry water years until September 30. The following includes, but is not necessarily limited to, additional elements of this reconstruction:

- Pave and stripe parking area; provide and designate accessible parking.
- Replace one 2-unit toilet with an accessible 2-unit vault toilet.
- Provide Outdoor Recreation Access Routes between parking and toilets.
- Maintain prominent signing regarding submerged stumps and rocks.
- Provide informational sign that meets FS standards.
- Construct trail from parking lot to the Woodcamp beach and install signing.

Findley Campground

Within 3 years of license issuance:

- Repair road damage sufficiently to last until reconstruction. Within 10 years of license issuance, reconstruct campground including:
- Replace retaining walls.
- To the degree feasible, provide additional trailer and vehicle parking.
- Reconstruct and widen circulation road.
- Replace flush toilet with accessible toilet and construct paved pathway to entrance.

Jackson Point Boat-in Campground

Within 2 years of license issuance, reconstruct the campground to meet the current FS design standards for a Development Scale 3 campground, including:

- Replace 2 toilets with toilet facilities that are acceptable to FS and Sierra County Sanitarian. Licensee shall be responsible for the logistics associated with waste disposal.
- Relocate sites that are currently not being used. Remove unused facilities
- Install metal animal resistant food storage lockers.
- Address opportunities to provide for accessibility.

Jackson Vista Point

Within 5 years of license issuance, gravel the parking area. Within 15 years of license issuance, rehabilitate or replace restroom building.

Jackson Meadows Administrative Site

- Provide landlord type maintenance of all facilities except the barracks.
- Landlord type maintenance includes maintenance, reconditioning, renovation or improvement that arrests deterioration, improves and upgrades facilities, and appreciably prolongs the life of the property. Examples include, but are not limited to, installing a new roof, new floor, new siding or new water barrier envelope; replacing furnace, water heater, pipes, pumps, interior drywall or wallboard; repairing electrical service; paving interior roads, and performing exterior painting and refinishing. If there is temporarily no tenant deferred tenant maintenance will default to landlord maintenance until the facility is once again needed to support the operation of the recreation facilities. Continue to provide tenant-type maintenance of these facilities.
- If Licensee does not desire to utilize the administrative facility to support the operations, FS may require Licensee to demolish and remove some or all of the facilities and re-vegetate the site.

Woodcamp Interpretive Trail

Annually provide trail maintenance on Woodcamp Interpretive Trail, and the connector trails between this trail and the campgrounds. Work shall be performed in compliance with Standard Specifications for Construction and Maintenance of Trails EM-7720-103 (or equivalent at the time of maintenance). Annual maintenance will include logging out trails, imminent danger tree removal, performing spring and fall drainage maintenance (including installing new drainage structures as needed), bridge maintenance and loose rock removal. On a five year cycle, trail maintenance will also include brush cutting; embedded rock and root removal; slough and berm removal; and (if appropriate) turnpike, retaining wall and switchback maintenance. Reconstruction needs (including bridge reconstruction) will be addressed on an “as needed” basis.

Within 5 years:

- Install a more prominent trailhead sign at start of Woodcamp Interpretive Trail.
- Improve parking area for Woodcamp Interpretive Trail.
- In consultation with FS, develop, install, and maintain interpretive signs on Woodcamp Interpretive Trail to replace the existing brochures.

Additional Trail Construction

- Within 5 years of license issuance, install and maintain trailhead and directional signing on all trails in the Jackson Meadows area. Include the location of all trails in any maps or information about opportunities in the area.
- Within 5 years of license issuance, construct and maintain a (Trail Class 3) nonmotorized trail from the Vista Point and Aspen Group Campground to a lake overlook point above the quarry.
- Provide annual maintenance of these trails. The work shall be performed in compliance with Standard Specifications for Construction and Maintenance of Trails EM-7720-103 (or equivalent at the time of construction and maintenance). Annual maintenance will include logging out trails, imminent danger tree removal, bridge maintenance (if appropriate), performing spring and fall drainage maintenance (including installing new drainage structures as needed) and loose rock removal. On a 5-year cycle, trail maintenance will also include brush cutting; loose rock and root removal; slough and berm removal; and turnpike, retaining wall, switchback maintenance and other work needed based on trail design. Reconstruction need (including bridge reconstruction) will be addressed on an “as needed” basis.

Specific Facilities - Milton Reservoir Area

Within 3 years of license issuance:

- Delineate a total of six dispersed campsites, three in the area near the boat launch, and three existing sites west of the launch area, near the dam. Sites shall include firerings and picnic tables. Provide parking for 2 cars at each site.
- Address accessibility as required in Development Scale 2 campgrounds.
- Place barriers to prevent vehicle use outside of the designated parking area.
- Construct an Outdoor Recreation Accessible Route to toilet from a nearby parking spot.
- Each year, at the Annual Meeting, determine if there is a need for food lockers. If animal problems arise (e.g. bear encounters, plague), install animal resistant food lockers at each campsite the following year.
- Limit shoreline access to one single-lane car-top boat launch with barriers to allow direct vehicle access to the shoreline for boat launching purposes only and prevent driving along shoreline. Gravel boat launch entry above the high and low water mark to prevent resource damage.

Within 15 years of license issuance, rehabilitate or replace toilet.

Specific Facilities - French Lake

Within 5 years of license issuance:

- □□ Grade and gravel the existing parking area and install large rock barriers to keep OHVs from accessing lake.
- Install and maintain trailhead sign.

Specific Facilities - Bowman Reservoir Area

Within 2 years of license issuance, prepare a corridor-wide recreation development and management plan for the Bowman Recreation Corridor in consultation with FS. This corridor should include all NFS land within 1,500 feet north of the Project lake access roads from Bowman Dam on the west, Jackson Creek Campground on the east, and Faucherie Dam on the south, and all land south of the access roads to incorporate Bowman, Sawmill and Faucherie reservoirs, Canyon Creek between Bowman and Faucherie, and 1,500 feet to the south of the reservoirs and creek. We also recommend under our 10(a) recommendations that this plan address Licensee lands within this corridor. This plan shall address:

- The need to concentrate all overnight camping within 1,500 feet of roads into facilities where sanitation, fire prevention, and resource protection are provided for and all other (e.g. boat-in) camping, at a minimum, into designated sites.
- Providing for construction of sufficient facilities to meet current use and projected demand of this area through the term of the license to the degree this is topographically feasible for the entire Bowman to Faucherie area, including Jackson Creek Campground. The minimum resource protection needed to serve overnight visitors at vehicle accessed campsites includes vehicle controls, fire rings, animal resistant food lockers, picnic tables, and toilets.
- Camping restrictions on NFS lands (restricting camping to designated sites only) to coincide with development of additional camping capacity. A restricted camping area designation on NFS lands will need to be addressed through a forest order, including compliance with NEPA.
- Assessing the optimal use of the land in this corridor to meet future project-related recreation (due to the limited amount of developable land in the area), including analysis of the physical overnight carrying capacity (based on the suitable land for overnight camping at locations where toilets can be provided.)
- Providing for a variety of experiences appropriate for the recreation opportunity spectrum (ROS), including some sites with more amenities and other sites providing more of a dispersed type (lower density) camping experience but where adequate sanitation and resource protection measures are provided. Group, family, and boat-in developed/designated camping opportunities should be addressed.
- Opportunities to meet demand for day use facilities (including boating access and picnicking). In determining if picnic sites should be developed, address the benefits and risk of providing these facilities, since these sites have the potential to become de-facto campsites. If picnic sites are provided, develop appropriate management responses to assure picnic sites do not attract frequent overnight use such as hosts and patrols.
- Sanitation and litter control.

- Plans to reduce the resource effects of recreation (including uncontrolled vehicle use and fire).
- Information and education.
- Plans for dispersed campsite conversions, closures, and rehabilitation.
- Schedule for implementation and construction.
- Development of a centrally located potable water source in this corridor.
- User conflicts management.
- Enforcement of regulations.
- User fees with public input and FS approval.
- Provide 24-hour management presence during recreation season.
- Continue the existing direction to keep OHVs out of Bowman Reservoir under the high water mark (especially at east end/inflow area of the reservoir) via strategic placement of barriers.

The Bowman Recreation Corridor Plan shall be approved by FS and other applicable resource agencies. Licensee shall be responsible for the environmental analysis, documentation of the analysis, and construction of all facilities and/or implementation of measures identified in this plan after approval of the plan.

Within 5 years of license issuance:

- Provide minimum of one a potable water system at one of the campgrounds in the Bowman Recreation Corridor. Provide signing at the other campgrounds informing recreationists where they can obtain potable water. If the water system is a single hand pump, then place at a location convenient for campers from other campgrounds, provide a parking space, and strategically place signs within the Bowman Recreation Corridor informing other campers of the potable water opportunity.
- If the FS's 10(a) recommendation to either construct a 25 PAOT group campground or 7-10 unit family campground adjacent to Bowman Lake Campground is not included in the license, Licensee shall construct a drive-in 25 PAOT group campground (Development Level 2) on the east end of Bowman Lake on NFS lands south of Canyon Creek. The campground shall include:
 - Single vault toilet immediately adjacent to the campsite.
 - Five picnic tables.
 - Two serving tables.
 - One group grill.
 - One group fire ring.
 - Four large food lockers.
 - Tent pads.
 - Bulletin board.
 - Parking space for at least 9 vehicles.
 - Vehicle barriers to sufficiently prevent indiscriminate driving.
 - Self-service fee collection station (optional).

Within 7 years of license issuance:

Implement a camping closure. By that time, through construction of additional facilities, the developed overnight camping capacity should be sufficient to accommodate the midsummer non-holiday weekend camping use projected for the following 10 years (see the development measures for the reservoirs and facilities within the Bowman Recreation Corridor). In addition to construction, implementation should include:

- Working jointly with FS and County Sheriff to pass ordinances to limit camping to developed campgrounds and designated sites only. The closure should encompass approximately all NFS lands within 1,500 feet of roads from Bowman Dam on the west, Jackson Creek Campground on the east, and Faucherie Dam on the south. The corridor may need to be widened or narrowed in a few areas (such as the south side of Sawmill Lake) to meet the intent of allowing boat-in camping on the non-vehicle accessible side of these lakes but limiting camping to designated sites where there is vehicle access.
- Closure, barricading, removal, and restoration of all dispersed campsites on NFS lands in this corridor that are not converted to designated camping or day use sites. Provide appropriate signage and maintain these closures throughout the license period.

Bowman Reservoir

At the Bowman Road/Faucherie Road junction, Licensee shall maintain the 3-panel kiosk (installed in 2011) with current information/interpretation/map of area/recreation opportunities. On the recreation opportunity map, specifically include location of campsites, picnic sites, potable water, trails, boat launches, etc.

Within 2 years of license issuance, Licensee shall close and gate the informal boat ramp on the west end of Bowman Lake, but continue to allow people to carry their water craft beyond the gate to launch. Allow only day use at this site; remove dispersed campsites/fire rings. Post day-use only signs and sign directing those with boats on trailers to east end of Bowman Lake.

Within 5 years of license issuance, Licensee shall implement the action items identified in the Bowman Recreation Corridor Management Plan (BRCMP) related to Bowman Lake. Specifically, if consistent with the BRCMP, and among the other items identified in the BRCMP:

- Convert the dispersed sites on NFS land, located approximately one-quarter mile west of Bowman Campground to day-use picnic sites (Development Scale 2). This would include designating and controlling parking with barriers to minimize erosion potential, replacing fire rings with barbeque grills with self-contained ash boxes, installing tables, providing signage, and creating walking paths to the sites. If picnic sites are determined to be not desired at this location, close and rehabilitate these campsites.
- At Bowman Lake, within the Bowman Recreation Corridor on NFS lands, eliminate all dispersed primitive campsites, and restrict all camping to formal campground sites with sanitation facilities and campfire facilities.
- Expand camping on developable lands west of the current campground by constructing approximately 20 sites (depending on land development capability) in the Tree Camp area

(Development Scale 2). There is an estimated capacity for approximately 10 sites south of the road and 10 sites north of the road. This area already has several metal fire rings in place south of the county road. Provide additional toilets to serve these sites (vault toilet 1 stall per 35 PAOT and no more than 500 feet between toilet and campsites).

Within 7 years of license issuance: within 1,500 feet of roads within the Bowman corridor on NFS lands, eliminate/rehabilitate or convert to picnic sites all the dispersed campsites that are not incorporated into the developed campgrounds (either family or group campground identified above). For dispersed campsites converted to picnic sites, this would include designating and controlling parking with barriers to minimize erosion potential, replacing fire rings with barbeque grills with self-contained ash boxes, installing tables, providing signage and creating walking paths to the sites.

Sawmill Reservoir

Within 5 years of license issuance:

- Construct a 25 PAOT Group Campground (near former BSA camp) (Development Scale 2) at least 100 feet away from the water's edge:
 - Install single-unit vault toilet.
 - Facilities shall include five picnic tables, two serving tables, one group fire ring, large animal-resistant lockers, site markers, and gate.
 - Install a Site Identification sign to Forest Service sign standards.
 - Install a three panel information/regulation bulletin board at campground entrance.
 - Install self-service fee collection station at campground entrance (If Licensee desires to recover operating costs).
 - Provide animal resistant garbage containers and garbage service.
 - Barricade roadway and parking area to prevent off road travel.
 - Barrier the existing adjacent informal boat ramp to allow only car-top launching.
- If the FS's 10(a) recommendation to construct a 15-20 unit Development Scale 2 family campground on the north edge of Sawmill Lake is not included in the license, the Licensee shall construct a 10-unit family campground (Development Level 2) on NFS lands on the north shore of Sawmill Lake, east of the group campground. This campground shall include:
 - Install info kiosk at day use parking by dam.
 - The site may include a few walk-in sites developed on the flat. Develop parking for walk-in sites prior to the steep terrain (over 20 percent). Campsites should be located at least 100 feet from the lake.
 - Enhance the views from the campsites that overlook the lake by selectively thinning trees between the lake and the campsites.
 - Facility shall provide: vault toilet in the quantity of 1-stall per 35 PAOT, distributed so that there is no more than 500 feet between a campsite and restroom; 30-cubic foot animal-resistant food storage lockers, site markers, tables, tent pads, and fire rings.
 - Construct one lane native-surface road with turnaround and a minimum of one parking spur per campsite (barricaded with boulders to keep vehicles on road and spurs).
 - Install an information/regulation kiosk at campground entrance/self-service fee collection station.

- Dismantle all dispersed campsites on NFS lands not incorporated and converted into developed campsites.
- Allow boat-in dispersed camping on south shore on NFS lands unless resource degradation occurs.
- Post “Camping at Designated Sites Only” signage at vehicle access points on NFS lands.

Canyon Creek Area

Canyon Creek Campground

Within 5 years of license issuance, Licensee shall:

- Reconstruct as a Development Scale 3 campground and make 100 percent accessible, or to the degree topographically feasible.
- Redesign and convert the west end of the campground into a minimum of a 25 PAOT group site. Provide group campground facilities including 2 serving and 5 picnic tables, a group campfire ring, group grill, tent pads, and graded cooking area. If in the Bowman Recreation Corridor Management Plan it is determined that there is not a sufficient projected demand for group camping in this area to justify a group campground, decommission this portion of the campground.
- Replace the two restrooms. Provide paved or compacted graveled turnout in front of each toilet.
- Provide large food lockers (minimum 30-cubic foot) for each site and four lockers for the 25 PAOT group camp.
- Provide an information/interpretive display about the recreation opportunities in the area. Include information about fire, sanitation and safety; and interpretive information about the natural resources (including protection of resources, such as prevention of the spread of amphibian *chytrid* fungus and aquatic invasive mussels).
- Install a self-service pay station (if Licensee wishes to recover some of the operating costs) with three-panel information board and provide a paved or compacted gravel parking turnout adjacent to the entrance station.
- Provide road surface treatment of all interior campground roads and spurs as prescribed by the Pavement Management System. Or, grind up asphalt once it has deteriorated and relay/compact to a Maintenance Level 3 Road and spurs.
- Provide a paved or compacted gravel parking turnout adjacent to the entrance station.

Canyon Creek Dispersed Sites

Within 5 years of license issuance:

- Create a new linear layout 10-15 unit Development Scale 2 campground that maintains some of the dispersed “feel” of the existing dispersed campsites along Canyon Creek. Maintain 100 feet distance from the creek’s edge. Incorporate the existing 6-8 dispersed campsites to east of the existing campground up to the culverts within a mature stand of trees. Develop 4-7 additional campsites in a similar layout along Canyon Creek.

- Install two 1-unit vault toilets to service all 10-15 sites in a layout so that there is no more than 500 feet between toilets and the campsites, and a minimum of one toilet per 35 PAOT.
- Rather than expand the formal campground by constructing extensive road system, use existing native surface spurs off main road as “campsite” spurs and keep the “dispersed” feel to the sites, or create new native surface spurs of similar design for new sites. Place rock barriers around spurs to prevent vehicles from driving beyond the spurs.
- Install table, food locker, fire ring, tent pads, and site marker at each site.
- Install a Site Identification sign (FS sign standard), entrance station, and signs.
- Install a self-service pay station if Licensee wishes to recover some of the operating costs.
- Remove and restore all remaining dispersed sites along Canyon Creek that are not incorporated into the expansion of Canyon Creek Campground.

Jackson Creek Campground

At the Bowman Road/Faucherie Road junction, maintain the 3-panel sign (installed in 2011) for information/interpretation/map of area with current information and recreation opportunities, i.e. show campgrounds, location of potable water, etc.

Within 10 years of license issuance, redesign and reconstruct as a Development Scale 3 campground, including:

- Construct a host campsite that includes potable water, septic (or holding tank), and preferably power (e.g. solar panels or quiet generator).
- Evaluate opportunity to provide accessibility at all campsites and (to the degree topographically feasible) implement these opportunities.
- Replace double-unit toilet with two single-unit accessible toilets to reduce distances between campsites and toilets. Provide paved or graveled turnout in front of each toilet, and access route to the toilet entrances.
- Replace bulletin boards and signs.
- Replace wood barriers with rock barriers and replace unit markers
- Replace fire rings and picnic tables
- Reconstruct entrance station and signs. Install a self-service pay station if Licensee wishes to recoup some of the operating costs.
- Install animal resistant food storage lockers (minimum 30-cubic feet).
- Pave or gravel all interior campground roads and spurs. Include a paved or graveled parking turnout adjacent to the entrance station.

Bowman Recreation Corridor Trail Development

Sawmill Trail

If not completed under the current license, within 2 years of license issuance, if neither of the FS’s 10(a) recommendations to (1) construct a pedestrian bridge crossing over Canyon Creek or walkway across Sawmill Spillway or (2) utilize the day use parking area at Faucherie as a trailhead and construct a Trail Class 2 trail (12-18 inches wide) between Faucherie and Sawmill lakes are included in the license, Licenses shall construct a trail from the group campground

along the north east shoreline and around the east end of Sawmill Lake, bridge across Canyon Creek and connect to the Grouse Ridge Trail on the south side of Sawmill Lake. The primitive trail would be a Trail Class 2 single-track (12-18 inches wide), natural surface tread trail with a general grade of 10 percent slope or less and stretches up to 20 percent for up to 200 feet and 30 percent up to 50 feet (over rock). Due to sections of solid rock terrain, cairns, and other small signs may be utilized in these short segments to identify the trail tread and be used to keep visitors on the designated trail.

French Lake Trail

FS has also included 10(a) recommendations for small portions of these trails that occur on Licensee lands. Within 5 years of license issuance, construct and maintain one of the following (the selection below shall match with the selection of French Lake Trail in the Section 10(a) recommendation):

- An approximately 1.75-mile primitive trail (Trail Class 2) from the boundary of Licensee and NFS lands on the north side of Faucherie Lake to French Lake with a pedestrian bridge over Canyon Creek below the Faucherie spillway.
- An approximately .25-mile primitive trail (Trail Class 2) from FS 843-37 Road, at the bend below the large culvert crossing of Canyon Creek, to the boundary of Licensee and NFS lands north of Canyon Creek. An approximately 2.25-mile primitive trail (Trail Class 2) from the boundary of Licensee and NFS lands north of Faucherie Lake to French Lake (no bridge needed). . Create a trailhead with parking for 6-10 vehicles near the start of the trail and provide information panels. Coordinate the location of toilet for the Canyon Creek Dispersed Site Conversion to a developed campground to also serve the trailhead toilet.

The trail would be a Trail Class 2 single-track (12-18 inches wide) natural surface tread trail with a general grade of 10 percent slope or less and stretches up to 20 percent for up to 200 feet and 30 percent up to 50 feet (over rock). Due to sections of solid rock terrain, cairns and small signs may be utilized in these short segments to identify the trail tread and be used to keep visitors on the designated trail.

Other Trail Measures

- Install trail and lake directional signs at the trail entry points.
- Provide trail system information on a bulletin boards and kiosks in the Bowman Recreation Corridor.
- Provide maintenance on NFS lands on the French Lake, and if applicable, the Faucherie to Sawmill trail annually. Work shall be performed in compliance with Standard Specifications for Construction and Maintenance of Trails EM-7720-103 (or equivalent at the time of maintenance). Annual maintenance will include logging out trails, imminent danger tree removal, drainage maintenance (including installing new drainage structures as needed), bridge maintenance, and loose rock removal. On a five year cycle, trail maintenance will also include brush cutting; embedded rock and root removal; slough and berm removal; and (if appropriate) turnpike, retaining wall and switchback maintenance. Reconstruction needs (including bridge reconstruction) will be addressed on an “as needed” basis.

Lang's Crossing

Within 5 years of license issuance, Licensee shall install a single vault toilet on NFS lands adjacent to Bowman Road at Lang's Crossing.

Recreation Plan Revision

Licensee and FS will meet to discuss the need to update the Plan if significant changes in recreation use or resources occur. A need may arise from recreation monitoring results, from day-to-day O&M of the Project, or, from other unanticipated events that may arise during the license period. Examples of such events that may trigger a need to update the plan include:

- Revisions and updates to FS or other applicable management plans.
- Substantial changes (greater than 25 percent change) in Project recreation use on or affecting NFS land, as revealed by the project monitoring.
- Changes in road maintenance standards or similar physical factors affecting the use of the recreation facilities within the Project area.
- Reaching occupancy (or other) triggers where new, but previously unanticipated, facilities will be required.
- Catastrophic natural events, such as major forest fires or natural disasters, and significant effects of social disorder.
- New federal or state policies, regulations, and laws (including Wilderness designation of land within or near the Project) that significantly affect recreation resources in the Project area.
- Acquisition by FS of non-Licensee private land around project lakes which would allow for improvements where there is a demand, but suitable land was previously unavailable for construction of such improvements.
- Documented substantial changes in demographic use patterns (e.g. increases in size or amount of RV use, changes in types of boats using the lake), visitor needs, recreation preferences, types or patterns of use, season of use changes (such as school schedule changes) or other social factors affecting recreation facilities within the Project area.

Any updates to the Plan would be prepared in consultation with FS and other agencies, as appropriate. FS and other agencies will be provided sufficient time to comment and make recommendations before License files the updated Plan with the Commission. Updates to the Plan that are on NFS lands will be approved by FS prior to filing with the Commission. Licensee will include documentation of consultation when it files the updated Plan with the Commission. If Licensee does not adopt a particular agency recommendation, the filing of the updated Plan will include the reasons for not doing so.

Management of Project-Related Recreation

Within 1 year of license issuance, Licensee shall coordinate with FS to develop a plan to address the management of Project-related recreation on NFS lands, including the option of Licensee utilizing FS to conduct the management. In addition to addressing the management of the Project facilities, this component shall address, at a minimum, the following:

- Monitor and seek compliance with safety, camping closures, fire clearance, fire restrictions, and other measures.
- Patrol, or provide for patrols, through fire season with personnel that have the ability to extinguish abandoned and escaped campfires, and perform fire prevention duties.
- Provide for patrols, through the recreation season (including the peak season— generally Memorial Day to Labor Day; and the shoulder season which generally lasts through mid-October) with personnel that have the authority to enforce Federal Register 36 CFR 261 regulations on NFS lands.
- Install and maintain signs; adjust as seasonally needed.
- Disperse information to the public including appropriate OHV and firearm use, campfire safety, leave no trace, and other messages to reduce resource impacts and inter-user conflicts.
- Patrol dispersed public use areas within one-quarter mile of all Project lakes and Project-affected waterways.
- Monitor and report vandalism of facilities, cultural sites or other resource damage.
- Report illegal activities and cooperate with law enforcement agencies.
- Monitor and seek compliance with regulations associated with camping, parking, food storage, whitewater boating, and other uses.
- Remove trash, remove evidence of human waste, and clean fire rings from dispersed campsites and other areas of concentrated public use within 1/4 mile of all Project and Project-affected waterways.
- Maintain fuels clearance within 100 feet of all dispersed campsites (including fire clearance around Project-provided steel fire rings and user created fire rings) surrounding Project lakes.
- Remove visitor created fire rings in areas where camping is limited to designated sites.
- Perform other duties that provide for the safety of the public and protection of Project-affected resources.
- Maintain a log of activities, key resource issues, and public concerns to summarize in an annual report provided at least 30 days prior to the Annual Coordination Meeting.
- Coordinate with county sheriff for provided services.
- From May through October provide monthly detailed inspection and reporting of facility maintenance and management to assure they are operated to FS standards.

Condition No. 58 – Recreation Streamflow Information

Beginning as soon as reasonably feasible, but not later than one year after license issuance, Licensee shall provide real-time streamflow information, in cfs, for the following Project-related stream reaches:

- Middle Yuba River at Jackson Meadows Reservoir Dam
- Middle Yuba River below Milton Reservoir Dam
- Canyon Creek below French Dam
- Canyon Creek below Bowman Reservoir Dam

The streamflow information will be from the streamflow gage to document compliance with minimum and spill cessation streamflow requirements in the reach. If that gage is not USGS rated above the compliance flow, Licensee shall make a good faith effort to estimate the flow

above the USGS rating. The flow information shall be made available to the public via the Internet; the publication of the information may be accomplished through a third party. The preference is that data shall be reported in 15-minute intervals; however, data that is reported no less than in hourly intervals is acceptable.

Condition No. 59 – Visual Resource Management Plan

Upon Commission approval, Licensee shall implement the Visual Resource Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215041).

Condition No. 60 – Historic Properties Management Plan

Upon Commission approval, Licensee shall implement the Historic Properties Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215010).

Condition No. 61 – Transportation System Management

Upon Commission approval, Licensee shall implement the Transportation System Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215039).

Condition No. 62– Fire Management and Response Plan

Upon Commission approval, Licensee shall implement the Fire Management and Response Plan, filed separately with the Commission (FERC Library Accession No. 201311215036).

Condition No. 63 – Review of Improvements on National Forest System Lands

If during the term of the License the Commission determines that the project involves the use of any additional National Forest System (NFS) lands, outside the current project boundary, Licensee shall obtain a special use authorization from FS for the occupancy and use of such additional NFS lands. Licensee shall obtain the executed authorization before beginning any ground-disturbing activities on NFS lands outside the FERC boundary covered by the special use authorization, and shall file that authorization with the Commission if the activity is related to the Project. Licensee shall be responsible for the costs of collecting all information directly related to the evaluation of the effects of the proposed occupancy and use that FS needs in order to make a decision concerning issuance of a special use authorization.

If, during the term of the License, Licensee proposes to perform any project construction work, Licensee shall obtain a construction temporary special use authorization from FS before beginning any ground-disturbing activities on NFS lands outside the FERC boundary. The special use authorization will include appropriate vegetation management and erosion control measures as needed to protect NFS lands and resources. Licensee shall be responsible for the costs of collecting all information directly related to the evaluation of the effects of the proposed construction that FS needs in order to make a decision concerning issuance of a construction temporary special use authorization. Licensee may commence ground-disturbing activities authorized by the License and construction temporary special use authorization no sooner than

60 days following the date Licensee files FS temporary special use authorization with the Commission, if the temporary special use authorization is related to Project activity, unless the Commission prescribes a different commencement schedule. In the event there is a conflict between any provisions of the License and FS special use authorization, the special use authorization shall prevail to the extent that FS, in consultation with the Commission, deems necessary to protect and utilize NFS resources.

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Appendix I-2

Bureau of Land Management 4(e) Conditions: Yuba-Bear Project

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**Bureau of Land Management Final Conditions and
Recommendations
Provided Under 18 CFR § 4.34 (b)(1)
In Connection with the Application for Relicensing for the
Yuba-Bear Hydroelectric Project
(FERC No. 2266)**

14 April 2014

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V. FINAL RECOMMENDATIONS, TERMS AND CONDITIONS FOR THE YUBA-BEAR PROJECT

The BLM through its final recommendations, terms and conditions and prescriptions seeks to ensure appropriate levels of resource protection are incorporated in any new license. The BLM recommends that the FERC include in any new license issued for the YB Project the following BLM final recommendations, terms and conditions. The BLM believes that the resource measures presented in this section adequately address impacts to the ecological and cultural resources impacted by the YB Project.

