Streamflow and Reservoir Level Information Plan
Sacramento Municipal Utility District and Pacific Gas and Electric Co.

Hydro License Implementation • February 2015

Upper American River Project

FERC Project No. 2101

Chili Bar Project

FERC Project No. 2155

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Attachments:

IVR call flow diagram

Data flow diagram

Website prototype (screen shots)

Pertinent 4(e) and SWRCB Water Quality Certification Conditions

1.0 Introduction

Sacramento Municipal Utility District (SMUD) provides this Streamflow and Reservoir Level Information Plan (Plan) in partnership with Pacific Gas and Electric Company (PG&E). Under FERC Project Number 2101, this Plan fulfills part of US Forest Service Federal Power Act Section 4(e) Condition number 51, Public Information Services; and all of California State Water Resources Control Board water quality certificate Condition 7, Streamflow and Reservoir Level Information.[1] Under FERC Project Number 2155, it fulfills all of California State Water Resources Control Board water quality certificate Condition 11, Streamflow and Reservoir Level Public Information Services.[2]

This plan does not fulfill two parts of US Forest Service Federal power Act Section 4(e) condition number 51 for FERC Project 2101: the Project Recreation Brochure/Map and the Interpretive, Education, and Public Information Plan. These are being developed separately.

SMUD will provide data from both licensees on a web server and interactive voice response (IVR) telephone system. The web server will be hosted by SMUD's corporate public web site (smud.org). SMUD will host the IVR system and make it accessible to the public year-round by way of a toll-free telephone number. Both the website and IVR are managed on the same servers as SMUD's corporate business websites and IVRs and are supported by extensive internal information technology staff.

The data posted on the website will consist of 15-minute increment values for the past seven days. These values will be presented graphically. Streamflow and reservoir level data will be included. The IVR system will provide the most-recent value from each location.

The licensees will also jointly install staff gages for use by the public.

2.0 Locations and Data Sources

Streamflow and reservoir level information will be provided for a variety of locations. The locations are listed in Table 1. In this table, the first column lists the water body location. The second column has a check mark if real-time reservoir elevation and storage will be provided. A check mark in the third column indicates a simple staff gage will be installed below the dam forming the water body. The fourth column has a check mark if real-time streamflow data will be provided for the stream below the dam.

Real-time data at each location will be sampled every 15 minutes. The IVR system and website will display the most-recent values. Seven days' worth of data will be archived on a revolving basis and presented in the form of a graph on the website. Also, for each

[1] Order issuing new license, Project No. 2101, pp. 102 and 215
[2] Order issuing new license, Project No. 2155, p. 63

location which provides lake stage height, the most-recent lake stage height will be converted into acre-feet of water storage and presented on the IVR and website.

All data will be collected following the methods and standards described in the pending *Streamflow and Reservoir Elevation Gaging Plans* (also known as *Gaging Plans*) for each project. These Gaging Plans are not part of this Plan and will be independently developed and submitted under their respective processes and schedules.

Table 1. Locations and types of public information

Location	Lake Stage Height	Simple Staff Gage	Streamflow
Rubicon Reservoir	√		√
Buck Island Reservoir			√
Loon Lake Reservoir	√		√
Gerle Creek Reservoir	√		√
Robbs Peak Reservoir			√
Ice House Reservoir	√	√	√
Union Valley Reservoir	√		
Junction Reservoir	√		√
Camino Reservoir			√
Brush Creek Reservoir	√		√
Slab Creek Reservoir	√	√	√
Chili Bar Reservoir	√	√	√

Data will be presented using the following units of measure and precision:

- Reservoir stage height: elevation in feet, National Geodetic Vertical Datum of 1929 (NGVD 29), to the nearest 0.1 foot.
- Reservoir storage: volume in acre-feet of water, to the nearest 1 acre-foot
- Simple staff gage: feet above bottom of staff, to the nearest 0.01 foot
- Streamflow: cubic feet per second (cfs), to the nearest 1 cfs.

3.0 IVR System

In anticipation of this plan, the interactive voice response system was developed and recently implemented. It serves two purposes:

1. Provide real-time streamflow, reservoir level, and reservoir storage data
2. Provide special announcements

When a user calls the system, the user hears a legal disclaimer, and then is prompted to communicate by way of touch-tone (pressing buttons on the telephone handset). If special announcements are available, the user can choose to hear them. This may

include urgent or routine notifications. SMUD does not expect the public to utilize this IVR system as a means to determine if emergency situations exist.

For streamflow and reservoir data, there are a series of menus the user follows. Based on the licensees' experience, the most commonly-visited locations (e.g. whitewater boating reaches, popular recreational reservoirs) are listed earlier in the list.

The system is active and available at this telephone number: 1-877-426-3569. The number can be written as: 1-877-H2O-FLOW. As of the date of this Draft Streamflow and Reservoir Level Information Plan, the system is not ready to provide actual data.

A flow chart showing the menu and call tree system is attached to this plan document named the *IVR Call Flow Diagram (Attachment 1)*.

4.0 Website

In anticipation of this plan, a website was developed and implemented in prototype form. It serves three primary purposes:

1. Provide real-time and prior seven days of streamflow, reservoir level, and reservoir storage data
2. Provide special announcements
3. Provide a point from which users can download documents supporting other conditions of the FERC license

The website back-end system retrieves data every 15 minutes from SMUD's Energy Management System (EMS). The EMS asynchronously obtains Chili Bar Reservoir and Chili Bar Dam streamflow data from PG&E's system; thus, these are available to the streamflow website in the same manner as SMUD's data.

The landing page will be accessible from the main website *smud.org*. Documents prepared in compliance with other license conditions are presented in a list with download links on this page; revisions are uploaded as necessary. From this page, the user selects the location of interest from a hyperlink list, similar to the list in Table 1.

Several pages attached to this plan document show screen shots of the prototype website (Attachment 3). This is just a prototype of the final product. Some key design features include:

1. A landing page featuring announcements and reference file downloads will be included. The prototype is just that and doesn't necessarily indicate specific types of announcements.
2. Streamflow data in cubic feet per second will be displayed. Both the current value and a graph showing the past seven days of 15 minute sampled values will be available.
3. Reservoir elevation in feet will be displayed. Both the current value and a graph showing the past seven days of 15 minute sampled values will be available.

4. Reservoir storage volume in acre-feet will be displayed. This data will be displayed as just the current numerical value. There will be no graph. A time series graph of this metric is of limited usefulness to the public.
5. Minimum streamflow, recreational streamflow, and reservoir level schedules for the applicable locations described in Table 1 will be displayed ,along with the current water year type.
6. The lineup of these websites in the larger SMUD corporate website will be such that recreational users will be able to find it quickly.

5.0 Infrastructure and Data Flow

The hardware and information technology systems behind the IVR and website are designed and maintained to function during the entire term of the license with little to no downtime.

Please refer to the *Data Flow Diagram* (Attachment 2). This flow chart shows the basic steps followed by stream and reservoir data as they move from the field to the members of the public viewing them. The process begins in the upper right and travels down and to the left on the diagram.

There are several blue boxes on the diagram. These group together processes sharing a common set of persons or departments involved with overseeing the processes. Overall responsibility for the functioning of the system is with the Superintendent, Hydro Generation Assets.

