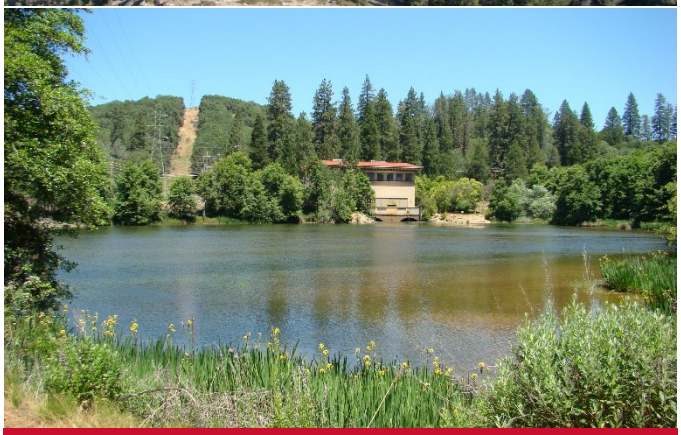

Appendix A – Upper Drum-Spaulding Additional Information

PG&E's Upper Drum-Spaulding Hydroelectric Project (FERC No. 2310)

Nevada and Placer Counties, California

December 2020

Prepared for:

State Water Resources Control Board

Prepared by:

HDR

This page is intentionally blank

1 Introduction

This appendix provides details on the existing facilities, operations, and license conditions for the Proposed Upper Drum-Spaulding Project.

2 Existing Facilities

2.1 Spaulding No. 3 Development

The existing Spaulding No. 3 Development consists of 11 dams and reservoirs, 1 powerhouse with an installed capacity of 5.8 megawatts (MW) and associated penstocks and switchyard, 1 transmission line, and various recreation facilities. Each existing facility is described below:

- Upper Rock Lake Dam is a 16.8-foot (ft)-high, 214-ft-long earth-fill dam that impounds Texas Creek to form Upper Rock Lake, which has a gross storage capacity of 275 acre-feet (ac-ft) and a surface area of 19.8 acres at its normal maximum water surface elevation (NMWSE) of 6,714.5 ft. The dam has a crest elevation of 6,717.1 ft[1] and a 17-ft-long uncontrolled overflow spillway with a maximum capacity of 24 cubic feet per second (cfs). The dam is also equipped with an 18-inch by 24-inch rock truck tunnel that serves as the low-level outlet. The low-level outlet has a maximum capacity of 8.4 cfs. Releases from Upper Rock Lake Dam flow into Lower Rock Lake via Texas Creek.

- Lower Rock Lake Dam is a 10.5-ft-high, 110-ft-long earth- and rock-fill dam that impounds Texas Creek to form Lower Rock Lake, which has a usable storage capacity of 48 ac-ft and a surface area of 7.6 acres at its NMWSE of 6,625.8 ft. The dam has a crest elevation of 6,627.8 ft and a 30-ft-long uncontrolled overflow spillway with a maximum capacity of 33 cfs. An 8-inch-diameter pipe serves as the low-level outlet for the dam and has a maximum flow capacity of 7.3 cfs. Releases from Lower Rock Lake Dam flow into Texas Creek.

- Culbertson Lake Dam is a 20-ft-high, 255-ft-long earth- and rock-fill dam that impounds an unnamed tributary of Texas Creek to form Culbertson Lake, which has a usable storage capacity of 953 ac-ft and a surface area of 70.5 acres at its NMWSE of 6,436.4 ft. The dam has a crest elevation of 6,440.2 ft and a 23-ft-long overflow spillway with a maximum capacity of 165 cfs. A 12- to 24-inch-diameter

[1] All elevation data in this Project Description are in the National Geodetic Vertical Datum of 1929 (NGVD 29), unless otherwise specified.

pipe serves as the low-level outlet and has a flow capacity of 23.1 cfs. Releases from Culbertson Lake dam flow into Texas Creek downstream of the discharges from Lower Rock Lake via an unnamed tributary.

- Upper Lindsey Lake Dam is an 8-ft-high, 90-ft-long earth-fill dam that impounds Lindsey Creek to form Upper Lindsey Lake, which has a usable storage capacity of 18 ac-ft and a surface area of 3.9 acres at its NMWSE of 6,482.6 ft. The dam has a crest elevation of 6,485.4 ft and a 5-foot-long overflow spillway with a maximum capacity of 15 cfs. An 8-inch-diameter pipe serves as the low-level outlet and has a maximum flow capacity of 6.5 cfs. Releases from Upper Lindsey Lake Dam flow into Middle Lindsey Lake via Lindsey Creek.

- Middle Lindsey Lake Dam is a 9.5-ft-high, 335-ft-long earth-fill dam that impounds Lindsey Creek to form Middle Lindsey Lake, which has a usable storage capacity of 110 ac-ft and a surface area of 21.5 acres at its NMWSE of 6,435.7 ft. The dam has a crest elevation of 6,438.2 ft and a 37-foot-long overflow spillway with a maximum capacity of 40 cfs. A 10-inch-diameter pipe serves as the low-level outlet and has a maximum flow capacity of 11.3 cfs. Releases from Middle Lindsey Dam flow into Lower Lindsey Lake via Lindsey Creek.

- Lower Lindsey Lake Dam is a 16.6-ft-high, 335-ft-long earth- and rock-fill dam that impounds Lindsey Creek to form Lower Lindsey Lake, which has a usable storage capacity of 278 ac-ft and a surface area of 29.4 acres at its NMWSE of 6,235.6 ft. The dam has a crest elevation of 6,239.1 ft and a 42-ft-long overflow spillway with a maximum capacity of 240 cfs. A 14-inch-diameter steel pipe serves as the low-level outlet and has a maximum flow capacity of 28.1 cfs. Releases from Lower Lindsey Lake Dam flow into Texas Creek downstream of the discharges from Lower Rock Dam and Culbertson Lake Dam.

Some of the flows currently released from the above-listed existing facilities are diverted by the Nevada Irrigation District's (NID's) Texas Creek Diversion Dam into NID's Bowman-Spaulding Conduit. Both facilities are part of NID's Yuba-Bear Hydroelectric Project, Federal Energy Regulatory Commission (FERC) Project No. 2266. Undiverted flows continue downstream to Canyon Creek, which drains into the South Yuba River.

- Feeley Lake Dam is a 22.6-ft-high, 210-ft-long earth- and rock-fill dam that impounds Lake Creek to form Feeley Lake, which has a usable storage capacity of 739 ac-ft and a surface area of 52 acres at a NMWSE of 6,723.6 ft. The dam has a crest elevation of 6,727.6 ft and a 32-ft-long overflow spillway with a maximum capacity of 280 cfs. A 10- to 24-inch-diameter pipe serves as the low-level outlet and has a maximum flow capacity of 16.8 cfs. Releases from Feely Lake Dam flow into Carr Lake via Lake Creek.

- Carr Lake Dam is an 8-ft-high, 185-ft-long earth- and rock-fill dam that impounds Lake Creek to form Carr Lake, which has a usable storage capacity of 150 ac-ft and a surface area of 15.8 acres at its NMWSE of 6,663.7 ft. The dam has a crest elevation of 6,667.7 ft and a 40-ft-long overflow spillway with a maximum capacity of 150 cfs. A 24-inch-diameter concrete-encased pipe serves as the low-level outlet and has a maximum flow capacity of 82.7 cfs. Some releases from Carr Lake Dam continue down Lake Creek into Fall Creek and are diverted by NID's Fall Creek Diversion Dam into NID's Bowman-Spaulding Conduit. Both facilities are part of NID's Yuba-Bear Hydroelectric Project. Undiverted flows continue downstream via Fall Creek, which also receives flows from Clear and Trap Creeks not diverted by NID into its Bowman-Spaulding Conduit, before draining into the South Yuba River.

