

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF SEPTEMBER 10, 2004

Prepared August 18, 2004

ITEM NUMBER: 19

SUBJECT: Reissuance of Waste Discharge Requirements/NPDES Permit for South San Luis Obispo County Sanitation District Wastewater Treatment Facility, San Luis Obispo County--Order No. R3-2004-0050, NPDES Permit No. CA0048003.

KEY INFORMATION

Location: Adjacent to Oceano Airport, west of Highway 1
Type of Waste: Municipal
Design Capacity: 5.0 MGD
Present Volume: 2.8 MGD
Treatment: Secondary (primary and secondary clarification, trickling filters, chlorine disinfection)
Disposal: Pacific Ocean
Existing Orders: Waste Discharge Requirements Order No. 99-32

SUMMARY

The existing NPDES Permit, Waste Discharge Requirements Order No. 99-34 for the South San Luis Obispo County Sanitation District (District) expired July 9, 2004. This proposed Order No. R3-2004-0050 is the reissued permit. Proposed changes in requirements or discharge limits from the existing Order reflect changes to the California Ocean Plan, revision of secondary treatment standards specified in the Order, revisions to monitoring requirements, and required completion of chlorination/dechlorination facilities. These changes are described in detail below. The District shares a common outfall with the City of Pismo Beach. Discharge requirements specified in this Order are essentially the same as those proposed for the City of Pismo Beach Wastewater Facility. Monitoring requirements (receiving water, benthic sediment, benthic biota and outfall inspection) are identical to those specified for the City of Pismo Beach so that such monitoring can be coordinated between the two agencies, minimizing redundant effort and expense.

DISCUSSION

Purpose of Proposed Order: Order No. R3-2004-0050 is proposed as revised Waste Discharge Requirements (WDR) for South San Luis Obispo County Sanitation District, San Luis Obispo County. The proposed Order is based on the Ocean Plan as it applies to municipal dischargers and continues existing permit conditions with some additions (as described below).

Facility Description: The treatment system consists of primary clarification, trickling filter, secondary clarification and chlorine disinfection. Biosolids are anaerobically digested, dewatered and currently hauled to an off-site composting facility. The service area and facility process are depicted on Attachments A and B of the proposed Order.

The District and City of Pismo Beach discharge secondary effluent to the ocean, 4,400 feet off Pismo State Beach. The outfall terminates in the Pacific Ocean (35° 05' 85" N. Latitude, 120° 38' 75" W. Longitude) in approximately 55 feet (16.8 m) of water. The coordinates of this termination

point are slightly different from past orders due to the use of more precise measurement equipment.

Disinfection: The outfall was designed to preclude the need for disinfection. However, receiving water bacterial limit violations in 1992 prompted staff's concern regarding possible contamination of Pismo clams in the vicinity of the discharge. Staff requested California Department of Health Services' (DHS) aid in investigating shellfish tissue for bacterial contamination. In June 1992, DHS, Department of Fish and Game (DFG) and Regional Board staff performed a study of shellfish in the vicinity of the discharge. Results from this sampling effort indicated shellfish bacterial concentrations violated standards and the discharge may be impacting shellfish tissue.

To address this issue, the Sanitation District and City performed an extensive shellfish and seawater investigation to determine appropriate disinfection levels. Results from this study showed that a median fecal coliform limit of 200 MPN should adequately protect shellfish harvesting and recreational beneficial uses of the receiving waters, and allow the discharge to consistently meet receiving water and shellfish bacteria standards. Accordingly, the District's permit was revised in 1994 to specify disinfection limits of 200 MPN fecal coliform (median limit). Since that time, the District has remained in compliance with this standard.

However, that the District has not installed a chlorine contact chamber, and chlorination in the treatment process tanks or outfall has impaired treatment effectiveness and effluent quality. To address this problem, the District has reported (since 2000) its intent to design and construct appropriate chlorine contact facilities and has repeatedly budgeted funds to complete such a project. However, to date no chlorination/ dechlorination structure has been constructed. Therefore, the proposed Order includes a date-specific provision for completion of the chlorination/dechlorination structure or alternative disinfection facilities no later than November 30, 2005 (Provision F.5). The project (chlorination and dechlorination facilities standard to most municipal treatment works) is expected to a) improve treatment effectiveness, b) facilitate appropriate effluent monitoring to assure compliance with requirements, and c) improve

discharge quality.