5.1 Remote Sensors and Dataloggers

The streams and reservoirs described in this plan are in the Sierra Nevada mountain range. Most sensors are of the pressure transducer type. All locations have two sensors: a primary and a backup. If the primary sensor fails or is sending questionable data, the backup sensor is used to help diagnose the problem. Only the primary sensor provides data to the public IVR and website. Most sensors are manufactured by Campbell Scientific, model CS450. Some locations use flow meters by other manufacturers.

Campbell Scientific dataloggers transform electrical signals from the sensors into data values in units of cubic feet per second, water surface elevation, and water volume.

5.2 Telemetry

Data from these dataloggers are transmitted using a variety of modes, including wireline, VHF radio, and spread-spectrum radio. Receiving units combine these data with other operational data near the hydroelectric project. Data are sent roughly 50 miles to the Sacramento Valley over a fiber optic cable. A microwave system is also fully operational as a backup.

Data from Chili Bar Reservoir and the stream gauge downstream are brought into PG&E's SCADA system. They are sent to SMUD from PG&E's San Ramon operations center by a non-public proprietary system.

5.3 Central IT Systems

The other end of the telemetry systems is SMUD's energy management system in Sacramento. Data from this SCADA system are immediately exported to an Online Analytical Processing type system. This both isolates the data from critical SCADA functions and provides for data archiving. Another data export process periodically extracts just the data needed for the streamflow and reservoir level information presentation and organizes it for website and IVR dissemination.

The public-facing IVR and website systems are the same ones managed for 24x7 operation, supporting SMUD's day-to-day and emergency response missions. They are highly reliable and supported by many hardware and software technicians.

6.0 Staff Gages

SMUD will install staff gages at several key locations benefitting whitewater boaters. Staff gages are essentially large rulers mounted vertically along one bank of a stream. One end is in the water and they extend long enough out of the water to be readable at any usual streamflow. They are marked in units of feet, with 0.01 foot gradations.

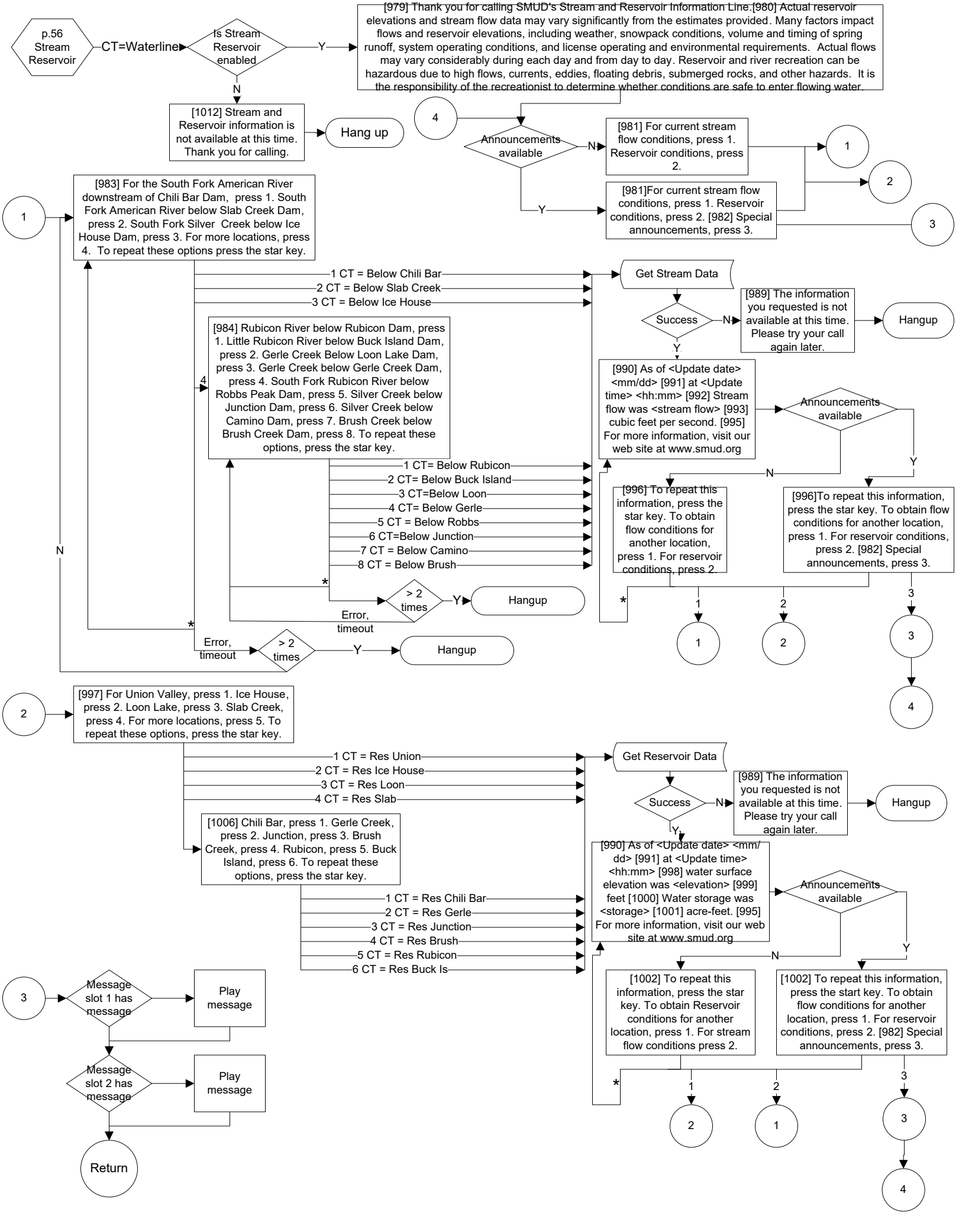
The general locations of these gages are described in the FERC license and are listed in Table 2. This table lists the stream where the gage is established, the specific location, and the installation status as of the date of this plan. These are specified in the following parts of the FERC license:

