STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF FEBRUARY 4, 2010
Prepared on January 5, 2010

ITEM NUMBER: **13**

SUBJECT: **Reissuance of Waste Discharge Requirements for the City of Santa Maria Wastewater Facility, Santa Barbara County (Order No. R3-2010-0001)**

KEY INFORMATION

Location:	601 Black Road, Santa Maria, CA 93454
Facility Name:	City of Santa Maria Wastewater Facility
Type of Waste:	Municipal wastewater
Treatment:	Primary treatment using clarifiers, roughing filters, secondary (biological) treatment using trickling filters and secondary clarifiers
Disposal:	120 acres of percolation ponds
Current Design Flow:	Average flow of 9.5 million gallons per day (MGD)
Expanded Design Flow:	Average flow of 13.5 MGD (currently under construction)
Existing Order:	Waste Discharge Requirements Order No. R3-2002-0111
Recycling Requirements:	Not applicable at this time
This Action:	**Reissue and update Waste Discharge Requirements**

SUMMARY

Discharge from the City of Santa Maria's municipal wastewater facility is currently authorized by Waste Discharge Requirements (WDR) Order No. R3-2002-0111. The revised Order, No. R3-2010-0001, is proposed to update the seven year old requirements and provide authorization for discharge from the expanded wastewater facility currently under construction. The proposed revised order is also an improvement over the existing order in its provisions for salts and nutrients management.

DISCUSSION

Facility Description - The Discharger (City of Santa Maria) provides wastewater collection, treatment, and disposal services for the City of Santa Maria, Santa Maria Airport District, and part of the Laguna County Sanitation District. The wastewater treatment plant is located approximately three miles west of Santa Maria (see Attachment A of the Order). Wastewater treatment processes include bar screens, grit removal, primary clarification, roughing filters, trickling filters (biological secondary treatment) and secondary clarification. All treated wastewater is discharged to 17 disposal ponds located on approximately 120 acres adjacent to the treatment facility. The Discharger has acquired 150 acres of additional disposal area in anticipation of future expansion and to offset increasingly slower percolation rates of the existing ponds. Wastewater solids are anaerobically digested and dried onsite. Some of the treated solids, referred to as biosolids, are transported to Engel & Gray composting facility (adjacent to the treatment plant) where they are mixed with green waste and converted to soil amendment. The remainder of the biosolids is used for soil amendment in the vegetative cover at the Santa Maria Landfill.

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). The discharge is located within the Upper Guadalupe sub-basin.

The Water Quality Control Plan, Central Coast Basin (Basin Plan) specifies groundwater quality objectives for the Upper Guadalupe sub-basin. The Discharger utilizes a network of four groundwater monitoring wells (shown on Attachment A of the Order) to characterize underlying groundwater and to evaluate compliance with waste discharge requirements. Water quality objectives and data from samples collected in December 2008 are summarized below (all data is presented in mg/L).

Sample Site	TDS	Sodium	Chloride	Sulfate	Boron	Nitrogen
Well 5H (background)	1160	74	47	430	0.24	13
Well UMW #1	897	170	174	160	0.42	0.17
Well DMW #1	1070	160	164	220	0.48	14
Well DMW #2	986	160	165	220	0.48	2.9
Effluent (July 2009)	815*	154*	177*	204	0.31	20**
Effluent Limit	1000*	180*	180*	NA	NA	NA
Basin Plan Objective	1000	230	165	500	0.50	1.4

* Based upon a 36 month running mean.
** 1998-2009 12-year average 28 mg/L

It should be noted that nitrate concentrations downgradient of the discharge fluctuate widely from 0.03 to 13.6 mg/L (as N) in DMW #1 and from 0.1 to 5.5 mg/L in DMW #2. Both of these wells are located close to the disposal ponds and the wide fluctuation in constituent concentrations may reflect percolation from various ponds in use during the sampling period. With this in mind, the existing salts limits based upon long-term averages are continued in the proposed Order.

Salts Issues – For decades, more salts have been imported into the Santa Maria basin from various sources (e.g., water softener salt and chemical fertilizers) than are carried away by drainage water. The overall salt imbalance has resulted in a deterioration of groundwater quality in the Santa Maria Valley. Numerical groundwater quality objectives for the Santa Maria groundwater basin were adopted in Resolution 86-03, and are reflected in the water quality objectives shown above. The Discharger has implemented various programs to control salt discharges to the wastewater treatment facility from municipal sources, such as public education and outreach, sewer use ordinance, salts reduction studies, and imports from the State Water Project. Importation of state water has also reduced the need for residential usage of water softeners, typically a significant source of salts in municipal and domestic wastewater. These programs have resulted in a marked improvement in effluent quality discharged from the wastewater treatment plant and improved groundwater quality in the vicinity of the discharge. 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.

