STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF DECEMBER 1, 2011
Prepared on October 25, 2011

ITEM NUMBER: **13**

SUBJECT: **Reissuance of Waste Discharge Requirements for Laguna County Sanitation District Wastewater Reclamation Plant, Santa Barbara County (Order No. R3-2011-0217)**

STAFF CONTACT: **Sorrel Marks 805/549-3695 or smarks@waterboards.ca.gov**

KEY INFORMATION

Location:	3500 Black Road, Santa Maria, CA 93455
Facility Name:	Laguna County Sanitation District Wastewater Reclamation Plant
Type of Waste:	Domestic wastewater from residential and commercial sources
Treatment:	Screening, primary clarification, trickling filters, secondary clarification, polishing pond, tertiary filtration, membrane bioreactor, reverse osmosis, and disinfection using ultraviolet light
Disposal/Reuse:	Pasture irrigation and unrestricted reuse for landscape irrigation, agricultural purposes, and oil production processes
Capacity:	Average flow of 3.7 million gallons per day (MGD)
Existing Order:	Waste Discharge Requirements Order No. 01-042
Recycling Requirements:	Master Reclamation Permit included in existing Order

This Action: **Reissue and update Waste Discharge Requirements**

SUMMARY

Discharge from Laguna County Sanitation District's wastewater reclamation plant is currently authorized by Waste Discharge Requirements (WDR) Order No. 01-042. The revised Order, No. R3-2011-0217, is proposed to update and revise the ten-year-old requirements.

DISCUSSION

Facility Description – Laguna County Sanitation District provides wastewater collection and treatment service to the Orcutt area, unincorporated Santa Maria, and portions of the City of Santa Maria. The main treatment system consists of initial screening, primary clarification, trickling filter, secondary clarification, polishing pond, tertiary filtration, and disinfection using ultraviolet light. A portion of the influent flow (that with the highest salts content) is diverted to the salts-reducing treatment system, which consists of a membrane bioreactor with tertiary filtration and reverse osmosis. This flow is then recombined with the main treatment system flow prior to the disinfection process. The treatment plant design capacity is 3.7 million gallons per day (MGD) and current flows average approximately 2.1 MGD. Treated wastewater is discharged to

permanent pasture adjacent to the treatment facilities or distributed to a variety of users for landscape irrigation, agricultural purposes, or oil-production processes. Approximately 380 MG storage capacity is available for seasonal high flows or when demand for recycled water is low. Solids separated in the treatment processes are further treated in anaerobic digesters, dried and periodically transported to a composting facility for beneficial reuse. Brine from the reverse osmosis process is disposed of in a Class 1 non-hazardous injection well regulated by the USEPA.

Local Hydrogeology - The Santa Maria groundwater basin lies in a coastal valley in northwestern Santa Barbara County and southwestern San Luis Obispo County. The valley is characterized by a broad alluvial plain near the ocean that tapers gradually inland. The Santa Maria River traverses the valley from east to west, emptying into the Pacific Ocean just west of the City of Guadalupe. The Santa Maria groundwater basin is divided into five sub-basins (the Santa Maria, Orcutt, Lower Nipomo Mesa, Cuyama Valley, and the Upper and Lower Guadalupe sub-basins). This discharge is located near the border between the Orcutt Sub-area and the Upper Guadalupe Sub-area of the Santa Maria Sub Basin.

The Water Quality Control Plan, Central Coast Basin (Basin Plan) specifies median groundwater quality objectives for both the Orcutt and Upper Guadalupe sub-areas. The Discharger utilizes a network of groundwater monitoring wells (shown on Attachment A of the Order) to characterize upgradient and downgradient groundwater quality and evaluate compliance with waste discharge requirements. However, surrounding and historic land uses as well as hydrogeologic features (such as perched water and clay lenses) make it difficult to differentiate between impacts resulting from different sources. Water quality objectives and data from samples collected in May 2010 are summarized below (all data is presented in mg/L).

Sample Site	**TDS**	**Sodium**	**Chloride**	**Sulfate**	**Boron**	**Nitrogen**
Basin Plan Objective for Orcutt Sub-area	740	65	65	300	0.1	2.3
Basin Plan Objective for Upper Guadalupe Sub-area	1000	230	165	500	0.50	1.4
Upgradient Groundwater	826	186	235	130	0.33	1.3
Downgradient Groundwater	1,873	303	486	541	0.36	2.5
Laguna Effluent Limit (existing)	900*	180*	150*	300	0.5	NA
Laguna Effluent Limit (proposed)	900*	180*	180*	300**	0.5**	NA
Santa Maria WWTP Effluent Limit	1000	180	180	---	---	---

* Based upon a 12-month running mean.