Secondary Treatment Standards: Federal secondary treatment standards are based primarily on best available technology, rather than impacts to water quality. The federal requirements for secondary treatment of municipal wastewater (generally defined as biochemical oxygen demand and suspended solids of 30 mg/l monthly average) are based upon what is achievable with conventional treatment facilities. The standards reflect effluent quality achieved by conventional treatment plants throughout the nation (when the limits were developed more than 30 years ago). The federal regulations (40 CFR 133) also allow for alternate limits reflecting "treatment equivalent to secondary" to be considered for trickling filter facilities. Trickling filter facilities in some climates are not as effective as other secondary treatment processes for biochemical oxygen demand (BOD) and suspended solids removal. Alternate BOD and suspended solids standards are based in part on plant performance history and can allow for secondary treatment standards as follows:

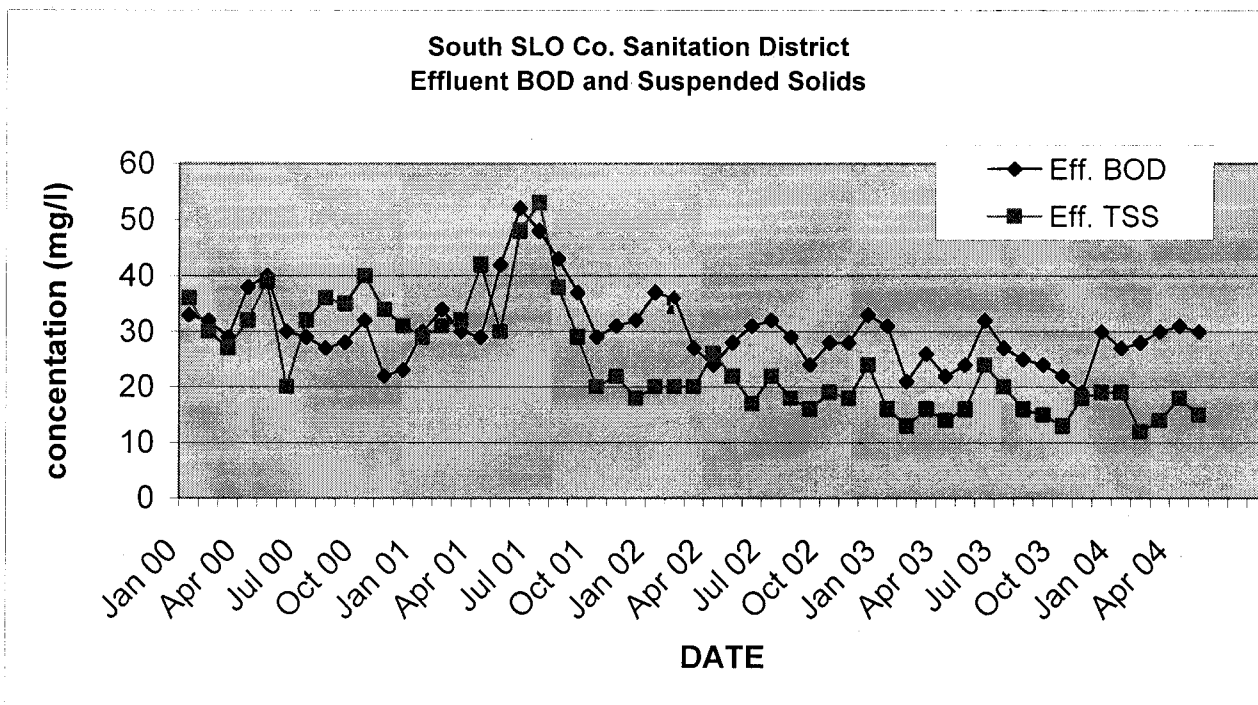
- BOD and suspended solids limits may be permitted up to a maximum 30-day average of 45 mg/l (standard secondary limit is 30 mg/l).
- BOD and suspended solids limits up to a maximum 7-day average of 65 mg/l (standard secondary limit is 45 mg/l).
- Average percent removal of suspended solids must not be less than 65% (standard secondary removal rate is 85%).

