STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF MAY 11, 2007

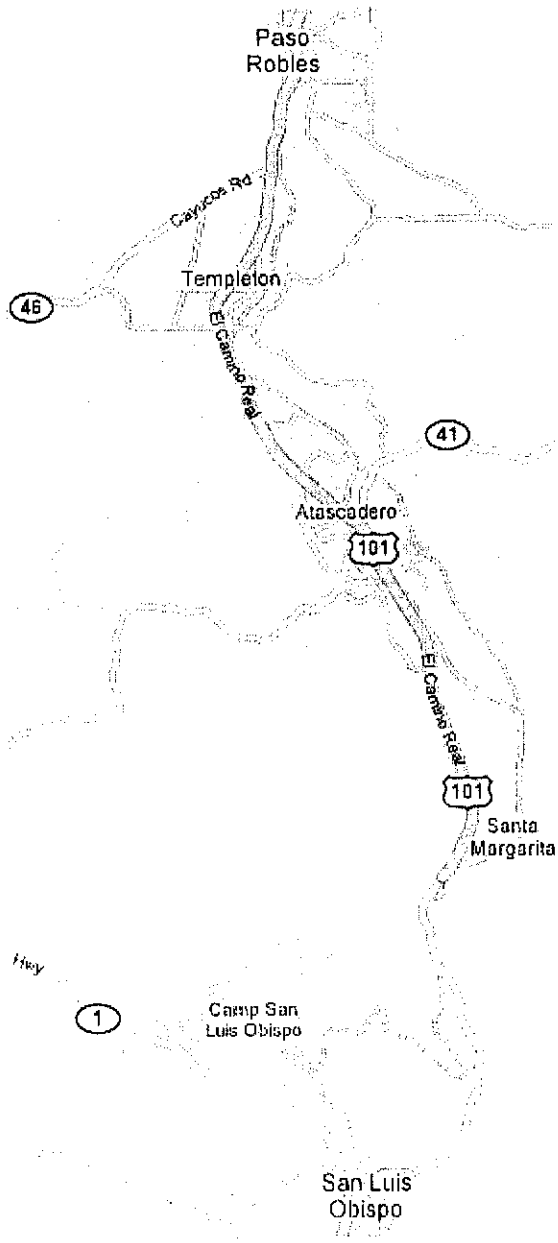
Prepared on January 29, 2007

ITEM NUMBER: 21

SUBJECT: Revision of Waste Discharge Requirements for Templeton Community Services District, Meadowbrook Wastewater Facilities, San Luis Obispo County, - Order No. R3-2007-0029

KEY INFORMATION

Location:	Bennett Way, Templeton
Type of Waste:	Domestic
Existing Discharge:	300,000 gallons per day
Proposed Discharge	600,000 gallons per day
Treatment/Disposal:	Oxidation Pond/Spray Disposal and Percolation Beds
Reclamation:	None
Existing Order:	Order No. R3-2007-0029
This Action:	Adopt Waste Discharge Requirements



SUMMARY

The Templeton Community Services District provides a sewer utility for the 5,000-person community of Templeton. To prepare for community growth, the Templeton Community Services District proposes to expand sewer capacity from 300,000 gallons per day to 600,000 gallons per day.

The proposed waste discharge requirements are consistent with those of similar facilities, except for pH limits. The proposed pH limits recognize 1) an oxidation pond's pH response to photosynthetic activity, and 2) the disposal soils buffering capacity. Thus, the proposed waste discharge requirements do not include effluent pH limits.

Another notable aspect of the proposed waste discharge requirements concerns salt limits. Previous salts limits recognized that

Templeton's water supply salt levels exceeded our Basin Plan's numeric water quality objectives. So, previous salt limits allowed the community to use its water supply, add a set amount of salts, and then discharge to the receiving water. Such a regulatory strategy is not necessarily protective of the receiving water because the supply water quality may be worse than the receiving water quality. To preclude that scenario, salt limits should be based on the receiving water quality. The proposed salt limits resulted from a site-specific groundwater flow and solute transport model. The model predicts the extent of the discharge's salt plume, which allows for informed decision-making. By understanding the extent of the salt plume, one can balance the need to discharge with the need to protect water quality.

DISCUSSION

General

The unincorporated Templeton area lies along U.S. 101, approximately five miles south of Paso Robles and five miles north of Atascadero. California Highway 46 intersects U.S. 101 on Templeton's north edge. The semi-flat to hilly area resides at 721 feet above sea level and has a mild climate with an average rainfall of about 15 inches. The average rainy season runs from mid-October to mid-April, with frost occurring occasionally.

The outskirts of Templeton consist of agricultural lands and open space. Agriculture includes production of almonds, cherries, apples, grains and dairy products. The most rapidly increasing product is grapes. Many wineries occupy the roads winding through the neighboring hills. The Templeton core consists of a rural, 5000-person residential community with small commercial, agriculture, industrial components. The Templeton Community Services District provides sewer service to residents and property owners within its 3.5 square mile service area.

