

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

STAFF REPORT FOR REGULAR MEETING OF SEPTEMBER 10, 2004
Prepared on August 19, 2004

ITEM NUMBER: 21

**SUBJECT: Revision of Waste Discharge Requirements, Order No. R3-2004-0106,
California Army National Guard, Camp Roberts Military Reservation,
San Luis Obispo and Monterey Counties**

KEY INFORMATION

Discharger: California Army National Guard
Location: Along US 101, about 12 miles north of Paso Robles
Discharge type: Sanitary wastewater and equipment washwater
Design Capacity
Main Garrison WWTP: 1.0 million gallons-per-day
East Garrison WWTP: 134,000 gallons-per-day
Current Flow
Main Garrison WWTP: Around 50,000 gallons-per-day
East Garrison WWTP: Currently not discharging
Disposal Capacity
Main Garrison WWTP: 1.0 million gallons-per-day
East Garrison WWTP: 134,000 gallons-per-day
Disposal Method: Percolation Ponds
Recycling: None
Existing Order: Order No. R3-2003-0046

SUMMARY

In 2003, Staff processed an update of waste discharge requirements for the California Army National Guard's Camp Roberts sanitary wastewater facilities. During that process, Staff mailed draft waste discharge requirements to Camp Roberts, as well as to the discharger's consultant. Neither the discharger nor their consultant commented on the draft waste discharge requirements. Then, on May 16, 2003, the Regional Board adopted updated waste discharge requirements for Camp Roberts as an uncontested item. The updated waste discharge requirements regulated the discharge from 1) an existing wastewater facility on the west side of the Salinas River, and 2) a new wastewater facility on the east side of the Salinas River.

Subsequent to the update, the Discharger requested revisions to the updated waste discharge

requirements because Camp Roberts failed to notify their appropriate individuals prior to adoption of the updated waste discharge requirements. The revisions are based on site-specific data and involve discharge specifications for total dissolved solids, sodium, chloride, sulfate, boron, and nitrate; as well as a reduction in monitoring frequency for settleable solids.

The existing discharge specifications for total dissolved solids, sodium, chloride, sulfate, boron, and nitrate were based on the Basin Plan's *Objectives For Specific Ground Waters*, which are intended to serve as a water quality baseline for evaluating water quality management in the basin. Those values are at best representative of gross areas only. Application of those objectives must reflect the actual ground water quality naturally present. Camp Roberts' revision request included data representing water quality naturally present. Therefore the revisions are worthy of consideration,

even though Camp Roberts commented after the 2003 WDRs were adopted.

Staff agrees with the Discharger's proposed discharge specifications, as well as the settleable solids monitoring frequency reduction from daily to weekly.

DISCUSSION

General Facility Description

The California Army National Guard owns and operates Camp Roberts, an Army Reserve Component Training Center. Camp Roberts is located on US 101, about 12 miles north of Paso Robles, as shown on the proposed Order's Attachment "A." It spans the border between southern Monterey County and northern San Luis Obispo County.

The Salinas River bifurcates Camp Roberts into two garrisons; the Main Garrison and the East Garrison, which lie west and east of the Salinas River, respectively. The Main Garrison was constructed to accommodate 23,000 officers and troops. The East Garrison, across the Salinas River, could accommodate up to 6,000 troops, depending on national defense needs. Camp Roberts is occupied year-round with increased occupancy during summer training cycles. Military training includes the use of tanks, personnel carriers, mobile howitzers, aircraft, and other equipment.

Camp Roberts' Main Garrison sanitary wastewater is conveyed to a wastewater treatment plant located on the west bank of the Salinas River. Sanitary wastewater from the East Garrison flows to a separate wastewater treatment plant on the east bank of the Salinas River.

Existing Waste Discharge Requirements

Waste Discharge Requirements Order No. R3-2003-0046, adopted on May 16, 2003, regulates the existing wastewater treatment plants. In the absence of site-specific ground water data, Order No. R3-2003-0046 used the Basin Plan's Median Ground Water Objectives for Specific Ground Waters (Table 3-8). The table below shows a comparison of relevant limits:

Parameter	88-37 mg/l	R3-2003- 0046 mg/l	R3-2004- 0106 mg/l
TDS	1,500	750	1,250
Cl	250	100	240
SO4	--	175	250
B	--	0.5	3.5
Na	--	105	340
N (as N)	--	4.5	
pH	6.5 to 8.4*		

*no units

Waste Stream

Low Flows - Camp Roberts produces sanitary wastewater and equipment washwater. While the Discharger claims that the Main Garrison treatment plant can effectively process one MGD, rarely does the flow volume reach half that flow rate. Typically, flows are less than 50,000 gallons per day. As a consequence, the plant is underloaded (both hydraulically and organically) by rather large margins. The East Garrison's plant has a similar flow regime, although training cycles tend to impact the East Garrison more than the West Garrison.