- Blue Lake Dam is a 25-ft-high, 296-ft-long earth- and rock-fill dam that impounds Rucker Creek to form Blue Lake, which has a usable storage capacity of 1,158 ac-ft and a surface area of 59.7 acres at its NMWSE of 5,931.6 ft. The dam has a crest elevation of 5,935.6 ft and a 12-ft-long overflow spillway with a maximum capacity of 253 cfs. An 18-inch-diameter steel pipe serves as the low-level outlet and has a maximum flow capacity of 18 cfs. Releases from Blue Lake Dam flow into Rucker Lake via Rucker Creek.

- Rucker Lake Dam is a 22-ft-high, 620-ft-long earth- and rock-fill dam that impounds Rucker Creek to form Rucker Lake, which has a usable storage capacity of 648 ac-ft and a surface area of 78.6 acres at its NMWSE of 5,464.2 ft. The dam has a crest elevation of 5,468.2 ft and a 60-ft-long overflow spillway with a maximum capacity of 525 cfs. A 15- to 24-inch-diameter steel pipe serves as the low-level outlet and has a maximum flow capacity of 15 cfs. Some releases from Rucker Lake Dam continue downstream via Rucker Creek and are diverted by NID into its Bowman-Spaulding Conduit. Undiverted flows continue down the creek and drain into the South Yuba River.

- Fuller Lake Dam is a 39-ft-high, 410-ft-long earth- and rock-fill dam that impounds an unnamed tributary of Jordan Creek to form Fuller Lake, which has a usable storage capacity of 1,109 ac-ft and a surface area of 70.2 acres at its NMWSE of 5,341.8 ft. Fuller Lake receives water from NID's Bowman-Spaulding Conduit, and is used as a re-regulating pool to control the rate at which water enters Spaulding No. 3 Powerhouse for hydropower generation shaping. Fuller Lake Dam has a crest elevation of 5,343.5 ft and has a 15-ft-long siphonic spillway and a 15-ft-long auxiliary spillway with a combined maximum capacity of 425 cfs. A 14- to 24-inch outside diameter steel pipe serves as the low-level outlet and has a maximum flow capacity of 25 cfs. Releases from Fuller Lake Dam flow from an unnamed tributary into Jordan Creek, which drains into the South Yuba River.

- Spaulding No. 3 Penstocks are four 1,614.5-ft-long, 66-inch-diameter aboveground steel penstocks that release water from Fuller Lake into Spaulding No. 3 Powerhouse. The penstocks have a maximum flow capacity of 334 cfs.

- Spaulding No. 3 Powerhouse is located on the northwest side of Lake Spaulding. Pacific Gas and Electric Company (PG&E) operates this powerhouse semi-automatically in a base-loaded fashion, generating based on flows that are scheduled for consumptive water and power demands. Spaulding No. 3 Powerhouse has an installed capacity of 5.8 MW with a synchronous generator, four Francis turbines with a rated nameplate hydraulic capacity of 270 cfs. The powerhouse discharges into Lake Spaulding.

- Spaulding No. 3 Switchyard is located adjacent to the Spaulding No. 3 Powerhouse, is fenced in, and contains four Westinghouse transformers.

- Spaulding No. 3 – Spaulding No. 1 Transmission Line is a 60-kilovolt (kV), 1.1-mile-long line that connects the Spaulding No. 3 Switchyard to the Spaulding No. 1 Powerhouse Switchyard.

- Recreational facilities associated with the Spaulding No. 3 Development include: Upper Rock Lake primitive campsites (4 sites), Lower Rock Lake primitive campsites (3 sites), Culbertson Lake primitive campsites (3 sites), Middle Lindsey Lake primitive campsites (3 sites), Lower Lindsey Lake campground (12 sites), Lower Lindsey Lake trailhead (20 parking spaces), Carr Lake walk-in campground (12 sites), Carr-Feeley trailhead (30 parking spaces), Rucker Lake walk-in campground (15 sites), Fuller Lake day-use and boat launch (8 picnic sites, 14 parking spaces, and a one-lane concrete ramp), Fuller Lake angler access (6 parking spaces), Blue Lake primitive campsites (10 sites), Bear Valley group campground (1 site), and Sierra discovery trail (1 mile interpretive trail and 4 picnic sites).

2.2 Spaulding No. 1 and No. 2 Development

The existing Spaulding No. 1 and No. 2 Development consists of eight dams and reservoirs; two powerhouses with a combined installed capacity of 11.4 MW and associated tunnels, penstocks, and switchyard; one transmission line; one canal; and various recreation facilities. Each facility is described below.

- White Rock Lake Dam is a 10-ft-high, 331-ft-long earth-fill and rock-wall dam that impounds White Rock Creek to form White Rock Lake, which has a usable storage capacity of 570 ac-ft and a surface area of 88.9 acres at its NMWSE of 7,820.0 ft. The dam has a crest elevation of 7,824.0 ft and a 40-ft-long overflow spillway with a maximum capacity of 350 cfs. A 12-inch-diameter pipe serves as the low-level outlet

and has a maximum flow capacity of 18.6 cfs. Releases from White Rock Dam flow down White Rock Creek into North Creek and enter Fordyce Lake.

- Meadow Lake Dam is a 38-ft-high, 940-ft-long earth-fill and rock wall dam that impounds an unnamed tributary to form Meadow Lake, which has a usable storage capacity of 4.841 ac-ft and a surface area of 240 acres at its NMWSE of 7,281.8 ft. The dam has a crest elevation of 7,286.2 ft and a 65-ft-long overflow spillway with a maximum capacity of 1,360 cfs. A 26-inch-diameter steel pipe serves as the low-level outlet and has a maximum flow capacity of 50 cfs. Releases from Meadow Lake Dam flow into Fordyce Lake via an unnamed tributary.

- Lake Sterling Dam is a 25-ft-high, 228-ft-long rock-fill dam that impounds Bloody Creek to form Lake Sterling, which has a usable storage capacity of 1,764 ac-ft and a surface area of 104.7 acres at its NMWSE of 6,987.9 ft. The dam has a crest elevation of 6,988.7 ft and an overflow spillway controlled with flashboards during the summer months. A 20-inch-diameter pipe serves as the low-level outlet and has a maximum flow capacity of 31.9 cfs. Releases from Lake Sterling Dam flow into Fordyce Lake via Bloody Creek.

- Fordyce Lake Dam is a 156-ft-high, 1,220-ft-long rock-fill dam that impounds Fordyce Creek to form Fordyce Lake, which has a usable storage capacity of 49,426 ac-ft and a surface area of 716.2 acres at its NMWSE of 6,405.1 ft. The dam has a crest elevation of 6,406.6 ft and a 120-ft-long lateral overflow spillway controlled with two 15-ft-by-14-ft radial gates and flashboards during the summer months with a maximum capacity of 17,500 cfs. A 47-inch steel pipe serves as the low-level outlet and has a maximum flow capacity of 590 cfs. Releases from Fordyce Lake Dam flow into Lake Spaulding via Fordyce Creek.