These Final License Articles are submitted to FERC as 4(e) Conditions (both specific and general/administrative) and 10(a) Recommendations.

a. FINAL 4(e) Conditions

Condition No. 1 – Annual Employee Training

Licensee shall, beginning in the first full calendar year after license issuance, annually perform employee awareness training, and shall also perform such training when a staff member is first assigned to the Project. The goal of the training shall be to familiarize Licensee's operations and maintenance (O&M) staff with special-status species, non-native invasive plants, and sensitive areas (e.g. special-status plant populations and non-native invasive plant locations) that are known to occur within or adjacent to the FERC Project Boundary on BLM lands, and procedures for reporting to each agency, as appropriate, to comply with the license requirements. Licensee shall provide to each O&M staff a confidential map showing these sensitive areas including GPS coordinates, as well as pictures and other guides to assist staff in recognizing special-status species, non-native invasive plants, and sensitive areas. It is not the intent of this measure that Licensee's O&M staff performs surveys or become specialists in the identification of special-status species or noxious weeds. Licensee shall direct its O&M staff to avoid disturbance to sensitive areas, and to advise all Licensee contractors to avoid sensitive areas. If Licensee determines that disturbance of a sensitive area is unavoidable, Licensee shall consult with BLM to minimize adverse effects to sensitive resources. This measure applies to employee training that is not otherwise covered by a specific plan.

Condition No. 2 - Coordinated Operations Plan

Licensee shall, within 90 days after issuance of new licenses for the Yuba-Bear Hydroelectric Project or Drum-Spaulding Project, whichever is later, file with FERC for approval a Coordinated Operations Plan (Plan). Licensee shall develop the Plan in consultation with the licensee for the (Drum-Spaulding Hydroelectric Project). The purpose of the Plan shall be to provide for coordination between the Yuba-Bear Hydroelectric Project and Drum-Spaulding Project to assure implementation of flow-related measures in the two project licenses. Licensee shall file the Plan, with evidence of consultation as the Plan relates to compliance with flow-related measures, with FS, BLM, CDFW, SWRCB, and Licensee of the Drum-Spaulding Project, with FERC. Licensee shall implement those portions of the Plan approved by FERC.

Condition No. 3 – Water Year Types

Within 90 days of license issuance, Licensee shall in each year in each of the months of February, March, April, May and October determine water year type as described in Table 1. Water Year types for the Yuba-Bear Hydroelectric Project below. Licensee shall use this determination in implementing articles and conditions of the license that are dependent on water year type. Water year types shall be defined as:

Table 1. Water Year types for the Yuba-Bear Project

Water Year Type	DWR Forecast of Total Unimpaired Runoff in the Yuba River at Smartville in Thousand Acre-Feet or DWR Full Natural Flow Near Smartville for the Water Year in Thousand Acre-Feet ¹
Extreme Critically Dry	Equal to or Less than 615 or 2 nd year of a back-to-back Critically Dry Water Years (<=900) ²
Critically Dry	616 to 900
Dry	901 to 1,460
Below Normal	1,461 to 2,190
Above Normal	2,191 to 3,240
Wet	Greater than 3,240
¹ DWR rounds the Bulletin 120 forecast to the nearest 1,000 acre-feet. The Full Natural Flow is provided to the nearest acre-foot, and Licensee will round DWR's Full Natural Flow to the nearest 1,000 acre-feet.	
² Applies only to minimum instream flows in the Bear River below Rollins Reservoir.	

In each of the months of February, March, April and May, the water year type shall be based on California Department of Water Resources (DWR) water year forecast of unimpaired runoff in the Yuba River at Smartville as set forth in DWR's Bulletin 120 entitled "*Water Year Conditions in California.*" DWR's forecast published in February, March and April shall apply from the 15th day of that month to the 14th day of the next month. From May 15 through October 14, the water year type shall be based on DWR's forecast published in May.

From October 15 through February 14 of the following year, the water year type shall be based on the sum of DWR's monthly (not daily) full natural flow for the full water year for the Yuba River near Smartville as made available by DWR on the California Data Exchange Center (CDEC) in the folder named "FNF Sum." (Currently these data are available at: <http://cdec.water.ca.gov/cgiprogs/stages/FNFSUM>). If DWR does not make the full natural flow for the full water year available until after October 14 but prior to or on October 31, from 3 days after the date the full natural flow is made available until February 14 of the following year, the water year type shall be based on the sum of DWR's monthly full natural flow for the full water year as made available. If DWR does not make available the final full natural flow by October 31, the water year type from November 1 through February 14 of the following year shall be based on DWR's May Bulletin 120.

Condition No. 4 – Minimum Streamflows

Licensee shall meet the minimum streamflows shown in the Minimum Streamflow Table below.

Minimum streamflows in this part of the measure shall mean the instantaneous flow except as otherwise provided below, and Licensee shall record instantaneous streamflow at all gages as required by USGS (Article 8 of FERC’s Form L-5, Standard Articles):

- Minimum streamflows may be temporarily modified for short periods upon consultation with CDFW, SWRCB, FS, and BLM and approval by SWRCB and FS or BLM, as applicable, and notification to FERC.
- Minimum streamflows may be temporarily modified due to an emergency. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. If the minimum streamflows are so modified, Licensee shall notify FERC, CDFW, SWRCB, FS, and BLM as soon as reasonably possible, but no later than the end of the next business day (business days do not include weekends and federal or state holidays) after such modification.

Except as otherwise provided, Licensee shall implement minimum streamflows shown in the Minimum Streamflow table in this measure within 90 days of license issuance unless a facility modification or construction is necessary. Where a facility must be modified or constructed to allow compliance with the required minimum streamflows, including flow measurement facilities, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facility as soon as reasonably practicable but no later than 2 years after license issuance and will complete the work as soon as reasonably practicable but no later than 2 years after receiving all required permits and approvals for the work. During the period before facility modifications or construction are completed, and starting within 90 days after license issuance, Licensee shall make a good faith effort to provide the specified minimum streamflows within the reasonable capabilities of the existing facilities.

Table 2 Minimum Streamflows¹ in cubic feet per second (cfs)

Month	Extreme Critically Dry Water Year	Critically Dry Water Year	Dry Water Year	Below Normal Water Year	Above Normal Water Year	Wet Water Year
BEAR RIVER – BELOW DUTCH FLAT AFTERBAY DAM¹⁶ (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11421790)						
October	7	7	8	10	13	13
November	7	7	8	10	13	13
December	7	7	8	10	13	13
January	7	7	8	10	13	13
February	10	10	15	20	22	30
March	15	15	20	25	30	40
April	20	20	25	30	35	45
May	15	15	20	25	30	40
June	10	10	15	20	22	30
July	10	10	10	10	12	15
August	10	10	10	10	12	15
September	10	10	10	10	12	15
¹⁶ Refer to Condition No.5 regarding Minimum Streamflows during Drum-Spaulding Project Drum Canal outages.						
BEAR RIVER - BELOW CHICAGO PARK POWERHOUSE¹⁵						
There is no Minimum Streamflow release requirement from Chicago Park Powerhouse.						
¹⁵ Refer to Condition No.6 regarding motoring of the Chicago Park Powerhouse.						

BEAR RIVER – BELOW ROLLINS DAM ^{16, 17/2} (COMPLIANCE POINT: USGS STREAMFLOW GAGE 11422500)						
October	20	40	40	55	65	65
November	15	20	23	30	40	50
December	15	20	23	30	40	50
January	15	20	23	30	40	50
February	15	20	23	30	40	50
March	15	20	25	30	40	50
April	15	40	40	50	75	75
May	20	45	45	65	100	100
June	20	50	50	65	125	125
July	20	50	50	70	109	125
August	20	50	50	70	109	125
September	20	50	50	70	80	80
¹⁶ Refer to Condition No7 regarding Rollins Dam spill cessation schedule.						
¹⁷ Refer to Condition No. 8 regarding Rollins Reservoir operations control						

Condition No. 5 – Canal Outages (Reflect Errata Filed on May 19, 2014)

This part of the measure pertains to canal outages that affect minimum streamflows described in this measure. For the purpose of this part of the measure, there are three types of canal outages: 1) annual planned outages; 2) non-routine planned outages; and 3) emergency outages. For the purpose of this part: an “annual planned outage” is defined as an outage that is typically taken around the same time each year for routine maintenance; a “non-routine planned outage” is defined as an outage for work that is high priority work (often major maintenance) and performed under planned conditions but is not performed during the annual planned outage period; and an “emergency outage” is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

During the Annual Meeting (Condition No.42) Licensee shall inform meeting participants about annual planned outages that are already planned at the time of the Annual Meeting for the upcoming year. Licensee shall in good faith provide FS, CDFW, SWRCB, and BLM as much notice as is reasonably possible for any annual planned outages and non-routine planned outages of the conduit that were not noted in the Annual Meeting or that become anticipated to occur at a time that is different than reported in the Annual Meeting, or that become For all annual planned outages and non-routine planned outages, Licensee shall comply with the Canal Fish Rescue Plan (Condition No.11) as well as all applicable laws and permitting requirements. Licensee shall provide FS, BLM, CDFW and SWRCB notice by electronic mail as soon as reasonably possible, but no later than the end of the next business day (business days do not include weekends and federal or state holidays) after an emergency outage occurs.

During outages of the Drum Spaulding Project’s Drum Canal, which is upstream of Dutch Flat Afterbay Dam, Licensee shall adhere to the Minimum Streamflow below Dutch Flat Afterbay Dam shown in Minimum Streamflow table until Dutch Flat Afterbay reaches an elevation of 2,700 feet, after which the minimum streamflow below Dutch Flat Afterbay Dam during the Drum Canal outage shall be outflow equals inflow.

Condition No. 6 – Chicago Park Powerhouse Motoring (Reflect Errata Filed on May 19, 2014)

Licensee shall, from May 1 through September 15 of each year, make a good faith effort to avoid non-routine planned outages and operate the turbine/generator unit in Chicago Park Powerhouse in a synchronous condense mode when the unit is not generating electricity (i.e., "motor" the unit). If from May 1 through September 15 Licensee shuts down the Chicago Park Powerhouse for a non-routine planned outage which would cause the Dutch Flat Afterbay to spill, Licensee shall make a good faith effort to motor the powerhouse until the flows from the Dutch Flat Afterbay, consistent with Condition No. 7 (i.e., regarding spill cessation at Dutch Flat Afterbay Dam), reach the tailrace of the Chicago Park Powerhouse.

Condition No. 7 – Spill Cessation Measures (Reflect Errata Filed on May 19, 2014)

This part pertains to spill cessation and operations at Bear River below Dutch Flat Afterbay Dam.

Licensee shall make a good faith effort to provide the target flows, measured as mean daily flow, within 10 percent of the target flows shown in Tables 1, 2 of this measure. However, it is recognized that some conditions (e.g., storm conditions) may result in flows outside Licensee's ability to control. The target flows are targets only, and as long as Licensee shall make a good faith effort to meet the target flows, failure to meet the target flows shall not be considered a violation of this part of the measure. The requirements in this part are not subject to a ramping rate. Licensee shall make available to SWRCB, CDFW, FS, and BLM the streamflow records related to the spill cessation schedules upon request.

The dam spill cessation schedule requirements in this part are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an outage due to an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents. If Licensee temporarily modifies the requirements of this condition, Licensee shall make all reasonable efforts to promptly resume performance of the requirements and shall notify BLM, FS, SWRCB, and CDFW within 48 hours of the modification.

Licensee shall commence the dam spill cessation schedules in this part within 90 days of license issuance unless a facility modification or construction is required. Where a facility must be modified or constructed to allow compliance with the required spill cessation schedule, including flow measurement facilities, except as otherwise provided, Licensee shall submit applications for permits to modify or construct the facilities as soon as reasonably practicable but no later than 2 years after license issuance and will complete the work as soon as reasonably practicable but no later than 2 years after receiving all required permits and approvals for the

work. During the period before facility modifications or construction are completed, and starting within 90 days after license issuance, Licensee shall make a good faith effort to provide the specified spill cessation schedules within the reasonable capabilities of the existing facilities.

Dutch Flat Afterbay Dam

License shall adhere to the Dutch Flat Afterbay Dam spill cessation schedules described in Table -1(for spills of 3 days or less) and Table 2 (for spills of more than 3 days) between May 1 and September 30 when the Chicago Park Flume and/or Powerhouse are out of service due to either planned or unplanned/emergency outage or Licensee has restricted the capacity of the Chicago Park Flume such that it results in spilling of the Dutch Flat Afterbay. During a Chicago Park Flume and/or Powerhouse outage that results in spilling of the Dutch Flat Afterbay, Licensee shall establish a draft of between 50 and 100 cfs from the Dutch Flat Afterbay Dam low-level outlet as high as possible depending on available water to maintain the Dutch Flat Afterbay level at or above 2,732 feet elevation, below which cavitation could cause unit reliability issues with Dutch Flat No. 2 Powerhouse. The spill cessation schedules in Table 1 and Table 2 shall begin when the Chicago Park Flume and/or Powerhouse is brought back on-line and the Dutch Flat Afterbay ceases spilling, as observed at the ogee-crest spillway at Dutch Flat Afterbay, and shall continue until the minimum streamflow Flow for that Water Year Type and month as shown in Table 1 of this measure is reached.

Table 1. Spill cessation schedule in the Bear River downstream of Dutch Flat Afterbay Dam for spills at Dutch Flat Afterbay lasting 3 days or less.

If the peak of the licensee-caused spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of spill flow is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the spill cessation schedule continuing until Target Flows are 25 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less than the applicable Minimum Streamflow shown in Condition No. 4; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Target Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11421790
1 day	75 cfs
1 day	50 cfs
1 day	25 cfs

Table 2. Spill cessation schedule in the Bear River downstream of Dutch Flat Afterbay Dam for Licensee-caused spills at Dutch Flat Afterbay lasting longer than 3 days.

If the peak of the Licensee-caused spill is greater or equal to the highest flow on the spill cessation schedule, then the spill flows will be decreased according to this schedule. If the peak of the Licensee-caused spill is less than the highest flow on the schedule, then the spill flows will be decreased according to the schedule from the observed flow downward. While the table shows the Licensee-caused spill cessation schedule continuing until Target Flows are 25 cfs, each spill cessation event will stop when the Target Flow shown in the table is equal to or less

than the applicable Minimum Streamflow shown in Condition No. 4; that is, the spill cessation event will end at the applicable Minimum Streamflow.

Target Number of Days to Hold Target Flow	Target Mean Daily Flow in cfs at USGS Streamflow Gage Station 11421790
*7 days	75 cfs
7 day	50 cfs
7 day	25 cfs

Condition No. 8 – Rollins Reservoir Elevation Control

Licensee shall make a good faith effort to manage the flows in the Bear River below Rollins Dam in a manner so as to match outflows with inflows when Rollins Reservoir elevation is within the top 2 to 3 feet (2,168.00 feet to 2,171.00 feet) of the reservoir. The goal of this measure is to eliminate rapid fluctuations in the Bear River below Rollins Dam. To the extent possible, Licensee shall manage the reservoir elevation within the top 2 to 3 feet of the reservoir by adjusting the draft out of reservoir into the Bear River based on inflows to Rollins Reservoir that are above downstream water supply demand. The adjustments shall be done over a period of time so as to have the draft at maximum when Rollins Dam begins spilling. After May 1 of each calendar year, when Rollins Reservoir inflows begin to subside and Rollins Dam stops spilling, Licensee shall manage the reduction in draft in a manner so as to keep Rollins Reservoir in the top 2 to 3 foot band while also managing flow releases below Rollins Dam so that the stage (water depth) does not decrease more than 1 foot total during any 3-week period (measured at USGS gage 11422500).

The requirements of this measure are subject to temporary modification if required by equipment malfunction, as directed by law enforcement authorities, or in emergencies. An emergency is defined as an event that is reasonably out of the control of Licensee and requires Licensee to take immediate action, either unilaterally or under instruction of law enforcement, emergency services, or other regulatory agency staff, including actions to prevent the imminent loss of human life or damage to property. An emergency may include, but is not limited to: natural events such as landslides, storms, or wildfires; vandalism; malfunction or failure of Project works; or other public safety incidents.

Condition No. 9 – Rollins Dam Large Woody Material Management

Licensee shall, in October of each year, relocate the large woody material that has accumulated on the upstream side of Rollins Dam spillway log boom to the downstream side of the log boom. Licensee shall allow the large woody material between the log boom and spillway to pass over the spillway when the reservoir spills. This measure does not require that Licensee gather large woody material and deposit it near the log boom, or modify Rollins Reservoir operations to facilitate the passage of large woody material over the spillway.

Licensee shall survey LWM in the approximately 10-mile reach of the Bear River downstream of Rollins Dam to Lake Combie during the 5th year after license issuance and report the findings to CDFW, BLM, SWRCB, and FS. If there are less than an average of 2.4 pieces of stable LWM per 100 meters, Licensee shall “anchor” large woody material using a method approved by CDFW and BLM to ensure that at least 2 stable pieces of the size described below occur in each

100 meters. “Stable” LWM is defined as either longer than the channel width or buried at one or both ends. LWM for anchoring purposes is defined as greater than 4.6 m long and greater than 30 cm in diameter.

Subsequently, LWM monitoring - and anchoring if necessary - shall continue once every 5 years throughout the license, and the results shall be reported to CDFW, BLM, SWRCB, and FS both in writing and in the annual meetings.

Condition No. 10 – Steephollow Creek Foothill Yellow-Legged Frog Monitoring

In order to reduce the likelihood and frequency of large magnitude spills into Steephollow Creek, Licensee shall, within one year of license issuance, implement the following:

- Licensee shall set controls to continuously monitor Chicago Park Forebay elevation so as to automatically put the unit into “Float Load Control” at an elevation just below spill elevation to increase the unit load to prevent forebay spill.
- In an effort to shorten the time the Chicago Park conduit is in service after the relay, Licensee shall install a feature that would automatically close the conduit intake at Dutch Flat Afterbay upon a relay of the Chicago Park Unit.

During the course of the new license, the Licensee may, with BLM’s concurrence, implement new technologies to more efficiently prevent spills at Chicago Park Forebay.

Licensee shall, beginning in the first full calendar year after license issuance, monitor foothill-yellow-legged frogs (FYLF) in Steephollow Creek from the confluence with the Bear River for a distance of 1,000 meters upstream. The purpose of the monitoring is to assess if spills from the Chicago Park Conduit result in adverse effects on the FYLF population in Steephollow Creek and, if necessary, to facilitate the development of mitigation measures. Baseline monitoring shall occur in the first full calendar year following license issuance and be repeated in the second and third full calendar years following license issuance.

Event-based monitoring shall occur beginning the second full calendar year after a spill event and will be repeated in the third year following that spill event. When the results of the two years of monitoring are known, Licensee shall consult with BLM, CDFW, and SWRCB as to the need for a third year of monitoring. A Chicago Park Conduit spill event that requires monitoring is defined as:

- A spill of more than 100 cfs between April 1 and June 15; or
- A spill of more than 300 cfs between June 16 and September 15

Licensee shall notify BLM, CDFW, and State Water Board within two business days of any spill event occurring between April 1 and September 15. Spill events between September 16 and March 31 do not qualify as spill events that require monitoring.

FYLF monitoring shall occur for 1,000 meters of Steephollow Creek (i.e., beginning at the confluence with the Bear River) and will consist of a tally of each FYLF life stage detection, recording locations of egg masses with a hand held global positioning system (GPS) device, and photo-documenting Baseline monitoring and event based monitoring will be comprised of four surveys: the first two in spring (typically May) focusing on adults and egg masses, the third at least one month later focusing on tadpoles, and the fourth in late summer/fall focusing on metamorphosed juveniles. Licensee's methods shall follow the methods for visual encounter surveys and data analysis described in Licensee's relicensing 2011 Special-Status Amphibians – Foothill Yellow-Legged Frog Surveys Technical Memorandum (Appendix E12 in Exhibit E of Licensee's April 2011 Final License Application), except that collection of habitat data for FYLF detections will not be necessary.

In years in which monitoring occurs, Licensee shall prepare a report summarizing the monitoring. The report shall include the results of the monitoring, including a description of the spill event (i.e., flow, duration and reason for spill event) if the monitoring was triggered by a spill event, and shall compare the conditions in the creek to those conditions in the creek documented by past monitoring. The report shall include any Licensee recommendations to mitigate observed adverse effects. The report shall be provided to BLM, CDFW, and CDFW by December 31 and shall be discussed at the annual consultation meeting.

If BLM determines that substantial adverse environmental impacts are occurring as a result of such spills, Licensee shall develop and shall implement, in consultation with and upon approval of BLM, effective mitigation measures, up to and including upgrading the facilities to prevent such spill events, to mitigate such impacts.

Condition No. 11 – Canal Outages Fish Rescue Plan

Upon the Commission approval, Licensee shall implement the Canal Outages Fish Rescue Plan, filed separately with the Commission (FERC Library Accession No. 201311215034).

Condition No. 12 – Gaging Plan

Upon Commission approval, Licensee shall implement the Gaging Plan, filed separately with the Commission (FERC Library Accession No.201404115045).

Condition No. 13 – Modifications of 4(e) Conditions in the Event of Anadromous Fish Re-introduction

BLM, reserves the right to modify these conditions to respond to any reintroduction of Chinook salmon or steelhead trout listed under the Endangered Species Act to stream reaches through BLM lands where the flow is controlled by FERC licensed facility.

Condition No. 14 –Aquatic Invasive Species Management and Monitoring

Within one year of license issuance, Licensee shall develop an Aquatic Invasive Species (AIS) Plan that meets applicable State and Federal laws and regulations. The plan shall be approved by

BLM after consultation with FS, CDFW, and SWRCB. The applicable State and Federal resource agencies shall be responsible for making the determination as to whether the AIS Plan complies with the State and/or Federal regulations of their respective agencies.

The AIS Plan shall initially address the following AIS: dreissenid mussels (*Dreissena bugensis* and *Dreissena polymorpha*); New Zealand mudsnail (*Potamopyrgus antipodarum*); Eurasian milfoil (*Myriophyllum spicatum*); Hydrilla (*Hydrilla verticillata*); and Asian clam (*Corbicula fluminea*). However, other AIS may be identified through monitoring.

Additionally, invasive algae (*Didymosphenia geminata*) were found throughout the Project area. If future studies document a safe method of reducing this invasive algae in rivers, Licensee may be asked to implement this task in Project-related locations.

The AIS Plan shall include the following elements:

Public Education Program

The AIS Plan shall include a public education program, including appropriate signage and information pamphlets at designated public boat access sites on Jackson Meadows Reservoir, Milton Diversion Dam impoundment, and Bowman Lake. The AIS Plan shall include appropriate educational signage at boat launch areas at Faucherie Lake, French Lake, and Sawmill Lake. The following shall be addressed:

- Draining water from boat, motor, bilge, live well and bait containers before leaving a water access site.
- Removing visible plants, animals and mud from boat before leaving waterbody.
- Cleaning and drying boats and fishing equipment using California Department of Fish and Wildlife (CDFW) accepted protocols for the prevention of all AIS before entering any waterbody area.
- Disposing of unwanted bait in trash, including earthworms.
- Avoiding the release of plants and animals into a waterbody unless they originally came from that waterbody.

AIS information shall be included on Project websites that provide public information on Project facilities. The public information website will also include information on the amphibian chytrid fungus.

Best Management Practices

The AIS Plan shall specify that Licensee is responsible for developing BMPs for individual Project O&M activities, performed by NID and/or its contractors, which activities have the potential to introduce AIS into a Project reservoir, to prevent the spread of AIS, and submitting them to FS, BLM, SWRCB, and CDFW for review at the Annual Consultation Meeting required in the FERC license.

Development of BMPs for Project activities shall include but not be limited to the following:

- List of AIS with potential to be introduced.
- Control or preventive measures for AIS.
- Identification of critical control points in the Project activity sequence at which to prevent the introduction of AIS.
- Any necessary implementation monitoring for potential AIS to ensure BMPs are followed.
- Actions that will be taken if an introduction of AIS is found.

If invasive aquatic species are detected within any reservoir, Licensee will consult with the appropriate agencies and institute an appropriate plan of action.

Monitoring and Reporting

The AIS Plan shall include a specific monitoring program that addresses all reservoirs that have a boat launch, or identified as having boating access, and that follows State and/or Federal laws, regulations, and policies. The following initial monitoring methods shall be discussed in the monitoring section of the AIS Plan, and the plan shall include observations for the species listed in the “Incidental Observations Monitoring” section below.

- Zebra/Quagga Mussel Surface Surveys
- Zebra and Quagga Mussel Veliger Sampling
- Zebra and Quagga Mussel Artificial Substrate Monitoring

Mapping and monitoring results shall be provided to FS, BLM, CDFW, and SWRCB.

Incidental Observations Monitoring

The AIS plan shall include Incidental Observations Monitoring as follows: During AIS and other license-related aquatic monitoring in project reservoirs and project-affected stream reaches (e.g., fish, foothill yellow-legged frogs (*Rana boylei*), riparian, and geomorphology), Licensee shall record incidental observations of the following species: Quagga or Zebra Mussel, New Zealand Mudsnail, Asian clam, Eurasian milfoil, Hydrilla, *Didyomosphenia geminata* and American bullfrog (*Lithobates catesbeianus*). This initial list may be revised if other potential AIS in project-affected reservoirs and stream reaches are identified. The following practices will be implemented:

- Field personnel performing the license-related aquatic monitoring will be trained in the identification of the species listed above.
- Field crews working in aquatic environments (reservoirs, creeks, or rivers) conducting other biological monitoring will complete a checklist data form at the end of each day indicating the presence/absence (detect/non-detect) of the species listed above. It is recommended that at least one field crew member make a full pass of the survey area each day focusing exclusively on the species on the checklist.

Plan Revisions

Licensee, in consultation with FS, CDFW, SWRCB, and BLM shall review, update, and/or revise the AIS Plan, as determined necessary by BLM in consultation with CDFW, SWRCB and FS, when substantial changes in the existing conditions occur. Additional monitoring may be part of any plan revisions. Changes or revisions to the Plan would be expected if AIS conditions change as a result of unforeseen effects, either from new or existing Project-related activities, the potential for new AIS to occur, or from natural events or if other regulatory or legal requirements are established. Changes in the existing conditions could include such things as new methods for the treatment of *Didymosphenia geminata*. Licensee shall include all relevant documentation of coordination/consultation with the updated Plan filed with FERC.

Condition No. 15 – Terrestrial Protection Measures

Vegetation and Non-Native Invasive Plant Management Plan

Upon the Commission approval, Licensee shall implement the Integrated Vegetation Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215040).

Condition No. 16 – Monitor Animal Losses in Project Canals (Reflect Errata Filed on May 19, 2014)

Beginning in the first full calendar year after license issuance, Licensee shall record animal losses in all Project canals. Specifically, Licensee's operators shall record in log books all dead animals observed on canal trash racks and otherwise in the canals using the Wildlife Mortality data sheets found in Appendix 4-2A of the Wildlife Movement Technical Memorandum (4-2) included in Appendix E12 of Licensee's application for new license. Licensee shall make a good faith effort to record the location of the dead animal (i.e. which Project canal, where in the canal the dead animal was found, and the associated structure), species, date and time of the observation, suspected cause of death if it can be determined from visual observation only, photograph if available, estimated size, estimated age, and sex if known, and other pertinent information. The information will include the cumulative years and preceding year's mortality by canal segment, and a map showing segments (defined by location of trash racks). Licensee shall provide this information to CDFW, FS, and BLM at least 60 days prior to the Annual Consultation meeting described in Condition No. 42.

Licensee shall consult with FS, BLM, and CDFW and other interested parties during the annual consultation meeting, regarding the protection and utilization of the wildlife resources affected by the Project. If there is an increasing trend in animal mortalities in a canal, additional measures to address suspected Project-related causes for that canal may be developed by Licensee in consultation with CDFW, FS, and BLM. The Licensee shall prepare a report that includes the Licensee's recommendations for measures to address animal mortalities, and a schedule of implementation. Licensee shall provide the report to FS, BLM, and CDFW, as appropriate, for review and approval. The Licensee shall file the report, including evidence of consultation, with FERC, and shall implement those resource management measures required by FERC.

Condition No. 17 – Replacement of Wildlife Escape and Wildlife Crossing Facilities

Prior to replacing or retrofitting existing wildlife escape facilities and wildlife crossings along Project canals, Licensee shall consult with CDFW regarding specifications and design and with BLM, as appropriate. Licensee shall file the design, including evidence of consultation, with FERC within 60 days after the wildlife escape facility or wildlife crossing facility has been replaced or retrofitted. Licensee shall also assess existing wildlife escape facilities and wildlife crossing facilities annually to ensure they are functional and in proper working order. Inspections shall occur at the same time other types of maintenance activities or canal assessments are being conducted.

Condition No. 18 – Bald Eagle Management Plan

Upon Commission approval, Licensee shall implement the Bald Eagle Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215033).

Condition No. 19 – Special Status Species

Before taking actions to construct new project features on BLM lands that may affect BLM special status species or their critical habitat on BLM land, the Licensee shall prepare and submit a biological evaluation (BE) for BLM, approval. The BE shall evaluate the potential impact of the action on the species or its habitat. The BLM may require mitigation measures for the protection of the affected species on BLM lands.

The Biological Evaluation (BE) shall:

- Include procedures to minimize or avoid adverse effects to special status species.
- Ensure project-related activities shall meet restrictions included in site management plans for special status species.
- Develop implementation and effectiveness monitoring of measures taken or employed to reduce effects to special status species.

Condition No. 20 – Annual Review of Special-Status Species Lists and Assessment of New Species on Federal Land

Licensee shall, beginning the first full calendar year after license issuance, in consultation with BLM, annually review the current list of special-status plant and wildlife species (species that are Federally Endangered or Threatened, Proposed Threatened or Endangered, BLM's Sensitive, State Threatened or Endangered, State Species of Special Concern, and CDFW Fully Protected) that might occur on public land administered by BLM in the Project area) that may be directly affected by Project operations. When a species is added to one or more of the lists, BLM in consultation with the Licensee shall determine if the species or un-surveyed suitable habitat for the species is likely to occur on public land administered by BLM. For such newly added species, if BLM determines that the species is likely on such public land administered by BLM,

as appropriate, in the Project area that may be directly affected by the Project, Licensee shall develop and implement a study plan in consultation with BLM, as appropriate, to reasonably assess the effects of the project on the species. Licensee shall prepare a report on the study, including objectives, methods, results, recommended resource measures where appropriate, and a schedule of implementation, and shall provide a draft of the final report to BLM for review and approval. Licensee shall file the report, including evidence of consultation, with FERC and shall implement those resource management measures required by FERC.

