STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF DECEMBER 3, 2004

Prepared November 9, 2004

ITEM: 17

SUBJECT: Revision of Waste Discharge and Water Recycling Requirements, San Benito County Services Area No. 45, Rancho Larios, Order No. R3-2004-0153

KEY INFORMATION

Discharger:	San Benito County, CSA No. 45 -Rancho Larios Development
Location:	Avenida Del Piero, San Juan Bautista
Type of Waste:	Domestic wastewater
Design Capacity:	Existing – 7,000 gallons per day (gpd)
	Proposed – 38,000 gpd
Treatment/Disposal:	Tertiary treatment and secondary disposal
Disposal/Recycling	Existing – Enclosed area spray irrigation
	Proposed – recycling for spray irrigation of landscaping in public areas
Existing Orders:	Waste Discharge/Water Reclamation Requirements Order No. 98-75

SUMMARY

Rancho Larios Wastewater Reclamation Facility has requested permission to expand its water reuse locations. The expanded reclamation will include a recreation area that will have full public access. This change will require that the facility meet all Title 22 reuse and reclamation requirements. The proposed Order includes effluent limitations and use specifications for recycled water, taken directly from Title 22 of the California Code of Regulations. The Order also includes a new consideration of the salts loading caused by this discharge and requires the discharger to implement a comprehensive salts management plan to evaluate potential future salts impacts.

DISCUSSION

The San Benito County Public Works Department owns and operates a wastewater treatment and disposal facility located on Avenida Del Piero, near the town of San Juan Bautista (see Order Attachment A). The facility currently serves 44 homes (7,000 gallons per day), with an expected build out of 140 homes (38,000 gallons per day).

Facility Description
The Rancho Larios treatment system consists of influent screening, influent equalization basin, sequencing batch reactors, filters, chlorine contact chamber, and long-term effluent storage.

Compliance History
Due to the inability of the treatment processes in the Rancho Larios to reduce salts and the use of regenerating water softening systems in the homes, the facility has regularly exceeded the salts limits (TDS, sodium, and chloride) of the previous waste discharge requirements. This Order directs the discharger to take action to minimize salts concentrations in the discharge and potential impacts to the groundwater.

During most of its operation, Rancho Larios has not used its disinfection system, as it was not required by the previous Order. However, in 2002, the chlorine system was operated with a

chlorine residual of 3.5 mg/l for several months. During this period, the coliform was consistently less than 2 MPN.

Proposed Requirements

The existing waste discharge requirements Order No. 98-75 evolved from simple requirements for the original subsurface disposal system to include provisions for limited recycling for soil compaction and dust control at construction sites. Proposed Waste Discharge Requirements Order No. R3-2004-0153 include both Secondary-23 (23 MPN bacteria per 100 ml of water) and Tertiary-2.2 (2.2 MPN per 100 ml of water) recycled water production and use requirements for unrestricted spray irrigation. The proposed requirements are based on the Water Quality Control Plan (Basin Plan), Title 22 of the California Code of Regulations (recycled water regulations), California Department of Health Services' (DHS) conditions of approval of the discharger's proposed treatment technology, and Regional Board staff's best professional judgment. The requirements were developed in close consultation with DHS.

Monitoring and Reporting Program (MRP) No. R3-2004-0153 is part of the proposed Order. The MRP requires routine monitoring of water supply, influent, secondary treatment process effluent, tertiary treatment process effluent, disposal areas, and recycled water use areas to verify compliance with the proposed order and the protection of water quality.

Effluent Limits for Salts

Conventional wastewater treatment processes are not capable of reducing salt concentrations and in many cases, domestic use and wastewater treatment only increase or concentrate final effluent salt loading.

Water Code section 13263 mandates that waste discharge requirements implement the Basin Plan. Water quality objectives in the Basin Plan must be protected through waste discharge requirements. Also, the anti-degradation policy (adopted by the State Board in SWRCB Resolution 68-16) requires that degradation of water quality be permitted only if it is consistent with the maximum benefit of the people of the state, will not unreasonably affect present and anticipated beneficial use of such water, and will not result in water quality less than that prescribed in water quality policies and plans. While the anti-degradation policy conditionally allows some degradation of water quality, it requires that at a minimum, beneficial uses must be protected and water quality objectives in water quality control plans and policies must be implemented.