- Kidd Lake Dam is a 35-ft-high, 449-ft-long earth- and rock-fill dam that impounds an unnamed tributary to form Kidd Lake, which has a usable storage capacity of 1,505 ac-ft and a surface area of 86.7 acres at its NMWSE of 6,627.6 ft. The dam has a crest elevation of 6,631.4 ft and a 37-ft-long uncontrolled overflow spillway. A 20- to 24-inch-diameter steel pipe serves as the low-level outlet and has a maximum flow capacity of 25 cfs. Releases from Kidd Lake Dam flow down an unnamed tributary and enter Lake Spaulding.

- Upper Peak Lake Dam is a 39-ft-high, 316-ft-long earth- and rock-fill dam that impounds Cascade Creek to form Upper Peak Lake, which has a usable storage capacity of 1,736 ac-ft and a surface area of 83.8 acres at its NMWSE of 6,607.4 ft. The dam has a crest elevation of 6,611.4 ft and a 30-ft-long overflow spillway with a maximum capacity of 680 cfs. A 20-inch-diameter steel conduit serves as the low-

level outlet and has a maximum discharge of 100 cfs. Releases from Upper Peak Lake Dam flow into Lower Peak Lake via Cascade Creek.

- Lower Peak Lake Dam is a 29-ft-high, 200-ft-long earth- and rock-fill dam that impounds Cascade Creek to form Lower Peak Lake, which has a usable storage capacity of 484 ac-ft and a surface area of 33 acres at its NMWSE of 6,581.9 ft. The dam has a crest elevation of 6,583.4 ft and a 55-ft-long overflow spillway with a maximum capacity of 312 cfs. A 21-inch-diameter steel pipe serves as the low-level outlet and has a maximum discharge of 86.7 cfs. Releases from Lower Peak Lake Dam flow down Cascade Creek and enter Lake Spaulding.

- Lake Spaulding Dams No. 1, 2, and 3: Lake Spaulding Dam No. 1 (main dam) is a 276-ft-high, 800-ft-long concrete-arch dam that impounds the South Yuba River to form Lake Spaulding. The dam has a crest elevation of 5,016.1 ft. A 30-inch-diameter pipe serves as the low-level outlet and has a maximum flow capacity of 16 cfs. Lake Spaulding Dam No. 2 is a 42-ft-high, 309-ft-long concrete-gravity dam located on an unnamed tributary to Jordan Creek. The dam has a crest elevation of 5,016.1 ft. The dam has a 271.3-ft-long overflow spillway with elevations ranging from 4,994.6 to 5,014.6 ft. The spillway is controlled by three 14-ft-by-20-ft radial gates, seven 14-ft-by-15-ft radial gates, and 14 flashboards. Lake Spaulding Dam No. 3 is a 91-ft-high, 813-ft-long concrete gravity arch dam on a topographic low point that would otherwise drain to Jordan Creek. The dam has a crest elevation of 5,019.6 ft. The dam has a 21-ft-long overflow spillway controlled by 10 bays with emergency trippable flashboards. Lake Spaulding has a usable storage area of 75,912 ac-ft and a surface area of 682 acres. The NMWSE within the reservoir is 5,014.6 ft. Releases from Lake Spaulding Dam No. 1 flow into the Spaulding No. 1 Powerhouse tunnel and Spaulding No. 2 Penstock, and releases from Lake Spaulding Dam No. 2 flow into a spill channel discharging to an unnamed tributary to Jordan Creek. Releases into the spill channel flow into Jordan Creek and then into the South Yuba River.

- Spaulding No. 1 Powerhouse Tunnel is a 963-ft-long, 104-inch-diameter rock tunnel that diverts up to 600 cfs of water from Lake Spaulding to Spaulding No.1 Powerhouse.

- Spaulding No. 1 Powerhouse is located downstream of Lake Spaulding and discharges, along with the Spaulding No. 1 Powerhouse bypass, up to 840 cfs into Drum Canal, which is a part of the Drum No. 1 and No. 2 Development. The powerhouse features semi-automatic operation and is scheduled as base-loaded for downstream water demand. Spaulding No. 1 Powerhouse has an installed capacity of 7.0 MW with a synchronous generator and one Francis turbine with a nameplate hydraulic capacity of 600 cfs.

- Spaulding No. 1 Switchyard is located adjacent to the Spaulding No. 1 Powerhouse, is fenced in, and contains one Westinghouse transformer.
- Spaulding No. 2 Penstock diverts up to 200 cfs of water from Lake Spaulding to the Spaulding No. 2 Powerhouse.
- Spaulding No. 2 Powerhouse is located downstream of Lake Spaulding, adjacent to Spaulding No. 1 Powerhouse. This powerhouse features semi-automatic operation, and PG&E schedules it as base-loaded for downstream water demand. The powerhouse has an installed capacity of 4.4 MW with a synchronous generator and one Francis turbine with a rated nameplate hydraulic capacity of 200 cfs. Spaulding No. 2 Powerhouse discharges into the South Yuba Canal.
- Spaulding No. 2 Switchyard is located adjacent to the Spaulding No. 2 Powerhouse, is fenced in, and contains one Westinghouse transformers.
- Spaulding No. 2 – Spaulding No. 1 Transmission Line is a 2.3-kV single-circuit, 0.04-mile-long line that connects Spaulding No. 2 Switchyard to Spaulding No. 1 Switchyard.
- South Yuba Canal is 1.57 miles long and consists of a 1.3-mile-long pipe section (56 to 60 inches in diameter), a 0.41-mile-long wooden Lennon flume section (156 inches wide), and a 0.13-mile-long concrete bench flume. The canal has a maximum capacity of 146 cfs, and transfers water from the Upper Drum-Spaulding Hydroelectric Project's Lake Spaulding Dam No. 1 to the Deer Creek Hydroelectric Project's South Yuba Canal immediately downstream of Bear River Spill at YB-139 gage.
- Recreational facilities associated with the Spaulding No. 1 and No. 2 Development include: White Rock Lake primitive campsites (7 sites), Meadow Lake campground (15 sites), Meadow Lake shoreline campsites (10 sites), Meadow Knoll group campground (2 sites), Lake Sterling walk-in campground (6 sites), Kidd Lake group campground (3 sites), Lake Spaulding campground (25 sites), Lake Spaulding overflow campground (5 sites), and Lake Spaulding boat launch (67 parking spaces, two-lane concrete ramp, and 3 picnic sites).