If new occurrences of BLM special status plant or wildlife species as defined above are detected prior to or during ongoing construction, operation, or maintenance of the Project or during Project operations, Licensee shall immediately notify BLM. If BLM determines that the Project-related activities are adversely affecting BLM sensitive or watch list species, Licensee shall, in consultation with BLM, develop and implement appropriate protection measures

If new occurrences of state or federally listed or proposed threatened or endangered species are detected prior to or during ongoing construction, operation, or maintenance of the Project or during Project operations, Licensee shall immediately notify BLM and the relevant Service Agency (United States Fish and Wildlife Service or National Marine Fisheries Service or CDFW) for consultation or conference in accordance with the Endangered Species Act. If state listed or fully protected species are affected, CDFW shall be notified.

Condition No. 21 – Bat Management

In the first full calendar year after license issuance, Licensee shall document all known bat roosts within Project buildings (e.g., powerhouses, storage buildings, and valve houses), dams, or other structures that may be used as a roosting structure. The results of the inspection will be provided to CDFW, and to FS or BLM if the facility is located on BLM lands, at least 90 days prior to the Annual Consultation Meeting (described in Condition No.42) that follows collection of the information. If bats or signs of roosting are present where staff have a routine presence (i.e., at least daily or weekly), Licensee will attempt, where feasible, and in the calendar year following the annual consultation meeting described above, to place humane exclusion devices to prevent occupation of the structure by bats. Humane exclusion devices will be placed when bats are absent from the facility, generally between November 1 and February 28. Prior to installation of the humane exclusion devices, Licensee shall perform an inspection of the facility to ensure that overwintering bats are not trapped. If overwintering bats are present during the inspection, installation of humane exclusion measures shall be delayed. Licensee shall notify CDFW and BLM of the overwintering bats. Licensee shall consult with the CDFW, FS, or BLM during the Annual Consultation Meeting described in Condition 42. To identify future dates that would be suitable for installation of humane exclusion devices. All exclusion devices will be inspected on an annual basis and the facility will be reevaluated for roosting bats every 3 years after the initial exclusion devices are installed to insure that no new roosts or entry points have been established.

Condition No. 22 – Monitoring Program

Licensee shall implement a Monitoring Program after license issuance and until a new license is issued, in coordination with FS, BLM, CDFW, and SWRCB. The years in which each resource is monitored are identified in each specific monitoring element of the Monitoring Program. For purposes of the Monitoring Program, each year is defined on a calendar year basis (January through December).

The Monitoring Program has been designed to monitor those items that will assist in determining if the resource objectives described in the Rationale Reports previously filed with the Commission by the FS and BLM as a supporting document (not part of a license condition) are being met. Within the scope of the specified Monitoring Program, FS, BLM, CDFW, and SWRCB may select an equal number of alternative years to ensure that surveys occur during a range of water year types if the same number of alternative years are deleted from the current Monitoring Program schedule, and the resource agencies provide to Licensee adequate notice for Licensee to schedule and perform the work. FS, CDFW, BLM, and SWRCB, after consultation with Licensee, have the flexibility to alter the Monitoring Program methodologies and frequencies of data collection if it is determined that: (a) there is a more appropriate or preferable methodology or site to use than that described in the monitoring plan or (b) monitoring may be reduced or terminated because the relevant ecological resource objective has been met or no change in resource response is expected. Any alterations will be filed with the Commission.

Licensee will provide a draft Annual Report to FS, BLM, CDFW, and SWRCB and other parties who submit a written request for a copy of the draft report for a 30-day comment period. The draft Annual Report shall fully describe the monitoring efforts required in BLM Condition No. 22 as well as monitoring results of the previous calendar year. The Annual Report shall also document all non-compliance events/variances from the from the license conditions. Although specific reporting and consultation is required in specific monitoring elements in Condition No. 22, no other Annual Reports for this condition are required. At least 30 days prior to the Annual Consultation meeting, Licensee shall file with the Commission the final Annual Report. Comments shall be addressed in the final report, or as appropriate, comments shall be included with the filing to the Commission. Licensee shall provide copies of the Annual Report to FS, CDFW, BLM, and SWRCB. Every 5 years, Licensee shall provide in the Annual Report a summary report of the monitoring results of the previous 5-year period.

The following guidelines shall be used in implementing the monitoring program: (a) monitoring and studies shall be relevant to the Project, (b) monitoring and studies shall be conducted such that they provide useful information for management decisions or establishing compliance with license conditions, and (c) monitoring and studies shall be as cost-effective as possible.

Fish Populations

Upon Commission approval, Licensee shall implement the Fish Populations Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201311215037).

Foothill Yellow-Legged Frog

Upon Commission approval, Licensee shall implement the Foothill Yellow-legged Frog Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201311215092).

Western Pond Turtle Incidental Observations

Licensee shall perform incidental observations for Western Pond Turtle as follows:

- Crews need to be trained on identification of Western Pond Turtle.
- Record any incidental sightings of Western Pond Turtles during all monitoring field work in rivers and lakes/reservoirs.
- Data shall include location, GPS if available, or location shown on USGS map.
- A written report (including location data) shall be compiled annually and provided at Annual Consultation meeting.
- The report shall be filed with FERC.

Channel Morphology

Upon Commission approval, Licensee shall implement the Channel Morphology Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201311215035).

Water Temperature and Stage

Upon Commission approval, Licensee shall implement the Water Temperature and Stage Monitoring Plan, filed separately with the Commission (FERC Library Accession No. 201404115044).

Aquatic Benthic Macroinvertebrates

Licensee shall, within 1 year following license issuance, develop and file with FERC an Aquatic Macroinvertebrate Monitoring Plan that has been approved by FS, BLM, CDFW, and SWRCB. The licensee shall implement the plan upon approval.

Method: Surface Water Ambient Monitoring Program (SWAMP) at one or more stream temperature stations as designated below, as soon as weather and flow conditions allow safe installation of these devices. Determination of final monitoring site locations shall be made by FS, BLM, CDFW, and SWRCB.

At a minimum, the temperature plan shall include the following locations:

- Bear River (below Rollins Dam): One site co-located with annual fish sampling site.

Frequency:

Annual Fish Sites: Once in each water year type for first 10 years and then follow Fish Population Monitoring Plan schedule.

All Other Sites: Same frequency as Fish Population Monitoring Plan schedule for that site. Data Analysis and Reporting: The plan shall describe data analysis and reporting methods.

Riparian Vegetation

Upon Commission approval, Licensee shall implement the Revised Riparian Vegetation Monitoring Plan, filed separately with the Commission (FERC Library Accession No.201404115043). Please note that the Riparian Vegetation Monitoring Plan includes both FS and BLM lands. BLM recommends that the FS locations be included by the Commission as part of the Riparian Vegetation Plan.

Condition No. 23 – Dutch Flat Afterbay Large Woody Debris

Within 1 year of license issuance, the Licensee shall, in consultation with FS, BLM, CDFW, and State Water Board, prepare a Large Woody Debris (LWD) Management Plan for Dutch Flat Reservoir approved by BLM. The Plan will specify:

- Describe existing locations of LWD collection by Project facilities.
- Describe potential options for moving LWD below Project facilities and keeping the LWD within the river corridor.
- Identify suitable locations where LWD can be placed within the active channel to be mobilized by 2- to 5-year high flow events.

Upon Commission approval, the Licensee shall implement the Plan.

Condition No. 24 - Canal Release Point Plan

Upon Commission approval, Licensee shall implement the Canal Release Point Plan, filed separately with the Commission (FERC Library Accession No. 201404115041).

Condition No. 25 – Recreation Plan

Within one year of license issuance, Licensee will, in consultation and coordination with BLM, develop a Recreation Plan and submit for BLM approval. The following elements shall be addressed in the Recreation Plan:

Licensee shall ensure that the following routine maintenance occurs at Project recreation facilities on BLM lands:

To assist the Licensee in developing a final Recreation Plan for BLM approval, the following elements that should be addressed in the Recreation Plan are provided: Condition No. 26 Licensee Contact, Condition No. 27 Annual Recreation Coordination Meeting, Condition No.28 Review of Recreation Developments, Condition No. 29 Recreation Survey and Monitoring, Condition No. 30 General Measures For All Recreation Sites, Condition No. 31 Vegetation

Management in Recreation Sites, Condition No. 32 Dutch Flat After Bay Day Use Recreation Site, Condition No. 33 Chicago Park Power House and Connecting Facilities and Roads, Condition No.34 Recreation Operation, Maintenance, and Administration, Condition No. 35 Recreation Plan Revision, Condition No. 36. Recreation Cost Managing Facilities, and Condition No. 37. Recreation Streamflow Information.

Condition No. 26 – Licensee Contacts

The licensee shall provide an individual for liaison with BLM, whenever planning or construction of recreation facilities, other major Project improvements, and maintenance activities are taking place on BLM lands. The licensee agrees to cooperate with BLM through this individual in contract review and work inspection.

Condition No. 27 – Annual Recreation Coordination Meeting

Each year during the term of the licenses, licensee will arrange to meet with interested resource agencies BLM at a minimum) for an Annual Recreation Coordination Meeting to discuss the measures needed to ensure use and management, public safety, and protection and utilization of the recreation facilities and resources. The date of the meeting will be mutually agreed to by licensee and the resource agencies but in general will be held within the first 90 days of each calendar year. A detailed agenda will be provided to the resource agencies when the meeting date is proposed to assure that the appropriate parties are present.

The following will be discussed, at a minimum:

- Need for garbage collection based on the results of visitor surveys, evidence that wildlife is becoming habituated, and the status of garbage and litter left on site by users.
- Need for toilet facilities where dispersed camping is occurring will be discussed at least every 6 years (following submittal of Monitoring Report), and more frequently if warranted.
- Report on significant changes in sanitation issues and number and size of user created dispersed camping areas.
- Other O&M issues identified by BLM or Licensee.
- Schedule and invite BLM to the recreation resource impact field evaluations and facility condition assessment to be conducted on BLM lands.
- Significant issues raised by the public.
- Any Licensee proposal for new or increases in recreation fees on BLM lands to help cover the costs of recreation facility construction, operation, and maintenance, as allowed by FERC regulations, will be discussed and approved by BLM.
- Recreation use data that is available from Licensee or the BLM, which includes summary data, at a minimum; and, upon request, raw data.
- Licensee will provide BLM a copy of all documentation associated with FERC inspections of Project recreation facilities and use on BLM lands, including follow-up action taken by the Licensee.
- Status of recreation projects from the previous year, including rehabilitation of existing recreation facilities, the establishment of new recreation facilities, and any other recreation measures or programs that were implemented.

- Recreational use data that is available.
- List of the recreation facilities scheduled for rehabilitation and any other Plan measures or programs to be implemented, including
 - Logistical and coordination planning.
 - Implementation schedule
 - Coordination needs.
 - Permitting requirement.
 - Key resources that will need to be protected from potential impacts associated with the implementation of the scheduled recreation projects.
 - Potential adjustments in schedule.
- Licensee and the agencies will identify any coordination needed with other projects being implemented in the area. Permitting requirements, additional required environmental documentation and key resources that will need to be protected from potential impacts associated with the implementation of the scheduled recreation projects will be addressed. BLM must approve any revisions to the Project's Recreation Facilities Plan schedule when BLM land is involved, and the revised schedule will be submitted to FERC. Within 60 days following the meeting, Licensee will file with FERC evidence of the meeting, which will summarize comments made by the agencies, and Plan revisions or other agreements that were reached by Licensee and the agencies. The Annual Recreation Coordination Meeting is a minimum requirement and it is anticipated that meetings may occur throughout each year as needed to implement the Recreation Plans.

Any adjustments in specific actions or schedules shall be approved by BLM and filed with FERC.

Condition No. 28 – Review of Recreation Developments

The licensee shall schedule a meeting with BLM at least every 6 years to review all Project-related recreation facilities and agree upon necessary maintenance, rehabilitation, construction, and reconstruction work needed and its timing. Because the standard life of recreation facilities ranges from 20 to 30 years, it is anticipated that during the life of the license, facilities that are currently in good condition may need to be redesigned and reconstructed to standards applicable at that time. The criteria for project selection will depend on the amount and type of use, current recreation facility policy, condition of facilities, effects on surrounding areas, and other factors. Following the review, the licensee shall develop a 6-year schedule for maintenance, rehabilitation, and reconstruction, which shall be approved by BLM prior to being filed with FERC.

Condition No. 29 – Recreation Survey and Monitoring

- Licensee shall conduct Recreation Monitoring once every 6 years that will include evaluation of resource impacts from developed and dispersed use, including evidence of garbage and human waste left on site. BLM shall be involved in the evaluation of resource impacts.
- Licensee shall conduct occupancy surveys of all project facilities on a 6-year cycle for Dutch Flat Afterbay and the Chicago Park Recreation Area near Chicago Park Power House.

- Licensee shall conduct a Recreational User Survey (questionnaire) once every 12 years starting from license issuance. Survey methods and questions shall be reviewed and approved by the resource agencies in advance. The Recreation Survey shall be focused to address the key issues at the time. Survey information shall be reviewed by all interested parties.
- At 6 and 12 years after license issuance, Licensee shall prepare the Recreation Monitoring and Survey Report and shall be provided to BLM for review, comment, and approval prior to filing with the Commission. The Recreation Monitoring and Survey Report shall incorporate data from the information listed above, traffic counters, other resource monitoring results, law enforcement input, emergency services (including fire) input, accident reports, Project Patrol reports, occupancy rates and other applicable information. The 6-Year Monitoring Report shall address, at a minimum, the following factors:
 - Occupancy and capacity information.
 - Summarize monitoring results in relation to established triggers and address any changes in trends (including changes in peak season) since previous reports (or initially from relicensing studies).
 - User and resource conflicts.
 - Outstanding health and safety issues.
 - Known bear encounters at sites without food lockers.
 - Kinds and sizes of recreational vehicles (i.e. trailer, RV).
 - A 6-year schedule for maintenance, rehabilitation, reconstruction and new construction.
 - Proposed facility changes based on any mandated updated guidelines, such as ADA.
 - New or modified management actions (increased patrols, additional sanitation facilities, closure orders, etc.) proposed to address concerns identified in report.
 - Summary of the amount of garbage and evidence of human waste noticeable within 100 feet of dispersed campsites and concentrated use sites.

The 12-Year Monitoring Report shall address, at a minimum, the following factors:

- All the items in the 6-Year Monitoring Report,
- Results of visitor surveys.
- Changes in use type, volume, group size, duration of stay, other use pattern and trends.
- Results of resource survey for riparian and lakeshore trampling, barren core area at popular dispersed sites.
- User perceptions of crowding both at facilities and along lakeshore/lake surface.
- User perceptions on the need for garbage collection at developed sites.
- Percent of users seeing evidence of human waste (including toilet paper) and user perceptions on the need for toilet facilities at dispersed sites and concentrated use sites.
- Kinds, quality, quantity, and range of recreational opportunities visitors are engaging in.
- Preferences in recreation activities and amenities.
- Summarize the most current regional and statewide trends in recreation based on available surveys and reports.

Within 1 year of submission of the Report on Recreation Resources Licensee shall consult with the resource agencies and interested parties to review this report and propose appropriate

management actions. In accordance with (Condition No 44), BLM reserve the authority to require changes in the Project and its operation to accomplish protection and utilization of BLM resources identified as a result of these surveys.

Condition No. 30 – General Measures For All Recreation Sites

Routine Recreation Facility Maintenance

The Licensee shall ensure that the following routine maintenance occurs at Project recreation facilities on BLM lands:

- At the beginning of each recreation season, and as needed throughout the season, replace, reset, improve, straighten, and reinstall barriers within and adjacent to all project recreation sites; along the roads surrounding Project lakes, and along Project roads and trails where there is uncontrolled vehicle use.
- If tables have sunk during the winter due to snow loads, they will be brought up to the level of the surrounding ground and placed on level ground.
- Maintain all recreation facilities in good working order. This includes keeping toilet doors and hardware in operating and locking conditions. If a structure is deemed to be unsafe, it will be closed until repairs are completed.
- Developed sites will be free of litter, human, and domestic animal waste.
- During the prime season all facilities will be inspected on a regular basis (as much as daily or more).
- Litter and Trash Collection shall be of a frequency that does not encourage animal encroachment, is not overflowing and does not emit offensive odors. . The frequency will depend on the type of container. Two to four-yard dumpsters need to be dumped at least once a week. Receptacles shall be animal resistant.
- Ashes are to be removed from fire rings and grills, cooled and extinguished and disposed of at a county landfill. Ashes are not to be disposed of onsite and ashes which have been previously disposed of onsite (including those disposed of onsite by users) shall be properly disposed of as described above.
- Developed boat ramps will be inspected for obstacles and deterioration.
- Once a facility has been rehabilitated to provide for accessibility, clear floor space surrounding constructed features, graded tent pads and ORAR shall be maintained.
- Rocks removed from unauthorized fire rings should be turned burned side down outside of campsite.
- Remove trash from toilet vaults when pumped.
- Remove trash from (road accessed) dispersed sites on a weekly basis between Memorial Day and Labor Day and twice monthly after Labor Day, until the facilities are closed for the winter. Remove trash from non-road accessed dispersed sites on a monthly basis between Memorial Day and Labor Day.
- Annually maintain fire ring clearances at designated dispersed sites (10' diameter to bare mineral soil and 10' clearance above fire ring) and maintain site identification markers.
- Within and adjacent to all developed project recreation sites, provide for periodic silvicultural evaluation, stand improvement, view enhancement and vegetative planting work

to identify unseen hazard trees, assure stand health, provide for screening within & between sites and enhance views or project lakes and other scenic features.

Every 2 years inspect all fire rings, maintain in good condition or replace. Good condition includes a level grill with a usable grate.

Condition No. 31 – Vegetation Management in Recreation Sites

The Licensee shall ensure that vegetation management, including but not limited to hazard tree and branch removal, vegetative screening, brushing, or pruning occurs at Project recreation facilities located on BLM lands. The Licensee shall ensure that the following vegetation management elements occur:

- Hazardous trees or branches must be actively searched for and identified by qualified personnel (Land Management Planners, Foresters, and Arborists) and removed in a timely manner. In early spring, a qualified person will survey developed recreational facility boundaries, parking lots and immediate access routes to recreation areas for hazard trees and hazardous branches. Identified trees are to be removed before the campgrounds are occupied by the public. If time allows, hazard tree clearing should be conducted in the late fall to remove the bulk of the trees ahead of the spring camping rush.
- For visual mitigation stumps remaining within developed campgrounds shall be no higher than 6” in height and preferably cut flush with the ground.
- The slash from hazard tree/branch removal will be chipped or lopped and scattered (<18” depth) at least 100 feet away from the recreation site boundary, and the trunk is either hauled away or cut into rounds no larger than 8” diameter and 18” long for use by campers. Larger rounds will be removed from the recreation site or split into firewood size pieces and stacked for use by campers.
- All freshly-cut conifer stumps within 2 hours after the tree is felled will be treated to prevent the spread of Annosus Root Disease. In no case shall stumps be left untreated at the end of the shift during which the tree was felled. The BLM approved stump treatment compound, when applied properly, should cover the entire stump surface with a thin layer and also other areas of the stump where the bark has been knocked off. Where a liquid stump treatment compound is used, the spraying of a thin film of the solution on the stumps surface is all that is needed. A dye, mixed in with this solution, is useful to show where stumps have been sprayed. Handling directions are provided on the labels of stump treatment product containers and should always be followed. Only pesticides registered in California can be used on BLM lands, and all BLM policies and practices and California regulations relating to pesticide use must be followed. To avoid adverse effects to aquatic species and their habitats, the licensee will work with the Federal Agencies regarding pesticide use within recreational facilities that are within 500 feet of aquatic habitats.
- The licensee will maintain 5-foot clearance radius to bare mineral soil around all fire rings, and remove overhanging branches to a height of 10 feet. This includes fire rings within developed recreation sites and those located at dispersed sites. Because wildfires do not stop at land ownership boundaries, fire ring clearance standards need to apply to BLM and Licensee lands.

- During new construction and reconstruction work, the licensee will use care to protect existing vegetation through the incorporation of the Construction Specification Institute (CSI) Section 02233 – Tree Protection, or other specifications that provide equal or better vegetation protection.
- Within and adjacent to all developed project recreation sites, provide for periodic silvicultural evaluation, stand improvement, view enhancement and vegetative planting work to identify unseen hazard trees, assure stand health, provide for screening within and between sites and enhance views or project lakes and other scenic features.

Condition No. 32 – Dutch Flat After Bay Day Use Recreation Site

Within 90 days of license issuance: Licensee of the Yuba Bear Hydroelectric project will make a good faith effort to purchase at fair market value the parcel of land described below, or obtain a long-term lease or easement for use of such property for Day Use recreational activities that will include parking for 6 vehicles, 6 picnic tables, kiosk sign, and a restroom facility. Property of interest is Parcel Number: Placer County, 062-040-019 The size of this area needed for developing the Day Use Recreation site is the property from Diggins Hill Road to the shore of Dutch Flat Afterbay approximately 5 acres in size. If the property cannot be purchased at fair market value or the licensee was not able to secure a long term lease or easement within the first three years of license issuance from the private landowner then the licensee must provide a good faith effort to work out an agreement with the Licensee of the Drum Spalding Hydroelectric Project (PG&E) so the Licensee of the Yuba Bear Hydroelectric Project can develop, maintain, and replace when necessary a Day Use Recreation facility on PG&E property. Licensee of the Yuba Bear River Hydroelectric Project must be able to demonstrate that a good faith effort has been attempted by documentation of all conversations, correspondence, emails, etc... to the owner of said property of interest.

Condition No. 33 – Chicago Park Power House and Connecting Facilities and Roads

Within one year of license issuance licensee will sign an Assistance agreement with BLM and develop a Rehabilitation plan with the BLM Mother Lode Field Office to block, gate, and rehabilitate roads and trails agreed to by the licensee and BLM that spur off of the Haul Road, Chicago Park Powerhouse Road, Chicago Park Conduit, and Lowell Hill Road. Licensee will provide the man power and equipment and materials for each approved project. BLM will provide the NEPA work required for each approved project involving BLM land. Licensee will meet with BLM by November 15th of each year to discuss next year's projects.

Condition No. 34 – Recreation Operation, Maintenance, and Administration

Beginning 90 days after license issuance, the licensee shall enter into a Recreation Operation and Maintenance agreement to provide annual funding in a contributed funds account set up by BLM to provide \$30,000 annually with adjusted GDP-IDP, for operation, maintenance, law enforcement patrolling, and administration in accordance with the Recreation Plan (see Condition No. 25). The cost basis for these payments shall be year 2012. The cost shall be

escalated annually based on the U.S. Gross Domestic Product – Implicit Price Deflator (GDP-IDP).

Condition No. 35 – Recreation Plan Revision

The Licensee shall revise the Recreation Plan when substantial changes occur. Factors that may trigger a revision include but are not limited to:

- Revisions and updates to BLM, or other applicable management plans.
- Substantial changes (>25 percent change) of Recreation Visits in any activity recreationists of the Project participate in, as revealed in the National Visitor Use Monitoring (NVUM) of the using the 2010 surveys as a base), similar survey conducted by BLM or documented in the licensee’s periodic observation and recreation survey.
- Documented substantial changes in demographic use patterns (e.g. increases in size or amount of RV use, changes in types of boats using the lake), visitor needs, recreation preferences, types or patterns of use, season of use changes (perhaps due to school schedule changes) or other social factors affecting recreation facilities within the Project area.
- Changes in road maintenance standards or similar physical factors affecting the use of the recreation facilities within the Project area.
- Reaching occupancy (or other) triggers where new, but previously unanticipated, facilities will be required.
- Catastrophic natural events, such as major forest fires or natural disasters, and significant effects of social disorder.
- New federal or state policies, regulations, and laws (including Wilderness designation of land within or near the Project) that significantly affect recreation resources in the Project area.
- Acquisition of non-licensee private land around project lakes which would allow for improvements where there is a demand, but suitable land was previously unavailable for construction of such improvements.

Frequency of revisions to the Recreation Plan shall be based on consultation among the Licensee, BLM. Agreed upon changes to this Plan will be incorporated into a revised document or an amendment to this document, and after approval by BLM, the revised plan will be submitted to FERC for approval.

Condition No. 36 – Recreation Costs of Managing Facilities

Within 1 year of license issuance, the Licensee shall coordinate with BLM to develop a plan to address the costs of managing the recreation facilities on BLM lands. At the Annual Coordination Meeting, the Licensee shall coordinate with BLM to review information from the prior season and plan any adjustments for the next recreation season. This component shall address, at a minimum, the following duties:

- Monitor and seek compliance with safety, camping closures, fire clearance, and other measures.

- Patrol, or provide for patrols, on weekends and holidays through the peak use season (Memorial to Labor Day) with personnel that have the ability to put out abandoned campfires.
- Patrol, or provide for patrols, on weekends and holidays through the peak use season (Memorial to Labor Day) with personnel that have the authority to enforce federal 43 Code of Federal Regulations (CFR) 43 on BLM Public lands.
- Install and maintain signs; adjust as seasonally needed.
- Disperse information to the public including appropriate OHV and firearm use, campfire safety, leave no trace, and other messages to reduce resource impacts and inter-user conflicts.
- Patrol dispersed public use areas within one-quarter mile of all Project and Project- affected waterways.
- Monitor and report vandalism of facilities, cultural sites or other resource damage.
- Report illegal activities and cooperate with law enforcement agencies, as needed.
- Monitor and seek compliance with regulations associated with camping, parking, food storage, whitewater boating, and other uses.
- Remove trash and clean fire rings from dispersed campsites and other areas of concentrated public use within 1/4 mile of all Project and Project-affected waterways.
- Maintain fuels clearance within 100 feet of all dispersed campsites (including Project-provided steel fire rings and user created fire rings) surrounding Project lakes.
- Remove visitor created fire rings in areas where camping is limited to designated sites.

Condition No. 37 – Recreation Streamflow Information

Beginning as soon as reasonably feasible, but not later than one year after license issuance, Licensee shall develop a plan to provide real-time streamflow information, in cfs, for the following Project-related stream reaches:

- Bear River below Dutch Flat Afterbay Dam
- Bear River below Rollins Reservoir Dam

The streamflow information will be from the streamflow gage to document compliance with minimum and spill cessation streamflow requirements in the reach. If that gage is not USGS rated above the compliance flow, Licensee shall make a good faith effort to estimate the flow above the USGS rating. The flow information shall be made available to the public via the Internet; the publication of the information may be accomplished through a third party. The preference is that data shall be reported in 15-minute intervals; however, data that is reported no less than in hourly intervals is acceptable.

Condition No. 38 – Historic Properties Management Plan

Upon Commission approval, Licensee shall implement the Historic Properties Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215010).

Condition No. 39 – Transportation System Management Plan

Upon Commission approval, Licensee shall implement the Transportation System Management Plan, filed separately with the Commission (FERC Library Accession No. 201311215039).

Condition No. 40 – Fire Management and Response Plan

Upon Commission approval, Licensee shall implement the Fire Management and Response Plan, filed separately with the Commission (FERC Library Accession No. 201311215036).

Condition No. 41 – Erosion and Sediment Control and Management Plan

Upon Commission approval, Licensee shall implement the Erosion and Sediment Control Management Plan, filed separately with the Commission (FERC Library Accession No.201404115283).

b. FINAL 4(e) Administrative Conditions

The following Section 4(e) Conditions include requirements that serve to address the statutory and administrative rights and responsibilities of the BLM pursuant to Federal, State, and local laws.

Condition No. 42 – Consultation

Licensee shall annually consult with BLM; The date of the joint consultation meeting will be mutually agreed to by Licensee, and BLM but in general should be held by April 15. At least 30 days in advance of the meeting, Licensee shall notify Pacific Gas and Electric Company (PG&E) and other interested stakeholders, confirming the meeting location, time and agenda. At the same time, Licensee shall also provide notice to the: United States Department of Agriculture (USFS); United States Fish and Wildlife Service (FWS); (USDI) National Park Service; United States Department of Commerce National Oceanic and Atmospheric Administration, National Marine Fishery Service (NMFS), ; California State Department of Fish and Game (CDFW); and the State Water Resources Control Board, SWRCB who may choose to participate in the meeting.

The Licensee shall make available to FS, BLM, CDFW, and SWRCB at least 2 weeks prior to the meeting, an operations and maintenance plan for the year in which the meeting occurs. In addition, Licensee shall present results from current year monitoring of noxious weeds and special status species as well as any additional information that has been compiled for the Project area, including progress reports on other resource measures. The goals of this meeting are to share information, mutually agree upon planned maintenance activities, identify concerns that BLM may have regarding activities and their potential effects on sensitive resources, and any measures required to avoid or mitigate potential effects. In addition, the goal of the meeting shall be to review and discuss the results of implementing the streamflow and reservoir-related conditions, results of monitoring, and other issues related to preserving and protecting ecological values affected by the Project.