Waste Strength - Waste strength of the plant influent is not typical. Typical residential sewage has BOD concentrations that average between 200 and 300 mg/L. Typical Camp Roberts influent BOD is about 50 mg/L. Although Camp Roberts has not explained why BOD concentrations are so low, some dilution occurs from equipment washwater entering the sewer system. Another possible cause of low influent BOD could be dilution from infiltration and inflow. Order No. R3-2003-0046 required the discharger to submit to the Executive Officer by May 28, 2004, a report detailing any sources of infiltration and inflow (I/I) into the sewer system. Camp Roberts requested an extension of the deadline until July 31, 2004 because they encountered funding and management difficulties. Those issues were resolved, and Avocet Environmental was retained by Camp Roberts to conduct the study and prepare the report. Camp Roberts completed the report and found that, while there are areas in need of repair, there is no significant I/I into the sewer system. Camp Roberts has scheduled collection system repairs based on results of the I/I study.

Collection System

The Camp Roberts wastewater collection system includes two pump stations, approximately 25 miles of pipeline, and approximately 500 manholes. About 9.5 miles of pipeline serve the East Garrison, whereas the balance (15.5 miles) is located at the main cantonment.

The main cantonment area is strictly a gravity system. Large portions of the wastewater collection lines serve barracks and other buildings that have long been abandoned. Therefore, many lines no longer collect and transport any appreciable volume of wastewater.

Data for 2002 show there is a statistically significant relationship between rainfall and the quantity of flow treated at the wastewater treatment plant. This implies, as mentioned in the "Waste Strength" section of this report, that there may be some significant infiltration and inflow (I/I) into the sewer system.

Treatment Systems

According to the Camp Roberts museum historian, the Main Garrison treatment plant was designed in 1940 and went in service around March of 1941. From the time of startup through the mid to late 1960s, the effluent was discharged to the Salinas River. The treatment plant underwent several modifications since its construction in 1941. The trickling filter facility was originally designed for 2.5 MGD and included two independent and parallel process trains (namely, two trickling filters and two clarifiers). However, renovations were made in 1979 that resulted in a present day hydraulic capacity of one MGD. At that time (1979), one half of the plant was abandoned in place. This change (i.e., the mothballing of equipment) was due to very low flows and low concentrations of influent BOD and Total Suspended Solids. Other modifications include the replacement of the stone media in one filter with plastic, installation of new pumps, abandonment of the original chlorine contact chamber and the rerouting of the effluent to infiltration ponds. The current sequence of operation is as follows:

- Grit is removed and the influent physically screened to remove rags, sticks and other large debris that could clog and damage downstream equipment.

- The flow is measured in a six inch Parshall flume.
- The flow passes through a splitter box and is 100 percent diverted to the side of the treatment plant currently in operation.
- From the splitter box, the wastewater flows to a combination primary/secondary clarifier (a highly unusual configuration).
- The supernatant overflow from the combination primary/secondary clarifier flows to the trickling filter pump station where it is either pumped to the head of the trickling filter or overflows to the infiltration ponds.
- The underflow from the trickling filter flows by gravity back to the combination primary/secondary clarifier.
- Although the chlorine contact chamber was abandoned in 1979, the plant effluent (namely, the overflow from the trickling filter recycle pump station) is chlorinated by adding chlorine to the head of the 18" pipeline leading to the infiltration ponds located adjacent to and just north of the plant site.
- The primary and secondary biosolids, which are removed in a common primary/secondary clarifier (a unique arrangement), are treated in an unheated anaerobic digester. The sludge is withdrawn from the digester approximately once per year and dewatered on drying beds adjacent to the infiltration ponds.

The East Garrison Treatment System separates sewage and wash rack flows so that more efficient unit processes may be applied to each. Effluent streams are ultimately combined into lined secondary stabilization ponds with a minimum 25-day hydraulic residence time. The treated effluents streams are then discharged at a controlled flow rate through a floating weir to an adjacent percolation pond.

Wash rack wastewater is initially clarified in existing primary settling ponds at each facility. An oil/water separator then removes oils and grease. The interior wash rack has an oil/water separator incorporated into the primary clarifier. The outdoor

wash rack has had a new oil water separator installed that is capable of handling flows up to 300 gallons per minute. The wash rack effluent will then discharge directly to the secondary stabilization ponds.

Sewage effluent streams are collected from the buildings, latrines and other sources into a new high-density polyethylene sewer line and discharged to a new 15,000-gallon septic tank. The tank is sized to have a minimum 72-hour residence time. The clarified effluent from the septic tank is directed to the lined secondary stabilization ponds where it is combined with the wash rack effluent.