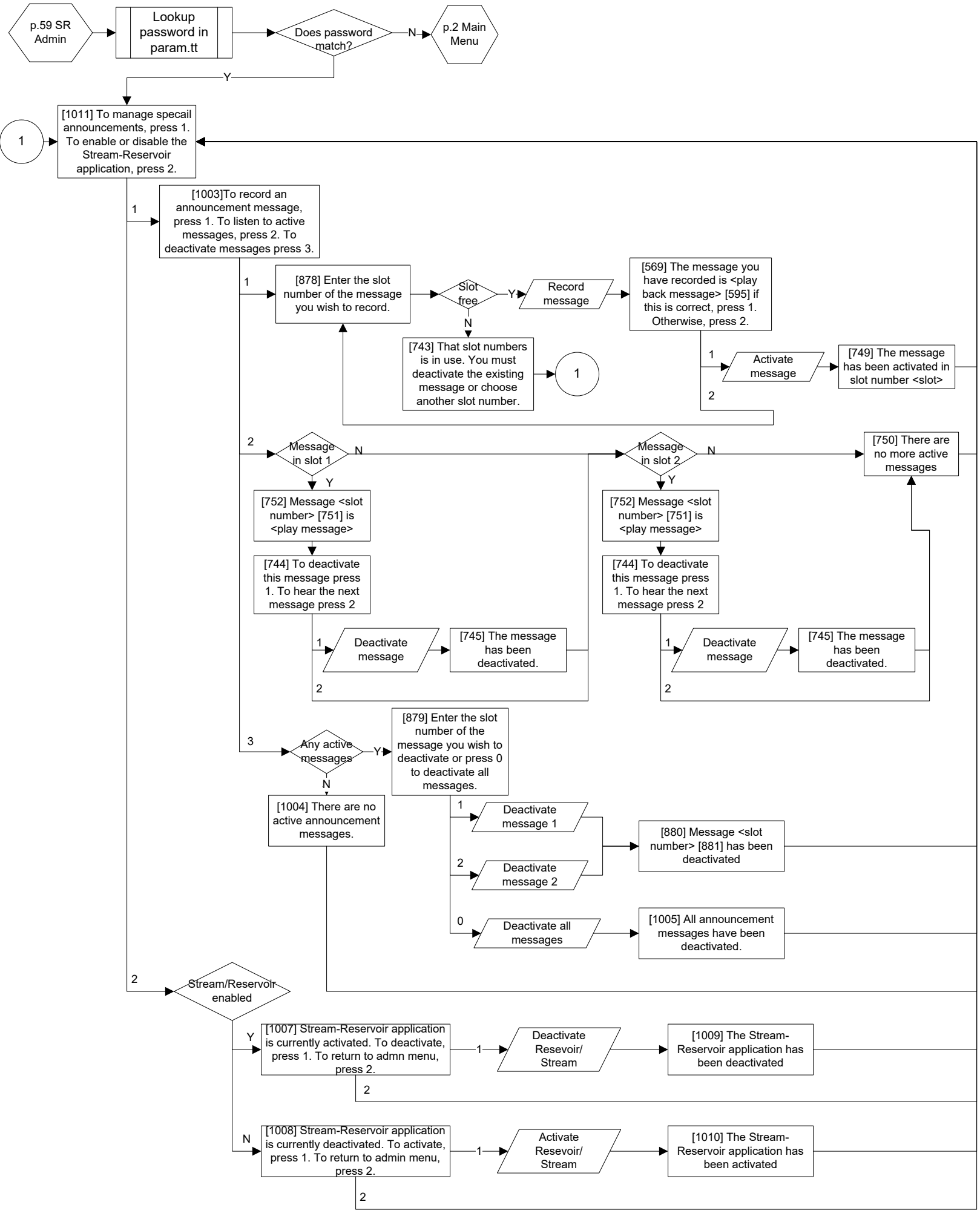
- Project 2101, State Water Resources Control Board Water Quality Certification Condition 6 (page 102, near middle) and Condition 7 (part B on page 103).
- Project 2101, US Forest Service section 4(e) Condition No. 36 (top of page 171) and Condition No. 51 (middle of page 215).
- Project 2155, State Water Resources Control Board Water Quality Certification Condition 11, (part B on page 63)

SMUD will develop ratings associated with these staff gages and publish them on the website. These ratings should be used with the understanding that they provide only general guidance for recreationists. Measurements made at SMUD's and PG&E's USGS-reviewed streamflow gages will determine compliance with all of the various streamflow requirements.

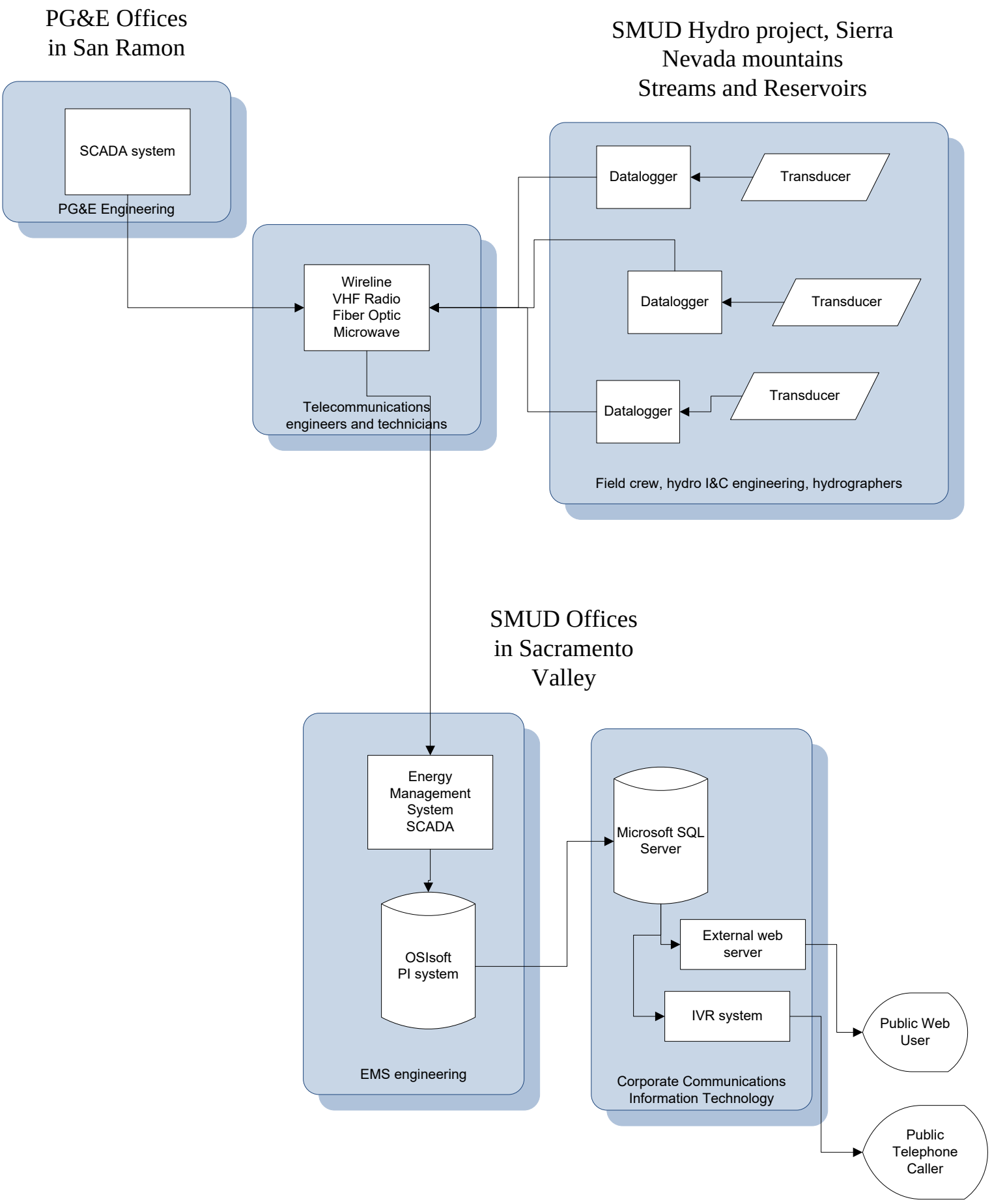
Table 2. Staff gage locations

Stream and Location	Specific Location	Status
South Fork Silver Creek below Ice House Dam	Gage placed upon rock outcropping on right bank of South Fork Silver Creek, approximately 200 ft downstream of outlet works of Ice House dam	Installed in 2014
South Fork American River below Slab Creek Dam	Gage placed upon large rock outcropping on right bank of the South Fork American River, approximately 1,000 ft downstream of Slab Creek Dam	Installed in 2014
South Fork American River below Chili Bar Dam	Painted on the rightmost (northern) pier of the Highway 193 bridge (property of California Department of Transportation) visible from the right bank	Applied for permit from CalTrans regional office.