Consultation shall include, but not be limited to:

- A status report regarding implementation of license conditions.
- Results of any monitoring studies performed over the previous year in formats agreed to by BLM and the Licensee during development of implementation plans.
- Review of any non-routine maintenance.
- Discussion of any foreseeable changes to Project facilities or features.
- Discussion of any necessary revisions or modifications to implementation plans approved as part of this license.
- Discussion of needed protection measures for species newly listed as threatened, endangered, or sensitive, or changes to existing management plans that may no longer be warranted due to delisting of species or, to incorporate new knowledge about a species requiring protection. Discussion of needed protection measures for newly discovered cultural resource sites.
- Discussion of elements of current year maintenance plans, e.g. road and trail maintenance.
- Discussion of any planned pesticide use.

A record of the meeting shall be kept by the Licensee and shall include any recommendations made by BLM for the protection of BLM land and resources. The Licensee shall file the meeting record, if requested, with FERC no later than 60 days following the meeting.

Copies of other reports related to Project safety and non-compliance shall be submitted to FS, BLM, CDFW, and State Water Board concurrently with submittal to the FERC. These include, but are not limited to: any non-compliance report filed by the Licensee, geologic or seismic reports, and structural safety reports for facilities located on or affecting BLM lands.

A copy of the record for the previous water year regarding streamflow, study reports, and other pertinent records shall be provided to FS, BLM, CDFW, and State Water Board by Licensee at least 60 days prior to the meeting date, unless otherwise agreed.

Copies of other reports related to monitoring, Project safety and non-compliance on BLM land shall be submitted to BLM concurrently with submittal to the FERC, with the goal of providing the material to BLM no later than 90 days in advance of the annual meeting. These include, but are not limited to: any non-compliance report filed by Licensee, geologic or seismic reports, and structural safety reports for facilities.

During the first several years of license implementation, it is likely that more consultation than just one annual meeting will be required, given the complexity of these projects.

The BLM reserves the right, after notice and opportunity for comment, to require changes in the Project and its operation through revision of the Section 4(e) conditions to accomplish protection and utilization of BLM lands and resources.

Condition No. 43 - Consultation Group Specific to the Yuba-Bear Hydroelectric Project

The Licensee shall, within 3 months of license issuance, establish a Consultation Group as follows.

Purpose

The primary purpose of Consultation Group is to provide a forum for the Licensee to consult with resource agencies and other interested parties on the following:

- The Annual Meeting as described in Condition No.42, Consultation. To the extent topics covered in Condition No. 42 affect project-affected areas outside FS or BLM jurisdiction, consultation with appropriate resource agencies on those same topics will occur at the Annual Meeting, other Consultation Group meetings, or as otherwise agreed with the Licensee and appropriate resource agencies. License shall provide copies of the meeting materials to those who request it.

- Plans that are developed as required by the new license and plans that require specific consultation processes during implementation. specific consultation processes during implementation.
- Proposed temporary or permanent modifications to license conditions.

Licensee shall also provide notification of license compliance deviations to the current members of the Consultation Group.

Decision Making

The Consultation Group will make recommendations to the FS and BLM. The FS shall be responsible for final decisions within FS jurisdiction. The BLM shall be responsible for final decisions within BLM jurisdiction. Licensee shall also ensure that consultation, permitting, and any necessary approvals within the jurisdiction of other agencies are completed. Licensee shall implement license conditions as approved and directed by FERC.

Participation

In addition to the Licensee, FS, BLM, SWRCB, and CDFW, Consultation Group meetings shall be open to any organization or individual that notifies the Licensee in writing of interest in participating in the Annual Meeting or Consultation Group meetings. The Consultation Group should establish mutually agreeable process guidelines for conducting effective and efficient meetings no later than 1 year after license issuance. Each organization or individual shall be responsible for providing notification information to the Licensee and shall be responsible for keeping current a single point of contact for purposes of notification related to the Consultation Group. If a participant is interested in a particular meeting or topic, the participant is responsible for ensuring they are represented.

Meetings

Separate from the Annual Meeting, the Licensee shall organize four Consultation Group meetings per year. Additional meetings may be scheduled if the Consultation Group decides additional meetings are necessary. Fewer meetings shall also be scheduled if the Consultation Group decides that four meetings per year are not necessary.

Condition No. 44 – Approval of Changes

Notwithstanding any license authorization to make changes to the Project, when such changes directly affect BLM lands the Licensee shall obtain written approval from BLM prior to making any changes in any constructed Project features or facilities, or in the uses of Project lands and waters or any departure from the requirements of any approved exhibits filed with the Commission. Following receipt of such approval from BLM, and a minimum of 60 days prior to initiating any such changes, the Licensee shall file a report with the Commission describing the changes, the reasons for the changes, and showing the approval of BLM for such changes. The Licensee shall file an exact copy of this report with BLM at the same time it is filed with the

Commission. This condition does not relieve the Licensee from the amendment or other requirements of Article 2 or Article 3 of this license.

Condition No. 45 – Maintenance of Improvements on or Affecting Bureau of Land Management Lands

The Licensee shall maintain all its improvements and premises on BLM lands to standards of repair, orderliness, neatness, sanitation, and safety acceptable to BLM. Disposal of all materials will be at an approved existing location, except as otherwise agreed by BLM.

Condition No.46 – Existing Claims

The license shall be subject to all valid claims and existing rights of third parties. The United States is not liable to the Licensee for the exercise of any such right or claim.

Condition No. 47– Compliance with Regulations

The Licensee shall comply with the regulations of the Department of Interior on BLM lands for activities on BLM lands, and all applicable Federal, State, county, and municipal laws, ordinances, or regulations in regards to the area or operations on or directly affecting BLM lands, to the extent those laws, ordinances or regulations are not preempted by federal law.

Condition No. 48 – Surrender of License or Transfer of Ownership

Prior to any surrender of this license, the Licensee shall provide assurance acceptable to BLM that Licensee shall restore any Project area directly affecting BLM lands to a condition satisfactory to BLM upon or after surrender of the license, as appropriate. To the extent restoration is required, Licensee shall prepare a restoration plan which shall identify the measures to be taken to restore such BLM lands and shall include or identify adequate financial mechanisms to ensure performance of the restoration measures.

In the event of any transfer of the license or sale of the Project, the Licensee shall assure that, in a manner satisfactory to BLM, the Licensee or transferee will provide for the costs of surrender and restoration. If deemed necessary by BLM to assist it in evaluating the Licensee's proposal, the Licensee shall conduct an analysis, using experts approved by BLM, to estimate the potential costs associated with surrender and restoration of any Project area directly affecting BLM lands to BLM specifications. In addition, BLM may require the Licensee to pay for an independent audit of the transferee to assist BLM in determining whether the transferee has the financial ability to fund the surrender and restoration work specified in the analysis.

Condition No. 49 – Protection of United States Property

The Licensee, including any agents or employees of the Licensee acting within the scope of their employment, shall exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with this license.

Condition No. 50 Indemnification

The Licensee shall indemnify, defend, and hold the United States harmless for:

- any violations incurred under any laws and regulations applicable to, or
- judgments, claims, penalties, fees, or demands assessed against the United States caused by, or
- costs, damages, and expenses incurred by the United States caused by, or
- the releases or threatened release of any solid waste, hazardous substances, pollutant, contaminant, or oil in any form in the environment related to the construction, maintenance, or operation of the Project works or of the works appurtenant or accessory thereto under the license.

The Licensee's indemnification of the United States shall include any loss by personal injury, loss of life or damage to property caused by the construction, maintenance, or operation of the Project works or of the works appurtenant or accessory thereto under the license.

Indemnification shall include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. Upon surrender, transfer, or termination of the license, the Licensee's obligation to indemnify and hold harmless the United States shall survive for all valid claims for actions that occurred prior to such surrender, transfer or termination.

Condition No. 51 – Damage to Land, Property, and Interests of the United States

The Licensee has an affirmative duty to protect the land, property, and interests of the United States from damage arising from the Licensee's construction, maintenance, or operation of the Project works or the works appurtenant or accessory thereto under the license. The Licensee's liability for fire and other damages to BLM lands shall be determined in accordance with the Federal Power Act and standard Form L-1 Articles 22 and 24.

Condition No. 52 – Risks and Hazards on Bureau of Land Management Lands

As part of the occupancy and use of the Project area, the Licensee has a continuing responsibility to reasonably identify and report all known or observed hazardous conditions on or directly affecting BLM lands within the Project boundary that would affect the improvements, resources, or pose a risk of injury to individuals. Licensee will abate those conditions, except those caused by third parties or not related to the occupancy and use authorized by the License. Any non-emergency actions to abate such hazards on BLM lands shall be performed after consultation with BLM. In emergency situations, the Licensee shall notify BLM of its actions as soon as possible, but not more than 48 hours, after such actions have been taken. Whether or not BLM is notified or provides consultation, the Licensee shall remain solely responsible for all abatement

measures performed. Other hazards should be reported to the appropriate agency as soon as possible.

Condition No. 53 – Protection of Bureau of Land Management Special Status Species

Before taking actions to construct new project features on BLM lands that may affect BLM special status species or their critical habitat, the Licensee shall prepare and submit a biological evaluation (BE) for BLM approval. The BE shall evaluate the potential impact of the action on the species or its habitat. In coordination with the Commission, BLM may require mitigation measures for the protection of the affected species.

The biological evaluation shall:

- Include procedures to minimize adverse effects to special status species.
- Ensure project-related activities shall meet restrictions included in site management plans for special status species.
- Develop implementation and effectiveness monitoring of measures taken or employed to reduce effects to special status species.

Condition No. 54 – Access

Subject to the limitations set forth under the heading of “Access By The United States” in Condition No. 62 hereof, BLM reserves the right to use or permit others to use any part of the licensed area on BLM lands for any purpose, provided such use does not interfere with the rights and privileges authorized by this license or the Federal Power Act

Condition No. 55 – Crossings

The Licensee shall maintain suitable crossings as required by BLM for all roads and trails that intersect the right-of-way occupied by linear Project facilities (powerline, penstock, ditch, and pipeline).

Condition No. 56 – Surveys, Land Corners

The Licensee shall avoid disturbance to all public land survey monuments, private property corners, and forest boundary markers. In the event that any such land markers or monuments on BLM lands are destroyed by an act or omission of the Licensee, in connection with the use and/or occupancy authorized by this license, depending on the type of monument destroyed, the Licensee shall reestablish or reference same in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the County Surveyor, or (3) the specifications of BLM. Further, the Licensee shall ensure that any such official survey records affected are amended as provided by law.

Condition No. 57 – Pesticide-Use Restrictions on Bureau of Land Management Lands

Pesticides may not be used on BLM lands or in areas affecting BLM lands to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, non-native fish, etc., without the prior written approval of BLM. During the Annual Consultation Meeting described in Condition N0.42, the Licensee shall submit a request for approval of planned uses of pesticides for the upcoming year. The Licensee shall provide at a minimum the following information essential for review:

- whether pesticide applications are essential for use on BLM lands;
- specific locations of use;
- specific herbicides proposed for use;
- application rates;
- dose and exposure rates; and
- safety risk and timeframes for application.

Exceptions to this schedule may be allowed only when unexpected outbreaks of pests require control measures that were not anticipated at the time the report was submitted. In such an instance, an emergency request and approval may be made.

Any pesticide use that is deemed necessary to use on BLM lands within 500 feet of known locations of Western Pond Turtles, Sierra Nevada Yellow-Legged Frog, Foothill Yellow Legged Frog, or known locations of BLM Special Status or culturally significant plant populations will be designed to avoid adverse effects to individuals and their habitats. Application of pesticides must be consistent with BLM riparian conservation objectives.

On BLM lands, the Licensee shall only use those materials registered by the U.S. Environmental Protection Agency and consistent with those applied by BLM and approved through BLM review for the specific purpose planned. The Licensee must strictly follow label instructions in the preparation and application of pesticides and disposal of excess materials and containers. The Licensee may also submit Pesticide Use Proposal(s) with accompanying risk assessment and other BLM required documents to use pesticides on a regular basis for the term of the license as addressed further in Condition No. 15 Terrestrial Protection Measures. Submission of this plan will not relieve the Licensee of the responsibility of annual notification and review.

Condition No. 58 – Modifications of 4(e) Conditions after Biological Opinion or Water Quality Certification

BLM reserves the right to modify these conditions, if necessary, to respond to any Final Biological Opinion issued for this Project by the National Marine Fisheries Service, United States Fish and Wildlife Service; or any Certification issued for this Project by the State Water Resources Control Board.

Condition No. 59 – Signs

The Licensee shall consult with BLM prior to erecting signs related to safety issues on BLM lands covered by the license. Prior to the Licensee erecting any other signs or advertising devices on BLM lands covered by the license, the Licensee must obtain the approval of BLM as to location, design, size, color, and message. The Licensee shall be responsible for maintaining all Licensee-erected signs to neat and presentable standards.

Condition No. 60 – Ground Disturbing Activities

If the Licensee proposes ground-disturbing activities on or directly affecting BLM lands that were not specifically addressed in the Commission's NEPA processes, the Licensee, in consultation with BLM, shall determine the scope of work and potential for Project-related effects, and whether additional information is required to proceed with the planned activity. Upon BLM request, the Licensee shall enter into an agreement with BLM under which the Licensee shall fund a reasonable portion of BLM staff time and expenses for staff activities related to the proposed activities time and expenses for staff activities related to the proposed activities.

Condition No. 61 – Use of Bureau of Land Management Roads for Project Access

The Licensee shall obtain suitable authorization for all project access roads and BLM roads needed for Project access. The term of the permit shall be the same as the term of the license. The authorization shall require road maintenance and cost sharing in reconstruction commensurate with the Licensee's use and project-related use. The authorization shall specify road maintenance and management standards that provide for traffic safety, minimize erosion, and damage to natural resources and that are acceptable to BLM as appropriate.

The Licensee shall pay BLM for its share of maintenance cost or perform maintenance or other agreed to services, as determined by BLM for all use of roads related to project operations, project-related public recreation, or related activities. The maintenance obligation of the Licensee shall be proportionate to total use and commensurate with its use. Any maintenance to be performed by the Licensee shall be authorized by and shall be performed in accordance with an approved maintenance plan and applicable BMPs. In the event a road requires maintenance, restoration, or reconstruction work to accommodate the Licensee's needs, the licensee shall perform such work at its own expense after securing BLM authorization.

The Licensee shall complete a condition survey and a proposed maintenance plan subject to BLM review and approval as appropriate once each year. The plan may take the format of a road maintenance agreement provided all the above conditions are met as well as the conditions set forth in the proposed agreement.

In addition, all BLM roads used as Project Access roads (PAR) and Right-of-Way access roads (ROW) shall have:

- Current condition survey.
- Be mapped at a scale to allow identification of specific routes or segments.
- BLM assigned road numbers are used for reference on the maps, tables, and in the field.
- GIS compatible files of GPS alignments of all roads used for Project access are provided to BLM.
- Adequate signage is installed and maintained by the Licensee at each road or route, identifying the road by BLM road number.

Condition No. 62 – Access By The United States

The United States shall have unrestricted use of any road over which the Licensee has control within the project area for all purposes deemed necessary and desirable in connection with the protection, administration, management, and utilization of Federal lands or resources. When needed for the protection, administration, and management of Federal lands or resources the United States shall have the right to extend rights and privileges for use of the right-of-way and road thereon to States and local subdivisions thereof, as well as to other users. The United States shall control such use so as not to unreasonably interfere with the safety or security uses, or cause the Licensee to bear a share of costs disproportionate to the Licensee's use in comparison to the use of the road by others.

Condition No. 63 – Road Use

The Licensee shall confine all vehicles being used for project purposes, including but not limited to administrative and transportation vehicles and construction and inspection equipment, to roads or specifically designed access routes, as identified in the Transportation System Management Plan (Condition No.39). BLM, as appropriate, reserve the right to close any and all such routes where damage is occurring to the soil or vegetation, or, if requested by Licensee, to require construction/construction by the Licensee to the extent needed to accommodate the Licensee's use. BLM agree to provide notice to the Licensee and the Commission prior to road closures, except in an emergency, in which case notice will be provided as soon as practicable.

Condition No. 64 – Bureau of Land Management Approval of Final Design

Before any new construction of the Project occurs on Bureau of Land Management lands, the Licensee shall obtain prior written approval of BLM for all final design plans for Project components, which BLM deems as affecting or potentially affecting Bureau of Land Management lands within the Project boundary. The Licensee shall follow the schedules and procedures for design review and approval specified in the conditions herein. As part of such written approval, BLM may require adjustments to the final plans and facility locations to preclude or mitigate impacts and to insure that the Project is either compatible with on-the-ground conditions or approved by BLM based on agreed upon compensation or mitigation measures to address compatibility issues. Should such necessary adjustments be deemed by BLM, FERC, or the Licensee to be a substantial change, the Licensee shall follow the procedures of FERC Standard Article 2 of the license. Any changes to the license made for any reason pursuant to FERC Standard Article 2 or Article 3 shall be made subject to any new terms and

conditions of the Secretary of Interior made pursuant to Section 4(e) of the Federal Power Act to address Project effects within the Project boundary.

Condition No. 65 – Unattended Construction Equipment

The Licensee shall not place construction equipment on BLM lands prior to actual use or allow it to remain on BLM lands subsequent to actual use, except for a reasonable mobilization and demobilization period agreed to by BLM.

Condition No. 66 – Maintenance of Improvements

The Licensee shall maintain the improvements and premises on BLM lands within the Project boundary and Licensee adjoining property to standards of repair, orderliness, neatness, sanitation, and safety. For example, trash, debris, and unusable machinery will be disposed of separately; other materials will be stacked, stored neatly, or placed within buildings. Disposal will be at an approved existing location, except as otherwise agreed to by BLM.

Construction Inspections

Within 60 days of planned ground-disturbing activity on or affecting BLM lands, Licensee shall file with the Commission a Safety Construction Plan that identifies potential hazard areas and measures necessary to address public safety. Areas to consider include construction activities near public roads, trails, and recreation areas and facilities.

Licensee shall perform daily (or on a schedule otherwise agreed to by BLM in writing) inspections of Licensee's construction operations on BLM lands and Licensee adjoining property while construction is in progress. Licensee shall document these inspections (informal writing sufficient) and shall deliver such documentation to BLM on a schedule agreed to by BLM. The inspections must specifically include fire plan compliance, public safety, and environmental protection. Licensee shall act immediately to correct any items found to need correction.

A registered professional engineer or other qualified employee of the appropriate specialty shall regularly conduct construction inspections of structural improvements on a schedule approved by BLM.

Appendix J

Response to Comments on the Draft Environmental Impact Statement

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APPENDIX J
STAFF RESPONSES TO COMMENTS ON THE DRAFT ENVIRONMENTAL
IMPACT STATEMENT

The Federal Energy Regulatory Commission (FERC or Commission) staff issued the draft environmental impact statement (EIS) for the Drum-Spaulding and Yuba-Bear Projects on May 17, 2013, and comments on the draft EIS were due on August 22, 2013. In addition, Commission staff conducted two public meetings to receive oral comments on the draft EIS in Auburn, California, on August 14, 2013. Twenty-eight out of 47 members of the public that attended the meetings spoke. Speakers commented on the geographic scope of the draft EIS, cumulative effects, instream flows for the projects, protection of special status species, recreation facilities and access, and the potential for anadromous fish reintroductions in the project area. Additionally, there were 18 filings by individuals, agencies, and non-governmental organizations (NGOs) during the comment period.

In this appendix, we summarize the written and oral comments received; provide responses to those comments; and indicate, where appropriate, how we modified the text in the final EIS. We grouped the comment summaries and responses by topic for convenience. We do not summarize comments that point out minor edits to the draft EIS; however, we have made these edits in the final EIS. The following entities provided oral comments or filed written comments on the draft EIS for the Drum-Spaulding and Yuba-Bear Projects.

Commenting Entity	Date
Oral Comments Provided at Public Meetings	
Chris Shutes, California Sportfishing Protection Alliance and Foothills Water Network	8/14/13
Gary Reedy, South Yuba River Citizens League	8/14/13
David Baker, Dry Creek Conservancy (member of Foothills Water Network)	8/14/13
Rorie Gotham, South Yuba River Citizens League	8/14/13
Steve Hubbard, Save Auburn Ravine Salmon and Steelhead (member of the Foothills Water District)	8/14/13
Mike Connor, Gold Country Fly Fishers	8/14/13
Larry Thompson, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS)	8/14/13
Jeff Parks, California State Water Resources Control Board (California Water Board)	8/14/13
Peter Burnes, volunteer with South Yuba River Citizens League and citizen	8/14/13
Frank Rinella, Northern California Council Federation of Fly Fishers and Foothills Water Network	8/14/13
Roger Staab, Placer Sierra Railroad Heritage Society	8/14/13
Traci Van Thrull, Foothills Water Network	8/14/13
Dave Steindorf, American Whitewater (member of Foothills Water Network)	8/14/13

Commenting Entity	Date
Nancy Hagman, Grace Hubley Foundation	8/14/13
Written Comments	
California Sportfishing Protection Alliance, Trout Unlimited, and American Rivers	6/21/13
John R. Lipscomb	8/14/13
Jennifer Montgomery, County of Placer Board of Supervisors	8/20/13
David Ryland	8/20/13
Terrance Otis Wollan	8/22/13
Foothills Water Network, California Sportfishing Protection Alliance, American Rivers, American Whitewater, Friends of the River, Northern California Council Federation of Fly Fishers and Gold Country Fly Fishers, Save Auburn Ravine Salmon and Steelhead, Sierra Club – Mother Lode Chapter, Auburn Ravine Preservation Committee Ophir Property Owners Assoc., Inc., Dry Creek Conservancy, South Yuba River Citizens League, Trout Unlimited	8/22/13
U.S. Department of Agriculture, Forest Service (Forest Service)	8/22/13 (2)
Environmental Protection Agency (EPA), Region 9	8/22/13
Pacific Gas and Electric Company (PG&E)	8/22/13
NMFS	8/22/13
California Department of Fish and Wildlife (California Fish and Wildlife)	8/22/13
Nevada Irrigation District (NID)	8/22/13
Placer County Water Agency (PCWA)	8/22/13
California State Water Resources Control Board (California Water Board)	8/22/13
Placer County	8/22/13 (2)
Department of the Interior	8/22/13

Foothills Water Network (9/23/13), PG&E (9/23/13), and NID (10/2/13) filed responses to comments on the draft EIS.

GENERAL

Comment: Foothills Water Network comments that the draft EIS inappropriately dismisses the need for a formal consultation role for NGO’s and other members of the public in license implementation.

Response: The section 4(e) conditions applicable to the Upper Drum-Spaulding, Deer Creek, and Yuba-Bear Projects provide sufficient opportunities for NGO’s to be involved in license implementation. We have revised the proposed license articles for the Lower Drum Project to require consultation with Foothills Water Network, as appropriate.

Comment: EPA Region 9 comments that the final EIS should demonstrate that the emissions from construction and operation of the projects would conform to the approved State Implementation Plan and would not cause or contribute to violations of the National Ambient Air Quality Standards. EPA recommends that the final EIS: include a discussion of existing air quality and compliance with state and federal air regulations; describe and estimate air emissions from potential construction and other activities, and identify mitigation measures that would minimize those emissions; and include an analysis of direct, indirect and cumulative air quality impacts of the proposed emissions.

Response: The four projects evaluated in this EIS are existing projects. The only proposed development analyzed is the Rollins no. 2 powerhouse, which would be located next to the existing powerhouse, and minor recreational facility improvements. During scoping, we determined that the air emissions caused by the small proposed addition would be insignificant. Further, state and local permits would likely require best management practices to minimize effects.

Comment: EPA Region 9 comments that the draft EIS lists a number of proposed environmental measures in sections 2.2.3 and 2.3.1; however, the potential impacts of construction, operation, and maintenance activities associated with these measures are not addressed. These environmental measures are included in the Staff Alternative, but are inconsistently described throughout the resource sections of the EIS and not thoroughly described in the Alternatives chapter.

Response: The environmental analysis in section 3 describes the environmental effects of the proposed action for each project by resource area and assesses the effects of the proposed protection, mitigation, and enhancement measures (PM&Es) and other recommended environmental measures for mitigating the impacts of construction and operation and maintenance activities.

Comment: EPA Region 9 comments that the discussion of cumulative effects in the draft EIS does not address potential cumulative effects of climate change on the project areas, proposed projects and alternatives. EPA recommends that the final EIS include a discussion of historic and reasonably anticipated future impacts of climate change and its potential effects on the proposed projects and alternatives. It recommends that the projects and alternatives include an adaptive management strategy requiring monitoring and scheduled periodic updates to models over the course of the 50-year license term so that management adaptations based on changing climate conditions can be considered.

Mr. Reedy, South Yuba River Citizens League, comments that the complete evaluation of climate change needs to be addressed in the final EIS. Consideration of how climate change would change hydrology, and change the way the project affects resources of concern, is a substantial deficiency in the draft EIS.

Response: We are unaware of any current climate model that would allow us to predict matters such as water flows in a given basin during the 30-50 year term of a typical hydropower license in such a manner as to support reasoned decision-making. A 33-year period of record (1976-2008) was used to analyze hydrologic conditions in the project-affected watersheds and synthesize an estimate of unregulated conditions. This hydrologic record provides an adequate characterization of the range and variability of annual flows and includes back to back critically dry years and a period of record drought up through 2008. These data were integral in evaluating proposed minimum flow conditions under various water years and modeling the effects of various

environmental conditions on aquatic habitat and generating capacity. We believe that this form of analysis considers long term hydrologic trends and provides sufficient information to assess the impacts of changing climatic conditions on the projects. Additionally, we believe that our practice of including in hydropower licenses reopener provisions, in combination with extensive resource monitoring, which allows the Commission to alter license requirements in response to changed environmental conditions provides appropriate environmental safeguards and, indeed, provides more certain protection than predictions about future environmental conditions.

Comment: EPA Region 9 notes that the draft EIS does not include an analysis of the potential environmental justice impacts of this project. EPA comments that the final EIS should include an evaluation of environmental justice populations within the geographic scope of the project. If such populations exist, EPA recommends that the final EIS document the public involvement methods used, describe the likely impacts of the project on those populations, and discuss any measures that could mitigate those impacts. EPA believes that assessment of the project's impact on minority and low-income populations should reflect coordination with those affected populations.

Response: It is current Commission practice to address environmental justice in its NEPA document when there is sufficient information in the record indicating that it is necessary to do so. There is no information in the record and EPA failed to introduce any new information to support the premise that an environmental justice or socioeconomics analysis is relevant in the relicensing of these projects. No high-minority census tracts are located in the vicinity of the projects. In addition, the projects have been in existence for more than 50 years. Minor proposed increase in power and environmental measures would not have significant socioeconomic effects. Further, environmental justice and socioeconomic issues were not identified during the scoping process or comment period.

Comment: EPA Region 9 comments that the tribes should be included in the distribution list of the final EIS.

Response: The distribution list for the final EIS has been reviewed and updated to include all tribes that may be affected by these projects, or that have indicated an interest in the proceeding.

Comment: NMFS provided several comments related to PG&E's proposed separation of the existing Drum-Spaulding Project into three separately licensed projects. NMFS states the draft EIS does not establish (through environmental analyses) the baseline effects of the separated Upper Drum-Spaulding, Lower Drum, Deer Creek, and Yuba-Bear Projects, followed by comparison of the effects of the alternatives against the baselines – to arrive at appropriate license terms and conditions for each project. NMFS suggests that a supplement draft EIS or second draft should be issued that provides adequate NEPA review of all of the proposed project licensing actions. NMFS believes that this would allow an agency/public comment period, followed by an interval to allow us the time we would need to review and incorporate the agency/public feedback in their final EIS. Similar comments and concerns on the proposed separation of the three PG&E projects were received from other entities.

The California Water Board also requests that the Commission release a supplement or at least the draft portion of the EIS that reflects the Lower Drum portion of the project. The California Water Board suggests that there is a missing layer if there is not a chance to see a reflection of public and agency comments within the EIS on the changes that might result from the Lower Drum separation.

The California Sportfishing Protection Alliance (a member of Foothills Water Network) comments that PG&E's request to the Commission to issue a new license for the Lower Drum developments changes the proposed action. They indicated that if the Commission entertains PG&E's request, it needs to recirculate the draft EIS with an accurate description of the proposed action. If the draft EIS is left as it is, the California Water Board indicates that it would do a full blown environmental impact report for the Water Quality Certification.

Response: Although the draft EIS has been significantly revised to address PG&E's proposal to separate the existing Drum-Spaulling Project into three separate projects, the potential environmental effects have not substantially changed. Comments regarding potential impacts to project resources submitted in response to PG&E's proposal to separately license the Lower Drum Project have been evaluated in section 3 and section 5.4, *Recommendation on Lower Drum and Deer Creek Separation Projects* in this final EIS. The Commission, however, will provide a comment period on the final EIS.

Comment: NMFS comments that the current draft EIS does not adequately define each project action or justify a sound geographic scoping for each project action.

Response: The FEIS defines the proposed actions for each of the projects in sections 2.2.1 through 2.2.4 and again in sections 5.1.1, 5.1.2, 5.2.1, 5.2.2, 5.3.1, 5.3.2, 5.5.1, and 5.5.2. The project scope in the draft EIS was defined through the scoping process and comments received on geographic and temporal scope at that time. After scoping, we determined that the projects have minimal impacts below Englebright reservoir and dam; however, the final EIS includes an expanded analysis of cumulative project effects below Englebright reservoir and dam. A discussion of the geographic and temporal scope of the final EIS is included in sections 3.2.1 and 3.2.2.