2.3 Alta Development

The Alta Development consists of one diversion dam and canal, a forebay dam and impoundment, and one powerhouse with an installed capacity of 2.0 MW and

associated switchyard. No recreation facilities are associated with this development. Each facility is described below:

- Towle Canal Diversion Dam is a 5.5-ft-high wooden diversion dam with steel vertical slide gates.
- Towle Canal diverts water (up to 42 cfs) from Canyon Creek (primarily consisting of deliveries from Drum Forebay into Canyon Creek upstream via Towle Diversion) to Alta Forebay. The canal consists of open ditch (6.5-ft-wide by 4.5-ft-deep) and flume (96- and 108-inch Lennon flume) sections and has a total length of 3.9 miles.
- Alta Forebay Dam is a 13-ft-high, 1,500-ft-long earth-fill dam that forms Alta Forebay, which has a usable storage capacity of 19.4 ac-ft and a surface area of 5 acres at its NMWSE of 4,240.0 ft. PG&E operates Alta Forebay as a re-regulating reservoir, regulating flow into Alta Powerhouse. Alta Dam has a crest elevation of 4,243.0 ft and an 8.5-ft-long overflow spillway with a maximum capacity of 50 cfs.
- Alta Powerhouse is located below Alta Forebay, northeast of Alta, California. PG&E operates the powerhouse semi-automatically based on Placer County Water Agency's (PCWA's) downstream water demands. Alta Powerhouse has an installed capacity of 2.0 MW with a synchronous generator, two overhung impulse turbines with a combined rated nameplate hydraulic capacity of 56 cfs. The water that discharges from Alta Powerhouse enters the Alta Powerhouse tailrace area where most of it is immediately re-diverted into PCWA's Lower Boardman Canal, a non-Project facility, for downstream consumptive water demands. Undiverted flows are released to Dutch Flat Afterbay via the Little Bear River.
- Alta Switchyard is located adjacent to the Alta Powerhouse, is fenced in, and contains one Westinghouse transformer.

2.4 Drum No. 1 and No. 2 Development

The Drum No. 1 and No. 2 Development consists of three dams and reservoirs; two powerhouses with a combined installed capacity of 105.9 MW and associated tunnels, penstocks, and switchyard; one transmission line; one canal; and various recreation facilities. Each facility is described below:

- Lake Valley Reservoir Dam is a 75-ft-high, 1,035-ft-long earth- and rock-fill dam that impounds the North Fork of the North Fork American River to form Lake Valley Reservoir, which has a usable storage capacity of 7,902 ac-ft and a surface area of 303.9 acres at its NMWSE of 5,784.9 ft. The dam has a crest elevation of 5,789.9 ft and a 525-ft-long overflow spillway controlled with manually hoisted flashboards from April to September. A 30-inch pipe serves as the low-level outlet and has a

maximum flow capacity of 50 cfs. Releases from Lake Valley Reservoir Dam flow into the North Fork of the North Fork American River.

- Kelly Lake Dam is a 10.5- to 23.5-ft-high, 448-ft-long earth and rock-fill dam that impounds Sixmile Creek to form Kelly Lake, which has a usable storage capacity of 352 ac-ft and a surface area of 28 acres at its NMWSE of 5,908.8 ft. The dam has a crest elevation of 5,911.3 ft and an 18-ft-long overflow spillway controlled with manually hoisted flashboards and a maximum discharge of 490 cfs. A 20-inch-diameter pipe with a flow capacity of 25 cfs serves as the low-level outlet. Releases from Kelly Lake Dam flow into the North Fork of the North Fork American River via Sixmile Creek.

- Lake Valley Canal Diversion Dam on the North Fork of the North Fork American River diverts water released upstream from Lake Valley Reservoir and Kelly Lake to Lake Valley Canal, which delivers up to 36 cfs of water to the Drum Canal.

- Drum Canal delivers up to 840 cfs from Spaulding No. 1 Powerhouse to Drum Forebay. The canal consists of open ditch (25 to 32 ft wide by 8 to 10 ft deep), flume (13 ft wide by 8 ft deep), and tunnel (14 ft by 14 ft) sections and has a total length of 9.11 miles.

- Drum Forebay Dam is a 65-ft-high, 4,107-ft-long earth-fill dam that forms Drum Forebay, which has a usable storage capacity of 436 ac-ft and a surface area of 20 acres at its NMWSE of 4,756.0 ft. PG&E operates the dam for re-regulating purposes, regulating flow into the Drum No. 1 and No. 2 powerhouse penstocks. Drum Forebay Dam has a crest elevation of 4,766.5 ft and an 800-ft-long overflow spillway, which is not in use. A 2-ft-diameter pipe with a flow capacity of 80 cfs serves as the low-level outlet.

- Drum No. 1 Powerhouse Penstock and Drum No. 2 Powerhouse Penstock pass flows up to 643 cfs and 505 cfs from Drum Forebay to Drum No. 1 Powerhouse and Drum No. 2 Powerhouse, respectively.

- Drum No. 1 Powerhouse and Drum No. 2 Powerhouse are located on Drum Afterbay, which is part of the Dutch Flat No. 1 Development. PG&E operates the powerhouses semi-automatically as peaking plants generating for daily power demands. Drum No. 1 Powerhouse has an installed capacity of 56.4 MW (normal operating capacity is 54.0 MW) with a synchronous generator, three double overhung impulse turbines, and one single overhung impulse turbine with a rated nameplate hydraulic capacity of 643 cfs. Drum No. 2 Powerhouse has an installed capacity of 49.5 MW with a synchronous generator, with one vertical impulse turbine with a rated nameplate hydraulic capacity of 505 cfs. Flows through the powerhouses are discharged into Drum Afterbay.

- Recreational facilities associated with the Drum No. 1 and No. 2 Development include: Lodgepole campground (35 sites) and Silvertip picnic area and boat launch (10 picnic sites, 20 parking spaces, and a 1-lane concrete ramp), located at Lake Valley reservoir, and Kelly Lake picnic area (5 picnic sites), located at Kelly Lake.

2.5 Dutch Flat No. 1 Development

The Dutch Flat No. 1 Development consists of one dam and reservoir; one powerhouse with an installed capacity of 22.0 MW and associated tunnels, penstocks, and switchyard; one transmission line; and one tie. No recreation facilities are associated with this development. Each facility is described below:

- Drum Afterbay Dam is a 102-ft-high, 356-ft-long concrete arch dam located on the Bear River that forms Drum Afterbay, which has a usable storage capacity of 150.4 ac-ft and a surface area of 10 acres at its NMWSE of 3,383.3 ft. PG&E operates Drum Afterbay Dam for reregulating purposes, regulating flow from the Bear River into Dutch Flat No. 1 Tunnel and Penstock. The dam has a crest elevation of 3,385.0 ft and an 88.6-ft-long gated spillway controlled with one 20-ft by 5.5-ft skimmer gate and four 13-ft-by-6-ft radial gates. A 60-inch-diameter sluice pipe and a 10-inch-diameter release with a combined flow capacity of 1,120 cfs serve as low-level outlets. Releases from Drum Afterbay Dam flow into Dutch Flat Afterbay via the Bear River, Dutch Flat No. 1 Powerhouse Tunnel and Penstock, and Dutch Flat Forebay, which is part of NID's Yuba-Bear Hydroelectric Project via the Dutch Flat No. 2 flume (Yuba-Bear Project, Dutch Flat Development).

- Dutch Flat Tunnel is a 12-ft by 12-ft, 4.1-mile-long tunnel that has a maximum capacity of 475 cfs.

- Dutch Flat No. 1 Powerhouse Penstock is 78 to 96 inches in diameter and diverts up to 490 cfs from Drum Afterbay to Dutch Flat No. 1 Powerhouse.

- Dutch Flat No. 1 Powerhouse is located on Dutch Flat Afterbay. PG&E operates this powerhouse as a semi-automatic plant for limited peaking power demands. The powerhouse has an installed capacity of 22.0 MW with a synchronous generator, one vertical Francis unit with a rated nameplate hydraulic capacity of 490 cfs. The powerhouse discharges into Dutch Flat Afterbay.