p.56 Stream Reservoir
CT=Waterline
Is Stream Reservoir enabled
Y
N
[979] Thank you for calling SMUD's Stream and Reservoir Information Line.[980] Actual reservoir elevations and stream flow data may vary significantly from the estimates provided. Many factors impact flows and reservoir elevations, including weather, snowpack conditions, volume and timing of spring runoff, system operating conditions, and license operating and environmental requirements. Actual flows may vary considerably during each day and from day to day. Reservoir and river recreation can be hazardous due to high flows, currents, eddies, floating debris, submerged rocks, and other hazards. It is the responsibility of the recreationist to determine whether conditions are safe to enter flowing water.
[1012] Stream and Reservoir information is not available at this time. Thank you for calling.
Hang up
4
Announcements available
N
Y
[981] For current stream flow conditions, press 1. Reservoir conditions, press 2.
[981]For current stream flow conditions, press 1. Reservoir conditions, press 2. [982] Special announcements, press 3.
1
2
3
1
[983] For the South Fork American River downstream of Chili Bar Dam, press 1. South Fork American River below Slab Creek Dam, press 2. South Fork Silver Creek below Ice House Dam, press 3. For more locations, press 4. To repeat these options press the star key.
1 CT = Below Chili Bar
2 CT = Below Slab Creek
3 CT = Below Ice House
Get Stream Data
Success
N
Y
[989] The information you requested is not available at this time. Please try your call again later.
Hangup
4
[984] Rubicon River below Rubicon Dam, press 1. Little Rubicon River below Buck Island Dam, press 2. Gerle Creek Below Loon Lake Dam, press 3. Gerle Creek below Gerle Creek Dam, press 4. South Fork Rubicon River below Robbs Peak Dam, press 5. Silver Creek below Junction Dam, press 6. Silver Creek below Camino Dam, press 7. Brush Creek below Brush Creek Dam, press 8. To repeat these options, press the star key.
1 CT= Below Rubicon
2 CT= Below Buck Island
3 CT=Below Loon
4 CT= Below Gerle
5 CT = Below Robbs
6 CT=Below Junction
7 CT = Below Camino
8 CT = Below Brush
*
> 2 times
Y
Hangup
Error, timeout
*
Error, timeout
> 2 times
Y
Hangup
N
[990] As of <Update date> <mm/dd> [991] at <Update time> <hh:mm> [992] Stream flow was <stream flow> [993] cubic feet per second. [995] For more information, visit our web site at www.smud.org
Announcements available
N
Y
[996] To repeat this information, press the star key. To obtain flow conditions for another location, press 1. For reservoir conditions, press 2.
[996]To repeat this information, press the star key. To obtain flow conditions for another location, press 1. For reservoir conditions, press 2. [982] Special announcements, press 3.
*
1
2
3
1
2
3
4
2
[997] For Union Valley, press 1. Ice House, press 2. Loon Lake, press 3. Slab Creek, press 4. For more locations, press 5. To repeat these options, press the star key.
1 CT = Res Union
2 CT = Res Ice House
3 CT = Res Loon
4 CT = Res Slab
Get Reservoir Data
Success
N
Y
[989] The information you requested is not available at this time. Please try your call again later.
Hangup
[1006] Chili Bar, press 1. Gerle Creek, press 2. Junction, press 3. Brush Creek, press 4. Rubicon, press 5. Buck Island, press 6. To repeat these options, press the star key.
1 CT = Res Chili Bar
2 CT = Res Gerle
3 CT = Res Junction
4 CT = Res Brush
5 CT = Res Rubicon
6 CT = Res Buck Is
[990] As of <Update date> <mm/dd> [991] at <Update time> <hh:mm> [998] water surface elevation was <elevation> [999] feet [1000] Water storage was <storage> [1001] acre-feet. [995] For more information, visit our web site at www.smud.org
Announcements available
N
Y
[1002] To repeat this information, press the star key. To obtain Reservoir conditions for another location, press 1. For stream flow conditions press 2.
[1002] To repeat this information, press the start key. To obtain flow conditions for another location, press 1. For reservoir conditions, press 2. [982] Special announcements, press 3.
*
1
2
3
2
1
3
4
3
Message slot 1 has message
Play message
Message slot 2 has message
Play message
Return


p.59 SR Admin
Lookup password in param.tt
Does password match?
N
p.2 Main Menu
Y
1
[1011] To manage specail announcements, press 1. To enable or disable the Stream-Reservoir application, press 2.
1
[1003]To record an announcement message, press 1. To listen to active messages, press 2. To deactivate messages press 3.
1
[878] Enter the slot number of the message you wish to record.
Slot free
Y
Record message
[569] The message you have recorded is <play back message> [595] if this is correct, press 1. Otherwise, press 2.
N
[743] That slot numbers is in use. You must deactivate the existing message or choose another slot number.
1
1
Activate message
[749] The message has been activated in slot number <slot>
2
2
Message in slot 1
N
Y
[752] Message <slot number> [751] is <play message>
[744] To deactivate this message press 1. To hear the next message press 2
1
Deactivate message
[745] The message has been deactivated.
2
Message in slot 2
N
Y
[752] Message <slot number> [751] is <play message>
[744] To deactivate this message press 1. To hear the next message press 2
1
Deactivate message
[745] The message has been deactivated.
2
[750] There are no more active messages
3
Any active messages
Y
N
[879] Enter the slot number of the message you wish to deactivate or press 0 to deactivate all messages.
[1004] There are no active announcement messages.
1
Deactivate message 1
2
Deactivate message 2
[880] Message <slot number> [881] has been deactivated
0
Deactivate all messages
[1005] All announcement messages have been deactivated.
2
Stream/Reservoir enabled
Y
[1007] Stream-Reservoir application is currently activated. To deactivate, press 1. To return to admn menu, press 2.
1
Deactivate Resevoir/ Stream
[1009] The Stream-Reservoir application has been deactivated
2
N
[1008] Stream-Reservoir application is currently deactivated. To activate, press 1. To return to admin menu, press 2.
1
Activate Resevoir/ Stream
[1010] The Stream-Reservoir application has been activated
2

Data Flow Diagram
Streamflow and Reservoir Level Information Plan



Upper American River Project: Stream Flow and Reservoir Elevation

Community

- **Recreational Areas**
  - Crystal Basin Recreation Area
  - Rancho Seco Recreational Area
  - Amanda Blake Memorial Wildlife Refuge
  - **UARP Stream Flow and Reservoir Elevation Info**
    - Streams:
      - South Fork, American River
      - Rubicon River
      - Little Rubicon
      - Gerle Creek
      - South Fork, Rubicon
      - Silver Creek
      - Brush Creek
    - Reservoirs:
      - Union Valley Reservoir
      - Ice House Reservoir
      - Loon Lake Reservoir
      - Slab Creek Reservoir
      - Chili Bar Reservoir
      - Gerle Creek Reservoir
      - Brush Creek Reservoir
      - Rubicon Reservoir
      - Buck Island Reservoir
- Art Exhibits
- Beautification
- Sponsorships
- Speakers Bureau
- Events

SMUD owns and operates the Upper American River Project (UARP), located on the western slope of the Sierra Nevada. The UARP lies within El Dorado and Sacramento counties, primarily within lands of the Eldorado National Forest. The project is a large hydroelectric development composed of several reservoirs and powerhouses located along streams and rivers within the American River basin.

Recreational facilities have been developed around the Project storage reservoirs, mostly in an area commonly referred to as the Crystal Basin Recreation Area.

