TO: COMMITTEE MEMBERS

FROM: BRUCE BUEL BB

DATE: MAY 1, 2008

AGENDA ITEM 2
MAY 5, 2008

DISCUSS FEEDBACK FROM RWQCB REGARDING DISPOSAL OPTIONS

ITEM

Discuss Feedback From Central Coast Regional Water Quality Control Board Staff Regarding Disposal Options [Provide Policy Guidance].

BACKGROUND

Attached is a letter dated February 29, 2008 that was submitted by Boyle Engineering to the Central Coast Regional Water Quality Control Board regarding regulatory issues and discharge requirements that should be considered in planning the wastewater facility upgrade. Also attached is Central Coast RWQCB staff's response to Boyle's letter dated April 29, 2008.

RECOMMENDATION

Staff recommends that the Committee review and discuss the attached letters and provide staff with policy guidance.

ATTACHMENTS

- Boyle letter to RWQCB, dated February 29, 2008
- RWQCB response letter, dated April 29, 2008

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COPY

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REGIONAL WATER QUALITY CONTROL BOARD
895 Aerovista Pl., Suite 101
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February 29, 2008
19996.42-0000-000

Southland WWTF – Regulatory Issues Under Future Discharge Scenarios

Dear Sorrel,

As suggested during our meeting on 2/26/08, we have prepared this letter to request guidance regarding the criteria that would be applied to Nipomo Community Service District's Southland Wastewater Treatment Facility under future discharge scenarios.

Existing Permit

Under WDR 97-75 the Southland WWTF is permitted to discharge 0.90 MGD (as a monthly average) via percolation ponds located adjacent to the treatment facility. Effluent limits are set for settleable solids, suspended solids, BOD, dissolved oxygen, and pH. Receiving water limits specify that nitrate levels shall not exceed 10 mg/l downstream of the disposal area, and that groundwater samples downstream of the disposal area shall not demonstrate a statistically significant increase in nitrate, sodium, chloride, and TDS when compared to upstream samples.

Existing Conditions

Average annual effluent flow is now approximately 0.6 MGD, with a maximum monthly flow rate of 0.8 MGD.

As noted during the 2/26/08 meeting, the NCSD has commissioned several studies regarding the aquifer directly beneath the percolation basins. Key findings are summarized below:

- A 40 ft. thick layer of clay, acting as a barrier to percolation (the "aquitard") is found between 75 and 115 feet below the ground surface, sloping downward to the west.
- This aquitard separates the upper, perched aquifer from a lower aquifer.

- Four monitoring wells were installed in the upper aquifer in 2000. Data show that a perched effluent "mound" has developed under the percolation basins. Since 2000 groundwater levels have risen between7 and 27 feet, depending on location. The perched water table is now within 20 feet of the bottom of the percolation ponds. Because the mound is centered on the percolation basins, none of the monitoring wells act as a true "upstream" monitoring location.

- Water in the perched aquifer near the percolation basin is similar in quality to the treated effluent in terms of TDS (1100 mg/L), chlorides (250 mg/L), sodium (200 mg/L), and total nitrogen (25 - 40 mg/L).

- Water from this perched aquifer appears to be seeping into Nipomo Creek. During October 2007, at the end of the dry season, measurements of chloride and bromide in Nipomo Creek and in treated effluent showed that at locations downstream from the disposal area, it is reasonable to conclude that between 50% and 65% of the flow in the creek is from the perched aquifer.

- Modeling of the perched aquifer estimates a flow of 0.1 MGD to Nipomo Creek in 2007.

Planned Wastewater Treatment Plant Upgrade

The District has plans to upgrade the existing Southland wastewater treatment facility. This upgrade will include:

- Headworks improvements to include screening and grit removal; and

- Incorporation of the Biolac® wave-oxidation system to reduce nitrogen concentrations from current levels (28 – 46 mg/L) to less than 10 mg/L.

The plant will be sized to handle annual average flows of 1.25 MGD, with maximum monthly flows of 1.68 MGD in the year 2020.

Planned Supplemental Water Supply

The District has plans to obtain supplemental water from the City of Santa Maria. This water source* will contain fewer dissolved solids (TDS = 242 mg/L) as compared to present NCSD supplies (TDS = 666 mg/L).