- Dutch Flat No. 1 Transmission Line is a 115-kV single-circuit line that extends 0.12 mile from Dutch Flat No. 1 Powerhouse to the Drum-Higgins 115-kV transmission line.

- Dutch Flat No. 2 Tie is a 115-kV single-circuit line that extends 0.41 mile from Dutch Flat No. 2 Powerhouse to the 115-kV Drum-Rio Oso No. 1 Transmission Line.

2.6 Existing Stream and Reservoir Gages

Table A-1 lists 12 existing gages that PG&E uses to monitor streamflows throughout the Project.

Table A-1. Gages Maintained and Operated by PG&E in the Upper Drum-Spaulding Project

Location	USGS Gage No.	Licensee Gage No.	Location (Latitude and Longitude)		Approximate Elevation (feet)
South Yuba River – below Kidd Lake Dam and Lower Peak Lake Dam (at Cisco Grove)	11414000	YB-316	39°19'17"	120°33'52"	5,525
Fordyce Creek – below Fordyce Lake Dam	11414100	YB-200	39°22'48"	120°29'54"	6,250
Bear River at Highway 20 Crossing	11421710	YB-198	39°18'23"	120°40'44"	4,550
Bear River below Drum Afterbay	11421770	YB-44	39°15'15"	120°46'30"	3,325
South Yuba River – Below Lake Spaulding Dam (at Langs Crossing)	11414250	YB-29	39°19'07"	120°39'24"	4,460
North Fork of North Fork American River – Below Lake Valley Reservoir	—	YB-104	39°17'57"	120°35'53"	5,730
North Fork of North Fork American River – Below Lake Valley Canal Diversion Dam	—	YB-236	39°17'54"	120°36'10"	5,730
Canyon Creek – Below Towle Canal Diversion Dam	11426196	YB-282	39°14'31"	120°45'03"	4,480
Little Bear River – Below Alta Powerhouse Tailrace (Below Lower Boardman Canal Diversion Dam)	—	YB-98	39°12'57"	120°48'13"	3,590

Location	USGS Gage No.	Licensee Gage No.	Location (Latitude and Longitude)		Approximate Elevation (feet)
Lake Creek – Below Feeley Lake Dam	11414350	YB-207	39°24'01"	120°38'14"	6,710
Rucker Creek – Below Rucker Lake Dam	11414280	YB-210	39°21'20"	120°39'55"	5,350
Sixmile Creek – Below Kelly Lake Dam	—	YB-226	39°18'42"	120°34'55"	5,880

3 License Conditions

3.1 Existing Conditions

The Federal Power Commission (FPC), the predecessor to the Federal Energy Regulatory Commission (FERC), issued the initial Drum-Spaulding Project license to PG&E on June 24, 1963, effective for the period from May 1, 1963 through April 30, 2013. The initial license for the Drum-Spaulding included 44 articles that specified conditions of the license (that is, articles numbered 1 through 48 with articles 12, 13, 17, and 20 being excluded from the license). Articles 1 through 24 were from "Terms and Conditions of License for Unconstructed Project Affecting Lands of the United States," dated December 15, 1953, and were typical of "standard" articles included in project licenses at the time. Since 1963, FERC has added 30 new articles to the Drum-Spaulding Project license. License articles numbered between 25 and 405 are considered "Project-specific" articles. Table A-2 lists the current Drum-Spaulding Project license articles, including the general topic of each article.

Table A-2. General Topic of Each Active Article in the Current Drum-Spaulding Project FERC License[2]

Article	Description
1	Entire Project subject to terms of license.
2, 3	FERC approval of changes.
4	Construction and operations and maintenance subject to FERC inspection.
5	Revisions to maps and plans showing Project area and boundary subject to FERC approval.
6	Installation and maintenance of stage and flow gages and meters to determine energy generated by Project.
7	Roads, trails, and other land uses on US-owned lands to be approved by appropriate federal agency or department.
8	Place and maintain suitable structures for public safety related to transmission lines, telephone lines, and other signal wires.
9	Avoid inductive interference between Project transmission lines and radio, telephone, or other communication facility.
10	Clearing of lands prior to filling reservoirs and maintaining margins of reservoirs.
11	Clearing of transmission line right-of-ways on US-owned lands.
12	Not included in the License
13	Not included in the License
14	Reasonable rules for release of water from reservoirs to protect life, property, beneficial uses, etc.
15	Provisions regarding water for fire suppression, sanitary, and domestic needs to agencies with jurisdiction on US-owned lands.
16	Licensee liability regarding buildings, bridges, roads, trails, etc. on US-owned lands.
17	Not included in the License
18	Licensee rights limited to use, occupancy, and enjoyment of lands of US related to construction, operation, and maintenance of Project.
19	Reservation of rights for US agency or state or county to take over Project roads after construction.
20	Not included in the License
21	Specified rate of return for determining surplus earnings of the Project.

[2] Pacific Gas and Electric (PG&E). 2011. "Application for New License, Drum-Spaulding Project." Accessed November 12, 2020. https://elibrary.ferc.gov/eLibrary/filelist?accession_num=20110412-5005&optimized=false.

Article	Description
22	Lease of Project works for power subject to Commission approval.
23	Licensee to retain possession of Project property covered by the license.
24	Terms and conditions of license shall not impair terms and conditions of Federal Power Act.
25	Licensee construction of Drum Number 2 Powerhouse.
26	Licensee to file revised Exhibits F and K, defining Project boundary.
27, 28	Construction of fishways and fish handling facilities.
29	Installation of additional capacity.
30	Coordination of operation with such other power systems.
31	Reservation by Commission to determine what additional transmission facilities should be included as part of Project works.
32	Licensee reimbursement to and recompensing the US (annual charges).
33	Public access to Project waters and adjacent Project lands.
34	Licensee to file recreational use plan.
35	Right of Licensee to occupy public lands in Project lakes under Act of July 26, 1866.
36	Cost of Project and net investment to be determined by Commission.
37	Cost of Project and any betterments to be determined by Commission.
38	Releases from reservoirs no greater than natural conditions.
39	Minimum streamflow requirements.
40	Maintenance of water levels in Project reservoirs.
41	Prevention of substances injurious to fish and wildlife from entering streams or waters.
42	Protection of deer in Project area.
43	Stockpile of topsoil from borrow sites and replacement upon completion of borrow operations.
44	Consultation requirements regarding historical and archeological data at Drum Number 2 Powerhouse construction site.
45	Permanent Project roads on lands in Tahoe National Forest to be constructed subject to standards of Commission.
46	Payment or disposal of cleared timber on lands of the US during construction and maintenance of Project works.
47	Prevention and suppression of fires on Project lands.
48	Submittal of plans for Commission approval for repairs of specific dams.
49	Specified rate of return for determining surplus earnings of the Project.
50	Requirement to conduct threatened and endangered plant species survey prior to construction or inundation of Fordyce development.
51	Requirement to revise Exhibits K and L for the Fordyce development
52	Safety requirement regarding Wise and Halsey forebays.