Nitrogen reduction processes are not currently available at the wastewater facility. However, some nitrogen reduction occurs through natural processes in the soil column below the discharge area. As indicated in the table above, groundwater in the vicinity of the discharge and background monitoring well exceeds the Basin Plan objective for nitrogen. The wastewater facility is surrounded by agricultural growing areas and differentiation between municipal and agricultural sources of nitrogen is difficult. Over the past two years, the City has installed an additional groundwater monitoring well to improve groundwater characterization. Also, 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.

Hauled Waste and Septage – The City of Santa Maria accepts septage (septic tank pumpings) into its wastewater facility, and is the only wastewater facility in San Luis Obispo and Santa Barbara Counties to do so. The City implements a hauler registration, septage sampling, and load tracking system to minimize the possibility that hauled waste will upset or interfere with the treatment processes or pass through the facility and cause discharge violations. During 2008, in excess of 10 million gallons of hauled septage were discharged into the wastewater treatment facility.

Existing Order – Discharge from the City's wastewater facility is currently authorized under Waste Discharge Requirements Order No. R3-2002-0111. Order No. R3-2002-0111 requires the Discharger to comply with prohibitions, discharge specifications, groundwater limitations, pretreatment specifications, and provisions. The current Order limits the discharge to the current design capacity of 9.5 MGD, and the City is nearing full capacity. Expansion of the treatment and disposal facilities is nearing completion and will provide for treatment and disposal of 13.5 MGD in a manner consistent with the current practices.

Compliance History – The City has maintained an excellent record of consistent compliance with its effluent discharge requirements. As indicated above, salts minimization practices (especially importing high quality water) have resulted in decreased salts concentrations in the effluent discharged from the treatment facility. During construction of the current facility expansion, minor violations occurred when process units were out of service. These violations were short term and immediately corrected as the construction project progressed. City and Water Board staffs anticipate long-term compliance with the discharge requirements will result from the expanded wastewater facility.

Continuing Conditions - The proposed Order continues existing prohibitions that limit the discharge to authorized disposal areas and prohibit bypass of the treatment units. Effluent limitations for biochemical oxygen demand (BOD), suspended solids, settleable solids, total dissolved solids, sodium, chloride, and pH are continued as specified in the existing Order. Groundwater limitations and provisions are also continued from the existing Order. The Discharger implements an industrial waste monitoring program (pretreatment program) consistent with Federal requirements (40CFR 403) to ensure that industrial discharges to the wastewater facility do not upset or interfere with treatment processes or pass through the facility and impact water quality. Pretreatment specifications are continued from the existing Order.

The existing and proposed effluent limit for chloride is above the groundwater objective for the vicinity (see table above). This chloride limit was adopted by the Central Coast Water Board in 2002 based upon the fact that the chloride limit is (a) close to water quality objectives for the sub-basin receiving the effluent discharge, and (b) technologically achievable by the treatment facility. Salts reduction processes are not a component of the treatment facility. However, the City has and continues to pursue mechanisms for controlling chloride levels in the discharge, primarily through source control actions. It should be noted that the water quality objectives are based upon broad area averages and

groundwater monitoring shows no degradation from the discharge. Accordingly, Water Board staff continues to support this chloride effluent limit.

Changes in the Proposed Order – Proposed Order No. R3-2010-0001 expands the authorized discharge volume from 9.5 to 13.5 MGD after completion of the treatment facility upgrade project. 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's Recycled Water Policy, described in detail below.

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, 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 a collaborative stakeholder process.

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. The City of Santa Maria 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.

The Recycled Water Policy is described in Finding Nos. 19, 20, 21, and 22 of the proposed Order. Salt and nutrient management requirements (many of which are carried over from the existing Order) are specified in Section D, beginning on page 9 of the proposed Order.

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 biosolids specifications represent reduced monitoring and a cost saving for the Discharger, while continuing to provide adequate information for compliance evaluations.

The City of Santa Maria is enrolled in the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems that specifies management practices designed to preclude water quality impact resulting from discharges from the collection system. Enrollment in the statewide General Order is summarized in Finding No. 24. Also, the statewide General Order calls for development and implementation of grease and oil plans to prevent clogging of the collection system and potential overflows. The City has (for many years predating the statewide requirements) implemented grease and oil source control activities to protect its facilities, and long-term monitoring demonstrates the effectiveness of those efforts. Based upon the City's enrollment in the statewide General Order and its disposal method (percolation), there is insignificant risk of grease and oil discharges to receiving waters. Accordingly, the prior grease and oil limits are not carried over into the proposed Order.

During 2009, a mercury seal failed at the wastewater facility resulting in discharge of in excess of 70 pounds of mercury into the a secondary containment structure within the treatment system. The incident highlighted the critical need for a mercury handling plan addressing inventory, inspection, monitoring, incident response, worker safety and training. Provisions are added to the proposed Order to ensure mercury handling plans are developed and maintained.