* NCSD is planning to purchase "municipal mix" water from the City of Santa Maria. During 2007 the City's municipal mix was reported to be 90% State Water (avg. TDS = 172 mg/L), and 10% local well water (avg. TDS = 874 mg/L). Municipal mix TDS (computed here) = 242 mg/L.

Planned Salts Management Program

The District has initiated public education efforts to reduce salts loading from on-site regenerative water softeners. The District plans to enhance this program in the future to reduce salts loading to the Southland WWTF.

Disposal Scenarios

The District may need to modify its existing disposal methods to accommodate increased flows from the Southland WWTF. Various options are under consideration, as noted below:

- Option 0: No Change
  Continue disposal at present location. (This option may be infeasible because the preliminary aquifer model shows that under increased discharge conditions the top of the perched aquifer will be above the bottom of the percolation basins in the year 2017.)

- Option 1: Soil Filtration
  Continue disposal at the present location, but pump groundwater from the perched aquifer for use or disposal in another location. Under this option, flows from the perched aquifer to Nipomo Creek would decrease by half, to 0.05 MGD, while pumping out of the perched aquifer would rise, from 0.51 to 0.67 MGD, over the next ten years.

  One nearby disposal location under consideration is located near the existing site, southwest of Orchard Road.

  If the pumped water were to be used for unrestricted irrigation, it would also be disinfected per Title 22 requirements.

- Option 2: Recycle
  Abandon the percolation basins and treat the effluent to required standards for re-use. Distribute the treated water to suitable customers (golf courses and appropriate agriculture.)

- Option 3: Inject to the Lower Aquifer
  Abandon the percolation basins and treat the effluent to required standards for injection. Inject the water to the lower aquifer.

- Option 4: Treat to Recycle Standards and Improve Percolation to the Lower Aquifer
  Continue disposal to percolation basins and treat the effluent to required standards for re-use. Install dry wells or other conduits in the aquitard to enhance percolation from the upper (perched) aquifer to the lower aquifer.

Request for Guidance

The District would like to know the specific criteria which would be applied, both in terms of effluent water quality and receiving water quality, under the scenarios noted above.

If you require additional information, or have any questions, please call me at (805)542-9840 x104.

Boyle Engineering Corporation

Malcolm McEwen, PE
Senior Engineer

Cc: Bruce Buel

Peter Sevcik

Paul Sorensen (Fugro)

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Linda S. Adams.
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

April 29, 2008

Bruce Buel, General Manager
Nipomo Community Services District
P. O. Box 326
Nipomo, CA 93444-0326

Dear Mr. Buel:

REGULATORY CONSIDERATIONS FOR NIPOMO COMMUNITY SERVICES DISTRICT SOUTHLAND WASTEWATER FACILITY, SAN LUIS OBISPO COUNTY

This letter responds to a February 29, 2008, request from Boyle Engineering (on the District's behalf) regarding regulatory issues and discharge requirements that should be considered in planning the wastewater facility upgrade. As noted in your February 26, 2008, meeting with Water Board staff, Sorrel Marks, the following discharge criteria are based upon staff's professional judgment. Project specific criteria will be adopted by the Water Board and may differ from those summarized below. Each option presented in the February 29, 2008 letter, is addressed separately for clarity.

1. General comment: We support the District's public education efforts to reduce salts discharged to the wastewater system. Many communities have achieved significant salts reductions from stronger actions such as restricting water softener installation to canister type, assessing fees for high salts discharges from self-regenerating softeners, and inspection programs. In addition to voluntary (public education based) actions, the District should develop a salts minimization plan.

2. Option 0, No Change: The District should conclude (from existing Waste Discharge Requirements Order No. 97-75) that continued discharge in a manner that contributes to significant increases in constituent concentrations in groundwater and Nipomo Creek is not acceptable. When information is available indicating such impacts already occur, the District must pursue corrective actions. Such actions are currently being pursued. In summary, Option 0 does not appear a feasible means of protecting water quality.