Article	Description
53	Plan for improvements to Lake Valley Dams and revision of Exhibit L drawings.
54	Verification of spillway adequacy of Lake Valley and Lake Arthur Dams.
55	Implement and modify, when appropriate, an emergency action plan for early warning to sudden releases of water.
56	Requirements for clearance of vegetation and trees along conduits and reservoirs.
57	Requirements for a feasibility analysis regarding development of drops between Bear River Canal and Halsey Forebay, South Canal and Folsom Reservoir, and Lake Valley Canal and Drum Canal.
58	Consultation requirements with environmental protection agencies during construction and operation of Project works.
59	Licensee authority to grant permission for certain types of land use without prior Commission approval.
60	Requirement to file revised Exhibit F drawings and Exhibit G maps.
61	Requirements to provide contract drawings and specifications for Regional Engineer review prior to construction.
62	Requirements for Licensee approval of contractor design and construction of cofferdams and deep excavations prior to start of construction.
63	Minimum streamflow requirement at Mormon Ravine above Newcastle Powerhouse.
64	Requirements for conducting studies for fishery and wildlife resources at Newcastle Development intake to determine minimum flows needed.
65	Requirements for consultation with the State Historic Preservation Office prior to future construction.
66	Requirements for commencement of construction of Newcastle Development.
67	Requirements for development of restoration plan for Wise 2 development.
68	Requirements for plan to protect riparian vegetation of Rock Creek.
69	Requirements to construct Wise 2 Powerhouse in a manner compatible with historical character of existing Wise powerhouse.
70	Requirements regarding time frame for construction of Wise 2 Powerhouse development.
71	Requirements to provide contract drawings and specifications for pertinent features of Project additions to FERC prior to start of construction.
72	Requirements for submitting revised Exhibit F drawings and supporting design report showing final design of major project works.
73	Requirements for filing revised Exhibits F and G for approval.

Article	Description
401	Requirements to file a plan to monitor water temperature in Bear River at the Highway 20 gage and at release from South Yuba Canal.
402, 403, 404, 405	Requirements regarding abandonment of Upper Boardman Canal.

In addition to the FERC license requirements, PG&E entered into three agreements with resource agencies that included various streamflow-related requirements. On April 11, 1963, agreement between PG&E, the United States Forest Service (Forest Service), and the California Department of Fish and Game (CDFG)[3], which expired April 30, 2013, PG&E agreed to release one cfs in the North Fork of the North Fork American River below Lake Valley Reservoir and one cfs below Lake Valley Canal Diversion Dam. (In May 1985, PG&E and CDFG agreed to provide a "fish water release" of three cfs in the summer [June through September] and one cfs the remainder of the year. No expiration date of the agreement was stated in the original letter and PG&E still maintains these.[4]) PG&E also agreed to drawdown provisions for Kelly Lake and Kidd Lake (modified in the June 22, 1979, agreement below) and provisions to use storage in White Rock Lake to augment flow of North Creek in summer and fall months.

A June 22, 1979, letter agreement between PG&E, the Forest Service, and CDFG acted as an interim modification to the 1963 agreement. In this agreement, PG&E agreed to make releases from Kidd Lake and Upper and Lower Peak lakes to maintain a minimum flow of 5 cfs and a maximum water temperature of 70 degrees Fahrenheit (°F) in the South Yuba River, as measured at Cisco Grove, consistent with the primary purposes of the Drum-Spaulding Project and as water conditions permit, although releases from these reservoirs prior to September 1 would be controlled to keep the lake water surfaces as high as reasonably possible during the recreation season.

Finally, in an April 21, 1987, "letter agreement" between PG&E and CDFG, PG&E agreed to bypass 0.25 cfs year-round in Little Bear River below Alta Powerhouse.

[3] On January 1, 2013, California Department of Fish and Game was renamed California Department of Fish and Wildlife.

[4] May 10, 1985 letter from PG&E to Mr. Paul Jensen at CDFG regarding various issues including flows below Lake Valley Diversion Dam.

3.2 Proposed Conditions

In its December 2014 Final Environmental Impact Statement (FEIS), FERC staff adopted without modification 25 of the conditions proposed by PG&E in its Final License Application as amended in August 2012, and noted that the Forest Service's 59 final Federal Power Act (FPA) Section 4(e) conditions dated April 10, 2014, would be included in the new license (pg. F-1-1 of FEIS).[5] In addition, FERC staff recommended 15 additional conditions, which when added to the 37 Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters and Lands of the United States (FERC's Form L-5 Standard Articles), bring FERC staff's recommended conditions to 52. This totals 136 conditions that would be included in the new license. However, some of the conditions overlap [that is, same PG&E proposed condition adopted by FERC staff as included in the Forest Service's FPA Section 4(e) condition]. When considering overlap of conditions, the total is 103 conditions. Table A-3 lists the conditions and subparts measures; identical conditions or subparts of a condition are shown across the same row, under the appropriate recommending agency.

[5] The Forest Service issued its FPA Section 4(e) conditions for the entire Drum-Spaulding Project (that is, before the Drum-Spaulding Project had been split into the Upper Drum-Spaulding Hydroelectric Project, Lower Drum Hydroelectric Project, and Deer Creek Hydroelectric Project). As only the Upper Drum-Spaulding Hydroelectric Project and Deer Creek Hydroelectric Project include National Forest Service lands, Forest Service' FPA 4(e) conditions pertain at least in part to each of those two projects. The US Department of the Interior, Bureau of Land Management (BLM) and Bureau of Reclamation (BOR) also filed FPA Section 4(e) conditions for the entire Drum-Spaulding Project. However, the Upper Drum-Spalding Hydroelectric Project does not include any federal lands administered by BLM or BOR, so BLM's and BOR's FPA Section 4(e) conditions are not relevant to the Upper Drum-Spaulding Hydroelectric Project.

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Entire Project Subject to Terms and Conditions in License	Standard Art. 1	—	—	—
No Substantial Changes Without FERC Approval	Standard Art. 2	—	—	—
Substantial Conformity to Approved Exhibits	Standard Art. 3	—	—	—
Project Subject to Inspection and Supervision of FERC Regional Engineer	Standard Art. 4	—	—	—
Acquire Rights to Use Project Lands	Standard Art. 5	—	—	—
Termination or Transfer	Standard Art. 6	—	—	—
Original Cost of Project	Standard Art. 7	—	—	—
Gages	Standard Art. 8	—	—	—

[6] In a letter dated May 9, 2014, PG&E advised FERC and the Forest Service that it agreed with this condition in the Forest Services' Revised FPA Section 4(e) Conditions filed with FERC on April 10, 2014.