During the 1980s, the District rebuilt its treatment works, installing a trickling filter as the secondary treatment process. As noted above, trickling fillers qualify for alternative secondary effluent limitations. At that time, the Regional Board adopted the maximum alternate permit limits for BOD and suspended solids (45 mg/l 30-day average, 65 mg/l 7-day average) as a temporary measure until plant performance data were available as a basis for such limits. The minimum allowable removal efficiency of 75% was incorporated into the District's permit consistent with the California Ocean Plan. In 1994, the District's permit was reissued with alternate BOD and suspended solids limits of 45 and 40 mg/l respectively and suspended solids removal

efficiency of 80%. Those limits remain in the existing permit.

During design of the existing treatment facilities, U.S. EPA indicated that trickling filters on the Central Coast of California should be capable of meeting BOD and suspended solids limits of 35 mg/l (30-day average). At the same time, Regional Board staff informed the Discharger that due to the length, depth and design of the outfall structure, limits of 40 mg/l would be acceptable.

Treatment plant performance data for the past two years indicates that 30-day average effluent BOD and suspended solids concentrations have not exceeded 35 mg/l. During the past four years, BOD has occasionally reached 52 mg/l and suspended solids have reached 53 mg/l (as 30-day average). However, some of these incidents occurred during extended process upsets and are not representative of normal plant performance. Figure 1 depicts the District's BOD and suspended solids 30-day average data for the past four years.



When considering appropriate BOD and suspended solids limits for the District, it should be noted that it is unlikely that discharge of 45 mg/l BOD (the maximum allowable limit) will negatively effect the ocean receiving water. However, suspended solids concentration is particularly important because it effects the disinfection capability. The higher the suspended solids, the more difficult it is to achieve a high level of disinfection.

Disinfection with chlorine was started in 1992 to control effluent coliform levels. Since that time, the District has been using the secondary clarifier as a chlorine contact chamber because no separate contact facilities exist. This practice is not conventionally used since it requires more chlorine

to be used (due to higher suspended solids levels in the clarifier) and interferes with the settling process (causing higher effluent suspended solids).

Records indicate that in 1992, prior to chlorinating in the clarifier, effluent suspended solids concentrations averaged 22 mg/l. However, as indicated in Figure 1, average suspended solids levels have significantly increased due to the chlorination practice. Therefore, it may not be appropriate to base alternate BOD and suspended solids limits on recent effluent data since that data should not be considered representative of plant performance capability. Trickling filter facilities at the City of Paso Robles treatment plant (similar size, process configuration and customer base)

typically produce effluent BOD and suspended solids levels ranging from 4 mg/l to 27 mg/l (30-day average). Based upon a) performance by other trickling filter facilities, b) District performance prior to chlorinating in the clarifier, and U.S. EPA expectations regarding trickling filters, limits of 40 mg/l for BOD and suspended solids are included in the proposed Order and expected to be achievable by the facility without impacts to water quality.

As indicated in the 'Disinfection' discussion above, completion of appropriate chlorination and dechlorination facilities is expected to improve effluent quality and consistency.

Stormwater: Provisions are included in the proposed Order to continue implementing the stormwater pollution prevention program. The District directs all storm runoff from the treatment facility to the headworks. This eliminates the need for a separate permit specifically for stormwater discharges since stormwater discharges will be regulated by the proposed Order.

Sewage Spill Reporting: The proposed Order includes spill reporting language which has become standard in this Regional Board's permits over the past few years. The standard spill reporting requirements and report form are specified on page 9 of the Monitoring and Reporting Program. However, due to the District's limited collection system responsibility, guidance and requirements for collection system maintenance, spill prevention, and response plans is not specified as it is for joint collection and treatment agencies.

Other provisions of the proposed Order are carried over from the existing Order adopted in July 1999, except as described below and those standard for municipal facilities discharging to the ocean.