3. Option 1, Soil Filtration: Use of perched groundwater below the wastewater facility for irrigation purposes would be regulated by Title 22 Water Recycling Requirements (oxidized, coagulated, clarified, filtered and disinfected). Based upon the information available to date, we anticipate such pumped water could be used for unrestricted irrigation after demonstration of compliance with bacteriological limitations (coliform bacteria <2.2 MPN/100mL). If adequate bacteria removal is

available in the soil column, then additional disinfection would not be needed. We encourage you to contact the City of Atascadero for an overview of its experience implementing a similar reuse program. Due to the high salts concentrations in the District's effluent, irrigation of salt-tolerant plants is likely to meet with the greatest success. The following regulatory criteria would likely apply to the water pumped for reuse.

a) All reclaimed water systems shall be installed in a manner consistent with the provisions of Title 17 and Title 22 of the California Code of Regulations and the Uniform Plumbing Code regarding dual plumbed systems, cross connection prevention, and protection of public health. Design and installation of reclaimed water systems shall be reviewed by State and County Health Departments for approval prior to operation.

b) Reclaimed water discharged to irrigation reclamation areas shall at all times be adequately oxidized, coagulated, clarified, filtered, disinfected and shall not exceed the following limitations:

Parameter	Units	Mean	Maximum
BOD_5	mg/L	10	30
Suspended Solids	mg/L	10	30
Settleable Solids	ml/L	0.1	0.3
Turbidity	NTU	2*	5*
pH	units	Within the range of 6.5 – 8.4	

*Shall not exceed daily average of 2NTU or 5 NTU for more than 5% of the time over a 24 hr. period.

c) The median number of coliform organisms in reclaimed water shall not exceed 2.2 MPN per 100 ml, as determined from the bacteriological results of the last 7 days for which analyses have been completed. The number of coliform organisms shall not exceed 23 MPN per 100 ml in any single sample in a 30-day period or 240 MPN/100ml in any sample.

d) If chlorine is used as disinfectant, free chlorine residual in reclaimed water shall equal or exceed 0.5 mg/L, but be no greater than 5 mg/L, as measured immediately after the chlorine contact zone. Chlorine contact time shall exceed 90 minutes, and chlorine contact time multiplied by the residual (CT) shall equal at least 450mg-min/L. Alternative disinfection systems must be approved by the California Department of Health Services

e) Delivery of reclaimed water shall cease and all wastewater shall be contained if disinfection of wastewater ceases at any time, or reclamation specifications are violated or threaten to be violated.

4. Option 2, Recycle: The direct use of effluent for irrigation purposes would be regulated by Title 22, with the same criteria as described for Option 1 above.

5. Option 3, Groundwater Injection: California Department of Public Health has developed draft criteria for groundwater injection of treated wastewater, in order to protect public health and water quality. The criteria include site characteristics, aquifer mixing, travel time to extraction wells, and effluent quality. The Department of Public Health recommendations would be incorporated into any requirements adopted by this Board and are available for reference at the following link: http://www.cdph.ca.gov/certlic/drinkingwater/Documents/Recharge/DraftRegulations.pdf

6. Option 4, Recycle and Groundwater Injection: All of the criteria for Options 2 and 3 above would apply.

7. The District should consider the following foreseeable Total Maximum Daily Load (TMDL) issues in planning the wastewater facility:

   a) Nipomo Creek is listed as impaired on the Clean Water Act 303(d) list. The listing was prompted by elevated fecal coliform levels, in excess of standards for protection of water contact recreation beneficial use. A TMDL for fecal coliform is being developed by Water Board staff for the Santa Maria River/Oso Flaco Lake watershed, which includes Nipomo Creek. Staff anticipates that the allocations to achieve the TMDL will be equal to the water quality objective protecting water contact recreation (200 MPN/100mL fecal coliform organisms). However, the TMDL allocations do not supersede any other bacteria-related discharge limits that may be more strict than the TMDL allocation.

   b) The District should consider minimizing all potential bacteria loading into surface and ground waters in the project area. For example, we suggest that you connect all onsite systems within the existing prohibition zone, to prevent potential surfacing septage and other failures that may contribute to fecal coliform discharges. Also, you should consider connecting onsite systems outside of the prohibition zone that may not be functioning properly (e.g., due to septic tank absorption fields located in areas with slow permeability, older residences/systems, higher density of homes, residences adjacent to impaired water bodies).

If you have questions, please call **Sorrel Marks at 805/549-3695** or Burton Chadwick at 805/542-4786.

Sincerely,

for Burton Chadwick

Roger W. Briggs
Executive Officer

S:/wdr/wdr facilities/san luis obispo co/Nipomo/probable limits.ltr
Task: 126-01
File: Nipomo CSD Southland Plant

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