Comment: NMFS comments that the draft EIS contains insufficient analysis of the projects' existing environmental effects, for use as a baseline for comparison with proposed alternatives, including NMFS' recommendations.

Response: The final EIS fully describes the existing condition at each of the projects including project resources and current project operations. Existing operations is the appropriate baseline against which evaluate the effects of the proposed projects and their operations on resources.

Comment: NMFS states that the draft EIS' alternatives comparison consists mostly of a summary table, and very truncated "rationale" sections that are mostly conclusion statements.

Response: The summary table for the four projects considered in the final EIS, in combination with the discussion of significant issues and measures not adopted, provides sufficient information to evaluate a range of license conditions and alternatives.

Comment: NMFS comments on the scope of the cumulative effects analysis in the draft EIS and notes that the draft EIS applies, without change, a geographic scoping determined years prior to the study phases, despite abundant new information suggesting that scoping determination is inadequate for NEPA review.

Response: The project scope in the draft EIS was defined through the scoping process and comments received on geographic and temporal scope at that time. In the final EIS, the geographic scope of the cumulative effects analysis has been expanded to include the interaction of the interbasin transfer of water related to the projects with non-project effects in the North

Yuba River, the Middle Yuba River downstream of Our House dam, and the Lower Yuba River downstream of Englebright dam. The final EIS includes anadromous fish habitat below Englebright dam as an additional resource in the geographic scope of cumulative effects.

Comment: Placer County notes that projected increases in recreation at the projects would raise public safety costs and require the County to make significant investments to improve and maintain County roads that provide access to some of the project recreational facilities. Placer County suggests that the final EIS include a description of the magnitude of the projects' impacts. Placer County also recommends that NID and PG&E pay for the cost of additional public services and infrastructure improvements that the County would need to provide as a result of the relicensing of the projects. Placer County recommends that the final EIS discuss alternatives to mitigate public safety and infrastructure impacts of the projects on Placer County, such as funding arrangements under off-license agreement or requiring the licensees to provide public services themselves or arrange for a third party to provide them.

Response: In the final EIS, we conclude that a projected increase in the number of visitors over the term of the license would likely increase the need for public services, such as law enforcement and fire protection. Nonetheless, enforcement of local laws within the project area is properly left to Placer County. As a general matter, it is the Commission's policy to require licensees to implement necessary license conditions and not to fund personnel at local agencies.¹ The final EIS includes additional discussion of these issues in section 3.3.5.2.

Comment: The Bureau of Land Management (BLM) comments that BLM's Sierra Resource Management Plan is not referenced in the section 5.3, *Consistency of Comprehensive Plans*, of the draft EIS.

Response: Although BLM's Sierra Resource Management Plan has not been filed with the Commission as a comprehensive plan pursuant to Order 481-A, we nevertheless have considered it under the comprehensive development standard of section 10(a)(1) of the Federal Power Act (FPA).

Comment: NMFS advises us to define the action given the proposal to split the Drum-Spaulding Project. NMFS believes that the draft EIS needs to explain the baseline effects of the proposal in the context of other stressors in the watershed and needs to compare the anticipated results of proposed measures against the baseline and then consider the project's incremental effects in the context of other stressors.

Response: Section 1.2 of the final EIS has been revised to define the action being taken, which is the issuance of federal licenses for the Upper Drum-Spaulding, Lower Drum, Deer Creek, and Yuba-Bear Projects. The impacts of each of the four projects are evaluated in section 3 and project-specific recommendations are discussed in section 5.

¹ *Avista Corp.*, 127 FERC ¶ 61,265, at P 193 (2009); *Public Utility District, No. 2*, 123 FERC ¶ 61,049, at P 79 (2008); *Portland General Electric, Co.*, 117 FERC ¶ 61,112, at P 83 (2006). See *Settlement Policy*, 116 FERC ¶ 61,270, at P 24 (2006).

GEOLOGIC RESOURCES

Comment: Forest Service and BLM comment that several elements that they would require in a Slope Assessment Plan are not included in PG&E's and NID's alternative Erosion Control and Slope Stability Plan.

Response: On April 11, 2014, in lieu of developing a Slope Assessment Plan required in their preliminary condition, Forest Service filed Canal Release Point Plans and Erosion and Sediment Control Management Plans for the Drum-Spaulding and Yuba-Bear Projects and specified (revised modified conditions 49 and 50, April 14, 2014) implementation of those plans upon Commission approval. PG&E and NID have agreed to implement these plans.

Comment: NMFS comments that there are deficiencies in the draft EIS' treatment of the projects' effects on coarse substrate supply, storage, and transport, specifically regarding the Commission's adoption of PG&E and NID's analysis of the projects' effects on coarse substrate. NMFS believes that we should have performed an independent analysis of coarse substrate supply, storage, and transport because the analyses performed by PG&E and NID contain significant errors in the calculation of sediment supply, transport capacity, and incipient motion.

Response: We have reviewed NMFS' critique of the coarse substrate analysis and the Channel Morphology Technical Memorandum and conclude that what NMFS characterizes as "significant errors" can be more appropriately be characterized and differences in valid methodologies and levels of model and calculation sophistication compared to studies recommended by NMFS. The field studies and analyses presented in the Channel Morphology Technical Memorandum filed by the applicants are consistent with the approved relicensing study plan and are adequate for evaluation of project effects on coarse substrate and substrate transport in projected affected reaches.

AQUATIC RESOURCES

Comment: The California Sportfishing Protection Alliance, Trout Unlimited, and American Rivers commented that the draft EIS does not adequately address direct, indirect, and cumulative effects on anadromous fish habitat in the South and Middle Yuba Rivers and does not evaluate alternative measures to mitigate the projects' effects on anadromous fish and their habitat in the South and Middle Yuba Rivers once fish are reintroduced into these project-affected waters.

Response: The final EIS discusses potential effects on anadromous fish and their habitat associated with project water transfers out of the Yuba River basin in section 3.3.2.2.2, section 3.3.2.2.8, section 3.3.4, and cumulative effects on these species in section 3.3.2.3. Additional discussion of direct and indirect project effects and cumulative effects on anadromous fish has been added to each section. Our analysis focuses on direct and indirect effects on resident aquatic resources in project-affected stream reaches in the Middle Yuba and South Yuba Rivers and potential cumulative effects of project-affected flows and operations in conjunction with other non-project actions on water quantity in the lower Yuba River downstream of Englebright dam. The analysis evaluates the effects of Upper Drum-Spaulding Project and Yuba-Bear Project operations under conditions proposed for the new licenses on flows and water temperatures in the Middle and South Yuba Rivers. Required monitoring plans would provide additional data to evaluate the effects of proposed flow conditions and other operational requirements on aquatic habitat for anadromous species. At this time, we are unaware of any active timetable for the reintroduction of anadromous fish upstream of Englebright dam. At such time as a schedule is developed for reintroduction of anadromous species above Englebright dam, the license reopener

process can be initiated to evaluate these data and determine if additional measures are needed to support reintroduction of anadromous fish.

Comment: The California Sportfishing Protection Alliance, Trout Unlimited, and American Rivers comment that the Drum-Spaulding and Yuba-Bear Projects affect cold water habitat for anadromous fish.

Response: Effects of project operations on cold water habitat for anadromous and resident species are discussed in section 3.3.2.2.2, section 3.3.2.2.8, and section 3.3.4. Cumulative effects of project operations and other non-project actions on anadromous fish habitat in the lower Yuba River below Englebright dam are discussed in sections 3.3.2.3 and 3.3.4.

Comment: Many comments were submitted on issues related to the potential reintroduction of anadromous fish species to the South Yuba and Middle Yuba Rivers, the effect of project operations on future reintroductions, and the NMFS' February 29, 2012 Biological Opinion (BO) on Operation and Maintenance of Englebright reservoir and dam by the U.S. Army Corps of Engineers (Corps).

The California Sportfishing Protection Alliance, Trout Unlimited, and American Rivers note that NMFS' Final BO, issued on February 29, 2012, stated that fish passage above Englebright dam is essential to the recovery of the affected salmonids and requires the Corps to effectively reintroduce fish to Upper Yuba River by January 31, 2020. They also noted that the Yuba County Water Agency (YCWA) and stakeholders are working on strategies to reintroduce anadromous fish to the Middle Yuba River and South Yuba Rivers. They commented that the draft EIS does not consider whether the proposed new licenses would be best adapted for anadromous fish in the Yuba River, that the draft EIS concludes incorrectly that reintroduction of anadromous fish is not reasonably foreseeable. They note that we must make findings regarding the projects' effects on habitat for anadromous fish in the South Yuba and Middle Yuba Rivers based on record evidence, and comment that the existing record does not include adequate information on which to base specific findings regarding the extent of projects' effects on anadromous fish habitat, of the availability and feasibility of reasonable alternatives, and of other measures to mitigate the projects' effects on anadromous fish in the Middle and South Yuba rivers.

NMFS comments that the cumulative effects analysis is insufficient [and therefore the EIS is deficient for Endangered Species Act (ESA) and Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) consultation] due to: (1) an incorrect geographic scoping that occurred in 2008; and (2) lack of consideration of major information.

Mr. David Ryland comments that the draft EIS should not dismiss the reintroduction of anadromous fish using the argument that anadromous fish migration is obstructed by a downstream dam. He states the draft EIS does not evaluate a restored anadromous fish alternative that analyzes the effects of the proposed relicensing on habitat for anadromous fish in the South Yuba and Middle Yuba Rivers. Mr. Ryland says the Commission should draft a supplemental EIS that includes a salmon and steelhead reintroduction alternative.

Foothills Water Network comments that the draft EIS fails to analyze the effects of the proposed relicensing on habitat for anadromous fish in the South Yuba and Middle Yuba Rivers, and fails to balance values related to reintroduction of salmon and steelhead with other resource and developmental values. They state that the draft EIS improperly dismisses most of NMFS's FPA

section 10(j) recommendations as not “within the scope of 10(j)” because each “depends on a future action.”

EPA Region 9 comments that the final EIS should discuss the current status of proposals to reintroduce Central Valley spring run Chinook salmon, Central Valley steelhead and North American green sturgeon in the project stream reaches, and consider reintroduction as a reasonably foreseeable action. EPA believes that the final EIS should discuss the extent to which the projects could support such reintroduction efforts, such as by adjusting streamflow and providing fish passage at project dams. EPA recommends that the projects include a mechanism for modifying the license conditions in the event that reintroduction is initiated, or that NMFS’ recommendations for minimum streamflows, large woody debris (LWD), course substrate and adaptive management be included in the license conditions now, with the stipulation that they would come into effect should reintroduction occur.

Placer County Water Agency (PCWA) comments that the draft EIS should revise its discussion of the NMFS BO to include the August 13, 2013 court ruling that NMFS cannot rely on or cite the 2012 Englebright BO in the relicensing proceedings for the Yuba-Bear and Drum-Spaulding Project until the Corps prepares and submits a new biological assessment to NMFS and NMFS prepares a revised BO.

California Water Board disagrees that reintroduction of anadromous fish is not reasonably foreseeable and should be evaluated in the draft EIS.

Mr. Gary Reedy of the South Yuba River Citizens League comments that the biggest deficiency in the draft EIS is the lack of a cumulative effects analysis, which includes project effects on other activities in the watershed and effects on the populations of spring-run Chinook salmon and Central Valley steelhead. Much information has been forthcoming recently supporting the reintroduction of salmon and steelhead into the Upper Yuba watershed, and the community anticipates this and it needs to be addressed, at least in the cumulative effects section of the draft EIS.

PG&E comments that the August 13, 2013 court order on the NMFS BO in part ruled that because the federal defendants had reinitiated consultation and the BO discussed in the draft EIS comment above was soon to be superseded; NMFS should not rely on or reference that BO in this or other relicensing proceedings.

NID comments that we properly rejected NMFS’s request to study the impacts to listed anadromous fish and habitat in the Yuba River downstream of Englebright Dam because “there is no clear nexus between the requested study and the project.”

Response: On August 12, 2013 the United States District Court, Eastern District of California, issued a Memorandum and Order (Order in South Yuba River Citizens League v. NMFS and YCWA v. NMFS (related cases). The Order in part ruled that because NMFS and the Corps had reinitiated consultation and the BO discussed in the comments on the DEIS was soon to be superseded; NMFS should not rely on or reference that BO in this or other relicensings. As discussed in sections 5.1.2.3 and 5.5.2.3, ESA consultation was completed in May 2014. NMFS concurred that operation and maintenance of Englebright dam would not adversely affect listed salmon populations (NMFS, 2014a) and issued a BO regarding operation of Daguerre Point dam (NMFS, 2014b). Neither decision requires any specific measures related to upstream fish passage at Englebright dam. Consequently the final EIS does not address findings of the February 29, 2012 BO. Our analysis focuses on direct and indirect effects on resident aquatic resources in

project-affected stream reaches in the Middle and South Yuba Rivers and on potential cumulative effects of project operations and the interbasin transfer of water along with other non-project actions on water quantity in the lower Yuba River at Englebright dam. The analysis evaluates the effects of Upper Drum-Spaulding Project and Yuba-Bear Project operations under conditions proposed for the new licenses on flows and water temperature in the Middle and South Yuba rivers and on water quantity and water temperature in the lower Yuba River below Englebright dam. The cumulative effects associated with other non-project hydropower operations and consumptive water uses and water rights are considered in the final EIS. Required monitoring plans would provide additional data to evaluate the effects of proposed flow conditions and other operational requirements on aquatic habitat for anadromous species that may eventually be reintroduced. At such time as a schedule is developed for reintroduction of anadromous species above Englebright dam, the license reopener process can be initiated to evaluate these data and determine if additional measures are needed to support reintroduction of anadromous fish.

Comment: The California Sportfishing Protection Alliance, Trout Unlimited, and American Rivers comment that the draft EIS lacks specific data about fish densities and flow requirements for vertebrates in the Bear River below Rollins reservoir. They note that page 161 of the draft EIS references surveys at 13 sites within the sub-basin but does not provide statistics for the stretch from Rollins to Combie.

Response: Fish density data in the Bear River below Rollins reservoir was not included in the draft EIS. Section 3.3.2.1.3 of the final EIS includes an additional table (table 3-96b) and discussion on fish abundance in the Bear River below Rollins reservoir to Lake Combie. Additional discussion of habitat modeling and flow requirements for aquatic biota has been added to final EIS section 3.3.2.2.2.

Comment: Mr. David Ryland comments that table 3-179 indicates the Weighted Useable Area (WUA) for the stretch of river below Rollins is categorized as “Fair to Poor” for macroinvertebrates; however, Mr. Ryland has observed crayfish, discarded exoskeletons, and scat from crayfish predators that he believes shows macroinvertebrates are present in significant numbers on that section of the river.

Response: The WUA values listed in table 3-179 were generated by the U.S. Geological Survey (USGS) Physical Habitat Simulation Software, which uses habitat indices for macroinvertebrates to determine WUA for a given stream reach. The Commission continues to present these values in the final EIS as a useful indicator of the relative effects of operational alternatives. WUA values do not necessarily correlate with the presence or absence of individual species or abundance and diversity of specific aquatic communities observed during pre-licensing surveys of a given project-affected stream reach.

Comment: Mr. Ryland is concerned with the integrity of the fish population data cited in the draft EIS based on a personal communication he had with a representative from California Fish and Wildlife, who stated that he observed an electroshocking survey on an upstream reservoir that was handled improperly and yielded no fish.

Response: Based on the Commission’s review of the technical memoranda 3-1 and 3-12 (*Stream Fish Populations and Reservoir Fish Populations*) and available data, the fish surveys were conducted according to the agreed upon study plans and provide sufficient information for the Commission to assess the environmental effects of the projects.

Comment: Mr. Ryland comments that under proposed operations, the minimum flow requirements for the Bear River below Rollins reservoir are insufficient to prevent significant population loss in all but the wettest years.

Response: Mr. Ryland has not provided any technical information to support his claim that the minimum flows are insufficient to support resident trout populations. The Commission evaluated the proposed minimum flow requirement based on results of habitat-flow simulations for resident rainbow trout. We conclude that the minimum flow requirement would “improve and enhance cold water aquatic habitat for resident trout compared to existing license conditions and would provide seasonal and inter-annual variability in flows through this stream reach.” This reach of the Bear River supports a recreational fishery for resident trout under conditions of the existing license. Habitat modeling indicates that the proposed minimum streamflows would achieve at least 80 percent of the maximum available WUA for adult and spawning resident rainbow trout in all but extreme critically dry water years. The proposed minimum streamflows would enhance aquatic habitat compared to the existing license conditions. The analysis does not indicate a potential for significant resident rainbow trout population loss.

Comment: Mr. Ryland is interested in determining whether consumptive water demand can be influenced through regulation because page 267 of the draft EIS states that future consumptive demand would cumulatively affect the ability of licensees to meet minimum streamflows.

Response: As stated on page 266 of the draft EIS, NID and PCWA can and will continue to exercise their legally established water rights to meet water demand within their respective service areas. We do not have jurisdiction to regulate consumptive water usage or how these entities exercise their water rights. However, we conclude that our recommended environmental measures would minimize the cumulative effects of hydroelectric generation and consumptive water demand on aquatic resources.

Comment: Foothills Water Network comments that the *Cumulative Effects* section of the draft EIS does not address past cumulative impacts of the projects and other watershed activities including mining, energy generation, debris management, water supply, and flood control on Central Valley spring-run Chinook salmon and Central Valley steelhead. It recommends that the final EIS or a Supplemental draft EIS should include such an analysis.

Response: As noted above in response to comments regarding cumulative impacts, the cumulative effects discussion in the final EIS has been expanded to include the effects of the interbasin transfer of water on water quantity and the resulting uncertain effects on anadromous fish habitat in the lower Yuba River below Englebright dam. Discussion of impacts of historical mining practices in the watersheds on existing substrate condition and contamination, channel formation, floodplain connectivity, and debris management have been added to sections 3.3.2.2.2, 3.3.2.2.8, 3.3.2.3, and 3.3.4.

Comment: California Fish and Wildlife disagrees with our assessment that the Block Flow recommendations for the South Yuba River and Middle Yuba River are outside the scope of section 10(j) and asserts that we did not provide sufficient justification to conclude that California Fish and Wildlife’s 10(j) recommendation is outside the scope of section 10(j) of the FPA.

Response: Contrary to California Fish and Wildlife’s comment, in table 5-2 of the draft EIS, the Commission determined that the California Fish and Wildlife Block Flow recommendation is within the scope of the 10(j).

Comment: Foothills Water Network commented that it sought to manage for all cold water species in the Middle and South Yuba Rivers and worked with California Fish and Wildlife to refine and develop the Block Flow concept. It believes that the Forest Service and PG&E's negotiated flows do not adequately cool the river as compared to the Block Flow approach.

Response: The analysis in the draft EIS balances potential effects of the Block Flow and Supplemental Flow measures on rainbow trout habitat and foothill yellow-legged frog habitat. We determined that the additional flows of the Block Flow recommendation dedicated to further reducing water temperature in the stream reach from 20 degrees celsius (°C) to 19°C above Wolf Creek confluence in Middle Yuba River and above Canyon Creek confluence in South Yuba River would result in an uncertain and potential risk to foothill yellow-legged frogs.

Comment: California Fish and Wildlife comments that on page 594 of the draft EIS, we assert that the Forest Service Supplemental Flow measure is “better defined, more balanced, and more flexible” than the Department's South Yuba River Block Flow measure. California Fish and Wildlife recognizes that the Commission may balance impacts differently, but it does not believe that we adequately supported the conclusion that the Forest Service measure is better defined and more flexible.

Response: The final EIS analyzes the effect of incremental flows from 10 to 60 cubic feet per second (cfs) on stream temperature in the South Yuba River below Lake Spaulding. We determined that PG&E's proposed minimum flow combined with the Forest Service Supplemental Flow, which would provide a total of 30 cfs, would maintain stream temperatures at the confluence of Canyon Creek at or below 20°C, and would enhance aquatic habitat for resident trout. Based on the incremental flow analysis, we also determined that the California Fish and Wildlife and Foothills Water Network Block Flow recommendation would provide water temperatures several degrees cooler than the Forest Service Supplemental Flow condition, which would further enhance aquatic habitat for resident trout farther downstream, but would have the potential to adversely affect foothill yellow-legged frog development and abundance. The Supplemental Flow condition would be much simpler to implement because it gives the Forest Service clear decision-making authority and defined criteria for implementing supplemental flows to provide enhancement of aquatic resources. The Supplemental Flow condition also provides the Forest Service with reasonable flexibility to select supplemental flows within a specified range of flows and to have PG&E make monthly adjustments to supplemental flows as necessary. The Supplemental Flow condition would also require less frequent consultation and flow manipulation while providing enhancement of aquatic resources and more predictable generating capacity. The text in the final EIS has been modified to better describe the differences in the implementation process between the two proposed flow augmentation measures, in particular the extent of the consultation process for determination of flow adjustments. The proposed Water Temperature and Stage, Channel Morphology, Fish Population, and Foothill Yellow-legged Frog Monitoring Plans would provide information to assess (through the proposed Consultation Groups specific to the South Yuba River and Middle Yuba River) the effectiveness of these flow measures for enhancement of aquatic habitat and resources.

Comment: Foothills Water Network comments that on page 237, the draft EIS mischaracterizes the California Fish and Wildlife/Foothills Water Network's Block Flow recommendation for the Middle Yuba River. It believes that the draft EIS suggests that the actual release made as part of the Block Flow would “generally” be 30 cfs, the maximum allowed under the proposed measure. It believes that the draft EIS indicates that flows would increase 2 to 5 times during Block Flow releases ignoring how small the required minimum streamflows in the Middle Yuba are,

especially in August. It comments that Block Flow augmentations of 10 to 20 cfs would be made to a wide stream channel; percent WUA for adult rainbow trout at 15 cfs is only 29 percent of maximum, because so little of the stream channel is wetted under the proposed minimum streamflows.

Response: The FEIS clarifies that the Block Flow recommendation has the potential to increase proposed minimum flows by 2 to 5 times during drier periods. Our analysis evaluated the additional incremental flows that would be provided by the Block Flow recommendation and found that the proposed minimum flows would maintain temperatures below 20°C at Wolf Creek. These proposed minimum flows and associated water temperatures would enhance aquatic habitat for resident trout in the Middle Yuba River without adversely affecting foothill yellow-legged frog populations that could result from the cooler temperatures created by the Block Flow proposal. Despite Foothills Water Network's assertion to the contrary, Table 3-153 indicates that the percent of maximum WUA at 15 cfs for adult rainbow trout is 48 percent in critically dry and dry years, and 74 percent in below normal, above normal, and wet water years.

Comment: Foothills Water Network comments that on page 237, the draft EIS states that the California Fish and Wildlife and Foothills Water Network Block Flow proposal is similar to the range recommended by NMFS. It believes that these flow schedules cannot fairly be called similar, and analysis of NMFS's flow proposals cannot fairly be used to characterize California Fish and Wildlife/Foothills Water Network's proposal.

Response: We simply stated in the draft EIS that the California Fish and Wildlife and Foothills Water Network flows are similar to the range of flows recommended by NMFS. This statement was not used as a characterization of the Block Flow recommendation or used in the analysis of the California Fish and Wildlife/Foothills Water Network Block Flow recommendation. The specific schedule for incremental flow increases is discussed in our analysis in the final EIS.

Comment: Foothills Water Network comments that the draft EIS does not perform a temperature analysis of the proposed preliminary 4(e) minimum streamflows for the Middle Yuba River below Milton diversion. Rather, it believes the analysis relies on an incremental analysis of flows in 2008 and 2009 (figures 3-98 through 3-101) that has extremely wide increments, and no increments between 3 and 25 cfs, even though most of the recommended minimum streamflows fall in between these values. It notes that the draft EIS does not say when or how often the Block Flows would have been used in 2008 and 2009, but states generally that 25 cfs would have kept water temperatures in the Middle Yuba at Wolf Creek below 18°C. Foothills Water Network believes that the draft EIS analysis incorrectly agrees with the PCWA argument that below 19.3 °C there is a loss of foothill yellow-legged frog habitat.

Response: The draft EIS compared the effects on temperature in the Middle Yuba River below Milton diversion dam under the existing minimum flow requirement, NID's proposed minimum flows, and the addition of California Fish and Wildlife and Foothills Water Network's Block Flow recommendation. Temperature modeling results for the Middle Yuba River provide analysis of the relative effects of different flow releases at Milton diversion dam on downstream water temperatures in the Middle Yuba River based on weather conditions that occurred during 2008 and 2009, which were warm dry years. Our analysis of the temperature-flow information from July 2008 and July 2009 provide sufficient evidence that flows in the range of 4 to 6 cfs would maintain water temperature at or below 20°C in the Middle Yuba at Wolf Creek and additional analysis of temperature at increments from 7 to 25 cfs is not necessary. Flows during these monitoring periods were similar to the minimum streamflows specified in the FS 4(e) conditions during extreme critically dry, critically dry, and dry water years. In the final EIS we

discuss additional scientific references that evaluate the relationship between water temperature and distribution of foothill yellow-legged frog, optimum conditions for development and growth of foothill yellow-legged frog eggs and tadpoles, and metamorphosis of tadpoles. These data indicate that optimum water temperatures for early development and growth are in the range of 19-22°C; at temperatures below 18°C growth rates decrease and time to metamorphosis increases, potentially reducing population viability. The proposed minimum streamflows would enhance aquatic habitat for resident trout in the Middle Yuba River without adversely affecting foothill yellow-legged frog populations, while the target temperatures of the Block Flow recommendation, irrespective of the incremental flow released, have the potential to adversely affect existing foothill yellow-legged frog populations between Wolf Creek and National Gulch.

Comment: California Fish and Wildlife disagrees with our analysis of biological impacts from the implementation of the Block Flow in the Middle Yuba River. California Fish and Wildlife claims that although the species in the Middle Yuba River have differing temperature tolerances, they all exist in the continuum of temperature gradients throughout their ranges in California.

California Fish and Wildlife notes that its recommended temperature objective of 19°C above Wolf Creek is only 1°C lower than the temperature we recommend at this location. However, it believes that 1°C should enhance thermal conditions for rainbow trout down to about river mile (RM) 23 without adversely impacting existing populations of foothill yellow-legged frog at National Gulch (RM 30). California Fish and Wildlife also recommends monitoring of temperature, frog populations, and rainbow trout populations throughout the term of the license.

Response: As California Fish and Wildlife states, aquatic species occur in a continuum of temperature gradients, increasing from upstream to downstream. Our assessment of the Block Flow recommendation considers the predicted water temperature differences between required minimum streamflows and Block Flows between Milton diversion dam and Our House diversion dam impoundment.

The analysis presented in the draft EIS and in the final EIS balances the benefits to resident rainbow trout against the potential risk to foothill yellow-legged frog. The recreational fishery for resident rainbow trout in the Middle Yuba River above Wolf Creek has been described as a high quality fishery. The Block Flow recommendation would potentially extend this fishery farther downstream to areas more accessible to recreational anglers. However, we do not agree with California Fish and Wildlife regarding impacts to yellow-legged frogs and continue to conclude that the additional flows dedicated to further reducing water temperature in the Middle Yuba River stream reach above Wolf Creek confluence from 20°C to 19°C would result in an uncertain and potentially adverse effect on foothill yellow-legged frog populations. The 1°C difference in water temperature between the required minimum streamflows and the Block Flow recommendation would be diminished moving downstream and be negligible at Our House diversion dam impoundment.

Comment: California Fish and Wildlife questions the validity of the unregulated condition temperature modeling in the South Yuba River because no temperature data were collected prior to 1913 when Spaulding Dam was built. California Fish and Wildlife asserts that while it is relatively easy to run “unimpaired flow” releases through the licensee’s water temperature model, this still represents the regulated release of the “unimpaired flows.” Given that water temperature monitoring was not conducted in the South Yuba River prior to the construction of the projects, it believes that it is not possible to calibrate a water temperature model with any measure of confidence.

Response: Estimated regulated flows are provided as a frame of reference; however, the baseline for evaluation of proposed conditions and project effects is the existing license conditions, that is, the no-action alternative. The discussion of unregulated flows is clarified in our analysis in section 3.3.2.2.7 of the final EIS, but is based on water temperatures observed in relatively unregulated stream reaches upstream of Lake Spaulding.

Comment: Foothills Water Network comments that the description of South Yuba Block Flows in the draft EIS is inaccurate. It believes that the draft EIS evaluates a hypothetical situation in which South Yuba Block Flows were released at the maximum allowable value all summer long. It notes that the South Yuba Block Flow measure (like the Middle Yuba Block Flow measure) was crafted explicitly to address periods of high water temperature. It does not believe that the scenario “analyzed” in the draft EIS analyzes the measure recommended by California Fish and Wildlife and Foothills Water Network. Foothills Water Network also comments that the draft EIS should complete and balance its impact analysis on foothill yellow-legged frog by evaluating the benefits that subpopulations of foothill yellow-legged frog in the South Yuba downstream from Poorman Creek will enjoy because reduced water temperatures in their habitat become closer to the “thermal preference.”

Mr. Reedy comments that the Block Flow measures would further cool the Middle Yuba and South Yuba Rivers with minimal to negligible impacts on hydropower and water supply, which would have economic value to the community from improved fishing and recreational use that should be considered.

California Fish and Wildlife clarifies the 19°C temperature objective above Canyon Creek and discusses the deficiencies with our assessment of the South Yuba River Block Flow recommendation.

PCWA comments that the draft EIS analysis of the Supplemental Flow proposal for the South Yuba River is incorrect. The intention was not to cool the river to 17°C during high temperature events, but to set aside water to be released at an appropriate rate during high temperature events.