Treated wastewater is discharged to a series of percolation ponds. Waste sludge occasionally will be removed from the ponds.

Land Characteristics

The Salinas River drainage is part of the Salinian block, a northwest trending structural basin bounded by the San Andreas fault zone to the northeast and Jolon fault zone to the southwest. The Salinian block is characterized by a basement complex of granitic and metamorphic rock overlain by a thick sequence of marine and non-marine sedimentary rock. The geologic history of the area is complex and includes repeated cycles of marine depositional environment interspersed with periods during which the area was uplifted above sea level. Accordingly, the sediments underlying the area include consolidated marine sediments and consolidated and unconsolidated continental deposits. In the late Pliocene and early Pleistocene time erosion of the Santa Lucia range to the west and the uplands to the east resulted in a thick sequence of fluvial sediments being deposited in the Salinas River Valley. These widely distributed ancient alluvial fan basin deposits now cover much of the Camp Roberts area and are referred to as the Paso Robles formation. Alluvial deposits underlie the area adjacent to the Salinas River. Both the existing and proposed wastewater treatment plants occupy flat to gently sloping terrain on plateaus above the Salinas River. The Plateaus run approximately north-south at an elevation of 620 to 640 feet above mean sea level, which is about 100 feet above the river bed.

Nearest Surface Water

The most prominent surface water body in the region is the Salinas River. Although the Nacimiento and San Antonio Reservoirs regulate

flow year-round, surface flow still tends to be ephemeral. The wastewater plant sites are located approximately 400 feet from the bank of the Salinas River. The beneficial uses of the Salinas River include:

- Municipal and domestic water supply
- Agricultural supply
- Industrial process supply
- Groundwater recharge
- Water contact recreation
- Non-contact water recreation
- Wildlife habitat
- Warm fresh water habitat
- Cold fresh water habitat
- Migration of aquatic organisms
- Spawning, reproduction, and/or early development
- Rare, threatened, or endangered species and
- Commercial and sport fishing

Total Maximum Daily Loads

For discharges within several of the Central Coast Region's Watershed basins, Total Maximum Daily Load allocations will be developed for impaired surface waters. TMDL documents will allocate responsibility for constituent loading throughout a particular Watershed basin. If Regional Board staff finds constituents from a discharge may adversely impact beneficial uses or exceed water quality objectives then said discharge may be allocated TMDLs. If allocated, a TMDL discharger's waste discharge requirements may be modified to accommodate the allocation.

The Salinas River is listed or impaired for nutrients, pesticides, salinity, sedimentation and siltation. These pollutants/stressors are believed to result from heavy agricultural land uses. The Discharger does not engage in agriculture and has a large, sparsely populated land area. Staff does not expect the discharge to exacerbate those conditions of impairment.

Groundwater Characteristics

Depth to ground water is about 30 feet along the Salinas River near the discharge. The discharge is in the San Miguel Sub-basin of the Paso Robles Ground Water Basin, about 250 feet from the Salinas River. The discharger reports the following mean ground water values for that area:

Parameter	Monitoring Result, mg/L
TDS	1007
Na	314
Cl	176
SO4	204

Present and anticipated beneficial uses of groundwater near the discharge include:

- Municipal & Domestic Water Supply,
- Agricultural Water Supply
- Industrial Process Supply, and
- Industrial Service Supply

Proposed Waste Discharge Requirements

Proposed Order No. R3-2004-0106 revises existing Order No. R3-2003-0046 based on the discharger's request, which is supported by site-specific data. The proposed order is identical to the existing order, except that discharge specifications for total dissolved solids, sodium, chloride, sulfate, boron, and nitrate have been revised as shown in the table under the previously-discussed section titled Existing Waste Discharge Requirements. Also, the proposed monitoring and reporting program is identical to the existing monitoring and reporting program, except for a reduction in settleable solids monitoring frequency.

The existing discharge specifications for total dissolved solids, sodium, chloride, sulfate, boron, and nitrate were based on the Basin Plan's Objectives For Specific Ground Waters, which are intended to serve as a water quality baseline for evaluating water quality management in the basin. Those values are at best representative of gross areas only. Application of those objectives must reflect the actual ground water quality naturally present. Camp Roberts' revision request included data representing water quality naturally present. Therefore the revisions are worthy of consideration, even though Camp Roberts commented after the 2003 WDRs were adopted.

The proposed Order is consistent with standard requirements for domestic wastewater dischargers throughout the Central Coast Region. Requirements specified are designed to minimize impacts to surface waters and groundwater and prevent nuisance conditions.