Monitoring and Reporting Program: The proposed Order includes Monitoring and Reporting Program No. R3-2004-0050; which specifies influent, effluent, sludge, receiving water, benthic sediment and benthic communities monitoring. Monitoring requirements are carried over from the existing Order, including waiver of shoreline monitoring.

Historically, the Discharger has performed shoreline monitoring for coliform bacteria. However,

coliform bacteria detected at shoreline sample stations, has historically been linked to adjacent creek discharges rather than the effluent discharge. This information, in conjunction with the length and configuration of the outfall (disinfected effluent discharged more than 3/4 mile offshore), leads staff to conclude that the shoreline monitoring is not representative of or particularly useful for evaluating water quality impacts from the discharge. Accordingly, shoreline monitoring is waived in the proposed Order, with wording carried over from the existing Order.

The remainder of the monitoring program is carried over from the existing Order and is identical to the monitoring program for the City of Pismo Beach, to facilitate coordinated monitoring efforts.

Outfall Inspection: Every three years, the Discharger performs a comprehensive outfall inspection, including divers and video documentation. Benthic sediment and communities are sampled at the same time. This tri-annual inspection and sampling last occurred in 2001 revealing no visible deterioration of the outfall structure. The tri-annual outfall inspection requirements are continued in the proposed Order.

Water Recycling: Currently, none of the District's treated wastewater is reused (recycled). However, the District received grant funding from the State Water Resources Control Board to evaluate recycling opportunities. A report submitted in 2001 summarizing findings of this recycling study, presented cost and non-economic factors associated with a variety of effluent recycling projects. Staff is not aware of any District plans to proceed with recycling projects. The installation of a separate chlorination/dechlorination structure will enhance the District's ability to recycle in the future.

Brine Disposal: The District has, for several years, accepted water softening brine for disposal through the ocean outfall. The volume of brine is small and not likely to alter effluent dispersion characteristics. However, the point of discharge into the outfall is downstream from the effluent sampling location. Therefore, the brine discharges are not reflected in the District's monitoring reports. Provision F.6 is added to the proposed Order, requiring development and implementation of an ongoing brine monitoring and control program, which shall be submitted for

review and approval of the Executive Officer by October 10, 2004.

Proposed Changes to Requirements: The proposed Order incorporates changes in requirements due to revised secondary treatment standards, revised Ocean Plan and corresponding

revisions to monitoring requirements. The following are the specific changes proposed and the corresponding rationale for those changes:

Change	Section	Rationale
1. Effluent Limitations revised as follows: BOD 30-day avg. from 45 mg/l to 40 mg/l.	WDR, Section B.1	Revised alternate secondary standards in accordance with 40 CFR 133, see discussion under 'Secondary Treatment Standards' above.
2. Acute Toxicity effluent limitations of the existing Permit (1.5 TUa 30-day avg, 2.0 TUa 7-day avg, and TUa 2.5 daily max) are replaced with a 5.25 TUa daily max.	WDR, Section B.2	Acute Toxicity is now a Water Quality Objective (with an associated dilution credit) as revised in the 2001 Ocean Plan.
3. Effluent limitations for the following constituents are added to or more stringent than those stated in the existing Permit: thallium, isophorone, tetrachloroethylene, chlorodibromomethane, 1,2-dichloroethane, N-nitrosodi-N-propylamine, dichlorobromomethane, 2,4,6-trichlorophenol, 1,1,2,2-tetrachloroethane, 1,1,2-trichloroethane, 1,1-dichloroethylene, heptachlor.	WDR, Section B.2	Water Quality Objectives for these constituents reflect changes in the updated (2001) Ocean Plan. It should also be noted that the silver limit is revised to correct an error in the existing permit and footnotes are added to clarify requirements.
4. All requirements pertaining to local sewerage entity collection system maintenance are deleted from the proposed Order.		Separate WDR proposed to regulate sewerage entities (Cities of Arroyo Grande and Grover Beach and Ocean CSD).
5. Provision added requiring completion of chlorination/dechlorination facilities.	WDR, Section F.5	See discussion under 'Disinfection and Secondary Treatment Standards' above.
6. Provision added requiring development and ongoing implementation of brine monitoring and control program.	WDR, Section F.6	See discussion under 'Brine Disposal' above.
7. Modifications to the monitoring program corresponding to changes in requirements and reduction in Acute Toxicity monitoring frequency.	MRP	Chronic Toxicity (detecting subtle changes in organism health) is more sensitive than Acute Toxicity (measured by death of the organism) and will continue semi-annually. Acute Toxicity monitoring frequency is reduced to once in the life of the permit.

