

## ENGINEERING COMMITTEE

### AGENDA

Committee Meeting:  
Monday, November 23, 2015  
2:00 PM (Board Room)

Calaveras County Water District  
120 Toma Court / P.O. Box 846  
San Andreas, California 95249

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact the Administration Office at (209) 754-3028. Notification in advance of the meeting will enable CCWD to make reasonable arrangements to ensure accessibility for this meeting. Any documents that are made available to the Committee before or at the meeting, not privileged or otherwise protected from disclosure, and related to agenda items, will be made available at CCWD for public review.

### ORDER OF BUSINESS

#### CALL TO ORDER / PLEDGE OF ALLEGIANCE

1. **PUBLIC COMMENT**

At this time, members of the public may address the Committee on any non-agendized items. The public is encouraged to work through staff to place items on the agenda for consideration by the Committee. Comments are limited to five (5) minutes per person.

2. **APPROVAL OF MINUTES**

- Sept. 1, 2014 Minutes (none/no quorum)
- July 14, 2014 Minutes

3.\* **NEW BUSINESS**

3a. Douglas Flat / Vallecito Wastewater Treatment Plant Facilities

- Facilities Overview
- Sludge Handling Facilities
- Other Operational Considerations

4. **OLD BUSINESS**

Nothing to Report

5. **FUTURE AGENDA ITEMS**

- Proposed / Capital R&R Recap (FY 15/16) and Look Ahead (FY16/17)
- Other

6. **NEXT MEETING**

Proposed / Tuesday, February 2, 2016

7. **ADJOURNMENT**

\*Paperwork included in package

## CCWD ENGINEERING COMMITTEE

# Agenda Item

DATE: November 23, 2015  
TO: Engineering Committee  
FROM: Charles Palmer, P.E., District Engineer  
SUBJECT: Douglas Flat / Vallecito Wastewater Treatment Plant Facilities

---

### **Facility Overview**

During 2012 the Douglas Flat/Vallecito wastewater treatment facility underwent a \$4 million upgrade funded by the State Water Resources Control Board's Clean Water State Revolving Fund program. The improvements included: equalization basin, membrane bioreactor (MBR) system, UV disinfection system, belt filter press, site electrical improvements, and enlargement of the existing storage ponds. These improvements were necessary to meet more stringent water quality requirements imposed under state and federal law.

### **Equalization Basin**

The pre-existing 20,000-gallon Vallecito aeration basin was repurposed to provide equalization of wet weather sewer flows entering the plant. The basin was fitted with aluminum covers and equipped with three (3) influent pumps (approximately 100-gpm each).

### **Membrane Bioreactor (MBR) System**

The MBR system, manufactured by Ovivo, includes an anoxic basin, pre-air basin, two parallel membrane/bioreactor basins, a waste sludge basin and equipment skid. Air blowers on the equipment skid supply air to the two MBR basins for the biological treatment process. The twelve (12) flat plate submerged membrane units located inside the MBR basins provide a total filter area of 12,900 square feet and allow for a smaller, more compact footprint in comparison to conventional systems with secondary clarifiers and tertiary filters. The system produces Title 22 quality effluent with turbidity ranging from 0.03 to 0.10 NTU. Also, the anoxic basin allows treatment for nitrogen removal meeting our permit effluent limit of 10.0-mg/L.

### **UV Disinfection System**

The UV system, manufactured by Aquionics, consists of three (3) parallel in-line reactors plumbed directly into the effluent piping. Inside each UV reactor are four (4) medium-pressure, high intensity UV lamps in quartz sleeves. Instrumentation continuously measures effluent flow rate and transmittance/clarity, and computer controls automatically calculate and adjust the lamp output and UV dose. In May 2013, an on-site bioassay was conducted to validate the UV system; it was approved by the California Department of Public Health (CDPH) requiring a site specific target dose of 90-mJ/cm<sup>2</sup> for Title 22 reuse.

### **Sludge Handling & Disposal**

Several District facilities produce sludge as a result of treatment processes and septage from pumping septic tanks. Each facility operates a little differently on how it handles sludge. In past decades, sand beds were used to dewater and air dry sludge, which was a low cost method but did not function well in winter months. The Douglas Flat/Vallecito plant previously had a sand bed. In 2005, a belt press was installed at the Arnold sewer plant to mechanically dewater sludge and in subsequent years belt presses were added at other facilities.

A belt press was added during the upgrade of the Douglas Flat/Vallecito treatment plant. Initially, sludge was discharged from the press via a 6-inch diameter hose into a small concrete containment area. Periodically, sludge was loaded into a trailer and hauled away for disposal. However, it was found that any movement or slight disturbance of the sludge would generate odors; a masking agent was tried but failed to cover up the odors. Since then, further action has been taken to reduce odors, including installation of a fixed discharge chute/pipe off the end of the belt press and use of several trailers to store/contain the sludge. The area is kept cleaner and other measures taken by staff have reduced sludge handling, air exposure and reduced odors. Even small amounts of biosolids remaining inside empty trailers can cause odors. The District is currently evaluating options to wash empty trailers and parking locations away from homeowners. These additional measures are expected to further reduce odors emanating from the plant.

Biosolids disposal is performed by landfilling or land application and operating costs are significant for lab testing, hauling and disposal fees. Each landfill is independently operated and has its own criteria for testing and acceptance. Most biosolids generated by communities in Calaveras County are hauled outside the County for disposal. Inside the County, the Rock Creek landfill requires 80% dry solids for use of biosolids as alternative daily cover. Dewatered sludge off the belt press is under 80% dry solids and requires further time on-site to air dry. In recent years, the District has used Synagro, a national biosolids management company, to dispose of sludge at its Silva Ranch facility in Herald, CA. Synagro requires a 90-day sludge holding time before lab testing and another 30-days for final acceptance. The District is presently evaluating other options to reduce the amount of time required for temporary on-site storage and hauling away sludge sooner (as odors can develop with sludge age).

### **Site Electrical Improvements**

Electrical system improvements included a new 600-amp main PG&E service, new electrical building, new motor control center (MCC), and new Kohler standby power generator.

### **Storage Pond Expansion**

By removing an internal earthen berm and raising outside berms, the effluent storage pond was enlarged from 43.9 to 59.2 acre-ft allowing for a permitted flow of 75,000-gpd (ADWF) and 2-ft freeboard for 100-year annual rainfall event.

These and other infrastructure and operational considerations will be discussed at the Engineering Committee meeting.