

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

STAFF REPORT FOR REGULAR MEETING OF MAY 12-13, 2005

Prepared on April 12, 2005

ITEM: 24

**SUBJECT: Revision of Waste Discharge Requirements Order No. R3-2005-0074
City of Soledad Wastewater Treatment Facilities, Monterey County.**

KEY INFORMATION

Location: Two facilities, one mile southwest of the City of Soledad and five miles northwest of the City, adjacent to the Salinas River.
Type of Waste: Primarily Domestic Wastewater with Industrial Wastewater from one vegetable processors.
Discharge Volume: Approximately 3.5 million-gallons-per-day (MGD)
Pretreatment: Bar Screens and comminutors
Treatment: Lined aeration ponds and oxidation ponds
Disposal: Disposal ponds and infiltration basins
Capacity: 4.1 MGD
Reclamation: None
Existing Orders: Order 95-25

SUMMARY

Regional Board staff are accommodating a City of Soledad request to rapidly revise their waste discharge requirement to address critical capacity upgrades, treatment upgrades, and prevent an unauthorized discharge of wastewater. The proposed Order has gone out for public comment with a comment period including the 30 days just prior to the May 13 Board meeting.

The City proposes to operate two wastewater treatment facilities to address critical capacity issues. These capacity issues have resulted from planned growth supported by an inaccurate 2001 Treatment Plant Capacity Evaluation and possibly exacerbated by underreported influent flows of up to 500,000 gallons per day (GPD) due to what is believed to be an inaccurate flow meter.

Existing Waste Discharge Requirements are over ten years old. They require updating to address current conditions and to include current requirements. The proposed Waste Discharge Requirements are similar to requirements for

municipal wastewater dischargers throughout Region 3. Requirements specified are designed to minimize impacts to surface waters and groundwater and prevent nuisance conditions. Proposed Order No. R3-2005-0074 updates and rescinds existing Order No. 95-25.

It is also important to note that Regional Board Staff and the City expect Order No. R3-2005-0074 to undergo another revision in approximately three years to address further treatment, long-term disposal capacity upgrades, and the City's move towards water recycling.

DISCUSSION

Facility Descriptions – The City of Soledad (Discharger) owns and operates a Wastewater Treatment Plant (City Plant) located one mile southwest of the City. The City also leases and intends to operate the former State Department of Corrections Wastewater Treatment Plant (Prison Plant), located five miles northwest of the City. Both facilities are shown on Attachment "A" (to proposed Order R3-2005-0074). The City expects

to be able to purchase the Prison Plant from the State during 2006.

The City intends to operate two separate wastewater treatment facilities to treat wastewater from the City, two prisons, and several industrial dischargers. Specifically, the City Plant will receive wastewater from the City, the prisons, and industrial dischargers, and the Prison Plant will receive a portion of the wastewater from the prisons. Both facilities are east of and adjacent to the Salinas River, which flows in a northwesterly direction to Monterey Bay. The levees protecting each facility are sufficient to protect against a 100-year frequency flood. Agricultural land surrounds both facilities and has traditionally been used for row crop production.

The facilities are located on relatively level topography consisting of sandy alluvial soils. Depth to shallow groundwater beneath the disposal areas of the City Plant generally exceed 10 feet but is often reduced during the winter season due to elevated river flows and a mounding effect at the wastewater/groundwater interface. Depth to groundwater beneath disposal areas of the Prison Plant is expected to be greater than 5 feet but is believed to have similar quality to that found at City Plant.

Shallow groundwater flow is generally considered to flow northwesterly towards the Pacific Ocean. Underlying shallow groundwater in the basin is generally of poor quality as a result of high mineral content. Elevated total dissolved solids (TDS), and the components of TDS such as chloride, sodium, sulfate, boron, and metals, particularly iron and manganese, are common. Various area within the basin especially shallow groundwater are also subject to elevated levels of nitrate, presumably resultant of historical agricultural practices.

