San Simeon Community Services District

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February 27, 2007

Mr. Roger Briggs, Executive Officer
California Regional Water Quality Control Board
Central Coast Region
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401

STATE OF CALIFORNIA
CENTRAL COAST WATER BOARD
Received
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895 Aerovista Place, Ste. 101
San Luis Obispo, CA 93401-7906

Dear Mr. Briggs:

Per our February 1, 2007 meeting with Regional Water Quality Control Board Staff, we are responding to staff's request to provide a Compliance Project (CP) pursuant to Water Code Section 13385(k). If a CP is not approved by the RWQCB, then in the alternative the SSCSD proposes a Supplemental Environmental Project (SEP) pursuant to Water Code Section 13385(l).

We expect that the CP for this 200,000 gallon per day facility will cost ~$165,400 and be completed 12 – 18 months from approval, depending upon environmental and regulatory factors. It is SSCSD's position that it qualifies under the new definition of "small community" criteria – most notably, the "low population density in the service area of the publicly owned treatment works."

Below is a Compliance Project summary for your review. We intend to work cooperatively with the RWQCB to affect multiple solutions that: [a] solves the existing problems at the wastewater treatment facility and [b] permanently improves the water quality of its District and environs.

1. Installation of flow meter on gravity line to the Equalization Basin.
   An influent flow meter will provide an accurate account of flow entering the treatment plant versus the existing influent flow meter which provides only pumped flow from the Equalization Basin allowing for increased control of the treatment process and a better understanding of collection system conditions.
   Greyline AVFM –II Area Velocity Flow meter $7,500.00

2. Installation of new flow meter to measure flow into aeration basins.
   This would consist of purchasing and installation of a flow meter on discharge line from Equalization Basin pumps, including installation of wiring necessary to provide signal to flow chart and flow totalizer.
   Greyline DFM-IV Doppler Flow meter $6,500.00
   7 day monitoring chart $1,000.00

3. Installation of measuring weirs on outlet of each clarifier.

At present there is no method of determining the flow through each aeration basin and clarifier. In order to balance flows evenly between the aeration units there needs to be a means of measuring the flow. Installation of "V Notch" weirs on the outlet of each clarifier would allow for such measurement and balance of flow.

Fabrication and installation of "V" Notch Weirs	$4,000.00

4. Installation of Flow meter at outlet of CCC

The installation of a flow meter at the end of the Chlorine Contact Basin will allow for a more precise control of flow paced sodium hypochlorite dosing equipment.

Flow monitoring	$10,000.00
7 day monitoring chart	$1,000.00

5. Level sensor for Equalization Basin

This would consist of installation of level transducer, send signal to Variable Frequency Drive (VFD) units for Equalization Basin (EQ) pumps to control level in EQ basin.

Transducer, installation and programming	$7,000.00

6. Replacement of flow gates into each aeration basin

Due to the changing flow dynamics in the inlet channel, the original gates do not allow for proper distribution of flow into each of the aeration basins plus the fact that one of the gates has rusted out and requires replacement. Installation of a new type of flow distribution gates would allow for a more accurate distribution of flow into each aeration unit. Balanced flow through each of the aeration units is necessary for optimum process control and loading on each of the clarifiers with a net result of higher recovery of suspended solids prior to discharge from the clarifiers into the Chlorine Contact Chamber (CCC).

Design, fabrication, installation of new flow gates	$8,400.00

7. New VFD controlled pumps for Return Activated Sludge (RAS)

Return activated sludge is a function of a manually position ball valve which controls the amount of air provided to a air lift pump at the bottom of each secondary clarifier. Manually adjusted valves do not account for a diurnal flow pattern. The installation of a submersible electric pump in each secondary clarifier which are variable speed controlled based on influent flow would account for variations in influent flow.

Installation of 4 submersible electric pumps and VFDs	$20,000.00

8. Processed plant effluent water re-use system

In plant water re-use would reduce the demand on the potable water system

Installation of pumps and plant piping	$15,000.00

9. Influent Screening Installation

Influent screening would reduce the amount of material which collects in each basin and associated equipment while minimizing floating material on the surface of clarifiers and the chlorine contact chamber resulting in better air transfer in the reactor tanks and increased reliability of equipment downstream of the influent screener.