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Installation of Additional Capacity	Standard Art. 9	—	—	—
Coordinated Operations with Other Water Projects	Standard Art. 10	—	—	—
Headwater Benefits	Standard Art. 11	—	—	—
Navigation	Standard Art. 12	—	—	—
Reasonable Use of Project by Others	Standard Art. 13	—	—	—
Place Facilities for Reduction of Liability of Contact Between Lines and Wires	Standard Art. 14	—	—	—
Construction and Maintenance of Fish and Wildlife Facilities	Standard Art. 15	—	—	—
Construction of Fish and Wildlife Facilities by the United States	Standard Art. 16	—	—	—
Recreation Facilities	Standard Art. 17	—	—	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Public Use of project Water Consistent with Project Operations	Standard Art. 18	—	—	—
Prevention of Soil Erosion	Standard Art. 19	—	—	—
Clearing Along Open Water Conduits and along Reservoirs	Standard Art. 20	—	—	—
Dredging and Excavation	Standard Art. 21	—	—	—
Construction of Navigation Facilities by the United States	Standard Art. 22	—	—	—
Operation of Navigation Facilities	Standard Art. 23	—	—	—
Power for Navigation Facilities	Standard Art. 24	—	—	—
Lights and Signals Related to Navigation	Standard Art. 25	—	—	—
Timber on Lands of the United States	Standard Art. 26	—	—	—
Suppression of Fires	Standard Art. 27	—	—	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Use of Project Waters for Fire Suppression	Standard Art. 28	—	—	—
Liability	Standard Art. 29	—	—	—
Use of Project lands by the United States	Standard Art. 30	—	—	—
Roads and Trails	Standard Art. 31	—	—	—
Avoiding Inductive Interference	Standard Art. 32	—	—	—
Treatment of Transmission Line Right-of-Ways	Standard Art. 33	—	—	—
Disposal of Mineral and Vegetation Material on United States Lands	Standard Art. 34	—	—	—
Surrender of License	Standard Art. 35	—	—	—
Rights Cease at End of License	Standard Art. 36	—	—	—
Consistency with the Federal Power Act	Standard Art. 37	—	—	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Commission Approval, Reporting, and Filing Amendments	Draft Art. 4XX (pg. F-1-1)	—	—	—
Jordan Creek Diversion Decommissioning Plan	Draft Art. 4XX (pg. F-1-3)	—	—	—
Flow Releases to the Bear River Below Drum Canal at YB-137	Draft Art. 4XX (pg. F-1-4) (Similar to PG&E's DS-AQR1, Streamflows, Part 6, Flow Releases to the Bear River below Drum Canal at YB-137, which was agreed to by the Forest Service and CDFW [pg. D-1-7 of FEIS])	—	—	—
Reservation of Authority to Prescribe Fishways	Draft Art. 4XX (pg. F-1-3)	—	—	—
Bear River Management Plan Upstream of Forest Service Lands	Draft Art. 4XX (pg. F-1-4)	—	—	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Integrated Vegetation Management Plan	Draft Art. 4XX (pg. F-1-8) (Similar to PG&E's DS-TR1, Integrated Vegetation Management Plan, and the Forest Service's No. 38, Vegetation and Non-Native Invasive Plants Management Plan, [1] which is identical to PG&E's DS-TR1)	—	—	—
Wildlife Crossing Plan	Draft Art. 4XX (pg. F-1-8) (Similar to PG&E's DS-TR3, Consult with CDFW When Replacing Wildlife Escape and Wildlife Crossing Facilities)	—	—	—
Avian Management Plan	Draft Art. 4XX (pg. F-1-9)	—	—	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Fish Stocking Plan	Draft Art. 4XX (pg. F-1-11)	—	—	CDFW & Forest Service (pg. D-1-8)
Bat Management Plan	Draft Art. 4XX (pg. F-1-10)	—	—	—
Fish Stocking Plan	Draft Art. 4XX (pg. F-1-11)	—	—	CDFW & Forest Service (pg. D-1-8)
Recreation Streamflow Information	Draft Art. 4XX (pg. F-1-11) (Similar to PG&E's DS-RR2, Provide Recreation Flow Information, and Forest Service's No.54, Recreation Streamflow Information, which is identical to PG&E's DS-RR2)	—	—	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Fire Prevention and Response Plan	Draft Art. 4XX (pg. F-1-12) (Similar to PG&E's DS-LU2, Implement Fire Prevention and Response Plan on Federal Land, and Forest Services' No. 58, Fire Management and Response Plan,[1] which is identical to PG&E's DS-LU2)	—	—	—
Recreation Streamflow Information	Draft Art. 4XX (pg. F-1-11) (Similar to PG&E's DS-RR2, Provide Recreation Flow Information, and the Forest Service's No.54, Recreation Streamflow Information,[1] which is identical to PG&E's DS-RR2)	—	—	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Hazardous Substance Plan	Draft Art. 4XX (pg. F-1-12)	—	—	—
Programmatic Agreement and Historic Properties Management Plan	Draft Art. 4XX (pg. F-1-12) (similar to PG&E's DS-CR1, Implement Historic Properties Management Plan)	—	—	—
Use and Occupancy	Draft Art. 4XX (pg. F-1-12)	—	—	—
DS-GEN2, Annual Employee Training (filed by PG&E with FERC on 8/31/12)	—	pgs. 678 & D-1-2	No. 25, General Resource Measures, Annual Employee Training	CDFW (pg. D-1-2)
DS-GEN3, Develop and Implement Coordinated Operations Plan for the Upper Drum-Spaulding Project, Lower Drum, Deer Creek and Yuba-Bear projects	—	pgs. 678 & D-1-2	No. 25, General Resource Measures, Coordinated Operations Plan	CDFW (pg. D-1-2)

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Erosion and Sediment Control Plan (filed by PG&E with FERC on 4/11/14)	—	pg. 678	No. 50, Erosion and Sediment Control and Management, Erosion and Sediment Control Management Plan[1]	—
Canal Release Point Plan (filed by PG&E with FERC on 4/11/14)	—	pgs. 678 & D-1-3	No. 49, Canal Release Point Plan[1]	CDFW (pg. D-1-3)
DS-AQR1, Streamflows, Part 1, Water Year Types (filed by PG&E with FERC on 8/31/12)	—	pgs. 679 & D-1-4	No. 26, Water Year Types[1]	CDFW (pg. D-1-4)
Consultation Specific to Drum-Spaulding Project (filed by PG&E with FERC on 8/31/12)	—	pgs. 678 & D-1-1	No. 2, Consultation Specific to Drum-Spaulding Project[1]	CDFW (pg. D-1-1)

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
DS-AQR1, Streamflows, Part 2, Minimum Streamflows (filed by PG&E with FERC on 8/31/12)	—	pgs. 679 & D-1-4	No. 27, Minimum Streamflows[1]	CDFW (pg. D-1-4)
DS-AQR1, Streamflows, Part 3, Flow Settings (filed by PG&E with FERC on 8/31/12)	—	pgs. 680 & D-1-5	No. 28, Flow Setting[1]	CDFW (pg. D-1-5)
DS-AQR1, Streamflows, Part 4, Canal Outages (filed by PG&E with FERC on 8/31/12)	—	pgs. 680 & D-1-6	No. 29, Canal Outages[1]	CDFW (pg. D-1-6)
DS-AQR1, Streamflows, Part 5, Fordyce Lake Drawdown (filed by PG&E with FERC on 8/31/12)	—	pgs. 681, 683 & D-1-6)	No. 30, Fordyce Lake Drawdown[1]	CDFW