Response: The description of the Block Flow measure in the draft and final EIS is accurate. Given the uncertainty with how the 2,500 acre-feet Block Flow would be incrementally released below Lake Spaulding, the final EIS analyzes the effect of incremental flows over the range of both the Supplemental Flow condition and the Block Flow recommendation (from 10 to 60 cfs) on stream temperature in the South Yuba River below Lake Spaulding. We determined that PG&E’s proposed minimum flow combined with the Forest Service Supplemental Flow, which would provide a total of 30 cfs, would maintain stream temperatures at the confluence of Canyon Creek at or below 20°C and would enhance aquatic habitat for resident trout. We determined that the additional flows dedicated to further reducing water temperature in the stream reach from 20°C to 19°C above Wolf Creek confluence in Middle Yuba River and above Canyon Creek confluence in South Yuba River would potentially extend optimum habitat for resident rainbow trout farther downstream, but increase the risk to existing populations of foothill yellow-legged frog in the affected stream reaches.

Based on the incremental flow analysis, we determined that the California Fish and Wildlife and Foothills Water Network Block Flow recommendation would provide water temperatures several degrees cooler than the Forest Service Supplemental Flow condition, which would further enhance aquatic habitat for resident trout farther downstream, but would have the potential to adversely affect foothill yellow-legged frog development and abundance.

The final EIS concludes that implementation of the Forest Service Supplemental Flow condition would benefit aquatic resources overall, whereas the California Fish and Wildlife/Foothills Water Network Block Flow recommendation would enhance conditions for resident trout and recreational anglers, but could potentially adversely affect foothill yellow-legged frog populations. Water temperatures in the vicinity of Poorman Creek and downstream are within the optimum range for foothill yellow-legged frog under the existing license; the proposed Block Flows would not necessarily enhance those conditions (section 3.3.2.2.7).

The proposed Water Temperature and Stage, Channel Morphology, Fish Population, and Foothill Yellow-legged Frog Monitoring Plans would provide information to assess (through the proposed Consultation Group specific to the South Yuba River) the effectiveness of these flow measures for enhancement of aquatic habitat and resources.

Comment: Foothills Water Network comments that the Commission should require year-round flows to protect anadromous and resident fish in Auburn Ravine. It believes that the draft EIS incorrectly analyzes the flows in Auburn Ravine as provided to meet consumptive water demand even though the delivery is through the project and generates power, which offsets the cost of the delivery.

Response: The final EIS states that releases made by PG&E to Auburn Ravine from South canal below the Wise powerhouses are typically higher than proposed minimum streamflows between April and November and are determined by commitments and contractual obligations for water delivery to NID and PCWA. During this period flows released are also typically greater than natural flows in Auburn Ravine above the Auburn 1 diversion dam. Except during canal outages flows released to Auburn Ravine from South canal between November and March when consumptive demands are minimal, are relatively high and determined by the hydraulic capacity of the Wise powerhouses and South canal.

Comment: Foothills Water Network recommends that the Commission adopt the measures for monitoring for foothill yellow-legged frog, fish populations, and temperature, as recommended by California Fish and Wildlife in its comments on the draft EIS. It also recommends the installation of a real time flow gauge on the South Yuba River downstream of Canyon Creek.

Response: Section 3.3.2.2.8 of the final EIS discusses Forest Service and BLM 4(e) conditions requiring monitoring plans, including Fish Population, Foothill Yellow-legged Frog, and Channel Morphology (filed November 21, 2013) that would be implemented upon license issuance. Forest Service filed a Water Temperature and Stage Monitoring Plan (April 11, 2014) that would be implemented upon approval by the Commission (Forest Service condition 51). Forest Service revised modified condition 51 (April 14, 2014) also requires PG&E to develop in consultation with the agency an Aquatic Benthic Macroinvertebrate Monitoring Plan to be filed with the Commission within 1 year of license issuance. The final FEIS recommends the monitoring plans because they would provide information to evaluate the effect of the Supplemental Flow increase on foothill yellow-legged frog population abundance and distribution.

Comment: The Forest Service, BLM, and California Fish and Wildlife disagree with the statement in the draft EIS that there is a very low risk of introduction of Quagga and zebra mussels. The agencies recommend several survey protocols at project lakes and would require the licensee to record incidental observations of various mussel species.

Response: The final EIS clarifies that it is the assessment criteria, not California Department of Fish and Wildlife, which suggests there is a very low risk of introduction of aquatic invasive

species; however, some aquatic invasive species have been identified in project-affected waters. The final EIS has been modified to include additional survey protocols for aquatic invasive species specified by the Forest Service and recommended by California Department of Fish and Wildlife in development of PG&E's and NID's Aquatic Invasive Species Management and Monitoring Plans. We recommend that an Aquatic Invasive Species Monitoring and Management Plan be developed by the licensees in collaboration with the agencies and filed with the Commission within 1 year of license issuance.

Comment: The Forest Service comments that we did not address the recommendations filed by resource agencies for management through Bear River Valley.

Response: Forest Service revised modified condition 50 (April 14, 2014) specifies requirements for baseline and ongoing monitoring to assess riparian vegetation and bank stability conditions in Bear River above Drum afterbay on federal lands; Forest Service 10(a) recommendation 7 (November 21, 2013) recommends additional qualitative and quantitative monitoring for Bear River Management Through Bear Valley on non-federal lands. PG&E proposes the same measures required or recommended by the Forest Service. Sections 3.3.2.2.2 and 5.1.2.2 of the final EIS evaluate the proposed monitoring conditions for Bear River above Drum afterbay. We expanded our analysis of the proposed management plan for Bear River valley and recommend inclusion of the measures in the new license for the Upper Drum-Spaulling Project.

Comment: The Forest Service comments that the assumption that the volume of LWD transported to and removed from project reservoirs is relatively low is incorrect.

Response: Data collected during relicensing studies relative to availability of LWD in project-affected stream reaches, indicate that these watersheds generate a relatively low volume of LWD. Based on available data for project-affected stream reaches collected during relicensing studies, the draft EIS concluded that the quantity of LWD appears to be relatively low compared to other watersheds in the western Sierra Nevada. In most smaller project impoundments, LWD is allowed to pass over dam spillways during high flows. At some larger reservoirs, LWD is blocked by log booms and periodically removed from the reservoir and disposed of on land. Forest Service revised modified condition 52 specifies that the licensee develop a LWD Management Plan in consultation with the agency within 1 year of license issuance. In the final EIS, we recommend this Forest Service condition because LWD surveys would provide additional information on abundance, distribution, and management of LWD in project-affected reaches and identify suitable locations and reaches to reintroduce LWD removed from project reservoirs to enhance aquatic habitat. PG&E and NID have agreed to implement these conditions.

Comment: The Forest Service states that we should clarify their recommendations on the issue of implementing Extreme Critically Dry water year type flows in the second year of two sequential Critically Dry water years. PCWA commented (November 27, 2013) on discussion of this issue during the 10(j) meeting noting that it is important for protection of municipal and industrial water supplies, while also protecting environmental resources. PCWA provided a review of historical data to demonstrate that conditions that would result in implementation of this condition have been infrequent over the last 35 years.

Response: Our discussion of the back to back critically dry water year conditions filed by FWS and BLM did not adequately distinguish the differences and scope of the two agencies conditions. Forest Service condition 26 and BLM condition 3 specify for the Upper Drum-Spaulling Project and Forest Service recommendation 1 for the Yuba-Bear project recommends that extreme

critically dry water year type flows be implemented in a critically dry year that follows a critically or extreme critically dry year. We clarify in the final EIS the stream reaches to which these conditions apply. The final EIS lists three reaches in the Upper Drum-Spaulding Project to which this condition applies. The BLM condition applies specifically to the Bear River below Rollins dam in the Yuba-Bear Project. NID proposed that similar modification of minimum streamflows during extended drought conditions apply to Middle Yuba River below Milton diversion dam and Canyon Creek below Bowman-Spaulding diversion dam. Our evaluation of data on the relationship between flow and the aquatic habitat index, Weighted Useable Area, indicates that implementation of extreme critically dry minimum streamflows during the second year of consecutive critically dry or drier years would have a similar effect on aquatic habitat in the two reaches proposed by NID as the other four reaches to which the Forest Service and BLM condition applies. The specified minimum flows for all other reaches would be the same during either a critically dry or extreme critically dry water year; that is, back to back critically dry conditions would not alter the allowed minimum streamflow requirements in those stream reaches.

Comment: EPA Region 9 comments that the final EIS should include a discussion of the applicability of section 404 of the Clean Water Act to project construction, operations and maintenance activities. If applicable, it should discuss the permit requirements under this statute and identify the role of the Corps in implementing these programs.

Response: Section 1.3.2 has been revised to discuss requirements under section 404. We expect both NID and PG&E would obtain any federal or state permits necessary to authorize any construction activities.

Comment: EPA Region 9 comments that the final EIS should discuss the health impacts of consuming fish that contain elevated concentrations of methylmercury. EPA recommends that the Record of Decision commit to a continuation of the monitoring of methylmercury found in the fish that are annually stocked by PG&E and NID. If monitoring continues to reveal exceedances of California's Office of Environmental Health Hazard Assessment methylmercury standards, EPA recommends that signs should be posted in languages understood by likely recreationists to warn them of the risks of consuming fish that exceed recommended health levels.

California Water Board feels that mercury bioaccumulation monitoring may not be necessary for the FERC license, but may condition the water quality certificates to comply with a statewide mercury policy or Total Maximum Daily Limit.

Response: Neither mercury nor methylmercury exceeded the aquatic benchmark during aquatic toxicity sampling. However, methylmercury concentrations in fish tissue were greater than limits set for consumption advisories for human health. As stated on page 255 of the draft EIS, the Upper Drum-Spaulding, Lower Drum, Deer Creek, and Yuba-Bear Project operations are not expected to change in a manner that would affect methylmercury concentrations, distribution, or bioaccumulation. Additionally, methylmercury concentrations in fish tissue are likely to remain high in the future with all other factors affecting uptake remaining unchanged. Therefore, we do not expect any changes in methylmercury concentrations in the environment or in the tissue of target sportfish as a result of project operations. Although monitoring fish tissue from selected stream reaches could provide data useful to Office of Environmental Health Hazard Assessment for determining the need for consumption advisories, such measures would not be warranted by project operations and are not recommended for inclusion in the new license.

Comment: PG&E requests that section 3.3.2.2.3 of the draft EIS be revised to acknowledge that PG&E does not divert water from Auburn Ravine and cannot supplement natural flows or provide water in Auburn Ravine during canal outages, see, for example, draft EIS at page 197, paragraph 3.

Response: Section 3.3.2.2.3 of the final EIS has been revised to incorporate the suggested clarification.

Comment: PG&E requests that section 3.3.2.1.1 of the draft EIS be revised to clarify that water is released to Auburn Ravine from South canal below the Wise powerhouses primarily to meet contractual water delivery obligations to NID and PCWA and not required by license conditions.

Response: Section 3.3.2.1.1 of the final EIS has been revised to incorporate the suggested clarification.

Comment: PG&E requests that section 3.3.2.1.3, *Auburn Ravine Sub-Basin*, be revised to state that Auburn Ravine sub-basin is situated within the Sacramento River Basin and consists of Auburn Ravine from South Canal to PCWA's Auburn Tunnel Outlet (non-project water delivery), in order to be consistent with the rest of the draft EIS.

Response: Section 3.3.2.1.3 of the final EIS has been revised to incorporate the suggested clarification.

Comment: PG&E requests that section 3.3.2.2.8 be revised to clarify that the increased minimum streamflows proposed for Auburn Ravine to enhance aquatic habitat for resident rainbow trout in the stream reach immediately downstream of PG&E's release points from South canal were not intended to provide cooler water temperatures, but rather WUA for resident rainbow trout was the primary index that was used in negotiating the minimum flows.

Response: Section 3.3.2.2.8 of the final EIS has been revised to incorporate the suggested clarification.

Comment: PG&E recommended minor modification and clarifications to tables 3-121, 3-136, 3-144, 3-181, and 3-190 to more accurately reflect its proposal and operations.

Response: The tables in appendix A-2 of the final EIS have been revised to incorporate the recommended clarifications.

Comment: California Water Board requests that specific attention be paid to the time period when the PG&E canal outage in the Wise Development prevents PG&E from directly contributing a minimum flow to Auburn Ravine. California Water Board supports collaboration between Relicensing Participants to come to an agreement on flows in Auburn Ravine to ensure protective minimum flows are established throughout Auburn Ravine. The Forest Service and BLM support California Fish and Wildlife recommendations regarding Auburn Ravine canal outages and monitoring.

Response: During outages of the upstream canal system that delivers Bear River water through the Wise and Wise No. 2 Development to the South canal, no source of water is available through project operations for PG&E to augment flows in Auburn Ravine. Although other sources of water could be used to supplement flows during canal outages, these sources are not under the control of the licensee and the Commission does not have the jurisdiction to set license conditions

requiring the use of non-project water which is used for contractual water supply deliveries. Therefore, we cannot recommend the BLM and California Fish and Wildlife minimum streamflow conditions during canal outages that affect this reach.

Comment: PG&E clarifies that the flow in South Fork Deer Creek would be the same as historical flows because operations would not change.

Response: Under the existing license there is no minimum flow requirement for the South Fork of Deer Creek below Deer Creek powerhouse; however, there is a proposed minimum flow requirement of 5 cfs year round for the South Fork of Deer Creek. Although PG&E is likely to continue to operate the proposed Deer Creek Project as it has historically which would typically provide flows equal or greater than the new specified minimum 5 cfs streamflow, the minimum streamflow condition that would be implemented under the new license would be a change in the operating license compared to the existing license that includes no minimum streamflow in the South Fork Deer Creek.

Comment: PG&E clarifies that Supplement No. 2 (August 30, 2012) to the application updating the reservoir simulation model (HEC-ResSim) states that “It should be noted that the inability to meet the new minimum flows at these locations is in large part an artifact of the way the HEC-ResSim model works for these locations.” and “licensee anticipates that these minimum flows would, in fact, be met at all times.”

Response: Section 3.3.2.2.6 of the final EIS has been modified to incorporate the requested notation.

Comment: PG&E requests that we revise the statement in the 1st paragraph on page 138 of the draft EIS that PCWA withdraws water from South canal at several locations between the Wise powerhouses and the Newcastle Development to exercise water rights and meet water delivery demand to clarify that PG&E delivers water to PCWA from South canal at several locations between the Wise powerhouses and the Newcastle Development to meet water delivery contractual obligations.

Response: Section 3.3.2.2.2 of the final EIS has been revised to incorporate the suggested clarification.

Comment: PG&E clarifies that it agrees with and recommends adoption of the negotiated Supplemental Flow measure contained in the Forest Service’s Revised Preliminary 4(e) condition dated August 23, 2013.

Response: Section 3.3.2.2.7 of the final EIS has been revised to include the suggested clarification.

Comment: PG&E notes that the part of the statement in the 2nd paragraph on page 92 of the draft EIS that says PCWA holds water rights related to the Drum-Spaulding Project is in error. It comments that PG&E owns the water rights related to the Drum-Spaulding Project and for contractual water supply deliveries.

PG&E also comments that the text in the 4th paragraph on page 266 of the draft EIS should be corrected to acknowledge that PG&E holds the water rights associated with the Drum-Spaulding Project, not PCWA.

Response: Sections 3.2 and 3.2.2.1.1 of the final EIS has been revised to correctly state that PG&E holds the water rights associated with the Upper Drum-Spaulding, Lower Drum, and Deer Creek Projects.

Comment: PG&E clarifies that PCWA's September 14, 2012 letter regarding Reclamation's recommendations states "Reclamation can assert no claim against PG&E or PCWA to require any water deliveries into Folsom Reservoir from the Yuba or Bear Rivers. (Stevens v. Oakdale Irrigation District (1939) 13 Cal.2d 343, 348-353.) PG&E notes that Reclamation's requirements under their water rights and regulating BOs for instream flows and temperatures in the Lower American River apply only to Reclamation's Central Valley Project water rights and are not conditioned upon or reliant upon the inter-basin transfer of water from the Yuba or Bear Rivers."

Response: The final EIS has been revised to clarify that PG&E holds the water rights for operation of the Upper Drum-Spaulding, Lower Drum, and Deer Creek Projects and for contractual water supply deliveries.

Comment: PG&E recommends that the draft EIS statement in the 1st paragraph on page 266 of the draft EIS should be revised to acknowledge that PG&E delivers water contractually to PCWA for consumptive uses.

Response: Section 3.3.2.3 of the final EIS has been revised to incorporate the text as requested.

Comment: NMFS disagrees with our assessment that the minimum flows proposed for Auburn Ravine, Rock Creek, and Dry Creek are outside the scope of section 10(j) and asserts that FERC did not provide sufficient justification to conclude that NMFS's 10(j) recommendation is outside the scope of section 10(j) of the FPA.

Response: In the draft EIS we concluded that NMFS flow recommendations for these Western Placer County stream reaches are within the scope of 10(j), but did not recommend implementation of the NMFS flows due to system operational limitations during canal outages and the location of anadromous salmonid populations downstream of the Halsey, Rock Creek and Wise and Wise No. 2 developments relative to direct project-affected stream reaches. In sections 3.3.2.2.2 and 5.1.2.2, the final EIS evaluates the differences between the minimum flow proposals of PG&E and NMFS. In both of these sections, we justify our position that the PG&E flows provide more protection to and enhance aquatic habitat in the downstream reaches of Auburn Ravine, Rock Creek, and Dry Creek. Table 5-2 indicates that our assessment of NMFS's recommendation is within the scope of 10(j); however, we did not adopt the recommendation.

Comment: NMFS comments that the Commission has not yet initiated formal consultation with NMFS under the Magnuson-Stevens Act. NMFS notes that Essential Fish Habitat (EFH) for Chinook salmon has been identified, under the Magnuson-Stevens Act, in the upper Yuba River (upstream of Englebright Dam), as well as the lower Yuba River and in areas downstream (October 15, 2008 73 FR 60987).

Response: Section 1 of the draft EIS outlines our determination that the projects do not affect Pacific salmon EFH upstream of Englebright reservoir; therefore, consultation is not required on Pacific salmon EFH upstream of Englebright reservoir. In the final EIS we expand our analysis of the cumulative effects of flow diversions in the Middle Yuba River, Canyon Creek, and South Yuba River by the Yuba-Bear and Upper Drum-Spaulding Projects on flows and anadromous salmonid habitat in the lower Yuba River downstream of Englebright dam. We also provide additional analysis in the final EIS of the potential effects of project interbasin water transfers

from the upper Yuba watershed on flows and habitat for anadromous salmonids downstream of Englebright dam because flows in the Yuba River below Englebright dam are primarily controlled by operations and releases from New Bullards Bar reservoir on North Yuba River. We will consult with NMFS on Pacific salmon EFH downstream of Englebright dam under the Magnuson-Stevens Act (see section 1.3.7 of this final EIS)

Comment: NMFS comments that the Commission has not yet initiated formal consultation with NMFS under the ESA. However, to facilitate the future consultation, the draft EIS should have, but did not, evaluate NMFS' PM&E measures as preliminary recommendations under the ESA to benefit the threatened species and their critical habitats below Englebright dam in the lower Yuba River, and in additional areas downstream to the Sacramento-San Joaquin Delta. The draft EIS did not contain similar evaluations for projects' influences on ESA-listed species and critical habitats in the lower American River or the lower Bear River. NMFS is seeking the description, analysis of, and quantification of direct, indirect and cumulative impacts on federally-listed endangered and threatened species and designated critical habitats. NMFS comments that for ESA and Magnuson-Stevens Act consultation, an effects determination must be made based on analysis.

Response: NMFS did not provide specific PM&E measures to benefit listed species and critical habitat below Englebright dam. NMFS' PM&E measures were related to anadromous fish in the Yuba River above Englebright dam where no anadromous fish are present. The analysis in the draft and final EIS did not discern any appreciable effect of the projects on listed anadromous fish or critical habitat in the lower American River and in the lower Bear River. As discussed previously, we have expanded our analysis of project-affected flows in the Yuba River downstream of Englebright dam and will consult with NMFS under ESA and the Magnuson-Stevens Act (see sections 1.3.3 and 1.3.7 of this final EIS).

Comment: NMFS states that in section 3.3.2.1.1 of the draft EIS, the brief description of each development and comparison of historical to unimpaired flows is not an adequate analysis of the baseline hydrologic effects of the projects or subsequent effect on aquatic biota. Additionally, NMFS suggests that instead of performing an independent hydrologic analysis, the draft EIS merely adopts PG&E and NID's proposals. Specifically, NMFS states that the draft EIS did not include a sufficient analysis of the projects' alterations of the snowmelt hydrograph, and whether there is sufficient protection proposed by PG&E and NID for aquatic species and their habitat in all water years, at an appropriate geographic scale, to mitigate for the diminished magnitude in the snowmelt hydrograph. In addition, NMFS believes that the DEIS insufficiently analyzed the impact of the projects' on the physical and thermal suitability of migration habitat for upriver passing adult anadromous fish and downriver migrating juveniles. According to NMFS, this analysis was performed for foothill yellow-legged frog, but was not, and should be conducted for anadromous fish.

NMFS states that the analysis performed for foothill yellow-legged frog was also inadequate in the draft EIS because it did not take into consideration the baseline conditions, and they disagree with the Commission's overall conclusion that foothill yellow-legged frog would be harmed by the projects.

Lastly, NMFS believes that the Commission should have verified the hydraulic models developed by PG&E and NID because the models contain many issues as a result of oversimplification of complex hydraulic interactions. Specifically, the models use depth-averaged velocity rather than using near-bed velocities, which can impact foothill yellow-legged frog masses and tadpoles.

Additionally, NMFS feels that the topographic data points at either 0.5 to 2 meter intervals was too coarse to adequately capture foothill yellow-legged frog microhabitats.

Response: Flows in the project watersheds are dominated by snow pack accumulation during winter and melt during spring and early summer; project and non-project dams and diversions and reservoir storage result in modification and manipulation of the natural seasonal hydrograph reducing peak spring flows and extending summer flows. The analysis of cumulative effects and ESA-listed species has been expanded to include the effect of the interbasin transfer of water on water quantity and the potential effects on anadromous fish habitat in the lower Yuba River below Englebright dam. At this time flows in the lower Yuba River are managed by releases from the non-project Narrows I and Narrows II powerhouses at Englebright dam (Narrows II powerhouse is part of the Yuba River Project No. 2246 that is also involved in relicensing). Flows to support downstream aquatic habitat and fish passage are presently determined primarily through operations at New Bullards Bar reservoir and flows from the North Yuba River.

Our analysis of project effects on aquatic habitat associated with alternative proposals for flow modifications in project-affected reaches focused on balancing the competing thermal requirements for resident rainbow trout and early life stage development of foothill yellow-legged frog. Consistent with the Commission's baseline policy, existing conditions, including documented locations of foothill yellow-legged frog populations, provide the baseline for this analysis with consideration of the effects of increased minimum streamflows and spill cessation measures and Forest Service's Supplemental Flow condition and California Fish and Wildlife's Block Flow recommendations. Although the models and modeling results developed and submitted by the licensees as part of the relicensing studies simplify complex hydraulic processes (as any such model would), they provide a useful tool for comparison of water temperature conditions at key stream locations under a range of flow conditions. As such, the model results provide an appropriate basis for our analysis of aquatic habitat conditions and alternative flow proposals.

Comment: NMFS states that deficiencies exist in the draft EIS' treatment of the projects' effects on LWD supply, storage, and transport, specifically regarding the Commission's adoption of PG&E and NID's analysis of the projects' effects on LWD. NMFS believes that we should have performed an independent analysis of LWD supply, storage, and transport.

Response: The final EIS reevaluates NMFS's comments regarding the calculation of LWD that would exist in the South Yuba River and provides sufficient justification to support our determination in the final EIS. Final Forest Service and BLM conditions address the implementation of a LWD plan including survey of existing conditions and development and implementation of a plan to ensure passage of LWD below project dams.

Comment: NMFS states that deficiencies exist in the draft EIS' treatment of the projects' effects on stream temperatures. NMFS disagrees with the draft EIS analysis of only the Forest Service and California Fish and Wildlife summertime water temperature management proposals for the Middle and South Yuba Rivers. Additionally, NMFS states that the draft EIS does not include a comparison of NMFS' water temperature management measure against the baseline. NMFS believes we should perform an independent analysis of the appropriateness of the temperature thresholds used in the draft EIS, and the optimal target location for achieving those thresholds. Lastly, NMFS believes the draft EIS analysis should have taken into consideration the effects of climate change during the next license term.

Response: As in the draft EIS, section 3.3.2.2.7 of the final EIS includes our independent analysis of the effect of incremental flows on stream temperature in the South and Middle Yuba Rivers. Under existing conditions anadromous salmonid access to project-affected stream reaches of the Middle and South Yuba Rivers is blocked by Englebright dam; the recent Biological Opinion on the Corps' operations and maintenance at Englebright dam does not address passage at Englebright dam. Flows and water temperatures in the Yuba River downstream of Englebright dam are managed and dominated by flows and operations at the New Bullards Bar dam and the Narrows I and Narrows II powerhouses.

We determined that PG&E and NID's proposed minimum flows would maintain stream temperatures at or below 20°C at target management locations and would enhance aquatic habitat for resident trout. Based on the incremental flow analysis, we determined that the California Fish and Wildlife and Foothills Water Network Block Flow recommendation would provide water temperatures several degrees cooler than the Forest Service Supplemental Flow condition in key project-affected stream reaches, which would further enhance aquatic habitat for resident trout farther downstream, but would have the potential to adversely affect foothill yellow-legged frog early development and abundance. NMFS did not provide a specific water temperature management measure related to resident aquatic species similar to the Supplemental Flow measure or the Block Flow measure, NMFS recommended minimum streamflows are associated with a plan for reintroduction of spring-run Chinook salmon and Central Valley steelhead to the upper Yuba River upstream of Englebright dam, including the South Yuba River and Middle Yuba River. Given the uncertain schedule and progress toward reintroduction of anadromous salmonids in this watershed, it is premature to determine appropriate flows related to habitat and water temperature to support reintroduction of anadromous salmonids for future implementation as recommended by NMFS.

Comment: NMFS comments that the draft EIS fails to analyze the benefits of NMFS' proposed flows, or their potential effect on spring-run Chinook salmon or steelhead. NMFS disagrees that its recommendations concerning salmon habitat are outside the scope of section 10(j) of the FPA simply because the recommendations contemplate future, but reasonably foreseeable, actions.

Response: NMFS's recommendations concerning salmon habitat are outside the scope of section 10(j) of the FPA because a firm schedule and process for reintroduction of anadromous species above Englebright dam has not been developed at this time. Although a specific reintroduction plan would be subject to analysis under FPA, a conceptual plan for eventual reintroduction of these species is not within the scope of our required analysis. Therefore, given the uncertain schedule and progress toward reintroduction of anadromous salmonids in this watershed and ongoing studies in the watershed, it is premature to determine appropriate flows to support reintroduction of anadromous salmonids for future implementation as recommended by NMFS. Instead, the final EIS analysis focuses on effects of proposed flows on water temperature and aquatic habitat for resident species; our analysis found that higher flows and rapid increase in flow proposed by NMFS could result in a reduction in habitat for resident rainbow trout and adversely affect development of early lifestages of foothill yellow-legged frog. Our analysis of direct, indirect, and cumulative effects has been expanded in the final EIS to include effects of project flows and operations including the interbasin transfer of water on water quantity and water temperature in the Lower Yuba River below Englebright dam and the resulting uncertain effects on anadromous fish habitat. Proposed monitoring for fish populations, foothill yellow-legged frog, water temperature and stage, and channel morphology in the Middle and South Yuba Rivers would provide considerable additional information to evaluate the need or benefit of higher flows for resident fish and in the future for anadromous fish, if and when they are reintroduced to the upper Yuba River. In sections 5.1.4.1 and 5.5.4.1 of this final EIS, we

provide further explanation why the NMFS recommendations are outside the scope of section 10(j).

Comment: California Fish and Wildlife states the draft EIS does not recognize that the reach of the South Yuba River between Spaulding reservoir and Englebright reservoir is listed as temperature impaired under Clean Water Act section 303(d) with a Total Maximum Daily Limit completion date of 2021. The California Water Board comments that the draft EIS did not discuss the 303(d) listings that the state of California has submitted to EPA. Both mercury and temperature listings are in this project area.

Response: Section 3.3.2.1.2 of the final EIS has been revised to include additional discussion of this issue including differences in beneficial use designation within the Sierra Nevada region. The additional discussion does not affect our analysis of water quality effects of the projects.

On the basis of this analysis, we find the proposed flow measures would maintain and enhance water temperatures within project-affected stream reaches for cold water habitat. Lower reaches of the South Yuba River where temperature impairment occurs are cumulatively affected by additional non-project factors and would be appropriately addressed under the TMDL process. Pending the outcome of the TMDL for the South Yuba River the licenses for the Upper Drum-Spaulding and Yuba-Bear Projects could be reopened to incorporate new conditions and a revised section 401 certification.

Project operations have not caused, nor are they expected to alter the source of mercury contamination from historical mining operations for which this reach is listed.

Comment: California Fish and Wildlife recommends that Forest Service condition 27 (Erosion and Sediment Control and Management) should apply to all public trust resources, and not only those that occur on Forest Service land.

Response: Section 3.3.1.2.1 of the final EIS has been revised to include lands managed by the State in addition to those managed by Forest Service and BLM.