Special announcements

- **Posted 8/26/14** - Traffic on Ice House Road will be impacted on Labor Day Weekend (Saturday, August 29th through Monday, September 1st), due to the arrival of materials and heavy equipment for a future construction project. Please use caution and expect delays during the daytime hours.
- **Posted 10/1/14** - The boat ramp at the Union Valley Reservoir will be closed on Thursday, October 8th and Friday, October 9th for a minor upgrade. Facilities will return to full operation on Saturday, October 10th.

View the latest recorded stream flows and reservoir elevations:

Streams -

- South Fork, American River
- Rubicon River
- Little Rubicon
- Gerle Creek
- South Fork, Rubicon
- Silver Creek
- Brush Creek

Reservoirs -

- Union Valley Reservoir
- Ice House Reservoir
- Loon Lake Reservoir
- Slab Creek Reservoir
- Chili Bar Reservoir
- Gerle Creek Reservoir
- Brush Creek Reservoir
- Rubicon Reservoir
- Buck Island Reservoir

DISCLAIMER: The information contained herein are estimates of stream flows and reservoir levels. Actual stream flows and reservoir levels may vary significantly from the estimates provided. Many factors affect flows and reservoir levels, including weather, snowmelt runoff, and the operating requirements of the hydro project. Reservoir and river recreation can be hazardous. It is the responsibility of the recreationist to determine whether conditions are safe to enter the water.

South Fork, American River: Flow Information

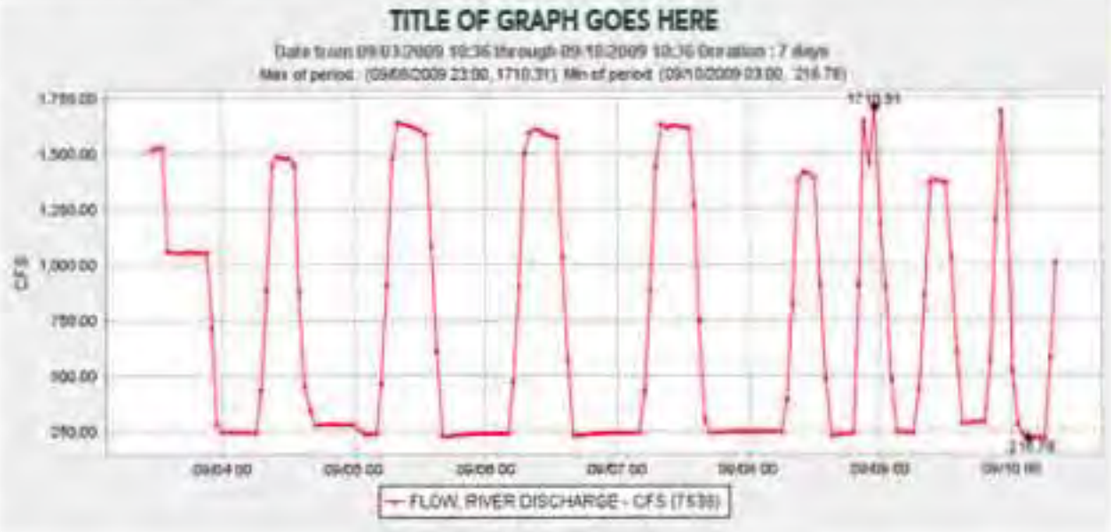
Community

- **Recreational Areas**
  - Crystal Basin Recreation Area
  - Rancho Seco Recreational Area
  - Amanda Blake Memorial Wildlife Refuge
  - **UARP Stream Flow and Reservoir Elevation Info**
    - Streams:
      - **South Fork, American River**
      - Rubicon River
      - Little Rubicon
      - Gerle Creek
      - South Fork, Rubicon
      - Silver Creek
      - Brush Creek
    - Reservoirs:
      - Union Valley Reservoir
      - Ice House Reservoir
      - Loon Lake Reservoir
      - Slab Creek Reservoir
      - Chili Bar Reservoir
      - Gerle Creek Reservoir
      - Brush Creek Reservoir
      - Rubicon Reservoir
      - Buck Island Reservoir
- Art Exhibits
- Beautification
- Sponsorships
- Speakers Bureau
- Events

The South Fork American River is the most popular whitewater recreation stream in California. PG&E's daily regulation of the river flows and SMUD's seasonal regulation of the flow regime contribute to the popularity of the South Fork as a whitewater opportunity. SMUD's seasonal regulation extends rafting opportunities through the end of summer, which otherwise would be non-existing due to low flows.

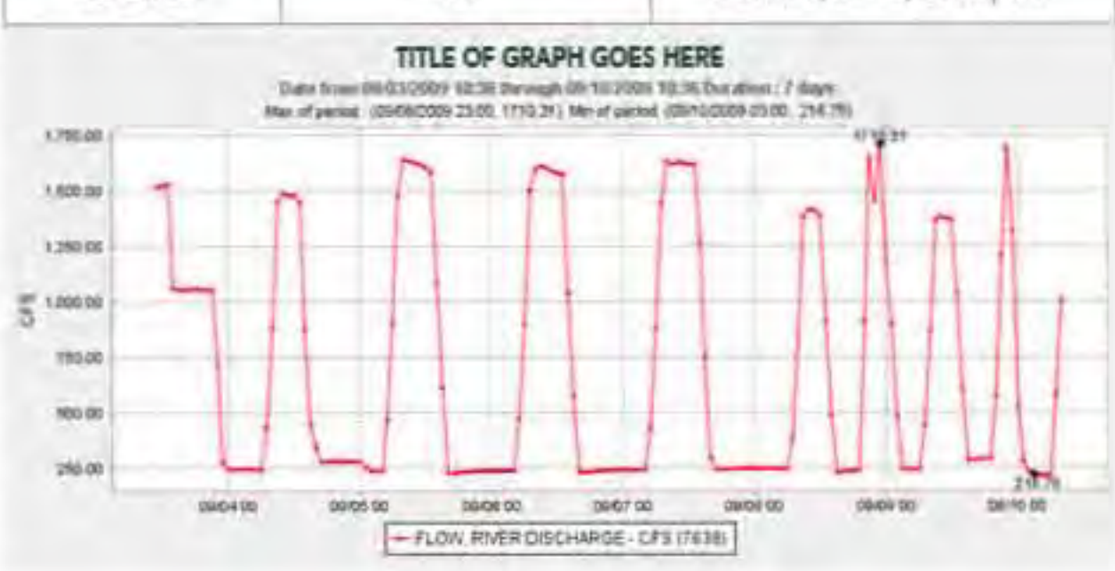
South Fork, American River, downstream of Chili Bar Dam

Current Flow	Current Air Temp.	Last Update
55 C.F.S.	62°	Dec. 19, 2014, 3:45 p.m.