Treatment and Design – Both facilities utilize biological and physical treatment within aeration ponds and supplemental oxidation/disposal ponds. Additional biological and physical treatment occurs within the soil column after disposal. This additional treatment is severely limited during high groundwater conditions due to a lack of separation to groundwater. The City has committed to phasing in tertiary treatment to mitigate groundwater quality concerns and disinfection to allow for future

disposal via water recycling. The proposed Order requires a Long Term Wastewater Management Plan that requires a work plan and time schedule for such improvements.

Pretreatment occurs at the City headworks and consists of a vertical bar screen with comminutors. For safety and security concerns the prisons have their own headworks also consisting of screens and comminutors. Treatment at the City Plant consists of three lined, 10.5-acre aeration ponds, followed by three partially lined oxidation ponds. Disposal is with eight rapid-infiltration basins covering approximately 94 acres, as shown in Attachment “B.” Treatment at the Prison Plant consists of one 6.3-acre, lined aeration pond and five polishing disposal ponds covering approximately 19 acres, as shown in Attachment “C”

The City Plant was designed to handle 3.1 million gallons per day (MGD). A November 2001 Corollo Engineers Capacity Evaluation rerated the facility at 3.6 MGD, but the City’s operation of the facility during 2004 indicates a more appropriate safe design capacity of 3.0 MGD. This 3.0 MGD number takes into account the recently determined discrepancy in Prison flows.

Until 1995, the Prison Plant was regulated by Waste Discharge Requirements Order No. 85-35, which had an effluent flow limit of 1.3 MGD. The City’s research indicates that the facility was operating at 1.1 MGD prior to flows being diverted to the City. City consultants have evaluated the Prison Plant and are indicating a design treatment capacity of 1.1 MGD with disposal capacities .8 to 1.15 MGD during high groundwater conditions and 1.4 MGD during dry weather and low groundwater conditions

Water Supply – Analysis of the City’s water supply submitted with the Discharger’s Report of Waste Discharge, yielded the following information:

| Constituent | City Water Supply (2004) mg/l |
|------------------------|----------------------------------|
| Total Dissolved Solids | 476 |
| Sodium | 44.1 |
| Chloride | 55.3 |
| Sulfate | 133 |
| Boron | 0.3 |
| Nitrate (as N) | 0.2 |

Recent Performance – Analysis of the influent to the City’s wastewater treatment plant submitted with the Discharger’s 2004 Annual Self-Monitoring Report, yield the following information:

| Influent Location | 2004 Ave. BOD ₅ (mg/L) | 2004 Peak BOD ₅ (mg/L) |
|----------------------------------|-----------------------------------|-----------------------------------|
| City Influent (West Street) | 327 | 448 |
| CTF Influent (Headworks) | 211 | 368 |
| Dole Influent (Junction Manhole) | 194 | 561 |
| Fresh Cuts (Junction Manhole) | 1483 | 3220 |

Analysis of the City’s wastewater effluent submitted with the Discharger’s 2004 Annual Self Monitoring Report, yielded the following information:

| Constituent | Treated Wastewater Effluent 2004 Approx Ave. (mg/l) |
|------------------------|-----------------------------------------------------|
| Total Dissolved Solids | 822 |
| Sodium | 150 |
| Chloride | 204 |
| Sulfate | 132 |
| Boron | 0.31 |
| Nitrate (as N) | ND |
| TKN (as N) | 31 |
| BOD ₅ | 50 |

Organic treatment occurring at the City Plant requires some upgrades to comply with the proposed Order’s secondary treatment standard of 30 mg/l BOD₅. The City is currently upgrading treatment within the ponds at both facilities through the addition of Solarbee circulators to improve mixing and reduce chance of plant upsets.

Recent Capacity Issues – A November 2001 Corollo Engineer’s Capacity Evaluation rerated the City Plant at 3.6 MGD. This rerating appeared to give the City time to continue approving new developments and hook ups while planning for expansion. During 2003 and 2004 the City realized that the Plant’s irrigation basins were not percolating fast enough to rotate and disc regularly between fillings. Plant influent appeared to be running at approximately 2.9 MGD. The City of Soledad enacted Urgency Ordinance No. 612 and Resolution 3557 in October 2004.