** Recycled Water Limitation

Salts Issues – For decades, more salts have been imported into the Santa Maria basin from various sources (e.g., state water, water-softener salt, and chemical fertilizers) than are carried away by drainage water. Also, irrigated agriculture throughout the basin results in increased salts concentration, due to plant uptake and evapotranspiration of water and residual salts remaining in the soil or being flushed to groundwater. The overall salt imbalance has resulted in a deterioration of groundwater quality in the Santa Maria Valley. A groundwater quality study of the Santa Maria basin and its sub-basins was conducted in the 1980s. As a result of this effort, the Water Board revised numerical groundwater quality objectives for the Santa Maria groundwater basin by Resolution 86-03, as reflected in the water quality objectives shown above. The Discharger has

implemented various programs to control salt discharges from the wastewater treatment facility, such as public education and outreach, a sewer use ordinance, salts reduction studies, and reverse-osmosis treatment. These actions have resulted in a marked improvement in effluent quality discharged from the wastewater reclamation plant, but have fallen short of compliance with effluent limits specified in the existing Order. The proposed Order includes provisions requiring implementation of best management practices for minimizing salts discharges, in order to help reduce the overall salts imbalance in the valley. Also, the proposed Order calls for coordination of salt management efforts with stakeholders throughout the area, as described below under the discussion of the Recycled Water Policy.

Nitrogen Issues – The discharge is typical of municipal wastewater in that it contains significant concentrations of nitrogen that, if not adequately reduced, may impact underlying groundwater quality. Some nitrogen reduction occurs in the treatment processes and some nitrogen reduction occurs through natural processes in the soil column below the discharge and reuse areas. However, the wastewater facility is surrounded by agricultural growing area and differentiation between municipal and agricultural sources of nitrogen is difficult. The proposed Order calls for coordination of salt and nutrient management efforts with stakeholders throughout the area, as described below under the discussion of the Recycled Water Policy. As indicated below, nitrogen monitoring of influent and effluent is added to the proposed Order to facilitate nutrient management in discharge and reuse areas.

Existing Order – Discharge from the District's wastewater facility is currently authorized under Waste Discharge Requirements Order No. 01-042. Order No. 01-042 requires the Discharger to comply with prohibitions, discharge specifications, recycled water specifications, recycled water user requirements, and provisions; and limits the discharge to the current design capacity of 3.7 MGD. Existing conditions that are proposed to be carried over and conditions proposed to be revised are described in the corresponding sections below.

Compliance History – Prior to construction of the current treatment processes, the District estimated effluent quality and those estimates were incorporated into the existing Order as salts limits (total dissolved solids, sodium and chloride). The District has been operating the new (salts reducing) treatment processes for nearly ten years and has been unable to consistently comply with the chloride limit of 150 mg/L. The District has repeatedly performed influent monitoring and other strategies to identify peak salts-loading so that those flows can be treated through the reverse-osmosis processes. Additionally, the District has implemented public education actions and developed an ordinance regarding use of self-regenerating water softeners. The water softener control ordinance is expected to be adopted November 1, 2011, and includes a prohibition of self-regenerating softeners in new development and a rebate incentive for switching existing regenerating units with canisters. These actions have significantly reduced effluent salts concentrations and are consistent with the highest level of salts reduction implemented elsewhere within the Central Coast region. Performance of the District's conventional treatment facilities is excellent, and consistent compliance is demonstrated with other specified limitations.

Continuing Conditions - The proposed Order continues existing prohibitions that limit the discharge to authorized disposal and reuse areas and prohibits bypass of the treatment units. Effluent limitations for settleable solids, total dissolved solids, sodium, pH, and dissolved oxygen are continued as specified in the existing Order. Recycled water limitations for BOD, suspended solids, settleable solids, sulfate, boron, coliform bacteria and turbidity are also carried over from

the existing Order. The groundwater limitations are also continued from the existing Order. The updated Order also carries over pretreatment specifications, recycled water prohibitions, recycled water specifications, user requirements, standard provisions, and most of the existing monitoring and reporting program.

Changes in the Proposed Order – Order No. R3-2011-0217 proposes revised effluent limitations for BOD and suspended solids to reflect standard secondary treatment (performance) limits of 30 mg/L monthly average and 90 mg/L daily maximum. The existing Order specifies 40/100 for average/maximum limits respectively prior to completion of the tertiary treatment upgrade and 10/25 after the tertiary treatment upgrade. These revised BOD and suspended solids limits are well within the performance capability of the treatment facility and will provide for some consistency with the reuse requirements calling for "biological oxidation." As indicated above, the more restrictive limits of 10/25 are carried over in the recycled water limitations. Effluent limits for oil and grease are deleted as the existing limits are not needed (due to land discharge) or required by applicable regulations.

