

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

STAFF REPORT FOR REGULAR MEETING OF SEPTEMBER 9, 2005

Prepared on July 27, 2005

ITEM NUMBER: 20

SUBJECT: Adoption of Revised Waste Discharge/Recycled Water Requirements for the City of Guadalupe Wastewater Facilities, Santa Barbara County (Order No. R3-2005-0015)

KEY INFORMATION

Facility/Owner: City of Guadalupe Wastewater Facilities/City of Guadalupe  
Location: 5125 West Main Street, Guadalupe  
Discharge Type: Municipal/Domestic  
Design Capacity: 1.0 MGD (current flow is approximately 0.5 MGD)  
Treatment Type: Advanced Primary (Advanced Integrated Pond System)  
Disposal/Recycling: Pasture irrigation  
Existing Order: Waste Discharge/Water Reclamation Requirements Order No. 93-08

SUMMARY

The City of Guadalupe completed an upgrade to its wastewater facility in 2004. The upgrade included retrofitting the existing treatment ponds into an Advanced Integrated Pond System, and was funded by a \$1.3 million grant from the Unocal Guadalupe Mitigation Fund. Proposed Order No. R3-2005-0015 contains revised waste discharge/recycled water requirements updating the existing requirements, Order No. 93-08. Revisions to the twelve-year old Order are relatively minor in nature and summarized in detail below. The upgrade documented in the proposed Order enhances the facility's treatment capability, thus benefiting water quality.

BACKGROUND

The City of Guadalupe owns and operates wastewater collection, treatment and disposal/reuse facilities serving the City population of approximately 6,500 people. The treatment facilities (formerly aerated ponds) were recently upgraded to an Advanced Integrated Pond System using grant

financing from the Unocal Guadalupe Mitigation Fund. Advanced Integrated Pond Systems (AIPS) incorporate aerated facultative ponds with solids digestion pits built into the pond base. The AIPS facilities typically provide relatively low maintenance biological stabilization of wastewater and low cost solids handling (digesters typically require infrequent cleaning). The Guadalupe AIPS facility occupies approximately 12 acres, is designed to treat 1.0 million gallons per day (MGD) and currently receives approximately 0.5 MGD. The treatment facility is located on level topography adjacent to the Santa Maria River and surrounded by irrigated agricultural fields south of the River. Treated wastewater is stored in an adjacent pond and used for irrigation of cattle grazing pastures on the north side of the Santa Maria River. The treatment facilities and process diagram are depicted on Attachments A and B of the proposed Order.

The Santa Maria ground water 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 ground water basin is divided into five sub-basins (the Santa Maria, Orcutt, Nipomo, Upper and Lower Gualalupe sub-basins). The discharge is located within the Lower Guadalupe sub-basin.

For decades, more salts have been imported into the Santa Maria basin from various sources (water softeners, chemical fertilizers, etc.) than are carried away by drainage water. A ground water quality study of the Santa Maria basin and its sub-basins performed in the 1980s resulted in revised Basin Plan median ground water objectives for total dissolved solids, sodium, chloride, nitrate, sulfate and boron (adopted in Resolution No. 86-03). 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. Importation of State water has also reduced the need for residential usage of water softeners.

Initial ground water characterization of the disposal/reuse area was performed in 1999 and utilized four monitoring wells to identify first available ground water, direction of flow, and representative upgradient and downgradient monitoring wells (Well 7 and Well 6 respectively). Subsequent ground water monitoring in the vicinity of the discharge indicates extremely high nitrate concentrations upgradient of the discharge. However, the variability of data collected from the upgradient well (Well 7) indicates it may not be representative of widespread ground water quality. In order to address this issue, further ground water characterization is required in the proposed Order. Ground water monitoring results submitted by the City reveal the following characteristics.