Resolution 3557 declares an emergency pursuant to Section 20168 of the Public Contract Code and authorizes contracting without compliance with mandatory contract bidding procedures. Ordinance 612 places restrictions on sewer connections.

Under the provisions of Resolution 3557, the City raised the levees between disposal basins 4 and 5, and between disposal basins 6 and 7 to gain emergency storage capacity.

On April 7, 2005 the City certified influent flow volumes from the prisons as approximately 500,000 GPD higher than reported to the City by the Prisons. It is the City’s opinion that the Prisons may have inadvertently underreported flows due to an inaccurate flow meter in need of calibration. The meter was last calibrated in 1996.

The City and State Department of Corrections have worked very quickly to develop short and long term solutions to the treatment and capacity issues. A right-of-entry agreement has allowed the City to begin rehab work on the former Department of Corrections WWTP. A formal lease agreement is due to finalize during April or May of 2005 to address the City’s ability to operate the facility upon our approval. Also, an option for the City to purchase the Prison Plant is expected during 2006.

Current rehab work has included aeration pond liner assessment and repair, purchase or repair of aerators, vegetation removal from treatment and disposal ponds, and design and construction of appropriate valving structures to direct 1.1 MGD of wastewater to the Prison Plant.

The City has worked with Regional Board staff to discuss options and has notified staff of steps taken to address critical capacity issues and develop a back up options to avert a potential spill to the Salinas River. It is because of this effort by both the City and the State Department of Corrections that Regional Board staff chose to accelerate the development of revised waste discharge requirements to authorize treatment and discharge of wastewater at both the City and Prison Plants.

Compliance Status - The Discharger has been regularly out of compliance with Order No. 95-25.

Specifically, the Discharger has violated the chlorides effluent limit repeatedly and recent capacity and seasonal groundwater issues have prevented the Discharger from operating the infiltration basins in compliance with the existing Order.

Regional Board staff believes the chloride limit of 170 mg/l in the existing Order was an error and it should have been consistent with the Basin Plan objective of 250 mg/l. This higher limit for chloride is also consistent with the effluent limit of Order 85-35, which previously regulated the Prison Plant. The wastewater discharge from the two prisons accounts for a majority of flows treated and discharged by the City.

The proposed Order addresses capacity issues in the short term by authorizing the City to treat and discharge wastewater at both the City and Prison Plants. Future capacity issues are addressed by requiring the City develop and implement and Long-Term Wastewater Management Plan.

The proposed Order mitigates the shallow groundwater issues by requiring and phasing in improved treatment. In January of 2006 effluent must meet secondary treatment standards and in January of 2010 effluent must meet tertiary standards and additional ammonia limits. The Long-Term Wastewater Management Plan will also address these treatment standards and move the City towards water recycling.

PROPOSED ORDER

Significant Changes to Order – Although Regional Board staff have worked quickly to revise the City of Soledad's WDRs, the proposed Order is a substantial revision that overhauls and updates the existing order and associated monitoring and reporting program.

The proposed Order incorporates prohibitions, specifications (including influent and effluent limitations, groundwater limitations, system operation, wastewater disposal, sludge and solid waste, and inflow/infiltration), a Salt Management Program, a Long-Term Wastewater Management Plan, and provisions to protect groundwater and surface water beneficial uses and the public health.

The following sections discuss the differences between the proposed Order and the existing Order.

Prohibitions

Prohibition A.1 of the proposed Order, which prohibits the discharge of treated wastewater to areas other than those shown in Attachments allows for Executive Officer approval of additional areas. Regional Board staff believe this flexibility is necessary to allow for significant maintenance or repairs of disposal facilities.

Prohibition A.7 of existing Order 95-25 was not included in the proposed Order. This reclamation prohibition is not applicable until the City develops water recycling. The State Department of Health Services will be involved in the development of any Order incorporating reclamation or recycling requirements.