COMPLIANCE STATUS

The District's compliance history during the past five years has included consistent compliance with effluent limitations, with the exception of a period during 2001 when effluent failed to meet BOD and suspended solids limits. Investigation by treatment plant staff into the cause of reduced treatment efficiencies, revealed excessive larval populations within the secondary treatment unit that were impairing its effectiveness. This problem was

resolved and compliance restored. Since that time, the Discharger has operated the treatment facility without significant discharge violations of any sort. In December, 2003, the treatment facility sustained damage during the San Simeon Earthquake. However, facility repairs were completed quickly and without incident.

In addition to regular water quality monitoring reports, the existing Order requires submittal of reports intended to assure ongoing maintenance of

the collection system, spill prevention, and evaluation of industrial discharges into the collection system. The Discharger has not submitted its Industrial Waste Survey (due July 9, 2000) and the local sewerage entities (Arroyo Grande, Grover Beach and Oceano) have not submitted semi-annual Infiltration/Inflow and Spill Prevention Program Reports.

On May 25, 2004, the Discharger submitted an update of its Industrial Waste Survey and summary of changes to its pretreatment program activities. This submittal implements the Pretreatment Specifications required in the existing (and proposed) Orders.

After issuance of Notices of Violation (in March 2004) regarding failure to submit collection system reports, the local sewerage entities did submit summary reports. Requirements for the Cities of Arroyo Grande and Grover Beach and Oceano Community Services District are addressed separately in Agenda Item No. 22.

ENVIRONMENTAL SUMMARY

Waste discharge requirements for this discharge are exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21100, et. seq.) in accordance with Section 13389 of the California Water Code.

The proposed action is not expected to reduce water quality since more stringent discharge limitations are proposed. Therefore, complete antidegradation analysis is not required for the issuance of this Order.

COMMENTS

So. SLO Co. Sanitation District – In addition to the comments below, the Discharger provided minor editorial comments and corrections, which have been incorporated into the Staff Report and proposed Order where appropriate. The Discharger's comment letter is included as Attachment 3.

1. The Discharger requests that effluent limits remain the same as in the existing permit for BOD and suspended solids (45/40 mg/l monthly average and 60/60 mg/l weekly

average, respectively). However, the Discharger does not object to BOD monthly average limit being reduced from 45 mg/l to 40 mg/l. The request is based upon a) effort and expense required in meeting existing limits; b) water conservation measures will increase influent concentrations and combined with increasing flows may jeopardize compliance; c) the treatment facility was designed for 40/40 mg/l BOD/suspended solids monthly average and redesigned in 1990 using design criteria of 45/45 mg/l; d) lowering the limits to 35/35 mg/l may cause undue risk of violations; e) the proposed lower limits are unlikely to have associated water quality benefits.

Staff Response: The draft proposed Order circulated for public comment included revised BOD and suspended solids limits of 35 mg/l monthly average and 53 mg/l weekly average based upon criteria described in the discussion of "Secondary Treatment Standards" above. However, it is unlikely that the less stringent limitations of 40 mg/l monthly average and 60 mg/l weekly average BOD and suspended solids will impact water quality, and federal regulations do allow for such limits. Therefore, the only proposed change from the existing limits is reducing BOD from 45 to 40 mg/l monthly average. In accordance with 40 CFR 133, these limits should be re-evaluated during permit renewal (every five years) to assure that the basis of such limits remains valid (limits should reflect plant performance and effluent quality attainable). Note that the bases of the Discharger's request for less stringent alternative secondary limits, described as (a) through (e) above, does not reflect those considerations specified in the federal code.

2. The District has demonstrated its commitment to water quality by optimizing treatment plant performance. Such performance optimization includes current plans to install a chlorine contact chamber by November 2005, relocating the brine injection point, and evaluating and enhancing the Pretreatment Program.