### GROUND WATER MONITORING RESULTS

Sample Date	Total Dissolved Solids		Sodium		Chloride		Nitrate as N	
	Well 7	Well 6	Well 7	Well 6	Well 7	Well 6	Well 7	Well 6
10/13/04	2700	1600	180	260	210	270	120	0.2
9/19/03	4200	1700	180	290	210	290	140	0.2
4/28/99	3260						79	
12/22/98	3000	2100					100	0.3
9/17/97	1800	2100					0.8	<0.1
9/30/96	1800	2600					<0.1	<0.1
11/9/95	1500	2300					1.8	<0.5
8/9/95	1600	2400					<0.1	<0.1
5/11/95	2100	2400					<0.1	<0.1
12/16/94	2600	2100					<0.1	<0.1

### COMPLIANCE HISTORY

Prior to upgrading its treatment facilities, the City experienced effluent violations associated with solids accumulation in treatment ponds, high flows and storm washouts of effluent holding pond levees. However, effluent quality and consistency have improved with the upgraded treatment facilities. Most

recently, the Discharger's self-monitoring report indicated effluent suspended solids violations, the source of which have yet to be determined. Staff is currently in the process of drafting a notice of violation with request for identification and resolution of the effluent violations. Future compliance with the proposed requirements is anticipated.

It should be noted however, that the existing Order requires disinfection equipment to be available in case of emergency discharge of effluent to the Santa Maria River. The City does not have such equipment, and therefore remains in noncompliance with this requirement. Staff does not consider disinfection a feasible alternative to preventing discharge to the river. Accordingly, the proposed Order does not contain the requirement to maintain disinfection capabilities, but strictly prohibits discharge to the river.

### PROPOSED REQUIREMENTS

The proposed Order is based on Title 22 of the California Code of Regulations, Basin Plan requirements and recommendations, and staff's professional judgment. It is consistent with the City's existing requirements (except for revisions described below) and consistent with comparable discharge requirements within our Region. The requirements are designed to protect water quality for existing and anticipated beneficial uses of surface and ground waters in the vicinity of the discharge.

**Prohibitions and Discharge/Recycled Water Specifications** - Proposed prohibitions limit the discharge to wastewater receiving full treatment and disposed of at designated disposal and reuse areas depicted on Attachment A of the Order. Discharge to the Santa Maria River is prohibited. Effluent flow limitations are within the design capacity of the treatment facilities and are carried over from the existing Order, since no CEQA evaluation has been done for expanded flows. Constituent concentrations common for land disposal and irrigation (settleable solids, biochemical oxygen demand, suspended solids and pH) are consistent with Basin Plan objectives, comparable facility requirements and ensure long-term protection of the disposal/reuse area. Effluent salts (total dissolved solids, sodium and chloride) limitations based upon performance history are included to ensure long-term protection of ground water and implementation of Basin Plan objectives. Requirements ensuring

protection of public health (personnel training, minimizing public contact and signage) implement Title 22 of the California Code of Regulations and are carried over from the existing Order. Discharge within 150 feet of a water supply well is also prohibited based upon Title 22 requirements.

**Receiving Water Limitations** - The disposal/reuse area is located on the banks of the Santa Maria River where depth to ground water is five feet or less. Receiving water limitations in the proposed Order limit the discharge to that which will not degrade receiving (ground) waters based on comparison of upgradient and downgradient monitoring wells. The Discharger has established monitoring wells in upgradient and downgradient locations (shown on Attachment A) and has performed ground water monitoring for the past eight years. Surface water impacts are addressed by the prohibition of runoff, overflow or any other discharge to areas other than approved disposal and reuse areas (Prohibitions A1, A2 and A3).

**Biosolids Specifications** - Biosolids disposal requirements are a new component to the Guadalupe WDR. The biosolids specifications include language standard to WDRs throughout the Region and require compliance with federal biosolids disposal regulations.

**Provisions** - The proposed Order requires compliance with a Monitoring and Reporting Program and with Standard Provisions and Reporting Requirements (standard to WDRs throughout the Region). Provisions regarding nuisance prevention and public safety are also included. The Order requires development and implementation of a Collection System Management Plan to ensure ongoing operation, maintenance, spill prevention and response. The Collection System Management Plan requirements (outlined in Attachment D of the Order) are consistent with WDRs adopted throughout the Region during the past few years.

**Monitoring Requirements** – The proposed Order includes monitoring and reporting to assess compliance with requirements. Regular influent, effluent, ground water and disposal area monitoring is required along with monthly reporting of results. Monitoring parameters and frequencies are similar to comparable facilities and carried over from existing requirements, with the following exceptions.