Specifications

As discussed above, reclamation specifications are not applicable and have been removed in the proposed Order. Reclamation requirements are expected to be incorporated in future Orders when the City develops plans for water recycling as required by the Long-term Wastewater Management Plan.

The proposed Order allows for greater total wastewater flow of 4.1 MGD to account for the increased treatment and disposal capacity of the two facilities.

The proposed Order includes the following effluent limits:

| Constituent | Units | Maximum |
|------------------------|-------|---------|
| Total Dissolved Solids | mg/l | 990 |
| Sodium Chloride | mg/l | 175 |
| Sulfate | mg/l | 250 |
| Nitrate | mg/l | 205 |
| | mg/l | 5 |

Specifically the proposed Order changes the chlorides limit from 170 mg/l to 250 mg/l, which is consistent with the Basin Plan and the Prison Plant's old WDR Order No. 85-35. The City has

consistently violated the 170 mg/l limit. During 2004 effluent chloride averaged 204 mg/l. Salt impacts are a region wide issue and the proposed Order, consistent with other recently adopted Orders for municipal discharges of treated wastewater, requires the City to develop a Salt Management Plan to assess and work to reduce salt impacts to groundwater.

The proposed Order phases in several effluent limits not found in the existing Order:

| Constituent | Maximum Jan. 2006 (mg/l) | Maximum Jan. 2010 (mg/l) |
|------------------|--------------------------------|--------------------------------|
| BOD ₅ | 30 | 10 |
| TSS | 30 | 10 |
| Ammonia (as N) | -- | 5 |

The proposed Order requires secondary treatment standards of 30 mg/l BOD₅ and 30 mg/l TSS to take effect January 2006 and requires tertiary effluent limits of 10 mg/l BOD₅ and 10 mg/l TSS to take effect in January 2010. These new effluent limits are intended to mitigate shallow groundwater quality concerns and ensure adequate treatment of wastewater prior to contact with groundwater. The tertiary standards are also intended to hold the City to its commitment to move towards water recycling.

The proposed Order also phases in an effluent limit for 5 mg/l ammonia (as N) to take effect in January 2010. This phased effluent limit needs to be accounted for when the City develops its Long-Term Wastewater Management Plan. Ammonia is generally converted to nitrate as it percolates through the soil. Therefore, the proposed final limits of 5 mg/l nitrate (as N) and 5 mg/l ammonia (as N) would constitute a theoretical discharge limitation of 10 mg/l, which is equivalent to the Maximum Contaminant Level.

Specifications B.5-11 of the proposed Order address groundwater protection, and include narrative specifications to protect beneficial uses identified in the Basin Plan. All specifications from the existing Order regarding groundwater protection have been incorporated into the proposed Order.

Specifications B.12-18 of the proposed Order address system operation and include requirements to ensure safe operation and control of wastewater. These specifications are relatively consistent with those contained in the existing Order and are similar

to system operation specifications found in recently adopted Orders regulating municipal wastewater dischargers and pond treatment systems.

Specifically, Specification B.15 has been modified for the proposed Order and B.16 has been added to aid in determining freeboard. Specification B.15 requires that freeboard in all ponds exceed two feet, unless it is certified that lesser freeboard is adequate to prevent overtopping, overflows, or levee failures. The existing Order required a 2-foot freeboard in ponds.

Specifications B.19-24 of the proposed Order address Wastewater Disposal and include requirements to ensure safe operation and control of wastewater. These specification also require regular maintenance of disposal areas to ensure long term disposal capacity.

Specifications B.25-B.30 of the proposed Order have been added to ensure appropriate storage, transport, and disposal for biosolids and solid waste.

Specification B.31 of the proposed Order has been added to require best management practices to minimize inflow and infiltration of storm water and/or unauthorized wastewater into the Facility. Regional Board staff acknowledges that the Discharger must work with indirect dischargers to minimize unpolluted storm water discharge to its facility.

The specifications added above are similar to those included in other Waste Discharge Requirements for municipal wastewater facilities and pond wastewater treatment plants..