Including equipment, fabrication, installation $61,000.00

Disinfection Process (Chlorine Contact Chamber; chlorine dosage, chlorine residual measurement; de-chlorination)

The present physical configuration of Chlorine Contact Chamber (CCC) does not provide an effective means of providing disinfection to the treated effluent. Inherent design problems allow for some of the flow to travel from the inlet of the CCC faster than the balance of the flow. This is referred to a "short circuiting" and results in too short of a period of detention time for effective disinfection. This is due to the fact the serpentine channels are much wider and deeper than desired for effectively guiding the flow through the unit. At present, the chemical dosing pumps for the disinfecting chemical (Sodium Hypochlorite) and the de-chlorinating chemical (Sodium Bisulfite) must be manually adjusted dependent upon changes in flow and the quality of treated effluent.
The Chlorine Contact Chamber (CCC) is used to disinfect process wastewater flow received from the secondary clarifiers by providing contact time for process flow and Sodium Hypochlorite prior to final discharge to the ocean in effort to kill disease causing bacteria. Three factors affect the ability of the CCC to provide adequate disinfection:

1. The amount of flow entering the CCC (flow)
2. The amount of solids and bacteria in the flow (demand)
3. The amount of Sodium Hypochlorite being added (dose)

Flow, the first variable, is held somewhat constant by the use of the influent Equalization Basin (EQB) which serves to store influent flow during high influent flow periods and then pumps the stored flow into the actual treatment process during low flow periods. At this time the pumping rate of the EQB is manually adjusted. A manual increase in pumped EQB flow causes there to be a need to manually increase or decrease the amount of Sodium Hypochlorite added to the CCC. Operators are quite adept at adjusting the Sodium Hypochlorite dose to compensate for changes in flow; however, during certain periods it is possible for demand and or flow to outpace dose. This is demonstrated by the occasional Coliform Bacteria or Chlorine limit exceedance found in monthly monitoring reports.

The second variable, solids and, henceforth bacteria counts is dependent upon a number of things such as flow – when flow increases it typically caries more solids out of each clarifier into the CCC; solids remaining in the flow stream represents a demand for the chlorine used to disinfect. The more solids there are the higher the demand and, inversely, the lower the solids level in the flow stream, the lower the demand.

The third variable listed above is controlled through instrumentation to maintain enough milligrams per liter of water (mg/L) to maintain adequate disinfection.

Currently the amount Sodium Hypochlorite (item 3 above) is added (dosed) to the CCC by use of a single dosing pump that is manually adjusted in order to accommodate the variations in flow and demand entering the CCC.

The necessity to control dose is directly related to the above listed variable factors. As demand and flow increase and decrease, chemical dosage must be increased and deceased. Increasing and decreasing the dosage to pace demand and flow will allow a constant mg/L to be applied to the CCC, improving the effectiveness of the disinfection process is in destroying bacteria.

In an effort to remedy the above described problem which occasionally results in either a coliform or chlorine exceedance, staff suggests the addition of Sodium Hypochlorite analyzers to measure total chlorine residual, a programmable control unit (PCU) and a residual monitoring chart. The analyzer will measure the dosage being applied to the flow going into the CCC. The programmable control unit will read the dose as well as receive a signal of how much flow is entering the CCC. The programmable control unit then provides a calculated signal to the dosing pump to increase or decrease the amount of sodium hypochlorite therefore compensating for demand and flow, thus maintaining constant chlorine residual. The monitoring chart would provide a visual record of dosage/residual levels which will provide operators with information necessary to program the PCU.

10. Chlorine dosage control

    In order to automatically control the chlorine dosage pump, three things are needed: an electronic instrument with means of determining flow into or out of the CCC and sending out a 4 to 20 ml control signal; instrumentation to determine the chlorine residual at a yet to be determined point within the CCC and sending out a control signal and; a Programmable Control Unit (PCU) to receive flow and chlorine residual signal information and send out a control signal to the dosage pump.

    Installation of new Chlorine Analyzer that is capable of measuring Total Chlorine Residual in wastewater.

New Chlorine Analyzer	$5,000.00
Programmable Control Unit	$4,500.00
Installation	$2,500.00

11. To correct short circuiting and settling issues, there is a need to:

    Install additional channels within the existing CCC which would more effectively guide the flow through the unit.

    Estimated cost of fabrication/installation of new baffles $12,000.00

Sub Total $165,400.00

The above CP projects are in effort to correct a long-standing RWQCB concern about the secondary clarifiers, upgrade the disinfection facilities to current standards and increase the process control and treatment reliability. Given the success of the recently completed Immediate Improvement Projects, the SSCSD wishes to apply current penalties and previously allotted SEP penalty funds toward the above listed CP projects pursuant to Water Code Section 13385(k)

We would be available to meet your representative(s) towards that end at your earliest convenience.

Sincerely,

Charles Grace
General Manager
SSCSD

CC: SSCSD Board of Directors
Tom O'Neill, ECO Resources, Western Region Vice President
Rob Schultz, SSCSD, Council