The Basin Plan contains flexible water quality objectives for TDS, sodium, chloride, sulfate, and boron in specified surface water bodies and groundwater sub-basins. The groundwater objectives for these constituents applicable to Pajaro River sub-basin are shown below:

Table 1: Median Groundwater Objectives for the Pajaro River sub-basin

Parameter	***Sub-area***
(mg/L)	***Tres Pinos***
TDS	1000
Cl	150
Sulfate	250
Sodium	150
Nitrate as N	5

Excerpted from Table 3-8, page III-16 of the Basin Plan

The Regional Board sets effluent limitations for salts to protect surface water and groundwater based on several factors in the Basin Plan. The Regional Board must consider Tables 3-7 (page III-13) and 3-8 (page III-16) which list numeric water quality "objectives" for specific sub-basins and sub-areas. The Basin Plan states these objectives are "to serve as a water quality baseline for evaluating water quality management." The Basin Plan explains that on a case-by-case basis the Regional Board must consider other water quality objectives in the Basin Plan, existing and probable beneficial uses and actual groundwater quality naturally present (Basin Plan pages III-12 and III-15).

Inconsistencies exist within the Water Quality Objectives for Specific Inland Surface Waters, Enclosed Bays and Estuaries (Section II.A.3 and Table 3-7) section of the Basin Plan; median values are cited in the text and annual mean values are cited as a Table 3-7 footnote. The footnote for Table 3-7 states, *"Objectives are based on preservation of existing quality or water quality enhancements believed attainable following control of point sources."* At this time it is uncertain what data was used to develop the water

quality objectives contained in the 1994 Basin Plan and what the term "existing quality" actually refers to.

Table 2 –Groundwater and Effluent Concentrations with Proposed Effluent Limitations

Parameter	Concentration (mg/l)		
	Shallow Groundwater[a]	Effluent[b]	Effluent Limitation
TDS	**1010**	**977**	**1,200**
Sodium	**140**	**198**	**250**
Chloride	**135**	**274**	**400**

Notes:

a) Based on DHS records for 2003

b) Based on monthly average concentrations for 2003 and 2004

Limits have been chosen to minimize salts impacts to the basin through appropriate recycling of plant effluent. To further minimize salts impacts within the San Benito County groundwater basins, language has also been included within this order (Provision F. 3) to strongly encourage the use of cartridge style water softeners within the Rancho Larios development and to require development of a comprehensive salts management plan for the treatment system.

Due widespread use of self-regenerating water softeners within the development, TDS, sodium, and chloride levels all increase significantly (79%, 108%, and 167% respectively) from source water to eventual effluent discharge. This increase ultimately leads to the exceedence of the median objectives set fourth in the Basin Plan. While these levels can be brought down through the exportation of salts (cartridge type softening systems), this problem will require a phased and cooperative approach to manage the salts in this region. By encouraging the use of removable cartridge style softeners, the Regional Board should remain mindful that there are very few facilities currently willing to accept these waste brines for fear of upsetting their own treatment operation and/or possibly violating their own discharge salts limits. The future management of inland salts will require that the ocean dischargers within our region be encouraged to accept brine for direct ocean discharge through their outfalls.

This order directs the Discharger to pursue all reasonable means for reducing the salts loading to the basin due to an increase in flow. The plan for identifying the salts carrying capacity of the land and the necessary steps to achieve this loading will be identified in the comprehensive salts management plan to be submitted by December 3, 2005. Annual updates chronicling progress in this effort will be included in the annual monitoring reports from 2006 on.

Existing Irrigation Area

The existing, non-Title 22 reuse area is located within the Rancho Larios development. Near the storage reservoir, located along Avenida Del Piero and in proximity to Highway 156. The reuse area is properly marked and fenced, and has no public access. Regional Board and the State Department of Health Services have determined that this property is suitable for irrigation with un-disinfected, secondary effluent. This land has been used since July 2000 without any problems. This area is of sufficient size to reuse all effluent from the development at build out.

Proposed Irrigation Area

The proposed Title 22 irrigation area is shown on Attachment B. The County plans to use reclaimed effluent to irrigate the soccer field and surrounding landscaping, as well as nearby grass volleyball court and landscaping surrounding the tennis courts. The current flow of 7,000 gallons per day will be used to irrigate an area of approximately 2.4 acres. Projecting the current unit flow to the approved 140 homes would produce about 22,300 gallons per day, well below the reclamation plant's design capacity of 38,000 gpd. The proposed irrigation area can accommodate all projected flow. The new reuse area will be implemented in phases to coincide with the growth of the development. Any excess flows can be applied to the current fenced irrigation area near the reservoir. Water used for irrigation of the sports fields and landscaping will be applied at an agronomic rate to maximize the fresh water resource and minimize salts returning to the groundwater.

ENVIRONMENTAL SUMMARY

Waste Discharge Requirements for this discharge are exempt from the provisions of the California Environmental Quality Act (Public Resources

Code Section 21100, et. seq.), in accordance with Section 13389 of the California Water Code.