Salt Management Program

The proposed Order requires an ongoing salt management program with annual submittal of an engineering report/evaluation. The salt management plan is intended to evaluate contributing sources and develop an implementation schedule for the reduction or maintaining salt loading at a level that will ensure compliance with effluent limitations and not negatively impact beneficial uses of groundwater.

Regional Board staff are currently developing long-term region wide strategies to address salts management. The salts management program is

consistent with requests of other similar dischargers in the Salinas Valley.

Long-Term Wastewater Management Plan

The proposed Order requires the Discharger to evaluate wastewater treatment and disposal facilities and take appropriate measures to address deficiencies in treatment performance and disposal capacity by January 1, 2010. As part of the LTWMP evaluation the Discharger is expected to address commitments made by the City to move towards water recycling. The Long-Term Wastewater Management Plan must be submitted to the Executive Officer by May 13, 2006.

Provisions

The proposed Order adds several provisions to ensure that groundwater and surface water beneficial uses near the discharge are protected.

Provision C.7 requires that the Discharger submit an engineering technical report to the Executive Officer that evaluates performance and capacity of the wastewater treatment plants. The report must contain a hydraulic balance analysis of facility inputs and outputs including influent flow, precipitation, infiltration/percolation, and evaporation for both facilities and shall quantify disposal capacity of the facilities based on actual operating data. The report must also include efforts taken to reduce inflow and infiltration by the City and indirect dischargers in compliance with Specification B.31. The reports shall be prepared by, or under the supervision and review of, and be certified by a registered professional engineer, registered in California and possessing applicable experience in wastewater engineering and planning. The first annual engineering technical report is due January 30, 2006. It is Regional Board staff's expectation that such reports will be required until treatment facilities are upgraded and expanded as a result of implementation of the Long-Term Wastewater Management Plan, which will trigger a revision of this proposed Order.

Provision C.8 requires the Discharger to submit a groundwater assessment workplan. The workplan shall evaluate and propose locations for groundwater monitoring wells in the vicinity of the Prison Plant to evaluate background and

downgradient conditions in compliance with the Monitoring and Reporting Program. Former monitoring wells reportedly destroyed.

Monitoring and Reporting Program

There are significant differences, primarily proposed additions, to the proposed Monitoring and Reporting Program.

The proposed MRP requires the Discharger to collect water supply samples annually. Samples shall be analyzed for general minerals. General mineral analysis shall include the following constituents: calcium, magnesium, sodium, sulfate, carbonate, bicarbonate, chloride, total hardness, total alkalinity, total dissolved solids, pH, electrical conductivity, boron, iron, and nitrate (as N). Sampling results for the Department of Health Services may be submitted to satisfy the above general mineral analysis. The existing Monitoring and Reporting Program requires similar water supply monitoring.

The proposed MRP requires the Discharger to perform regular facility monitoring. Applicable facility monitoring will be submitted with each quarterly monitoring report. The existing MRP focused observation to disposal areas.

The Discharger will continue performing routine influent monitoring. Flow volume shall be measured daily, maximum daily flow noted monthly, and mean daily flow calculated on a running 30-day average. Each week samples shall be collected and analyzed for pH. Each month samples will be collected and analyzed for settleable solids, five-day Biochemical Oxygen Demand (BOD₅), total suspended solids, total dissolved solids, sodium, and chloride. Quarterly samples shall be collected and analyzed for sulfate and boron. The proposed influent monitoring is significantly increased over the existing MRP. Regional Board staff require the above monitoring to assess treatment plant efficiency and compliance with waste discharge requirements.

The proposed Monitoring and Reporting Program requires the Discharger to collect and analyze pond samples weekly for pH and dissolved oxygen. Once every three years the Discharger shall measure sludge depth in all treatment and disposal ponds. This monitoring is intended to help prevent, or document, nuisance conditions or

problems that may arise due to extreme operating conditions.