Comment: California Fish and Wildlife requests clarification on what exactly we recommend for the measure “Minimum Streamflow Requirements in the Bear River below Bear River Canal Diversion Dam at Gage YB-196.”

Response: Section 3.3.2.2.2 of the final EIS has been modified to clarify the measure “Minimum Streamflow Requirements in the Bear River below Bear River Canal Diversion Dam at Gage YB-196.” The condition specifically recommends that when flows measured at YB-196 are not in compliance with the specified flow for that month and water year, the licensee of the Lower Drum Project cannot divert water to the Bear River canal below Rollins dam until compliance at YB-196 is achieved.

Comment: California Fish and Wildlife recommends that the Bear River Management through Bear Valley monitoring/mitigation plans should apply not only where the Forest Service has authority, but on other parts of the Bear Valley land affected by the project.

Response: Section 5.1.2.2 has been revised to clarify that we are recommending a Bear River Management Plan for Forest Service Land (Forest Service condition 50) as well as management measures for non-federal public lands, which is consistent with Forest Service 10(a) recommendation 7 and included in staff recommendations.

Comment: California Fish and Wildlife disagrees that no source of water is available for PG&E to augment flows in Auburn Ravine.

Response: Section 3.3.2.2.2 of the final EIS has been modified to clarify that no source of water originating from within the project is available for PG&E to augment flows in Auburn Ravine. Sources of water outside of the project and not controlled by the licensee are not within the Commission's regulatory jurisdiction and cannot be included as a license condition.

Comment: California Fish and Wildlife notes that migration barriers to Chinook salmon and steelhead throughout Auburn Ravine are being or have been modified to provide passage.

Response: The final EIS notes the efforts to provide upstream access to anadromous species in Auburn Ravine, but also indicates that Ophir Cataract (RM 26.6) is designated as the upstream natural barrier to migration and steelhead critical habitat. This barrier is about 0.9 mile below PG&E's discharge from South canal and immediately upstream of PCWA's Auburn Tunnel discharge.

Comment: California Fish and Wildlife recommends specific monitoring in Auburn Ravine that should be included in the license.

Response: Section 3.3.2.2.8 of the final EIS has been revised to evaluate the November 2013 Fish Population Monitoring Plan filed by PG&E, which is consistent with the California Fish and Wildlife monitoring recommendations for Auburn Ravine. We recommend implementation of the Fish Population Monitoring Plan filed with the Commission on November 21, 2013, which includes the reach of Auburn Ravine downstream from PG&E's release point from South canal to monitor the condition of resident fish populations in the project-affected reach. The monitoring plan would provide a mechanism for evaluating the benefit of the minimum flow releases and assess if they are accomplishing the intended objectives predicted by the habitat and operations models used to inform the selection of those minimum streamflows.

Comment: California Fish and Wildlife comments that including an additional back-to-back, extreme critically dry year flow would reduce flows even further and would not adequately protect the resources in the Middle Yuba River below Milton diversion dam, Canyon Creek below Bowman dam, Bear River below Rollins dam, and North Fork of the North Fork American River. California Fish and Wildlife's notes that it only accepted the back to back year concept for the flows in South Yuba River below Spaulding reservoir.

Response: The final EIS evaluation of California Fish and Wildlife minimum flow requirements (section 3.3.2.2.1) has been modified to clarify the recommendation of California Fish and Wildlife, but we continue to recommend implementation of the Forest Service and BLM conditions which affect South Yuba River below Spaulding dam, Bear River below Rollins dam, North Fork of the North Fork American River below Lake Valley reservoir dam, and North Fork of the North Fork American River below Lake Valley canal diversion dam because we determine that this modification of the water year type under these rare conditions would not result in adverse affects to these aquatic communities. The implementation of this condition in the project-affected reaches of the Middle Yuba River and Canyon Creek would balance the competing resources needs during extreme and infrequent drought conditions. Monitoring surveys for resident fish populations, foothill yellow-legged frog, aquatic benthic macroinvertebrates, and water temperature and stage in these reaches would provide information

to assess the effects of implementing the back-to-back critically dry water year measure on these resources and aquatic habitat during extreme drought.

Comment: PCWA requests the minimum flows table for the South Yuba River below Lake Spaulding dam be corrected for September to be 10/20 cfs.

Response: Table 3-121 in the final EIS has been corrected.

Comment: PCWA comments that the draft EIS should be corrected to reflect the most accurate information on the distribution of hardhead in the South Yuba River. It notes that hardhead are present in the South Yuba River. It also notes that based on PCWA surveys conducted in summer 2012, hardhead were definitively identified in the survey reach from RM 8 to as far upstream as RM 20.2 near Humbug Creek; potential hardhead (small mixed minnows) were observed as far upstream as Scotchman Creek (RM 30.6).

Response: Section 3.3.2.2.8 of the final EIS has been modified to incorporate this new information into the final evaluation of proposed measures to protect steelhead in the South Yuba River, however our analysis is not affected.

Comment: PCWA comments that the draft EIS incorrectly states that PCWA releases 50 cfs and up to 150 cfs during the irrigation season into Auburn Ravine at the Auburn tunnel. It notes that the correct amount is 50 cfs or less due to a commitment made by PCWA to restrict releases to historical levels.

Response: Section 3.3.4.2.1 of the final EIS has been revised to reflect this clarification; however, our analysis is not affected.

Comment: California Water Board recommends revising the language in section 1.3.2 to better explain the regulatory process as it relates to the Clean Water Act and the Board's role for the projects' Water Quality Certification.

Response: We believe that Section 1.3.2 of the final EIS adequately explains the role of California Water Board in issuing certifications and the regulatory deadlines.

Comment: California Water Board supports the Fish Entrainment Protection Plan, but feels that the amount and method of diversion of water at Milton diversion dam is not currently protective of resident rainbow trout.

Response: We recommend the Fish Entrainment Protection Plan, which includes construction of an intake screening device that meet guidelines of California Fish and Wildlife and NMFS to reduce entrainment as well as monitoring of fish entrainment. Construction and operation of the proposed fish screen would result in a significant reduction of the number of resident trout juveniles diverted from the Middle Yuba River into the Milto-Bowman diversion conduit. Contrary to the Water Board's belief, we conclude that this plan provides adequate protection for resident rainbow trout by reducing entrainment of juvenile trout into the Milton-Bowman diversion conduit.

Comment: California Water Board requests that FERC reconsider the benefits of an Ecological Group for the management of the Drum-Spaulding and Yuba-Bear Projects.

Foothills Water Network disagrees that the Ecological Group as proposed by the agencies would have more far reaching responsibilities than necessary or that effective review can be accomplished within the annual consultation process by work groups composed of the most appropriate stakeholders and resource experts and managers for individual affected resources. It notes that PG&E, the resource agencies, and Foothills Water Network have reached agreement on a “Consultation Group” that would meet up to four times a year in addition to the annual consultation meeting.

Response: We agree that input on implementation and work groups can be conducted within the scope of the annual consultation. A condition proposed by Forest Service and the licensees would require establishment of a Consultation Group specific to each project to review and evaluate results of implementation of new license conditions affecting aquatic resources and results of monitoring programs. The Consultation Group would be involved in the routine evaluation of monitoring data to assess the effectiveness of environmental measures in river reaches affected by the projects, similar to that envisioned by an Ecological Group. Participants in the annual consultation meeting would be involved in project-wide review of operations and maintenance, and implementation of license conditions for protection and enhancement of project-affected resources.

Comment: BLM comments that the modification to the water year type definition for the minimum flows in the Middle Yuba River proposed by NID in their Alternative Conditions and recommended by FERC in the draft EIS is less protective of the aquatic species in the Middle Yuba River.

Response: As in the draft EIS, in section 3.3.2.2.1 of the final EIS, we stated that NID’s proposed back-to-back water year condition would apply to the Yuba- Bear Project only in Bear River below Rollins reservoir for the Yuba-Bear Project and not to the Middle Yuba River which was not clearly stated in the draft EIS.

Comment: Reclamation notes that their Yuba-Bear section 10(a) recommendations [which were identical to the Drum-Spaulding 10(a) recommendations] were not evaluated in the draft EIS, and are relevant to flows for both the Yuba-Bear Project and the Drum-Spaulding Project.

Response: Contrary to Reclamation’s comment, the draft EIS evaluated Reclamation’s recommendation for both projects; however, the EIS notes that Reclamation’s recommendations for minimum streamflows directly affect releases from only the Lower Drum Project’s Newcastle development to Mormon Ravine. Reclamation’s recommendations for the Upper Drum-Spaulding Project were evaluated in the context of cumulative effects.

Comment: The California Sportfishing Protection Alliance comments that the draft EIS is deficient because we did not analyze project effects on anadromous fish in Auburn Ravine and could have recommended an anadromous fish reintroduction alternative. Foothills Water Network has sought to determine what habitat is available for reintroduction of anadromous fish to the Middle and South Yuba Rivers, determine what flows would be needed to support reintroduction of Chinook salmon to these rivers, and determine a minimum flow in Auburn Ravine that would protect salmon and steelhead.

Dry Creek Conservancy agrees with the Foothills Water Network's position, specifically, that most of the water that flows in Auburn Ravine is, on average, delivered through the PG&E project facility. It notes that these flows are not consistently provided and the operation of project facilities has an impact on the fishery. It believes that a minimum flow is needed in the Auburn

Ravine Creek at all times, especially during periods of canal outages. Water temperature is a big issue at low flows and migrating salmon and steelhead can be stranded by low flows.

Response: The final EIS analyzes available data on the relationship between flow and aquatic habitat for resident species as predicted by the metric WUA in project-affected stream reaches including Middle and South Yuba rivers and Auburn Ravine. The reintroduction of Chinook salmon and steelhead to the upper Yuba River above Englebright dam is currently being evaluated by regional stakeholders but was not a provision of the ESA consultation completed between NMFS and the Corps, which operates Englebright dam. Discussion in the final EIS has been expanded to evaluate the potential effects of flows and out of basin water transfers by the Yuba-Bear, Upper Drum-Spaulding, and Lower Drum Projects on flows and water temperatures and aquatic habitat below Englebright dam. Proposed new license conditions would provide increased flows in Middle and South Yuba Rivers particularly during critical summer months and improve habitat for resident aquatic resources. Monitoring plans required under the new licenses would provide additional information about the populations and habitat conditions that can be used to evaluate conditions for anadromous salmonid reintroduction at such time as a schedule for reintroduction is developed.

As stated in the final EIS, during outages of the upstream canal system that delivers Bear River water through the Wise and Wise No. 2 Development to the South canal, no source of project water is available for PG&E to augment flows in Auburn Ravine. The Commission does not have regulatory jurisdiction over non-project water sources that may be available. The Commission believes that the minimum flows proposed by the licensees and resource agencies would provide sufficient protection for aquatic resources in Auburn Ravine outside of the short period of scheduled annual maintenance outages in the fall. During this outage period of about 2 weeks when PG&E would have no other water source under their control to deliver flows to Auburn Ravine, the minimum streamflow in Auburn Ravine would be the the natural flow in Auburn Ravine above PG&E's release channel from South canal.

Critical habitat for steelhead and EFH for salmon in Auburn Ravine occur downstream of the project-affected reach and are cumulatively-affected by numerous non-project water diversion and consumptive water use which are also discussed in the final EIS. The cumulative effects section discusses the relationship between operations of the Lower Drum Project and flows in downstream reaches of Auburn Ravine.

Comment: Mr. Gary Reedy of the South Yuba River Citizens League commented that among the 11 rivers in California that are designated wild and scenic, the South Yuba River is the one that is the most hydrologically impaired due to flow management and these projects. He believes that the draft EIS recommendations have initiated rebalancing of the resources in the Yuba River watershed that would lead to the restoration and enhancement of river courses in this area. Mr. Reedy also comments that the restoration enhancement of the greatest value is the increased minimum streamflows to many stream reaches, specifically the South Yuba River area, Lower Yuba River. Additionally, Mr. Reedy comments that the spill cessation measures would restore many ecological values and consequently have an economic benefit in the form of enhanced fisheries.

Response: Section 3 of the final EIS provides our analysis of the various flow measures for South Yuba River under the new license for the Yuba-Bear and Upper Drum-Spaulding Projects including higher minimum flows, Supplemental Flows for water temperature management, and spill cessation flow schedules. It is our conclusion that these measures together balance

operational and aquatic resource requirements and would protect and enhance aquatic habitat and resources under the new license.

Comment: Mr. Reedy comments that there is a general opinion that the algal blooms need to be reduced, the water quality needs to be improved, and the Block Flow measures would improve water quality and enhance recreational use.

Ms. Rorie Gotham of the South Yuba River Citizens League notes warm summer water temperatures do not adequately support or sustain healthy aquatic habitat but results in abundant algae.

Mr. Mike Connor of the Gold County Fly Fishers notes that the algal blooms in the Yuba River and South Yuba River, presumably due to low flows and high water temperatures, seem to be increasing in recent years and now are extending below Englebright dam.

Response: The issue of algal blooms was not identified in scoping, pre-licensing documents, or evaluated during relicensing studies. A relationship between algal blooms and project operations has not been determined and is not discussed in the final EIS. We have recommended implementation of the Forest Service Supplemental Flow condition as preferable to the Block Flow proposal. Our analysis finds that the supplemental Flow measure would improve habitat and water temperatures in South Yuba River for resident rainbow trout while protecting foothill yellow-legged frog populations. Recommended monitoring plans would provide data necessary to evaluate the effectiveness of these measures for improving water quality and aquatic habitat.

Comment: Mr. Reedy requests that FERC makes sure that extreme flow fluctuations are prevented. He does not see how recent flow fluctuations would be prevented by the proposed license terms.

Response: The licensees and resource agencies have proposed various measures, such as increasing minimum streamflows, decreasing the rate of spill recession from peak flows, and release of seasonal supplemental flows at project facilities, as described in the final EIS to prevent extreme flow fluctuations. The final EIS recommends adopting many of these agreed upon recommendations including spill cessation measures.

Comment: Mr. Reedy requests that the final EIS address any risk of delayed implementation of flow measures, specifically spill cessation measures and minimum flows, so that implementation of those flow measures is not delayed due to some unrecognized operational constraint or other impediment.

Response: The license conditions would specify the deadlines for implementation of flow measures required under any new licenses issued for the projects.

Comment: Dry Creek Conservancy comments that during the irrigation season additional flows may not be necessary because there is usually sufficient water in Auburn Ravine; however, there is a lot of return water going back into the streams, causing a high buildup of nutrients, which causes algae blooms and shifts in dissolved oxygen and pH.

Response: The quality of water returned to Auburn Ravine associated with non-project uses (e.g., irrigation) is not within the Commission's regulatory jurisdiction.

Comment: Ms. Rorie Gotham of the South Yuba River Citizens League believes that water temperatures need to be better managed. He comments that there is a growing interest in restoring a future natural salmon habitat in the Yuba River, which would only be successful if there is sufficient cold water allocated downstream of the reservoirs.

Mr. Connor also notes that efforts to reintroduce salmon above Englebright Reservoir into the Yuba River would not be as effective if there is not more flow in Middle and South Yuba Rivers.

Mr. Peter Burns of the South Yuba River Citizens League comments that at a minimum, all project-affected waters need to be considered and when the entire watershed area of the Yuba, North Fork, Middle Fork, South Fork, Auburn Ravine, North Fork of the American River, and other affected waters are considered, there is a substantial set of issues for salmon and steelhead.

Response: The final EIS analyzes and recommends several flow and operational conditions that would increase minimum streamflows and provide Supplemental Flows during the summer to improve water temperature management in South Yuba River below Spaulding dam. Proposed increases in minimum streamflows in Auburn Ravine would also benefit resident and anadromous species. Proposed monitoring plans would provide data to assess the benefit of these flow and operational conditions to resident species and in the future for anadromous fish, if they are ever reintroduced to the upper Yuba River above Englebright dam.

Comment: Ms. Gotham notes that last year wild salmon returned to spawn in areas of the Auburn Ravine that had not seen salmon in 30 years, which the local community is extremely excited about. He believes that the issues considered in the draft EIS have a direct effect on anadromous fish in Auburn Ravine.

Response: The final EIS evaluates the cumulative effects of project operations in association with consumptive water diversions on anadromous species and habitat in Auburn Ravine below Auburn tunnel, downstream of the project-affected stream reach.

Comment: Mr. Connor indicates that his organization's members (Gold Country Fly Fishers) spend a lot of time in the Yuba watershed, both above and below the many diversions of the streams and would like to see more discussion of improved flows in some of the small streams in the Bear and Yuba River watersheds. Mr. Connor did not identify specifically which streams these may be, but presumably they would include the smaller streams in the upper and lower portions of the projects, such as Texas Creek, Fall Creek, Rucker Creek, Lake Creek, Dry Creek, Rock Creek, etc.

Response: Our analysis examined the flow-habitat relationship data generated as part of the relicensing instream flow studies and finds that the proposed minimum streamflows provide a good balance to protect and enhance aquatic resources compared to the existing license, while ensuring ongoing efficient operation of the projects.

Comment: Mr. Frank Rinella of the Northern California Federation of Fly Fishers comments that as fishermen and recreational users, the Northern California Council Federation of Fly Fishers wants cold water. He believes that the proposals to move cold water down through the creek system would also help the South Yuba River and its summer warm flows.

Response: The final EIS analyzes the effect of incremental flows from 10 to 60 cfs on stream temperature in the South Yuba River below Lake Spaulding. We determined that PG&E's proposed minimum flow combined with the Forest Service Supplemental Flow, which would

provide a total of 30 cfs, would maintain stream temperatures at the confluence of Canyon Creek at or below 20°C and would enhance aquatic habitat for resident trout. Based on the incremental flow analysis, we determined that the California Fish and Wildlife and Foothills Water Network Block Flow recommendation would provide water temperatures several degrees cooler than the Forest Service Supplemental Flow condition, which would further enhance aquatic habitat for resident trout farther downstream, but would have the potential to adversely affect foothill yellow-legged frog development and abundance. The proposed monitoring plan would provide information to assess (through the proposed Consultation Group) the effectiveness of these flow measures for enhancement of these resources.

Comment: Mr. David Ryland comments that there have been several incidents where the drawdowns and the rapidity of the drawdowns have adversely impacted the fishery and macroinvertebrates. He is concerned about the staging of flow reduction to allow migration by all affected species. He disagrees that the reintroduction of Chinook salmon and steelhead is speculative.

Response: The licensees and resource agencies have proposed various measures including spill cessation to prevent extreme flow fluctuations which are discussed and analyzed in the final EIS. The final EIS recommends that we adopt many of these agreed upon recommendations and include them in the license conditions. The monitoring plans proposed for fish, foothill yellow-legged frog, western pond turtle, benthic macroinvertebrates, channel morphology, and water temperature and stage would provide additional data to evaluate the benefits of new conditions affecting flows in project-affected reaches. These data would also be valuable for determining the status of aquatic habitat at such time as reintroduction of anadromous species is implemented. No final plans have been developed for the reintroduction of anadromous fish upstream of Englebright dam. When a schedule for reintroduction of these species is developed, the Commission's process for reopening the license of these projects can be used to evaluate additional measures that might be necessary to support the reintroduction at that time.

Comment: Mr. Ryland notes that an extensive Didymo ("rock snot") bloom occurred in 2011. There were no signs notifying recreationists who had the potential to spread this invasive species to other waters. Mr. Ryland asks how to ensure that NID and PG&E partner in helping to prevent further spread of invasive species.

Response: In the final EIS, we adopt and recommend a license condition for an Aquatic Invasive Species Management Plan that would help prevent further spread of invasive species including monitoring, user education, and signage.

TERRESTRIAL RESOURCES

Comment: The Forest Service and BLM comment that on July 3, 2013, the Regional Forester, Pacific Southwest Region, of the Forest Service updated the sensitive species list in Region 5. The Forest Service provides a table listing the species that are not addressed in the draft EIS and are now considered sensitive to the Forest Service.

Response: Section 3.3.3.1.2 of the final EIS has been updated to reflect the Forest Service's updated sensitive species list.

Comment: The Forest Service and BLM comment that page 305 of the draft EIS states that 6 of the 7 riparian and wetland habitat sites examined within the project were found to be functioning

properly. The agencies believe that this contradicts the affected environment section that states that 5 of the 7 riparian areas are properly functioning.

Response: Section 3.3.3.2.1 of the final EIS has been modified to consistently identify the number of riparian sites that are properly functioning.

Comment: The Forest Service and BLM comment that the next to last paragraph on page 314 of the draft EIS should be revised to acknowledge that collisions and electrocutions still may occur, and there would be a time-period (possibly quite long) before all facilities are retrofitted to comply with Avian Protection on Poweline Interaction Committee guidelines.

Response: Sections 3.3.3.1.2 and 3.3.3.2.2 of the final EIS have been modified to further discuss and more accurately indicate that collisions and electrocutions may continue until and after all facilities are retrofitted to comply with Avian Protection on Powerline Interaction Committee guidelines.

Comment: The Forest Service and BLM note that the Proposed Rule to list the Sierra Nevada yellow-legged frog as endangered under the ESA was published on April 25, 2013, initiating a 12-month status review. Proposed critical habitat was also published at the same time, which overlaps with portions of the projects. The agencies recommend that this information be included in the final EIS.

Response: On April 29, 2014, FWS listed the Sierra Nevada yellow-legged frog as endangered but has not finalized the critical habitat designation. Section 3.3.4. of the final EIS has been updated to reflect the listing of the frog and proposed designation of critical habitat. Section 3.3.4.2 of the final EIS concludes that issuing new licenses for these projects will not adversely affect the species or the suitability of the critical habitat for the frog.

Comment: PG&E and NID request that the staff recommendation for PG&E and NID to modify their Integrated Vegetation Management Plans to take into consideration culturally significant plants be deleted or modified to recommend that PG&E and NID consult with the tribes to identify culturally significant plant species within 60 days of license issuance and to include a list of culturally significant plants in the Integrated Vegetation Management Plan. EPA Region 9 comments that the management plans for these projects do not elaborate on how culturally important species would be addressed and managed. It recommends that the final EIS should discuss the status of consultation with tribes affected by the proposed project operations and maintenance.

Response: Section 3.3.3.2.1 and section 5 of the final EIS have been modified such that we now recommend that the licensees modify and expand the Integrated Vegetation Management Plan to include a list of culturally significant plant species that occur in the project area, developed in consultation after the tribes, and specific provisions to protect and preserve the culturally significant species or their habitats within the project boundary.

Comment: PG&E notes that the draft EIS incorrectly includes the Bowman-Spaulling transmission line as part of PG&E's Drum-Spaulling Project, instead of NID's Yuba-Bear Hydroelectric Project.

Response: The final EIS has been modified throughout to correctly identify the Bowman-Spaulling transmission line as part of the Yuba-Bear Project.

Comment: EPA Region 9 comments that the final EIS should list the names, uses, formulations and application protocols for all pesticides anticipated to be used in the project area. The document should also specify that pesticide labels would be followed. The likely impacts, including both beneficial and adverse effect of the proposed treatments should be discussed and compared to existing conditions in the project area.

Response: The final EIS has been modified to recommend implementation of the proposed Integrated Vegetation Management Plans developed for each project. These plans include provisions for pesticide use at the projects and represent agreement between applicants and agencies on which pesticides are approved for use on federal lands.

RECREATION RESOURCES

Comment: Several entities commented on issues related to the Bear River Trail. Mr. Wollan of the American Rivers Watershed Institute comments that riverine recreation has not been addressed in the negotiations to date. He provided copies of letters supporting the Bear River Trail proposal from Jennifer Montgomery, the District 5 Supervisor for Placer County, Fish and Game Commission, County Parks Commission, and the Weimar Applegate Municipal Advisory Committee or Council. He comments that the draft EIS does not include information from Foothills Water Network's filing describing the trail and project nexus. He notes that the Bear River Trail has been an informal trail for decades that runs essentially on both sides of the river. Mr. Wollan comments that the draft EIS does not adequately address the nexus of the Bear River Trail Project to the Drum-Spaulding Project. He believes that the draft EIS should reconsider the Bear River Trail. He also notes that the draft EIS did not include riverine recreational elements in Placer County along the Bear River.

Foothills Water Network comments that the draft EIS fails to address the need for riverine recreation. It notes that while the draft EIS, on page 601, acknowledges that "...there is a demonstrated demand for trail use by project visitors," there is a clear demand for access for riverine recreation by boaters, fishers, gold panners, and others, as well as by hikers. It believes that the demand for trail access is demonstrated by submittals of interests by intervenors including five fishing groups, historical groups such as the Placer Sierra Railroad Heritage Society and the Grace Hubley Foundation, hikers and bikers as well as other interests, including property owners in the affected reaches. Foothills Water Network goes on to note that FERC should re-evaluate its response to Forest Service condition 41, California Fish and Wildlife measure 16 and BLM recommendation 1 and include an analysis of the information provided in Foothills Water Network comments. Finally, Foothills Water Network states that the draft EIS's conclusions about the Bear River Trail improperly exclude recreation as a "project purpose," fail to consider substantial evidence of the need for riverine recreation, and inaccurately characterizes land ownership of the proposed trail. Foothills Water Network concludes that the draft EIS should incorporate the trail elements listed by Foothills Water Network that occur within the Commission boundaries or are directly affected by project operations with nexus issues.

BLM requests that FERC incorporate Foothills Water Network's comments on the Bear River Trail Project and provide analysis of the Bear River Trail Project in the final EIS.

The Forest Service and California Fish and Wildlife request that FERC provide analysis of Bear River Trail in the final EIS. The Forest Service notes a correction regarding the land ownership of the Bear River Trail on page 665 of the draft EIS. Both agencies understand that the Bear River Trail would traverse the following land ownerships: approximately 15.5 miles of the trail would be on PG&E property, 6 miles on NID property, 4.9 miles on National Forest System

(NFS) lands, 4.4 miles on BLM lands, 2.7 miles on Placer County lands (Bear River Campground), and 3 miles on private lands--thus the majority of the trail would occur on a combination of NID and PG&E lands.

Mr. Shutes, California Sportfishing Protection Alliance, comments that the final EIS should look more carefully at potential sections of the Bear River Trail that would be appropriate for inclusion in one or the other of the licenses.

Mr. Reedy, South Yuba River Citizens League, notes that recreational enhancements are important to the community and South Yuba River Citizens League supports the Bear River Trail development.

Mr. Rinella, Northern California Council Federation of Fly Fishers and Foothills Water Network, notes that as fishermen and recreational users, the Northern California Council Federation of Fly Fishers and Foothills Water Network want access to trails, and that the Bear River Trail is something that fishermen and others need and would use.

Roger Staab of the Placer Sierra Railroad Heritage Society states that his organization is interested in the history of the Donner Pass region, primarily railroad history. He notes that the region is historically significant, especially the corridor from the Drum Forebay down to the Bear River. He comments that his organization would welcome the opportunity to be able to take people into that area through an interpretive trail. He supports the concept of the Bear River Trail and more access into these areas where this history took place. He notes that the Towle brothers operated a historic railroad in the region from about 1876 to 1902; prior to their operation, there were a couple of major wagon roads that went through the area.

Response: The Bear River Trail is a proposed trail intended to provide riverine access from Bear Valley Meadow at the headwaters of the watershed (near the intersection of Highway 20 and Interstate 80) to NID's Combie reservoir (near Highway 49). While the development of such a trail would provide benefit to recreation users within the region, the majority of the proposed Bear River Trail segments is located outside the project boundaries and has little or no nexus to the projects. The proposed trail route would coincide or intersect the project boundaries at various canals and diversions; however, the trail would not provide access to or between project recreation facilities, except for the proposed segment along Rollins reservoir shoreline that would provide access to the Long Ravine recreation complex and the Rollins reservoir shoreline. Further, the proposed trail would pass through certain areas of the projects that are closed to the public due to concerns over public safety.

In their comments on the draft EIS, Foothills Water Network and others state that the projects are impacting the proposed trail and existing segments of an informal trail along the proposed route. However, we do not consider the proposed trail as a baseline condition since the trail has yet to be constructed. We recognize informal trails exist within the vicinity of the projects that would coincide or intersect the project boundaries, but we do not find these trails are needed for access to the projects. There are numerous existing trails and proposed new trails within the project boundaries that would provide adequate access to the project reservoirs and recreation facilities. While we agree that the proposed trail segment along Rollins reservoir shoreline is necessary for access to the Yuba-Bear Project, we do not find the rest of the proposed Bear River Trail, including the existing informal trail segments, necessary for project purposes. Therefore, we have modified sections 3.3.5.2, 5.1.2.2, and 5.5.2.2 of the final EIS, to include additional analysis of the proposed Bear River Trail. We encourage NID to cooperate with trail planners on the development of the proposed segment of the trail along Rollins reservoir shoreline.

Comment: Mr. Ryland comments that page 377 of the draft EIS makes flow recommendations for a variety of recreational activities but fishing is conspicuously absent. Mr. Ryland cites anecdotal evidence that he has caught and released hundreds of trout in the waters below Rollins dam.

Response: Table 3-222 on page 377 of the draft EIS specifically notes angling as a recreational activity.

Comment: Mr. Ryland comments that the draft EIS should not consider adding six additional campsites to the Rucker Lake campground because it would harm the camping experience at the lake. He recommends adding the campsites to the eastern portion of the lake, which is farther from the parking area but would maintain the camping experience at the lake. He opposes converting the campground into a 20-unit drive-in campground and is concerned that the addition of signage at Rucker and Blue Lakes would also degrade the camping experience at Rucker Lake.