Water supply salts monitoring (required from 1997 to present to assess changes due to availability of State water) is not specified in the proposed Order. From reports submitted, staff concludes that little additional value would be gained from continued water supply monitoring. However, ground water monitoring constituents are expanded to include sulfate and boron, in order to assess consistency with Basin Plan objectives for the Lower Guadalupe Ground Water Basin. Also, water quality trends indicated by ground water monitoring results are to be summarized in the annual report. The requirement to further evaluate the appropriate location and integrity of ground water monitoring wells is described below, under Revisions to Existing Requirements.

Effluent BOD and suspended solids monitoring frequency is revised from every 12 and 6 days (respectively) to weekly. This change will provide additional evaluation of the new treatment facility's performance and at the same time improve sampling convenience and reduce cost for the Discharger. The frequency of effluent pH monitoring is reduced from daily to weekly to coordinate with monitoring for other constituents (combine efforts). Also, past daily pH monitoring documents a long and consistent compliance history, justifying the reduced sampling frequency.

Biosolids monitoring is added to the proposed Order, but not expected to occur on a regular basis. Biosolids disposal is anticipated to occur at multi-year intervals due to the long detention and digestion process associated with AIPS facilities.

**Revisions to Existing Requirements** - In addition to the revised monitoring requirements

described above, the following changes are also incorporated in the proposed Order.

- Treatment plant description is revised to reflect the upgraded facilities.
- Discharge/reuse area description is revised to reflect 71 acres available for use (formerly 55 acres).
- Water quality characteristics are updated to reflect ground water monitoring results.
- Stormwater Program (Findings No. 11 and 12) are added in a manner standard to WDRs throughout the region.
- Soluble BOD effluent limits (25 mg/L monthly average and 50 mg/L maximum) are revised to standard (total) BOD requirements (60 mg/L average, 100 mg/L maximum) to provide for consistency with WDRs throughout the region, evaluation of treatment plant performance, protection of discharge and reuse areas, and simplicity of analyses.
- Total suspended solids effluent limits are reduced from 100 mg/L and 200 mg/L (monthly average and maximum) to 60 mg/L and 100 mg/L to ensure protection of discharge and reuse area. These limits are consistent with comparable discharges within the region.
- Effluent settleable solids limits are added to the Order for the same reasons as described above.
- Minimum pond freeboard requirement is increased from one foot to two feet unless ponds are specifically designed for a different freeboard.
- Provisions requiring disinfection facilities are deleted, as described in the 'Compliance' section above.
- Required setback of discharge or reuse areas from water supply wells is increased from 100' to 150' consistent with Title 22

requirements.

- Ground water limitation for nitrate (as N) of 8 mg/L is deleted. Although ground water nitrate concentrations are unclear (based upon available monitoring results), it does appear that such a limit may not adequately protect against degradation, which is prohibited by the proposed Order's Receiving Water Limitations.
- Provision is added to the proposed Order to require evaluation of ground water monitoring wells in order to correct apparent inconsistency of monitoring results for Well 7. Additional ground water monitoring wells may be installed and added to the ground water monitoring program to aid with ground water flow detection and quality evaluations.
- Biosolids specifications are added to the proposed Order, consistent with Orders throughout the region.
- Requirements to develop and implement a collection system management plan are added to the proposed Order, consistent with Orders throughout the region.
- Pond surface dissolved oxygen requirement (1 mg/L minimum) is added to prevent nuisance odors.
- Requirements to develop and periodically evaluate a salts minimization plan are added to the proposed Order, in order to minimize salts in the effluent and help reduce the overall salts imbalance within the basin.
- Sewage spill reporting requirements are added to the Monitoring and Reporting Program consistent with newer waste discharge requirements throughout the region.

All other requirements are carried over from the existing Order.

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## ENVIRONMENTAL SUMMARY

The proposed waste discharge requirements are for an existing facility and therefore are exempt from provisions of the California Environmental Quality Act (Section 15301 of the California Water Code).

## COMMENTS

After circulating the draft staff report and proposed Order, the only comment received was that Santa Barbara County Health Department staff requested that they receive notification of sewage spills. Staff has added such to the "Spill Reporting" Section of Monitoring and Reporting Program No. R3-2005-0015.

## RECOMMENDATION

Adopt WDR Order No. R3-2005-0015 as proposed.

## ATTACHMENT

1. Draft WDR Order No. R3-2005-0015 with Attachments A-E