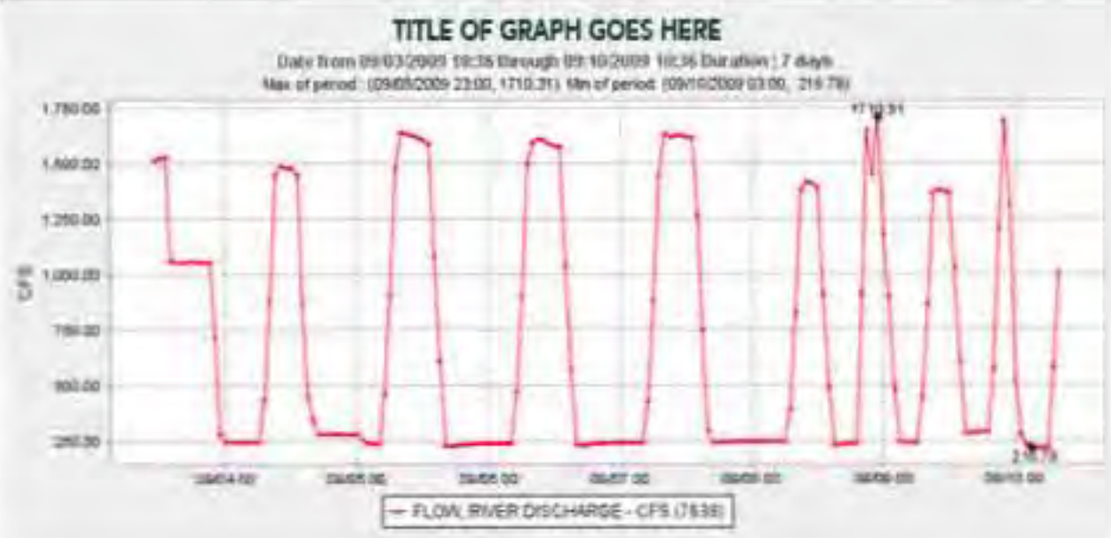
South Fork, American River, below Slab Creek Dam

Current Flow	Current Air Temp.	Last Update
42 C.F.S.	68°	Dec. 19, 2014, 3:45 p.m.



South Fork, Silver Creek, below Ice House Dam

Current Flow	Current Air Temp.	Last Update
48 C.F.S.	61°	Dec. 19, 2014, 3:45 p.m.



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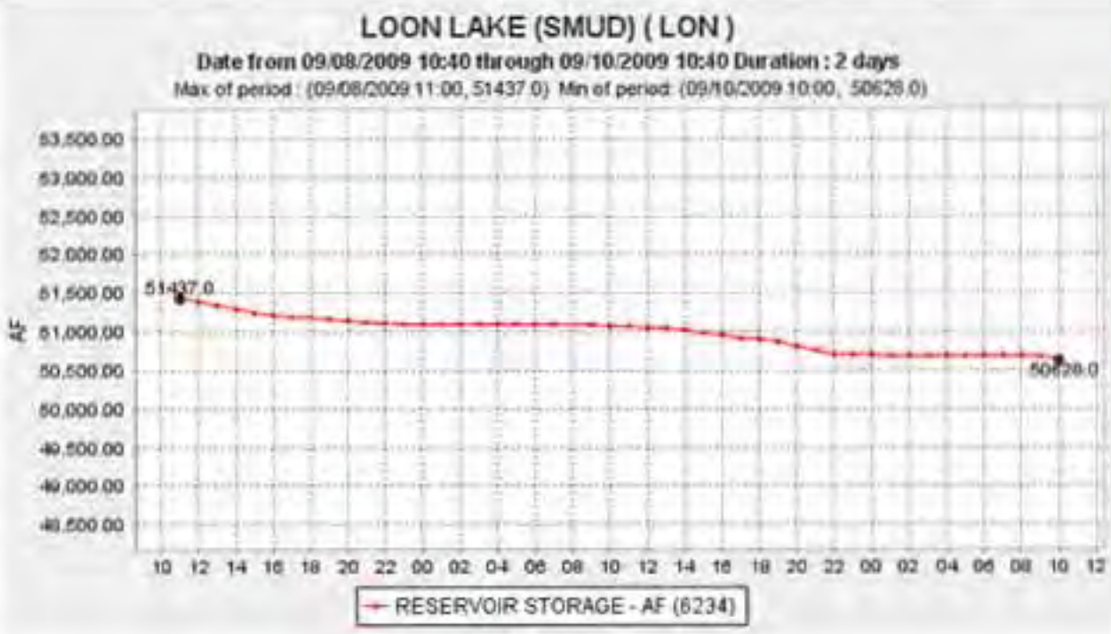
Loon Lake Reservoir: Level and Volume Information

Community

- **Recreational Areas**
  - Crystal Basin Recreation Area
  - Rancho Seco Recreational Area
  - Amanda Blake Memorial Wildlife Refuge
  - **UARP Stream Flow and Reservoir Elevation Info**
    - Streams:
      - South Fork, American River
      - Rubicon River
      - Little Rubicon
      - Gerle Creek
      - South Fork, Rubicon
      - Silver Creek
      - Brush Creek
    - Reservoirs:
      - Union Valley Reservoir
      - Ice House Reservoir
      - **Loon Lake Reservoir**
      - Slab Creek Reservoir
      - Chili Bar Reservoir
      - Gerle Creek Reservoir
      - Brush Creek Reservoir
      - Rubicon Reservoir
      - Buck Island Reservoir
- Art Exhibits
- Beautification
- Sponsorships
- Speakers Bureau
- Events

Descriptive text regarding this reservoir. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed commodo mi quis tellus elementum tincidunt. Vestibulum sem ipsum, ullamcorper non lacus ullamcorper, sollicitudin condimentum massa.. Donec ullamcorper nibh non aliquam luctus. Vestibulum interdum turpis mi.

Current Level	Current Volume	Current Air Temp.	Last Update
2,354 ft.	45,000 acre feet	62°	Dec. 19, 2014, 3:45 p.m.



DISCLAIMER: The information contained herein are estimates of stream flows and reservoir levels. Actual stream flows and reservoir levels may vary significantly from the estimates provided. Many factors affect flows and reservoir levels, including weather, snowmelt runoff, and the operating requirements of the hydro project. Reservoir and river recreation can be hazardous. It is the responsibility of the recreationist to determine whether conditions are safe to enter the water.

SWRCB Water Quality Certification Project No. 2101

CONDITION 7. STREAMFLOW AND RESERVOIR LEVEL INFORMATION
The Licensee shall, within one year of license issuance and after consultation and coordination with USFS and State Water Board staff, submit a Streamflow and Reservoir Level Information Plan to the Commission for providing, at a minimum, the following:

A) Real-time (15-minute increments and refresh rates or at the capacity of the reporting technology) lake stage height and storage information for each of the following reservoirs:

Rubicon Reservoir, Loon Lake Reservoir, Ice House Reservoir, Union Valley Reservoir, Gerle Creek Reservoir, Brush Creek Reservoir, Junction Reservoir, and Slab Creek Reservoir.

B) Installation of up to two simple staff gages for use by the public on each of the following stream reaches: SF Silver Creek below Ice House Reservoir Dam, and SF American River below Slab Creek Reservoir Dam.

C) Real-time (15-minute increments at refresh rates or at the capacity of the reporting technology) streamflow and reservoir level information that is available to the public year-round via toll-free telephone number or other appropriate technology approved by USFS.

D) Streamflow information in cfs on a website for the following UARP-related stream reaches:

- Rubicon River below Rubicon Reservoir Dam
- Little Rubicon River below Buck Island Reservoir Dam
- Gerle Creek below Loon Lake Reservoir Dam
- Gerle Creek below Gerle Creek Reservoir Dam
- SF Rubicon River below Robbs Peak Reservoir Dam
- SF Silver Creek below Ice House Reservoir Dam
- Silver Creek below Junction Reservoir Dam
- Silver Creek below Camino Reservoir Dam
- Brush Creek below Brush Creek Reservoir Dam
- SF American River below Slab Creek Reservoir Dam

The Licensee shall submit the Streamflow and Reservoir Level Information Plan to the Deputy Director for review and approval, after consultation with USFS and State Water Board staff, and prior to filing with the Commission. The Licensee shall provide the

Deputy Director with any comments provided by the USFS during the consultation process. The Licensee shall provide the Deputy Director with at least 90 days to review and approve the Streamflow and Reservoir Level Information Plan prior to submittal to the Commission, if applicable. The Deputy Director may require modifications as part of the approval. The Licensee shall file the Deputy Director's approval, together with any required Streamflow and Reservoir Level Information Plan modifications, with the Commission. Following Commission and Deputy Director approval of the plan, the minimum streamflow, recreational streamflow, and reservoir level schedules from Conditions 1 (Minimum Instream Flows), 4 (Recreation Streamflows), and 5, (Reservoir Levels) as well as the current water year type designation, shall also be published on the streamflow and reservoir information website.