Response: At Rucker Lake campground, both PG&E and the Forest Service agree to adding 6 campsites at the existing campground and to converting the campground to a 20-unit campground within 10 years. The September 2013 Recreation Plan agreed to by PG&E and the Forest Service proposes to expand the campground to the east, developing the campsites sites at least 100 feet from the shoreline. In 2009, the walk-in campground peak season occupancy was 33 percent for the season and 68 percent on weekends, and by 2050, it is projected to reach 50 and 105 percent, respectively. The proposed recreation measures at Rucker Lake would help meet recreation demand in the near term and ensure that the facility meets projected future recreation demand. Blue Lake is about a mile from Rucker Lake on Rucker Lake Road and currently provides 10 primitive campsites that provides a similar primitive camping experience to the existing Rucker Lake campground. Regarding signage, PG&E's Recreation Use study found that most visitors learned of the Rucker Lake campground through word of mouth. Providing signage at Rucker Lake would allow all recreationists to utilize this facility.

Comment: Mr. Ryland comments that a portable toilet should be installed at Blue Lake campground.

Response: Blue Lake provides dispersed, undeveloped camping areas that provide primitive camping opportunities. Restroom facilities are not proposed in the September 2013 Recreation Plan to maintain the primitive camping experience. However, the proposed September 2013 Recreation Plan includes a measure to provide educational information regarding proper human waste disposal on the information board at Blue Lake's parking area. Additionally, the September 2013 Recreation Plan includes a recreation monitoring component that will include information on the percent of users seeing evidence of human waste and user perceptions on the need for toilet facilities. Recreation monitoring would provide the means for PG&E to continue to monitor this issue. Therefore, we are not recommending the installation of a restroom facility at Blue Lake.

Comment: Foothills Water Network comments that the licensees should provide streamflow information for 11 selected locations (see Foothills Water Network comments for specific locations) at the existing year-round levels and on the existing 15-minute frequency.

Similarly, Mr. Reedy comments that the final EIS should state that PG&E and NID should make flow data publicly available, in accordance with the current standard flow reporting of 15-minute or hourly data.

Mr. Rinella comments that as fishermen and recreational users, the Northern California Council Federation of Fly Fishers and Foothills Water Network wants consistent water flow; public posting of water flows, if they are known in advance; and maintenance of safe flows for fishermen and the boaters.

Response: As discussed in sections 3.3.5.2, 5.1.2.2, and 5.5.2.2, we recommend that year-round flow information be provided to the public. The final EIS has been modified recommend that the existing 15-minute reporting interval be continued.

Comment: Foothills Water Network comments that the new license should require trails and toilets at Edwards Crossing and Purdon Crossing. Foothills Water Network disagrees with the draft EIS determination that there is no nexus at Edwards and Purdon Crossings. Foothills Water Network recommends the Commission adopt BLM's recommendation for facilities at these recreational sites and that the new license require PG&E to provide \$30,000 annually for operation, maintenance, law enforcement patrolling, and administration of these areas. Foothills Water Network comments that there is limited recreation access to much of the South Yuba and that Edwards Crossing (RM 16) and Purdon Crossing (RM 12) are two of the very few places where access is possible. Foothills Water Network comments that that these two locations are extremely popular for a number of recreational activities including boating, hiking, fishing and general river enjoyment. Foothills Water Network notes that both existing use and the likely increase in future use warrant improvement of facilities at these two locations and that the Drum-Spaulding Project would increase the frequency of days in spring and early summer where low-flow conditions occur, increasing the recreational use of these areas for activities other than whitewater boating, such as swimming.

Response: As discussed in section 3.3.5.2, the Edwards Crossing and Purdon Crossing areas are located outside the project boundary over 25 miles downstream of the project and do not serve a project purpose nor do they provide access to project facilities. Although providing facilities at Edwards Crossing and Purdon Crossing would provide benefits to recreation users downstream, we maintain that there is no apparent nexus between these areas and the proposed projects as Foothills Water Network has provided no new information that would indicate otherwise. We note that since this comment was filed, BLM is no longer specifically recommending facilities at the Edwards Crossing and Purdon's Crossing areas.

Comment: Foothills Water Network comments that the draft EIS does not analyze the economic benefit to the local community of an enhanced trout fishery in the South Yuba River.

Response: We recognize that enhancing the existing trout fishery can influence the economy within the surrounding communities. However, it is not our practice to use cost benefit studies to quantify any potential change in environmental resource values in dollars. For environmental resources, such as enhancing aquatic habitat, our approach is to describe the effects of an applicant's proposal, or an alternative, to both the environmental resource and, for significant changes, to the local community.

Comment: The Forest Service comments that in the Recreation Facility Construction and Modification section of the Environmental Effects section of the draft EIS, the list of new recreational facilities that PG&E proposes to construct omitted Lindsey Creek campground.

Response: Section 3.3.5.2 of the final EIS has been modified to include Lindsey Creek campground.

Comment: The Forest Service notes that the statement regarding Rucker Lake in the draft EIS page 392 should be clarified to state that Forest Service condition 41 specifies rehabilitating the existing Rucker Lake campground features, adding six additional campsites within 1 year of relicensing, and converting the campground to a 20-unit drive-in campground within 10 years.

Response: Since this comment was filed, PG&E and the Forest Service reached agreement on the September 2013 Recreation Plan. Table 3-223 and section 3.3.5.2 of the final EIS have been modified to clarify the final Rucker Lake recreation measures included in the September 2013 Recreation Plan.

Comment: The Forest Service notes (pages 392 and 393) that the draft EIS addresses PG&E's proposal to eventually consolidate camping into developed and designated primitive campsites. However, the Forest Service states that the draft EIS does not address the inconsistency in camping policies between PG&E lands and Forest Service lands in certain areas. For example, PG&E's Recreation Facilities Plan proposed limiting camping on all PG&E project lands to designated sites only. However, Forest Service's preliminary 4(e) conditions allow camping in designated sites only at the following lakes: Fordyce, Rucker, Blue, Lower Lindsey, Carr, Meadow, Kelly, Kidd, Peak and Lake Valley Lakes, with Fuller Lake remaining a "No Camping" lake. Forest Service believes that these inconsistencies in camping policies for the Grouse Area project lakes east of Lower Lindsey Lake and White Rock Lake would likely confuse backcountry campers due to the mixed PG&E/NFS land ownership.

Response: Since this comment was filed, PG&E and the Forest Service reached agreement on the September 2013 Recreation Plan, which includes language related to a designated camping policy on PG&E lands and National Forest Service lands that resolves this issue. Section 3.3.5.2 of the final EIS has been modified to reflect the agreement that PG&E and the Forest Service reached in the September 2013 Recreation Plan related to a designated camping policy on PG&E lands and National Forest Service lands.

Comment: The Forest Service notes that the measure to limit designated primitive campsites to only three at each of the Grouse Area project lakes and Sterling Lake would result in insufficient campsites during peak season weekend/holidays to meet demand through the new license term.

Response: In the draft EIS, we recommended that the number of campsites constructed at Lake Sterling be based on future recreation monitoring, as well as resource protection, and not necessarily limited to three campsites. Since this comment was filed, PG&E and the Forest Service reached agreement on the September 2013 Recreation Plan, which includes measures to limit camping at Sterling Lake to the three primitive campsites and to provide a minimum of three campsites per each reservoir at Middle Lindsey, Culbertson, Lower Rock, and Upper Rock Lakes (Grouse Area lakes). In the final EIS, we continue to recommend that the number of campsites constructed at Lake Sterling be based on future recreation monitoring, as well as resource protection, and not necessarily limited to three campsites. Further, we agree with the proposed measure to provide a minimum of three campsites per each reservoir at Middle Lindsey, Culbertson, Lower Rock, and Upper Rock Lakes (Grouse Area lakes). The proposed recreation monitoring would help evaluate whether additional designated primitive campsites are needed at these project reservoirs in the future.

Comment: The Forest Service comments that the draft EIS does not address the fact that within the Bowman Recreation Corridor, NID's proposal would result in 17 percent less total camping capacity than what currently exists in developed and user created dispersed campsites. This

reduction in overall camping capacity under NID's proposal would be problematic once the policies to restrict camping to designated sites only on NID and Forest Service lands are implemented in and around the project areas.

Response: Our recommendations for camping are based on 2009 recreational use data presented in Technical Memorandum 8-2b. The reduction in camping capacities presented in the Forest Service's comments are due to NID's proposal to consolidate camping to designated sites and dismantle dispersed campsites. In its calculations of camping capacity, the Forest Service included Canyon Creek dispersed campsites and the Jackson Creek campground, which are located on NFS land outside the project boundary, do not serve a project purpose, and are not recommended for inclusion in the project boundary. We do not agree that camping capacity calculations for project campgrounds should include non-project recreation campgrounds. As new camping policies are implemented, the recreation monitoring proposed by NID in the proposed Recreation Plan includes a recreation monitoring component that would include collection of facility occupancy information annually and recreation observations that would be included in a report every 6 years. The annual recreation coordination meeting would afford NID, the Forest Service, and other resource agencies the opportunity to discuss whether camping capacities remain sufficient as new camping policies are implemented.

Comment: The Forest Service comments that in the section 3 of the draft EIS, based on data provided by NID, we characterize the use levels of the facilities at Jackson Meadows as low to moderate and conclude that reconstruction of the facilities is not justified. Forest Service contends that we are mistaken in characterizing the occupancy levels at Jackson Meadows Recreation Complex as low to moderate, based on NID's 2011 revised and erroneous version of the Technical Memorandum 8-2b. The Forest Service comments that according to NID's Technical Memorandum 8-2b (NID 2010), the average seasonal occupancy at Jackson Meadows was 42.6 percent from Memorial Day to the end of September (NID, 2010). The Forest Service notes that NID subsequently changed the conclusions of occupancy rates in the September 2011 version of Technical Memorandum 8-2b (NID, 2011). The Forest Service states that the occupancy rates contained in the September 2011 version of the Technical Memorandum are incorrect and provides occupancy percentages from the concessionaire from opening through Labor Day. Forest Service believes that these facilities experience moderate to high occupancy rates and the need for new and reconstructed facilities has been a long standing need at Jackson Meadows.

The Forest Service contends that we mistakenly characterized the occupancy levels of Findley campground as low to moderate and comments that Findley and the other recreational facilities in the Jackson Meadows recreation complex experience moderate to high occupancy rates.

Response: The data presented in Technical Memorandum 8-2b were collected under a study plan developed in consultation with the resource agencies and approved by the Commission. According to NID's September 23, 2011 transmittal of the September 2011 version of Technical Memorandum 8-2b, the major difference between the September 2011 version and the September 2010 version is that the 2011 version presents facility occupancy information based on the recreation season length recommended by the Forest Service and other resource agencies. The Forest Service provides no specific information that would lead us to believe that the data presented in the Technical Memo are inaccurate. Further, the Forest Service did not raise this issue until it filed its comments and preliminary conditions in response to our Notice of Ready for Environmental Analysis, well after the recreation use study was completed and the September 2011 version of Technical Memorandum 8-2b was filed with the Commission. Section 5.5.2.2 of the final EIS recommends that the Recreation Plan be modified to include provisions for a

campground or appropriate camping facilities in the Jackson Meadows area. The annual recreation coordination meeting would afford NID, the Forest Service, and other resource agencies the opportunity to discuss whether camping facilities in the Jackson Meadows area are sufficient through the new license term based on monitoring results.

Comment: The Forest Service presents information that it believes substantiates the fact that Jackson Creek campground predominately serves project-related recreationists and should be a project facility. The Forest Service notes that in an effort to quantify the project-related use by recreationists camping at Jackson Creek campground, it surveyed ten groups that stayed at Jackson Creek campground over eight different dates (including both weekends and weekdays) spanning 2012 and 2013. The Forest Service comments that 100 percent of the groups surveyed indicated that they recreated or planned to recreate at one or more of the three project lakes within the Bowman Recreation Corridor (Bowman, Sawmill, or Faucherie) during their stay.

The Forest Service notes that on page 439, the draft EIS states that upgrades to the Jackson Creek campground “would not meet recreational needs at the Project.” The Forest Service points out two problems with the draft EIS statement: (1) Jackson Creek campground is a Development Scale 3 Campground with restrooms, cement tables, fire rings, and food storage lockers, not an undeveloped campground; (2) based on Forest Service’s decades of experience managing Jackson Creek campground, it clearly recognizes that the campground is used heavily by recreationists that have come to the area to visit and enjoy the nearby project lakes during the day, and utilize the campground’s developed facilities for their overnight accommodations. It notes that the draft EIS presents data gathered by NID during its 2009 recreation surveys and describes the use at the campground as low, but the Forest Service believes this information is in error.

Response: Section 3.3.5.2 and 5.5.2.2 of the final EIS have been modified to correct the erroneous statement that Jackson Creek campground is undeveloped. Despite the Forest Service’s conclusions that the Jackson Creek campground should be a project facility, it does not qualify because it does not provide direct access to the project lands or waters.

Comment: The Forest Service presents information that it believes substantiates the fact that Canyon Creek dispersed campsites predominately serve project-related recreationists and should be a project facility. The Forest Service comments that concerning the Canyon Creek dispersed camping sites, the draft EIS states on pages 439 and 440 that these campsites are located outside the project boundary and a need has not been demonstrated for camping in this area; however, based on surveys of visitors at Faucherie Lake, NID’s Technical Memorandum 8-2B (NID 2011) acknowledges the connection between Canyon Creek dispersed site campers and visitation at Faucherie Lake.

Response: There is already an existing campground at Canyon Creek located inside the project boundary that provides 16 campsites with picnic tables and fire rings; 2 vault restrooms; and parking. The Canyon Creek dispersed campsites do not provide direct access to the project lands or waters, although the campsites appear to provide access to the general area of the project. NID’s Technical Memorandum 8-2b reports that the top three primary activities from the visitor use surveys received from visitors along Canyon Creek (in the same area where the Forest Service proposes the Canyon Creek dispersed campsites) were camping, fishing, and off-highway vehicle (OHV) use. All three of these activities are not project-specific since camping occurs throughout the area and quality stream fishing opportunities exist all along Canyon Creek while OHV use is not project-related.

Comment: The Forest Service comments that campground hosts would provide a consistent management or authoritative presence by NID, or their agent, during the peak recreation season at the National Forest facilities is the foundational issue. The Forest Service believes that host sites with desired amenities would help this endeavor. The Forest Service also believes that the services provided by, and overnight presence of, hosts are essential to meeting the recreational needs of project recreationists and to act as a deterrent to vandalism to project recreational facilities and environmental damage to project areas.

Response: The Commission cannot ensure that a host is present at every campground, or that public safety would be improved as a result of providing host sites. The proposed upgrades of host sites may be useful for attracting hosts, but the Commission has no way to ensure that the presence of a host would accomplish a project purpose or improve a project effect.

Comment: The Forest Service points out that each of the two trail proposals (with options) within the Bowman Recreation Corridor would directly connect two project reservoirs, and thus, should be considered necessary for project purposes, given the lack of existing trail facilities and the documented demand for hiking opportunities.

Response: Section 3.3.5.2 and table 3-227 of the final EIS have been modified to include this information in the analysis of the Forest Service's specifications for trails within the Bowman Recreation Corridor. Our recommendations in the EIS accomplish the Forest Service's objective of connecting two project reservoirs. In section 5.5.2.2, while we do not recommend that the Recreation Plan include construction of the trails at Sawmill Lake or French Lake, we do recommend a walkway across the Sawmill spillway and a primitive trail from Faucherie Lake to Sawmill Lake, which would connect two project reservoirs within the Bowman Recreation Corridor.

Comment: The Forest Service believes that a functioning and accessible sanitary dump station is needed to mitigate project-related recreational impacts. The Forest Service notes that a self-pay station was installed by the Forest Service and its concessionaire for the 2013 season to allow the facility to remain open 24 hours a day, which would improve the efficiency and use of the facility.

Response: Section 3.3.5.2 of the final EIS has been modified to analyze the provision in the revised modified Forest Service condition 57 for this facility and this information regarding updated efforts to improve the efficiency and use of the facility. Although the existing dump station does not feature the most up-to-date facilities, measures recently implemented to improve the efficiency of the dump site appear reasonable. Future use monitoring at this site would ensure that information would be available to evaluate the continued need and efficiency for this site during the term of the new license.

Comment: The Forest Service comments that on page 453 of the draft EIS, we mischaracterize the use of the Jackson Meadow administrative site, which is used for operating the project recreation sites (except for the vacant barracks).

Response: Section 3.3.5.2 of the final EIS has been modified to correctly characterize the use of the Jackson Meadow administrative site facilities. Since this facility does not serve as a recreation facility and does not provide a direct benefit to visitors at the project and it is currently used by the Forest Service, the Commission has no way of knowing or ensuring that the facility would not be used for other, non-project purposes. The facility does not appear to be necessary for project purposes.

Comment: The Forest Service comments that we did not recommend expansion of the Bowman campground by 20 sites (draft EIS, page 664). It believes that NID's Amended Recreation Plan proposal to restrict camping to designated sites combined with NID's plans for only limited camping facilities development would lead to a shortage of camping capacity in the Bowman Recreation Corridor (generally ¼ mile each side of the main access roads from Bowman to Faucherie) shortly after implementing the camping restriction policies on both NID and NFS lands. The Forest Service notes that once it implements the proposed camping restriction policy on NFS lands in the Bowman Recreation Corridor, overnight camping would only be allowed on NFS lands at facilities that have sanitation facilities.

Response: Current use at the Bowman campground is generally low and we do not see a demonstrated need for additional campsites. Although dispersed camping is an established use at Bowman Lake, improving some of the dispersed primitive campsites and eliminating some, but not all, would consolidate camping use in areas most suited for camping and reduce human effects. Consolidation of camping/campsites into designated campground areas would also reduce shoreline impacts associated with dispersed camping at undesignated and unimproved sites, such as vegetation impacts and shoreline erosion.

Comment: The Forest Service points out inconsistencies in the draft EIS related to trail development on page 665 (where we do not recommend construction of the trails at Sawmill Lake or French Lake, except for a walkway across the Sawmill spillway and a primitive trail from Faucherie Lake to Sawmill Lake) and page 662 (where we recommend that the Recreation Plan include provisions for additional project-related trails at Sawmill Lake and the addition of project-related trails at Faucherie Lake and French Lake).

Response: Section 3.3.5.2 and table 3-227 of the final EIS have been modified to clarify additional information from the Forest Service and the rationale behind staff's recommendations related to the Forest Service's specifications for trail proposals within the Bowman Recreation Corridor. We are recommending the walkway across the Sawmill spillway because we have determined, based on the information provided, that it is project-related and would provide a safe means for recreation users to cross the spillway.

Comment: California Fish and Wildlife recommends that the initial 17 project reservoirs to be stocked be included in a fish stocking plan and agrees that a periodic review of angling use levels over the term of the new license would help inform potential modifications to stocking levels in each reservoir. California Fish and Wildlife also recommends that Sawmill and French reservoirs be included in the recommended fish stocking plan because aerial stocking is fairly inexpensive. California Fish and Wildlife provides information showing on the potential low cost of aerial stocking.

The Forest Service and BLM support California Fish and Wildlife's recommendation regarding fish stocking.

Response: Based on the additional information received and discussions during the 10(j) meeting held on November 12, 2013, sections 3.3.5.2, 5.1.2.2 and 5.2.2.2 of the final EIS have been revised to include additional analysis and to further clarify and revise our recommendations for the fish stocking plan. The final EIS now recommends the inclusion of both Sawmill and French reservoirs in the plan with stocking in Sawmill Lake every other year until the first Form 80 reporting year after implementation of the plan, and provisions for stocking fish in additional project reservoirs (French Lake) based on changes in recreational use, collected from recreation

use monitoring, and angling pressure over the term of the new license. Sawmill Lake would benefit from our recommendation for regular periodic fish stocking because it received a moderate level of recreational use. Since French Lake received very low recreational use, periodic review of angling use levels and recreational use data at French Lake over the term of the new license would help inform whether French Lake would benefit from fish stocking.

Comment: NID requests that the recommendation to replace the toilets at Milton diversion impoundment primitive campsites with accessible toilets be removed from section 5.2.2.2.

Response: Section 5.5.2.2 of the final EIS has been modified to remove this additional recommendation because the toilet building is already accessible and NID is already proposing an accessible parking space and route to the toilet that is recommended by staff.

Comment: NID requests that the recommendation in section 5.2.2.2 to include provisions for project-related pedestrian trails at Fir Top campground, a walkway across the Sawmill spillway, and a primitive trail from Faucherie Lake to Sawmill Lake, which would connect two project reservoirs, be removed. NIID comments that the Woodcamp Complex trail system that was proposed by NID and recommended in the draft EIS would include project-related trails at Fir Top campground. Additionally, NID comments that the walkway across the spillway at Sawmill Lake would connect directly to a non-project Forest Service trail (Grouse Ridge Trail) and the adjoining Grouse Ridge trail network (all non-project trails) while the primitive trail from Faucherie Lake to Sawmill Lake would connect two Project reservoirs but the terminus of the trail at Sawmill Lake would not connect to any project recreation facilities.

Response: Section 3.3.5.2 and table 3-227 of the final EIS have been modified to clarify additional information from the Forest Service and the rationale behind staff's recommendations related to the Forest Service's specifications for trail proposals within the Bowman Recreation Corridor. We maintain our recommendations for the primitive trail from Faucherie Lake to Sawmill Lake and the walkway across the spillway at Sawmill Lake. The primitive trail from Faucherie Lake to Sawmill Lake would connect two Project reservoirs and provide access to the shorelines of both reservoirs. The walkway across the spillway at Sawmill Lake would provide a safe means for recreation users to cross the spillway to access to the south shoreline of Sawmill Lake. Sections 3.3.5.2 and 5.5.2.2 have been modified to remove the redundant Fir Top trail recommendation because it is already included in our recommendation for NID's proposed Woodcamp Complex trail system.

Comment: BLM notes that on page 604 of the draft EIS, we recommend that PG&E develop additional recreational facilities at Edwards and Purdon Crossings. BLM disagrees with our recommendation that PG&E should not provide annual funding of \$30,000 for facilities related to the area because of a lack of nexus to the project. BLM comments that the public lands have greatly been impacted by thousands of recreational users using the public lands and waters because of the impaired water diversions from Lake Spaulding.

Response: Page 604 of the draft EIS inadvertently stated that we recommend that PG&E develop additional recreational facilities at Edwards Crossing and Purdons Crossing while the justification and context of this same paragraph would suggest that we do not recommend it. We do not recommend that PG&E develop additional recreational facilities at Edwards Crossing and Purdons Crossing and section 5.1.2.2 of the final EIS has been modified to clarify our recommendation.

Comment: BLM notes that on page 413 of the draft EIS, we incorrectly state that BLM does not have a condition for developing a Recreation Plan.

Response: Section 3.3.5.2 of the final EIS has been modified to reflect revised modified BLM condition 25 that requires NID to develop a Recreation Plan.

Comment: BLM comments that on page 443 of the draft EIS, we incorrectly indicate that BLM condition 31 specifies the upgrades for host sites.

Response: Section 3.3.5.2 of the final EIS has been modified to remove this statement and to reflect the revised modified condition.

Comment: BLM comments that in section 5.2.4.2 of the draft EIS, we indicate that development of a day use area at Dutch Flat afterbay would be developed if suitable land can be identified along the shoreline. BLM clarifies that Condition No. 33 requires construction of the Day Use Facility that would include parking for 6 vehicles, 6 picnic tables, kiosk sign, restroom facility, and access trails to the shoreline.

Response: Section 3.3.5.2 of the final EIS has been modified to discuss BLM's revised modified condition for Dutch Flat afterbay; however, this does not affect our conclusions recommending a day use area at Dutch Flat afterbay.

Comment: Ms. Gotham of the South Yuba River Citizens League comments that in summer, people come to a variety of places in Nevada County and to the riverside campgrounds and the day use parks in the Town of Washington along the South Yuba River to enjoy the refreshing swimming holes. She notes that the temperatures in the South Yuba River reach into the 70s, with high measurements during heat storms of 82 degrees, warmer than most swimming pools.

Response: Given the proposed minimum streamflows and Forest Service *Supplemental Flow* revised modified 4(e) condition, water temperature modeling data generated during the relicensing studies indicate that water temperatures in the vicinity of Washington and Edwards and Purdon's Crossings on the South Yuba River would be in the range of 70-78 degrees Fahrenheit during the warmest part of the summer in late July. During a heat storm, water temperatures could increase more depending on the length of the period.

Comment: Ms. Gotham asks that we consider local values and economic interest in balancing resource uses.

Response: We have recommended a number of measures that would enhance recreational opportunities at the projects. These recommended measures would provide facilities that would accommodate projected future recreational use and a means for monitoring future recreation use to meet changing recreation needs at the project. The increased recreational use would likely generate economic return as visitors from outside the project area visit the project area.

CULTURAL RESOURCES

Comment: Forest Service and BLM note that according to section 4.4.2 of NID's Historic Properties Management Plan (HPMP) (pages 4-17), there are 12 and possibly 14 (not eight) affected sites that still need evaluation (for all land ownerships within the Yuba-Bear Project). They note that perhaps table 5-6 is referencing only affected sites on Forest Service-administered

land and believe section 5.2.2.1 on page 652 and table 5-6 on page 695 should be consistent with section 4.4.2 of the HPMP.

Response: The correct number of unevaluated archeological sites and historic-era resources experiencing project-related effects at the Yuba-Bear Project in the FEIS table 5-6 should be 12. The reference to 14 sites by the Forest Service and BLM included two sites that have evaluated since the comment. The two sites that have since been evaluated are CA-NEV-2016H (P-29-3947) and CA-NEV-2019/H (P-29-3953).

Comment: EPA Region 9 comments that the final EIS should discuss the status of consultation with tribes affected by the proposed project operations and maintenance.

Response: The final EIS has been modified such that it discusses the status of consultation with tribes affected by the proposed projects.

Comment: PG&E comments that since the filing of their license application, additional archeological work has been conducted at P-31-4293 and P-31-4375 in response to the United Auburn Indian Community and Nisenan Maidu's concerns and as stated in the draft EIS. According to PG&E, the review did not result in additional information or indications that these sites functioned as anything other than milling stations; furthermore, PG&E states that these sites were not identified during the ethnographic and Traditional Cultural Property study as rock art or places of past, present, or ceremonial use. As a result, PG&E does not believe these sites warrant additional National Register of Historic Places (NRHP) evaluations and proposes to retain the management measures included in the HPMP.

Response: In the final HPMP, PG&E filed with the Commission in September 2013, sites P-31-4293 and P-31-4375 have been recategorized as unassessed. PG&E's final HPMP proposes to leave these sites as unevaluated and to monitor potential effects during the term of the new license. If effects are identified, then PG&E would evaluate these sites and mitigate adverse effects, if needed. The final EIS states that PG&E's final HPMP would be implemented upon license issuance, and as a result, these sites, although unevaluated, would be monitored for adverse effects, and would be evaluated for NRHP if adverse effects are found.

Comment: NID comments that under condition 43 in table 5-6 in section 5.2.4.2, *Land Management 4(e) Conditions*, FERC staff states "Yes, but recommend NID implement the final HPMP filed on October 5, 2012, with modification involving eight cultural resource sites that need to be evaluated and protected/mitigated from project-related effects." NID proposes FERC staff delete the reference to the eight cultural resource sites.

Response: A review of this comment found that the eight cultural resource sites referred to in table 5-6 in the DEIS applies to PG&E's Drum-Spaulding Project. The final EIS has been modified, and the reference to the eight cultural resources that are associated with the Drum-Spaulding Project has been removed from the recommendations for NID's Yuba-Bear Project.

LAND USE AND AESTHETICS

Comment: BLM questions the removal of the mineral survey area south of Dutch Flat afterbay and asks about the size of this area.

Response: As discussed in section 3.3.7.2, the mineral survey area south of the Dutch Flat afterbay is not necessary for continued project operations. Additional information about the location and size of the area is not available in NID's application materials.

Comment: BLM comments that 22 acres of BLM land is affected by project works in Township 17 North, Range 10 East, and Section 34. BLM does not discuss how the lands are affected.

Response: Although these lands may have been withdrawn for project purposes in 1965, PG&E states that these lands are currently not being used for project purposes. The proposed project boundaries would continue to encompass all facilities and features necessary for the operation of the project.

Comment: BLM does not support our recommendation to remove Chicago Park forebay road (YBCPF_002) from the current project road system. BLM notes that this section of the Chicago Park forebay road is in a state of disrepair from slides and continued erosion occurring from the road cut, nonfunctioning culverts and unstable soils. BLM believes that until such time that NID rehabilitates the road to BLM approved standards, this segment of road needs to remain as an existing project road. BLM comments that it might support NID's request to remove the road from the project after NID rehabilitates the road.

Response: The Chicago Park forebay road from mile marker 0.0 to 0.58 (YBCPF002) was abandoned in the late 1970s and is not currently used or needed to support project operations or to provide access to the project. Therefore, this road segment was not listed as a primary project road in table 3-252. NID has recommended decommissioning of the road in its Amended Transportation Management Plan (August 2012). Decommissioning could include excavating stream crossings with culverts, outsloping the road surface, installing hardened drainage features, and implementing erosion control measures. The final EIS recommends implementation of the Transportation Management Plan.

Comment: Ms. Gotham comments that given the designation of the South Fork of the Yuba River as a wild and scenic river, it is important to maintain its natural quality.

Response: Section 3.3.7.1 recognizes that the South Yuba River is designated as a California Wild and Scenic river and states that the river adds to the visual quality of the area.