COMMENTS

Bracewell Engineering
Lloyd Bracewell

1. The average and maximum effluent salts concentrations are actually higher than the five-year averages would indicate. Current operating conditions show that the effluent TDS, sodium, and chloride have increased with the rapid expansion of the development. Since this facility has no means for reducing these concentrations, the effluent limits should reflect levels that are consistently attainable. More appropriate data and limits would be based on the following:

Parameter	Concentration (mg/L) Shallow Ground-water[a]	Effluent[b]	Effluent Maximum	Monthly Average Effluent Limitation
TDS	1,010	977	1,092	1,200
Sodium	140	198	246	250
Chloride	135	274	386	400

a) Based on DHS records for 2003.

b) Based on monthly average concentrations for 2003 and 2004.

Staff Response:
Staff agrees that the conditions of the source water combined with this type of treatment system will make it unlikely that the five-year average salts concentrations could be consistently met. It is more reasonable to base these limits on the more recent 2002 and 2003 averages that were slightly higher. Salts management and the encouragement of cartridge style water softener use among Rancho Larios residents should help to ultimately reduce the salts impacts to the basin.

2. The first sentence of Item 3. should be changed to read: "the discharger owns and operates a *tertiary* wastewater..." rather than a secondary treatment plant.

Staff Response:
The draft incorrectly listed the facility as a secondary wastewater treatment facility. Changes have now been made to correctly list it as tertiary treatment.

3. Since the plant has already been constructed, please change Item 11. to read: "A registered engineer shall inspect the treatment system upon completion *of any modifications* to the plant to ensure conformance with design plans. The Discharger shall submit an engineering report including, as built drawings, within 30 days of installation of modifications certifying proper installation and operations."

Staff Response:
Staff modified the proposed Order as requested.

4. Please delete the requirement from the annual monitoring to provide an electronic copy of the data in Microsoft Excel file format. We use a database for our sample data and it would require a lot of work to convert to a usable format.

Staff Response:
Staff agrees it is unreasonable to request the discharger to change the software of his operation in order to meet this request. Staff has removed this requirement from the Monitoring and reporting program. The monitoring data will still be reported in tabular form to the Regional Board, and in existing electronic form when requested.

Fuog Water Resources Inc.
Rene Fuog

1. The Nitrate as N as 5 mg/l is not justified. The original discharge application system was proposed to meet a Nitrate Nitrogen limit of 15 mg/l after treatment, which would result in a Nitrate Nitrogen concentration of 10 mg/l entering the groundwater. Mandatory operation of the filtration system and chlorination system does not change the

effluent with regards to Nitrogen. I therefore strongly recommend that the discharge permit retains this design concept and allow a Nitrate Nitrogen limit of 15 mg/l for its discharge, or 10 mg/l if a groundwater limitation of 8 mg/l is expected.

Staff Response
Staff agrees with this request. The original Draft incorrectly listed the nitrate limit at 5 mg/l as N. This limit has been changed to the Basin Plan recommendation of 10 mg/l.

The Effluent limits have been changed in response to the comments of Mr. Fuog and Mr. Bracewell as shown below.

Original draft:

Parameter	***Limit***
	(mg/L)
BOD_5	30
Settleable Solids	0.5
TDS	1,100
Cl	220
Sodium	210
Nitrate as N	5

This draft Order effluent limits now read:

Parameter	***Limit***
	(mg/L)
BOD_5	30
Settleable Solids	0.05
TDS	1,200
Cl	250
Sodium	400
Nitrate as N	10

The Draft Order was also sent to the following interested parties, but no comments were received:

Larwin Company
The Platinum Partnership LP
Ms. Elizabeth Blodgett
Mr. Peter Breen, Trustee
Mr. Larry Cain
Mr. Eric Del Piero
Mr. Tracie Cone
Mr. James R. Clark
Mark & Jean Gillaspie
Mr. Richard Gularte
Mr. Pong Koenig
Donald & Barbara Holck
Mr. Richard Gurley
Mr. Eric Lacy
Mr. Harold Leister
Ms. Betsy Lichti, Department of Health Services
Ms. Derrinda Messenger Mr. Harvey Nyland, Lumbardo & Associates
Mr. Bob Shingai, San Benito County
Mr. John Gregg, San Benito County Water District
Gerhard & Clyda Guggenberger

RECOMMENDATION

Adopt Order No. R3-2004-0153.

ATTACHMENTS

1. Draft Waste Discharge and Water Recycling Requirements Order No. R3-2004-0153
2. Monitoring and Reporting Program No. R3-2004-0153.