Monitoring Requirements - The proposed monitoring program includes monitoring consistent with the existing order, except for the following reductions in the frequency of sampling for constituents that have been documented (by prior sampling) to be consistent in concentrations and within discharge limitations. The basis of these monitoring frequency reductions is that less frequent monitoring will provide cost savings to the Discharger without significantly reducing discharge compliance evaluations. Effluent monitoring for pH is reduced from daily to weekly and salts monitoring (total dissolved solids, sodium, chloride) is reduced from weekly to quarterly. These constituents do not fluctuate rapidly and past monitoring indicates that less frequent samples will adequately characterize effluent compliance while providing cost saving for the Discharger. Boron, sulfate and nitrogen sample frequency is increased from semi-annually to quarterly to coordinate with the salts monitoring. Effluent grease and oil monitoring is eliminated, since the Discharge implements a comprehensive source control (pretreatment) program and past monitoring indicates the discharge is consistently well within limitations. Furthermore, the treatment and disposal system virtually ensures that this constituent will not pose a threat to water quality. Monitoring of disposal pond freeboard, not specified in the existing Order, is weekly in the proposed Order. 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). Although this appears to be a significant reduction in biosolids monitoring, the Discharger performs annual biosolids monitoring as part of its pretreatment program requirements. Therefore, the duplicative requirement is eliminated. Water supply monitoring, previously used to characterize compliance with incremental limits, is not included in the proposed Order.

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. The City of Santa Maria is the lead agency for the purposes of the California Environmental Quality Act (CEQA). The City certified a Final Environmental Impact Report (EIR) in 2006 for the wastewater facility expansion project. In addition, the City prepared an Addendum to the EIR in July 2009, addressing hydrogeologic conditions in the vicinity of the discharge and evaluating potential impacts to those conditions resulting from the discharge authorized by this Order. 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 November 5, 2009, Central Coast Water Board staff notified the Discharger and all known interested parties of its intent to revise waste discharge requirements for the City of Santa Maria Wastewater Facility. The notifice provided interested agencies and individuals with a copy of the proposed order and an opportunity to submit written views and comments by December 10, 2009.

COMMENTS AND RESPONSES

City of Santa Maria – The discharger submitted minor editorial comments and corrections, which have been incorporated into the proposed Order, as well as the following comments. The City supports adoption of Order No. R3-2010-0001, as proposed (with the corrections and revisions described below).

1. Effluent limits for grease and oil are not needed. The City implements a proactive grease and oil source control program to prevent blockages of the collection system. Effluent monitoring

demonstrates effluent grease and oil concentrations remain well within existing limits. Also, percolation of the effluent virtually precludes water quality impacts from grease and oil.

Staff response: Staff agrees with the City's comment. Enrollment in the statewide General Order (for Sanitary Sewer Systems) calls for development and implementation of grease and oil plans to prevent clogging of the collection system and potential overflows. Based upon the City's enrollment in the statewide General Order and its disposal method (percolation), there is insignificant risk of grease and oil discharges to receiving waters. Accordingly, staff has eliminated the grease and oil limit from the proposed order.

2. The proposed Salt Management Program requirements D.4.b. (Analysis of wastewater evaporation/salt concentration effects) and D.4.d. (Analysis of potential impacts of salt loading on the groundwater basin), and Nutrient Management Program requirements D.4.d. (Analysis of potential impacts of nitrogen loading on the groundwater basin) are unnecessary and should not be included in the Order. These provisions call for involved studies that are unrelated to potential impacts from the City's discharge.

Staff response: Water Board staff plans to propose the Salt and Nutrient Management Program provisions (shown on page 9 of the proposed Order) as standard language in waste discharge requirements throughout priority basins identified in the State Water Board Recycled Water Policy. These provisions do not call for extensive study or additional monitoring. The provisions require the City to evaluate monitoring data (current and past) and salts/nutrient management measures to ensure ongoing effectiveness. Proposed requirement D.5. (page 9) provides for participation in a broader basin-wide effort in lieu of implementing the provisions of D.4. on an individual basis. This alternative is consistent with the State Water Board's Recycled Water Policy. At the City's request, additional clarifying language is added to better describe the requirements of D.4.d (Salt and Nutrient Components).

3. Water supply monitoring is not needed and does not contribute to meaningful evaluation of compliance with the waste discharge requirements. Furthermore, the water supply constituents vary depending upon supply sources (wells or imports) making comparison of results inappropriate.

Staff response: Staff agrees with the City's comment and has deleted water supply monitoring from the proposed Monitoring and Reporting Program.

No other comments were received.

RECOMMENDATION

Adopt Waste Discharge Requirements Order No. R3-2010-0001, as proposed.

ATTACHMENTS

1. Proposed WDR Order No. R3-2010-0001
2. Monitoring & Reporting Program No. R3-2010-0001

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