The proposed Monitoring and Reporting Program requires the Discharger to collect and analyze effluent regularly. Each week effluent shall be analyzed for pH. Each month, effluent samples shall be analyzed for BOD₅, settleable solids, total suspended solids, total dissolved solids, sodium, chloride, nitrite (as N), nitrate (as N), ammonia (as N), total kjeldahl nitrogen (as N), and total nitrogen (as N). Quarterly samples shall be analyzed for boron, and sulfate. Annually samples shall also be analyzed for the following Title 22 primary and secondary inorganic drinking water constituents: aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, copper, cyanide, fluoride, lead, mercury, nickel, selenium, thalium, and zinc. Once every five years, samples shall be analyzed for PCBs, pesticides, and VOCs. The proposed increase in effluent monitoring is consistent with other municipal pond wastewater treatment plants and is required to aid in assessing treatment plant efficiency and to assess compliance with waste discharge requirements..

The Monitoring and Reporting Program requires the Discharger to routinely collect groundwater samples (upgradient and downgradient). Quarterly samples shall be analyzed for the following parameters and constituents: depth to groundwater, pH, total dissolved solids, sodium, chloride, nitrite (as N), nitrate (as N), ammonia (as N), total kjeldahl nitrogen (as N), and total nitrogen (as N). Semi-Annually samples shall be analyzed for boron and sulfate. The proposed groundwater monitoring is required to assess overall impacts to groundwater and compliance with waste discharge requirements.

The proposed Monitoring and Reporting Program requires the Discharger to conduct solids monitoring prior to disposal. A summary of activities regarding solids handling is required with each quarterly report. Prior to biosolids removal or change in disposal practices, the Discharger shall submit all disposal site information including biosolids analysis. Representative samples of the biosolids shall be collected and analyzed for the following parameters and constituents: quantity, moisture content, nitrate (as N), total phosphorus, pH, grease & oil, and various heavy metals. Pesticides, PCBs and organic lead have been added

with a lesser frequency. Characterization required by disposal facility may be submitted to fulfill this monitoring requirement. The proposed Monitoring and Reporting Program adds all of the above solids monitoring to clarify the biosolids monitoring required pursuant to Standard Provisions and Reporting Requirements, General Reporting Requirement C.16.

Monitoring reports are required quarterly, by the 30th of January, April, July, and October and shall contain the data collected or calculated over the previous three months. An annual report will be submitted by the 30th of January pursuant to Standard Provisions and Reporting Requirements, General Reporting Requirement C.16. The reports specified by Provisions E.7 and 8 are also listed.

POTENTIAL PROBLEMS

The primary problems faced by the City are shallow groundwater and limited disposal capacity.

As a result, the proposed Order requires the City to improve treatment to mitigate shallow groundwater concerns and to develop and implement a Long-Term Wastewater Management Plan to meet future treatment and disposal needs while helping move the City towards its commitment as outlined in their ROWD of water recycling.

ENVIRONMENTAL SUMMARY

This action is intended to ensure compliance with laws and regulations administered by the Board. As such, this action is categorically exempt from the provisions of the California Environmental Quality Act pursuant to Section 15301 of the Resources Agency Guidelines. Mitigation measures to prevent nuisance and assure protection of beneficial uses of surface and ground waters will be implemented through this Order.

These waste discharge requirements are for an existing facility (City Plant) and a reconstructed facility (Prison Plant) and are exempt from the provisions of the California Environment pursuant to Sections 15301 and 15302, respectively, of Article 19, Chapter 3, Division 6, Title 14 of the California Code of Regulations.

COMMENTS AND RESPONSES

The interested party list contained the following:

City of Soledad
Monterey County Division of Environmental
Health (MCDEH)
Monterey County Building & Planning
Monterey Bay National Marine Sanctuary
State Department of Health Services
State Department of General Services
State Department of Corrections
Neighboring Property Owners

If comments are received they will be addressed
with a supplemental sheet to the Board.

ATTACHMENT

1. Proposed Order No. R3-2005-0074.
2. MRP No. R3-2005-0074.

RECOMMENDATION

Adopt proposed Order No. R3-2005-0074, and
rescind Order No. 95-025.

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WWTP\Order No R3-2005-0074\Staff Report, 4-11-2005.doc