Staff Response: No request for changes is included in the comment and the Discharger's comments are noted. The comment indicates the District's intent to comply with permit conditions.

3. The District requests some modifications to monitoring schedules to accommodate improved efficiency, safety during ocean to sampling, and biosolids monitoring during dry weather. These revisions include semi-annual chronic toxicity monitoring in April/October (formerly January/July), benthic sediment monitoring between July-October (formerly September-October), and biosolids monitoring in July (formerly October).

Staff Response: Staff agrees and the proposed changes are incorporated into the proposed Order and Monitoring and Reporting Program, as well as the Order proposed for the City of Pismo Beach. These minor changes in monitoring timing will provide for more convenient, less costly and safer sampling.

4. Construction of the chlorine contact structure is scheduled to be completed in November 2005. Accordingly, the District will be unable to meet the September 10, 2005, completion date specified in the draft circulated for comments.

Staff Response: The proposed Order is revised to reflect the project completion date of November 30, 2005 (Provision F.5). Completion of a chlorine contact chamber does not change effluent limits. However, reduced effluent quality (due to chlorinating in the final clarifier) should not be considered as basis for less stringent secondary treatment standards.

5. The chlorine structure project will include facilities to inject brine into the outfall upstream of the effluent sampling location. The District plans to develop a brine monitoring program by January 1, 2006, to coincide with completion and operation of the new chlorine contact facilities.

Staff Response: The District subsequently submitted a brine disposal plan on August 13, 2004, with plans to update the plan after completion of the chlorine structure (by November 2005). The brine disposal plan allows water softening brine haulers to discharge brine into the outfall, after application approval by the District. After initial characterization of the brine, monthly salts monitoring and annual metals monitoring by the

brine haulers is required. The District has not been sampling combined (effluent and brine) discharges because it mistakenly believed BOD sampling must occur upstream from chlorination. In fact, most facilities perform BOD sampling downstream of chlorination so as to be representative of discharge after the last point of treatment. In order to assure effluent monitoring is representative of the entire discharge, expanded language is added to the proposed Monitoring and Reporting Program to clarify the issue (under Effluent Monitoring heading).

6. Collection system operations and management are the responsibility of the District's member agencies (Cities of Arroyo Grande and Grover Beach and Oceano CSD) to be regulated under separate order. Therefore, the District requests that requirements to report overflows from the collection system be deleted from the proposed Order.

Staff Response: The District owns and maintains several miles of trunk lines transporting wastewater from member agency collection systems to the treatment plant. The proposed Order requires reporting of sewage spills from the District's own collection system. Similar reporting requirements are specified for the member agencies in separate waste discharge requirements (see Agenda Item No. 22). Accordingly, no change to the proposed Order results from this comment.

In addition to the changes described above, Effluent Limitations B.4 and B.5 are added to provide clarification regarding Mass Emission Rates and violations reporting. The added paragraphs seek to clarify existing requirements above and beyond the brief definition provided in Standard Provisions. Also, the spill reporting requirements specified in the MRP (page 9) were inadvertently omitted from the draft circulated for public comments, but are included as described in the "Sewage Spill Reporting" section on page 4, above.

SLO Co. Planning – No comments received
 SLO Co. Envi. Health – No comments received
 SLO Co. Public Works – No comments received
 U. S. EPA – No comments received
 CA DHS – No comments received
 CA Fish & Game – No comments received
 TetraTech – No comments received

SWRCB – No comments received
U. S. Fish & Wildlife – No comments received
City of Pismo Beach – No comments received
City of Arroyo Grande – No comments received
City of Grover Beach – No comments received
Oceano CSD – No comments received
Rayne – No comments received

RECOMMENDATION

Adopt Waste Discharge Requirements Order No. R3-2004-0050 as proposed.

ATTACHMENTS

1. Proposed Order No. R3-2004-0050 with Attachments
 - A. Facility Location Map
 - B. Treatment Facility Processes Diagram
 - C. MRP No. R3-2004-0050
 - D. Sewage Overflow Report
2. Standard Provisions and Reporting Requirements for NPDES Permits
3. South San Luis Obispo County Sanitation District comment letter dated August 3, 2004

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