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
DS-AQR1, Streamflows, Part 7, Spill Cessation and Minimization of Flow Fluctuations at South Yuba River (filed by PG&E with FERC on 8/31/12)	—	pgs. 680 & D-1-7	No. 31, Spill Cessation and Minimization of Flow Fluctuations at South Yuba River[1]	CDFW (pg. D-1-7)
DS-AQR2, Implement Fish Protection and Management During Canal Outages Plan (filed by PG&E with FERC on 11/18/13)	—	pgs. 681 & D-1-8	No. 33, Canal Outages Fish Rescue Plan[1]	CDFW (pg. D-1-8)
DS-AQR4, Streamflow Measurement (filed by PG&E with FERC on 4/11/14)	—	pgs. 681 & D-1-9	No. 34, Gaging Plan[1]	CDFW (pg. D-1-9)
Fish Population Monitoring Plan (filed by PG&E with FERC on 11/21/13)	—	pgs. 681 & D-1-12	No. 51, Monitoring Program, Fish Populations[1]	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Foothill Yellow-Legged Frog Monitoring Plan (filed by PG&E with FERC on 11/21/13)	—	pgs. 681 & D-1-12	No. 51, Monitoring Program, Foothill Yellow-Legged Frog[1]	—
Water Temperature and Stage Monitoring Plan (filed by PG&E with FERC on 4/11/14)	—	pgs. 681 & D-1-12	No. 51, Monitoring Program, Water Temperature and Stage[1]	—
Channel Morphology Monitoring Plan (filed by PG&E with FERC on 11/21/13)	—	pgs. 681 & D-1-12	No. 51, Monitoring Program, Channel Morphology[1]	—
Riparian Vegetation Monitoring Plan (filed by PG&E with FERC on 4/11/14)	—	pgs. 681 & D-1-12	No. 51, Monitoring Program, Riparian Vegetation[1]	—
DS-TR2, Monitor Animal Losses in Project Canals (filed by PG&E with FERC on 8/31/12)	—	pgs. 682 & D-1-15	No. 39, Monitor Animal Loses in Project Canals[1]	CDFW (pg. D-1-15)

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
DS-TR3, Consult with CDFW When Replacing Wildlife Escape and Wildlife Crossing Facilities (filed by PG&E with FERC on 8/31/12)	—	pgs. 682 & D-1-16	No. 40, Replacement of Wildlife Escape and Wildlife Crossing Facilities[1]	CDFW (pg. D-1-16)
DS-TR4, Bear River Management Through Bear Valley (filed by PG&E with FERC on 8/31/12)	—	pg. D-1-17	No. 50, Erosion and Sediment Control and Management, Bear River Management Plan in Bear River Above Drum Afterbay on National Forest System Lands[1]	CDFW (pg. D-1-17)
Bat Management (filed by PG&E with FERC on 12/20/13)	—	pg. D-1-20	No. 48, Bat Management	CDFW (pg. D-1-20)

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
DS-RR1, Implement Recreation Facilities Plan (filed by PG&E with FERC on 11/18/13), with some modifications proposed by FERC staff)	—	pgs. 682 & D-1-21 through D-1-36	No. 53, Recreation Plan[1]	CDFW (pgs. D-1-21 through D-1-36)
DS-TR5, Implement Bald Eagle Management Plan (filed by PG&E with FERC on 11/18/13)	—	pgs. 682 & D-1-17	No. 43, Bald Eagle Management Plan[1]	CDFW (pg. D-1-17)
DS-LU1, Implement Transportation Management Plan for Primary Project Roads (filed by PG&E with FERC on 11/18/13)	—	pgs. 683 & D-1-41	No. 57, Transportation System Management[1]	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
DS-AER1, Implement Visual Resource Management Plan (filed by PG&E with FERC on 11/18/13)	—	pgs. 683 & D-1-43	No. 55, Visual Resource Management Plan[1]	—
Consultation	—	—	No. 1	—
Forest Service Approval of Final Design	—	—	No. 3[1]	—
Approval of Changes	—	—	No. 4[1]	—
Maintenance of Improvements on or Affecting National Forest System Lands	—	—	No. 5[1]	—
Existing Claims	—	—	No. 6	—
Compliance with Regulations	—	—	No. 7[1]	—
Surrender of License or Transfer of Ownership	—	—	No. 8[1]	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Protection of United States Property	—	—	No. 9[1]	—
Indemnification	—	—	No. 10[1]	—
Damage to Land, Property, and Interests of the United States	—	—	No. 11[1]	—
Risks of Hazards on National Forest System Lands	—	—	No. 12[1]	—
Access	—	—	No. 13	—
Crossings	—	—	No. 14[1]	—
Surveys, Land Corners	—	—	No. 15[1]	—
Signs	—	—	No. 16[1]	—
Ground Disturbing Activities	—	—	No. 17[1]	—
Use of National Forest System Roads for Project Access	—	—	No. 18	—
Access by the United States	—	—	No. 19	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Road Use	—	—	No. 20[1]	—
Hazardous Materials Management Plan	—	—	No. 21[1] (Similar to FERC Draft Art. 4XX, pg. F-1-12 in FEIS)	—
Pesticide-Use Restrictions on National Forest System Lands	—	—	No. 22[1]	CDFW (pg. D-1-18)
Construction Inspections	—	—	No. 23[1]	—
South Yuba River Supplemental Flows	—	—	No. 32[1]	—
Modifications of 4(e) Conditions after Biological Opinion or Water Quality Certification	—	—	No. 35[1]	—
Unattended Construction Equipment	—	—	No. 24[1]	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Modifications of 4(e) Conditions in the Event of Anadromous Fish Re-Introduction	—	—	No. 36[1]	—
Aquatic Invasive Species Management and Monitoring Plan	—	—	No. 37[1]	—
Vegetation and Non-Native Invasive Plants Management Plan	—	—	No. 38[1] (Identical to PG&E's DS-TR1, Integrated Vegetation Management Plan, and modified by FERC Draft 4XX on pg. F-1-8 in FEIS)	—
Wildlife Crossings – Drum and South Yuba Canals	—	—	No 41[1]	CDFW (pg. D-1-16)

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Wildlife Crossings – Drum and South Yuba Canals	—	—	No 42[1]	
Special-Status Species	—	—	No. 44[1]	CDFW (pg. D-1-18)
Annual Review of Special-Status Species Lists and Assessment of New Species on Federal Land	—	—	No. 45[1]	CDFW (pg. D-1-18)
Project Powerlines	—	—	No. 46[1]	
Raptor Collisions	—	—	No. 47[1]	
Bat Management	—	—	No. 48[1]	
Canal Release Point Plan	—	—	No. 49[1]	CDFW (pg. D-1-11)

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Erosion and Sediment Control and Management, Bear River Management Plan in Bear River Above Drum Afterbay on National Forest System Lands	—	—	No. 50[1]	—
Monitoring Program, Western Pond Turtle Observations	—	—	No. 51[1]	—
Monitoring Program, Aquatic Benthic Macroinvertebrates	—	—	No. 51	—
Monitoring Program, Sensitive Raptor Monitoring	—	—	No. 51[1]	—
Large Woody Debris	—	—	No. 52[1]	—
Recreation Streamflow Information	—	—	No. 54[1]	—
Historic Properties Management Plan	—	—	No. 56[1]	—

Table A-3. Proposed Conditions in the New Upper Drum-Spaulding Hydroelectric Project license as Developed during the FERC National Environmental Policy Act (NEPA) Process (Identical conditions, to the extent they apply to the Upper Drum-Spaulding Hydroelectric Project, are shown along the same row.)

Condition	Standard Articles and FERC Staff's Recommendation (FERC Standard Article L-5, Appendix F of FEIS, or Page # in FEIS)	PG&E Proposed Conditions Adopted by FERC Staff Without Modification (Page # in FEIS)	Forest Service Revised Final 4(e) Conditions (Appendix H-1 of FEIS)[6]	Proposed by Other Agencies (Agency and Page # in FEIS)
Fire Management and Response Plan	—	—	No. 58[1]	—
Review of Improvements on National Forest System Lands	—	—	No. 59[1]	—
Subtotal	*54*	*26*	*71*	*25*

This page is intentionally blank.