The proposed Order revises the chloride limit from 150 to 180 mg/L. As described above, the District implements extensive salt-reducing measures but has been unable to meet the 2001 estimated average value of 150 mg/L. The revised chloride limit is consistent with that of the neighboring City of Santa Maria Wastewater Facility and significantly lower than existing background water quality concentrations. To address the basin-wide salts issue, the proposed Order includes expanded requirements to implement a salt and nutrient management program and provides for salt/nutrient management efforts to be coordinated with activities required by the State Water Board Recycled Water Policy, described in detail below. The Recycled Water Policy is described in Finding No. 21, 22, and 23, and salt and nutrient management requirements are specified in Section F, beginning on page 12 of the proposed Order.

The State Water Board's Recycled Water Policy (Resolution No. 2009-0011) is intended to support the Strategic Plan priority to promote sustainable local water supplies and encourage beneficial use of, rather than solely disposal of, recycled water. The Recycled Water Policy calls for the development of regional groundwater basin/sub-basin salt and nutrient management plans through collaborative stakeholder processes.

Under the Recycled Water Policy, the Santa Maria groundwater basin is identified as a priority basin for which a stakeholder-developed management plan must be developed. Laguna County Sanitation District is a significant stakeholder in the vicinity and has already developed and implemented considerable salt management efforts (as described above). The proposed Order is designed to facilitate cooperative salts management efforts without duplicative actions.

Biosolids monitoring (required in the existing Order) is streamlined in the proposed Order in a manner consistent with other municipal wastewater facilities throughout the Central Coast Region and to facilitate evaluation of compliance with Federal requirements for sewage sludge disposal (40CFR 503). The proposed boisolids specifications represent reduced monitoring and a cost saving for the Discharger, while continuing to provide adequate information for compliance evaluations.

The District is enrolled in the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems that specifies management practices designed to preclude water quality

impacts resulting from discharges from the collection system. Enrollment in the statewide General Order is summarized in Finding No. 28.

District and Water Board staffs anticipate long-term compliance with the proposed discharge and recycled water requirements.

Monitoring Requirements – Water supply monitoring is deleted entirely as such data is available from other sources. Influent monitoring for total nitrogen (annually) is added to facilitate evaluation of treatment facility nutrient reduction and nutrient management planning. Effluent monitoring for settleable solids (weekly) is added to facilitate compliance evaluation; this constituent was omitted from the existing requirements. Effluent pH monitoring is reduced from weekly to monthly as this constituent does not fluctuate rapidly and past monitoring indicates that less-frequent samples will adequately characterize effluent compliance while providing cost saving and convenience for the Discharger. Annual effluent monitoring for CEC (Constituents of Emerging Concern) is added to the proposed Order as called for in the State Water Board's Recycled Water Policy. Effluent monitoring for grease and oil, silver, phenols, organochlorine pesticides, and PCBs is eliminated, since there are not proposed applicable limitations for these constituents and past monitoring indicates the discharge is consistently well within corresponding water quality parameters. Monitoring of disposal pond freeboard, not specified in the existing Order, is weekly in the proposed Order. Groundwater constituent monitoring is proposed to continue (annually) and participation in region-wide salts/nutrient management planning effort is included as an alternative to individual implementation of groundwater monitoring. The Biosolids Monitoring section of the proposed Order is streamlined from the existing requirements and calls for characterization of the biosolids for compliance with federal requirements (40CFR 503).

ENVIRONMENTAL SUMMARY

These waste discharge requirements are for an existing facility and are exempt from provisions of the California Environmental Quality Act (Public Resources Code Section 21100, et. seq.) in accordance with California Code of Regulations, Title 14, Chapter 3, Section 15301. In April 2000, Santa Barbara County approved a Mitigated Negative Declaration for the facility upgrade. The Water Board is a responsible agency for the purposes of CEQA, and has included requirements in the proposed Order to protect waters of the state.

PUBLIC NOTIFICATION

On September 19, 2011, Central Coast Water Board staff notified the Discharger and all known interested parties of its intent to revise waste discharge requirements for the Laguna County Sanitation District Wastewater Reclamation Plant. The notice provided interested agencies and individuals with a copy of the proposed order and an opportunity to submit written views and comments by October 20, 2011. No comments were received regarding the proposed Order.

ATTACHMENTS

1. Draft WDR Order No. R3-2011-0217 w/Monitoring & Reporting Program