USFS 4(e) Condition 51.1 Project No. 2101

The licensee shall be responsible for the following public information measures:

1. Streamflow and Reservoir Level Information

The licensee shall, within 1 year of license issuance, in consultation and coordination with FS, *SWRCB, and the Consultation Group provided under Section 4.12.1 of the Relicensing Settlement Agreement*, submit a plan to FERC for providing, at a minimum, the following:

a. Real-time (15-minute increments and refresh rates or at the capacity of the reporting technology) lake stage height and storage information for each of the following reservoirs: Rubicon Reservoir, Loon Lake Reservoir, Ice House Reservoir, Union Valley Reservoir, Gerle Creek Reservoir, Brush Creek Reservoir, and Junction Reservoir.

b. Installation of up to two simple staff gages for use by the public on each of the following stream reaches: South Fork Silver Creek below Ice House Reservoir Dam, and South Fork American River below Slab Creek Reservoir Dam.

c. Real-time (15-minute increments at refresh rates or at the capacity of the reporting technology) streamflow and reservoir level information that is available to the public year-round via toll-free telephone number or other appropriate technology approved by FS.

d. Streamflow information, in cfs, on a website, for the following Project related stream reaches:

- Rubicon River Below Rubicon Reservoir Dam
- Little Rubicon River Below Buck Island Reservoir Dam

- Gerle Creek Below Loon Lake Reservoir Dam
- Gerle Creek Below Gerle Creek Reservoir Dam
- South Fork Rubicon River Below Robbs Peak Reservoir Dam
- South Fork Silver Creek Below Ice House Reservoir Dam
- Silver Creek Below Junction Reservoir Dam
- Silver Creek Below Camino Reservoir Dam
- Brush Creek Below Brush Creek Reservoir Dam
- SFAR Below Slab Creek Reservoir Dam

The plan shall be approved by FS and SWRCB prior to filing with FERC. Following approval, the minimum streamflow and recreational streamflow schedules from Condition Nos. 27 and 50, as well as current water year type designation, shall also be published via website.

SWRCB Water Quality Certification Project No. 2155

CONDITION 11. Streamflow and Reservoir Level Public Information Services The Licensee shall, in consultation and coordination with the UARP Licensee (SMUD), BLM, State Water Board staff, and the Consultation Group[10], prepare a plan to provide public information on streamflow and reservoir level. The Licensee shall file the plan with the Commission within six months of license issuance. The plan shall be submitted to the Deputy Director for review and approval prior to filing with the Commission. The Licensee shall provide the Deputy Director with any comments received during the consultation process. The Deputy Director shall be provided with a 60-day review and approval period. The Licensee shall file the Deputy Director's approval, together with any required Plan modifications, with the Commission. If Deputy Director approval is not received 14 calendar days prior to an applicable Commission deadline, the Licensee may file the Plan with the Commission; however, Deputy Director approval is required prior to Plan implementation. The Licensee must amend its filing with the Commission if modifications are made as part of the Deputy Director's subsequent approval. The Licensee shall implement the Plan upon receiving all necessary approvals.

The plan shall include at a minimum, the following components:

A. Real-time lake stage height and storage information for Chili Bar Reservoir.

B. Installation of up to two simple staff gages for use by the public.

C. Real-time streamflow and reservoir level information that is available to the public year-round via a toll-free telephone number or other appropriate technology approved by BLM.

D. Streamflow information on a website, which is collected consistent with standard USGS gaging practices for the existing stream gage facilities downstream of Chili Bar Reservoir Dam (USGS gage 11444500 or its successor) that includes 15-minute increments and stream flows releases from the past seven days.

Following approval of the plan by the Deputy Director, the minimum streamflow and recreational streamflow schedules from Conditions 1 and 3 (Minimum Instream Flows and Recreational Streamflows), as well as the current water year type designation, shall be published via the website.

155 FERC ¶ 62,153
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Sacramento Municipal Utility District
Pacific Gas & Electric Company

Project Nos. 2101-116 and 2155-033

ORDER APPROVING STREAMFLOW AND RESERVOIR LEVEL INFORMATION PLAN

(Issued May 31, 2016)

1. On July 22, 2015, and supplemented May 24, 2016, Sacramento Municipal Utility District (SMUD), licensee for the Upper American River Hydroelectric Project No. 2101,[1] and Pacific Gas & Electric Company (PG&E), licensee for the Chili Bar Hydroelectric Project No. 2155,[2] (jointly referred to as licensees) filed a Streamflow and Reservoir Level Information Plan (Plan) pursuant to Article 401 of both licenses. The Upper American River Project consists of eight developments located on the Rubicon River, Silver Creek, and South Fork American River in El Dorado and Sacramento counties in central California. The Chili Bar Project is located in El Dorado County, California, near the town of Placerville.

Background

2. Article 401 of both licenses requires the licensees to submit with the Commission plans required by the California State Water Resources Control Board's (California Water Board) final section 401 Water Quality Certifications (WQC) conditions.[3] Article 401 of the Upper American River Project requires SMUD to submit plans required by the U.S. Forest Service's (Forest Service) final section 4(e) conditions.[4] The

[1] *Sacramento Municipal Utility District*, 148 FERC ¶ 62,070 (2014).

[2] *Pacific Gas & Electric Company*, 148 FERC ¶ 62,148 (2014).

[3] Ordering paragraph (D) of both licenses incorporates the conditions of the WQCs submitted by the California Water Board under section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1341(a)(1) (2012), as those conditions are set forth in Appendix A of both licenses.

[4] Ordering paragraph (E) of the Upper American River Project license incorporates the conditions submitted by the Forest Service under section 4(e) of the Federal Power *(continued ...)*

licensees may not implement these plans prior to Commission approval. The licensees shall include documentation that the licensees developed the plans or measures in consultation with the agencies identified and has received approval from the California Water Board and/or Forest Service, as appropriate. The Commission reserves the right to make changes to any plans or measures submitted. Upon Commission approval, a plan or measure will become a requirement of the licenses, and the licensees shall implement the plan or measure, or changes in project operations or facilities, including any changes required by the Commission.

3. WQC condition no. 7 and Forest Service condition no. 51.1 of the Upper American River Project license, in part, require SMUD to file within one year of license issuance and after consultation and coordination with the Forest Service and California Water Board a Streamflow and Reservoir Level Information Plan to the Commission for providing, at a minimum, the following:

A) Real-time (15-minute increments and refresh rates or at the capacity of the reporting technology) lake stage height and storage information for each of the following reservoirs: Rubicon Reservoir, Loon Lake Reservoir, Ice House Reservoir, Union Valley Reservoir, Gerle Creek Reservoir, Brush Creek Reservoir, Junction Reservoir, and Slab Creek Reservoir.