The proposed Order's monitoring and reporting program includes:

- supply water monitoring for calcium, magnesium, carbonate, bi-carbonate, total hardness, total alkalinity, pH, electrical conductivity, boron, iron, and nitrate (as N). Sampling results for the Department of Health Services may be submitted to satisfy this requirement,
- monthly effluent BOD and total suspended solids monitoring,
- annual effluent monitoring for metals,
- effluent monitoring for PCBs, VOCs, and pesticides (once every five years),
- East Garrison treatment ponds monitoring for pH, dissolved oxygen, and freeboard. All disposal ponds will be monitored for freeboard, presence of weeds, and presence of burrows,
- Receiving Water Monitoring for pH, boron, nitrite (as N), total kjeldahl nitrogen (as N), and total nitrogen (as N),
- standard solids/biosolids monitoring.

COMPLIANCE HISTORY/STATUS

Compliance with Effluent Limits

Compliance with Order No. 88-37 was not particularly onerous. That Order limited flow to 1.0 MGD, total dissolved solids to 1,500 mg/l and chloride to 250 mg/l. As mentioned previously, flows are less than 1/20th of the Discharger's stated design flow rate. So the Discharger has maintained compliance with flow limits. Also, Order No. 88-37's total dissolved solids and chloride limits are relatively high. So the Discharger had no problem complying with general mineral limits. After Order R3-2003-0046 was adopted on May 16, 2003, the discharger had difficulty meeting limits due to relatively poor quality of their supply water. Hence, the discharger presented site-specific data and requested the revisions that are the subject of this order.

Compliance with Receiving Water Limits

Existing WDR Order No. R3-2003-0046 states the discharge shall not cause nitrate concentrations in groundwater downgradient of the disposal area to exceed 4.5 mg/l (as N). Such a limit allows for higher effluent nitrate concentrations, so long as the groundwater concentration does not exceed the limit. For example, the main garrison discharges effluent at 7.7 mg/l nitrate (as N), yet the downgradient well measures at 2.3 mg/l or lower.

The Discharger requested a modification to the nitrate limit because, at the east garrison, background data indicate elevated levels between 9 and 12 mg/l. The levels seem to drop slightly across the site, but still exceed 4.5 mg/l nitrate (as N). Since the east garrison discharge did not exist when the data were obtained, the discharge did not cause that condition.

Like the previously discussed salts limits, the existing nitrogen limit is based on the Basin Plan's Objectives For Specific Ground Waters, which is, at best, representative of gross areas only. The discharger's requested nitrogen receiving water limit of 7.7 mg/l (as N) is based on site-specific conditions. The Discharger reasons that, since the Main Garrison discharges at 7.7 mg/l N without degrading receiving water, the East Garrison should behave similarly. Staff reviewed monitoring data and site conditions and agrees that a 7.7 mg/l N limit should reasonably protect water quality. An overriding factor for that conclusion is the nitrogen loading. Camp Roberts encompasses 42,784 acres. If Camp Roberts operated at maximum capacity (it is actually nowhere near maximum capacity), it would produce less than 1 gram of nitrate per acre per day. The Basin Plan includes nitrate limits for individual sewage disposal systems of 40 grams per acre per day. So Camp Roberts' relatively low nitrate loading source justifies a 7.7 mg/l N effluent limit.

POTENTIAL PROBLEMS

At the East Garrison, the discharger recently installed a grease trap to improve the collection system, added aerators to mechanically aerate the treatment pond, and installed new collection system lines. At the Main Garrison, the discharger recently smoke-tested the collection system, eliminated two pump stations, and eliminated a sewage line that

crossed the Salinas River. Many potential problems have been addressed. The Main Garrison provides an unusual treatment configuration that uses the same clarifier for primary and secondary treatment. As long as flows remain low and the systems are operated and maintained as designed, staff does not anticipate water quality related problems.

ENVIRONMENTAL SUMMARY

Adoption of updated waste discharge requirements is intended to ensure compliance with laws and regulations administered by the Board. As such, adoption of updated waste discharge requirements is categorically exempt from the provisions of the California Environmental Quality Act pursuant to Section 15321 of the Resources Agency Guidelines. Mitigation measures to prevent nuisance and ensure protection of beneficial uses of surface and groundwaters will be implemented through this Order.

COMMENTS AND RESPONSES

California Army National Guard HQ, Camp Roberts
 Robert Van Hyning, P.E., Senior Project Manager,
 LandWatch, Monterey County
 San Luis Obispo County Environmental Health
 Department
 San Luis Obispo County Building & Planning
 Department
 San Luis Obispo County Public Works Department
 Monterey County Environmental Health
 Department
 Monterey County Building & Planning Department
 Monterey County Public Works Department
 Monterey County Water Resources Control Agency
 California Department of Fish and Game, Region 3-
 Central Coast Region

No written comments were received from the above parties.

RECOMMENDATION

Adopt proposed Order No. R3-2004-0106

ATTACHMENTS

1. WDR Order No. R3-2004-0106
2. Monitoring and Reporting Program No. R3-2004-0106

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