B) Installation of up to two simple staff gages for use by the public on each of the following stream reaches: South Fork Silver Creek below Ice House Reservoir Dam, and South Fork American River below Slab Creek Reservoir Dam.

C) Real-time (15-minute increments at refresh rates or at the capacity of the reporting technology) streamflow and reservoir level information that is available to the public year-round via toll-free telephone number or other appropriate technology approved by Forest Service.

D) Streamflow information in cubic feet per second (cfs) on a website for the following project-related stream reaches:

1. Rubicon River below Rubicon Reservoir Dam
2. Little Rubicon River below Buck Island Reservoir Dam
3. Gerle Creek below Loon Lake Reservoir Dam
4. Gerle Creek below Gerle Creek Reservoir Dam
5. South Fork Rubicon River below Robbs Peak Reservoir Dam
6. South Fork Silver Creek below Ice House Reservoir Dam

Act, as those conditions are set forth in Appendix B to the license.

7. Silver Creek below Junction Reservoir Dam
8. Silver Creek below Camino Reservoir Dam
9. Brush Creek below Brush Creek Reservoir Dam
10. South Fork American River below Slab Creek Reservoir Dam

4. SMUD must receive approval from the Forest Service and California Water Board before filing the Streamflow and Reservoir Level Information Plan with the Commission for approval. Forest Service Condition 51.1 also requires SMUD to prepare the plan in consultation with the Consultation Group[5] provided under Section 4.12.1 of the Relicensing Settlement Agreement.

5. WQC condition no. 11 of the Chili Bar Project license, in part, requires PG&E, in consultation and coordination with SMUD, the Bureau of Land Management (BLM), the California Water Board, and the Consultation Group, to prepare a plan to provide public information on streamflow and reservoir level. PG&E must file the plan with the Commission for approval and the California Water Board must approve the plan prior to implementation. The plan must include at a minimum, the following components:

A) Real-time lake stage height and storage information for Chili Bar Reservoir.

B) Installation of up to two simple staff gages for use by the public.

C) Real-time streamflow and reservoir level information that is available to the public year-round via a toll-free telephone number or other appropriate technology approved by BLM.

D) Streamflow information on a website, which is collected consistent with standard United States Geological Survey (USGS) gaging practices for the existing stream gage facilities downstream of Chili Bar Reservoir Dam (USGS gage 11444500 or

[5] The Consultation Group consists of the signatories to the Relicensing Settlement Agreement for the Upper American River Project and Chili Bar Project (filed with the Commission on February 1, 2007), including: American Whitewater, American River Recreation Association, Bureau of Land Management, California Department of Parks and Recreation, California Department of Fish and Wildlife, California Outdoors, California Sportfishing Protection Alliance, Camp Lotus, Foothill Conservancy, Forest Service, Friends of the River, U.S. Fish and Wildlife Service, U.S. Department of Interior, U.S. National Park Service, PG&E, Rich Platt, Hilde Schweitzer, Theresa Simsiman, and SMUD with the addition of the Central Valley Water Board, El Dorado County, and the California Water Board.

its successor) that includes 15-minute increments and stream flows releases from the past seven days.

6. Following the necessary approvals, the licensees must publish the minimum streamflow, recreational streamflow, and reservoir level schedules, as well as the current water year type designation, on the streamflow and reservoir information website.

Streamflow and Reservoir Level Information Plan

7. The Plan explains that SMUD will provide data from both licensees on a web server and interactive voice response (IVR) telephone system. SMUD will host the web server on SMUD's corporate public web site (www.smud.org). SMUD will host the IVR system and make it accessible to the public year-round by way of a toll-free telephone number. SMUD will manage both the website and IVR on the same servers as SMUD's corporate business websites and IVRs. SMUD maintains extensive internal information technology staff to support these servers.

8. The Plan identifies the units of measures and precision of the data that the licensees will provide. In addition, the Plan includes a detailed description of the website, IVR system, and hardware and information technology systems to support the website and IVR system. Finally, the Plan contains screenshots of the website, documentation of consultation regarding the Plan, including approval from the California Water Board and Forest Service, and a discussion on revising the Plan.

9. The licensees will provide streamflow and reservoir level information for the locations identified in the WQC and Forest Service conditions. The collection of the data will follow the methods and standards described in the Streamflow and Reservoir Elevation Gaging Plans for each project. The data posted on the website and included in the IVR system will consist of 15-minute increment values for the past seven days. The website will present these values graphically. In addition, for each location which provides lake stage height, the licensees will convert the most-recent lake stage height into acre-feet of water storage and present this information on the website and IVR system. The website will also include information on the minimum streamflow, recreational streamflow, and reservoir level schedules for each project, along with the current water year type. In addition, the website will include boat ramp elevation information for Ice House Boat Ramp, West Point Boat Ramp, Sunset Boat Ramp, Yellowjacket Boat Ramp, and Loon Lake Boat Ramp. Lastly, the licensees have jointly installed staff gages for use by the public at the locations required by the WQC and Forest Service conditions.

10. In addition to the internal website, SMUD has agreed to provide streamflow and reservoir elevation information to the California Data Exchange Center (California DEC). SMUD will continue to provide these data as long as California DEC is willing to host them at no cost to SMUD. In the event the California DEC ceases to host such data,

SMUD will provide the same data to a successor agency-based website provided it can do so at no cost.

Consultation

11. The licensees submitted a draft of the Plan to the Consultation Group on December 18, 2014 for review and comment, and to the California Water Board and Forest Service on February 6, 2015, for review and approval. The California Water Board approved the Plan in a letter dated February 19, 2015; however; the Forest Service required the licensees to take additional actions in a letter dated June 24, 2015. Subsequently, the licensee and the Forest Service spent several months working through these additional actions, in addition to items identified in a letter that the Forest Service filed with the Commission on January 7, 2016. The licensees' revised Plan, filed on May 24, 2016, resolves the Forest Service's concerns and was approved by the Forest Service in a letter dated April 6, 2016, and the California Water Board in a letter dated May 20, 2016.

Review

12. The licensees' Streamflow and Reservoir Level Information Plan adequately satisfies the requirements of Article 401 of both licenses, WQC condition no. 7 and Forest Service condition no. 51.1 of the Upper American River Project license, and WQC condition no. 11 of the Chili Bar Project license, and should be approved. The Forest Service approved the Plan on April 6, 2016, and the California Water Board approved the Plan on May 20, 2016. We remind the licensees that all revisions to the Plan must be prepared in accordance with the requirements of the license, WQC conditions, and Forest Service 4(e) conditions. This includes the Commission approving a revised Plan prior to implementation.

The Director orders:

(A) Sacramento Municipal Utility District's and Pacific Gas & Electric Company's Streamflow and Reservoir Level Information Plan for the Upper American River Hydroelectric Project No. 2101 and Chili Bar Hydroelectric Project No. 2155, filed May 24, 2016, pursuant to license Article 401 of both licenses, California State Water Resources Control Board's Water Quality Certification (WQC) condition no. 7 and U.S. Forest Service condition no. 51.1 of the Upper American River Project license, and WQC condition no. 11 of the Chili Bar Project license, is approved.

(B) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in section 313(a) of the Federal Power Act, 16 U.S.C. § 825*l* (2012), and the Commission's regulations at 18 C.F.R. § 385.713 (2015). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The licensees' failure to file a request for rehearing shall constitute acceptance of this order.

Kelly Houff
Chief, Engineering Resources Branch
Division of Hydropower Administration
and Compliance

Document Content(s)