Supply Water

The Templeton community uses water supplied by the Templeton Community Services District's network of wells. The community's water quality is represented in the table contained on the following page. The community uses that water and produces sanitary wastewater. The Templeton Community Services District collects and treats the wastewater, then discharges the treated wastewater to the Salinas River system, where it becomes available for downstream uses.

The nearest known downstream user is Templeton, which has a supply well about 8,000 feet downstream from the disposal ponds. No other users are known to exist between Templeton's discharge and Templeton's downstream supply wells. Beyond that well, the next nearest known supply wells belong to the City of Paso Robles. Paso Robles' Thunderbird well field is about 3.6 miles downstream from the disposal ponds.

Collection System

The sewer collection system includes four lift stations, 15 miles of collection piping, 2 miles of interceptor line, and 1,619 service laterals serving approximately 5,400 residents and 184 businesses.

The District has two distinct sewer tributary areas. The first tributary area flows to the Templeton Community Services District's Meadowbrook Wastewater Treatment Plant and the second tributary area flows to the City of Paso Robles Wastewater Treatment Plant (Under an agreement, the City of Paso Robles accepts a portion of Templeton Community Services District's sewage).

Currently, about 96,000 gallons of sewage flows to the Meadowbrook plant per day. The Meadowbrook plant is designed to process up to 300,000 gallons of sewage per day. Templeton intends on expanding the Meadowbrook plant and has requested revised waste discharge requirements that permit a 600,000 gallons-per-day discharge.

Templeton CSD Public Water Supply Quality
(As reported by Templeton CSD's 2005 Annual Water Quality Report)

SUBSTANCE (UNITS)	MCL*	PHG**	AMOUNT DETECTED	RANGE LOW–HIGH
Primary Drinking Water Standard				
Aluminum (ppm)	1	0.6	0.013	ND-0.14
Arsenic (ppb)	50	0.004	4.95	ND-23
Asbestos (MFL)	7	7	0.47	ND-5.2
Barium (ppm)	1	2	0.039	ND-0.22
Fluoride (ppm)	2.0	1	0.29	0.12-0.5
Gross Alpha Particle Activity (pCi/L)	15	(0)	1.77	ND-7.22
Gross Beta Particle Activity (pCi/L)	50	(0)	1.56	ND-10.0
Nitrate (as nitrate, NO3)	45	45	7.73	ND-46.2
Nitrite (as nitrogen, N)	1	1	0.17	ND-0.88
Selenium (ppb)	50	(50)	8.79	ND-9.1
Uranium (pCi/L)	20	0.43	2.23	2.18-7.8
Secondary Drinking Water Standard				
Chloride (ppm)	500		94	40-165
Color (Units)	15		0.9	ND-5
Foaming Agents[MBAS] (ppb)	500		3.6	ND-40
Iron (ppb)	300		133	ND-435
Manganese (ppb)	50		10.9	ND-70
Odor--Threshold (Units)	3		0.9	ND-1
Specific Conductance (µmhos/cm)	1,600		1,040	700-1,550
Sulfate (ppm)	500		124	58-335
Total Dissolved Solids[TDS] (ppm)	1,000		671	490-1,000
Turbidity (Units)	5		0.3	ND-0.6
Unregulated Substances				
Bicarbonate (ppm)	411			250-640
Boron (ppb)	244			95-900
Calcium (ppm)	127			46-190
Hardness (ppm)	394			130-745
Magnesium (ppm)	36			12-62.5
pH	7.4			7.1-8.1
Potassium (ppm)	2.95			1.0-5.0
Selenium (ppm)	2.92			ND-9.1
Sodium (ppm)	85			27-210
Total Alkalinity (ppm)	333			130-530
Vanadium (ppm)	11			ND-28

*MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs as is economically and technologically feasible. Secondary MCLs (2nd MCL) are set to protect the odor, taste and appearance of drinking water.

**PHG (Public Health Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. The California EPA sets pHGs.

Wastewater Treatment and Disposal

The Templeton Community Services District's Meadowbrook Wastewater Treatment Plant treats wastewater using two oxidation ponds in a series configuration. Influent flows to Pond 1A, then to Pond 1B. Following treatment, wastewater flows to percolation ponds, storage ponds, or a sprayfield.

The proposed Wastewater Treatment Plant expansion will double design capacity to 600,000 gallons per day by:

- Adding two new treatment ponds, designated as ponds 2A and 2B. Those ponds would "mirror," and operate in parallel to, ponds 1A and 1B,
- Expanding the wet weather storage pond capacity to 51-acre-foot,
- Adding two new percolation ponds to the Selby disposal site
- Relocating and expanding the spray disposal area from 4.5 to 10 acres
- Upsizing the Shane Lane 10-inch diameter gravity sewer to an 18-inch diameter gravity sewer.

The treatment plant and spray field occupy the rolling hills adjacent to Paso Robles Creek, on the West side of Hwy 101. The percolation ponds are located East of Hwy 101 and adjacent to the Salinas River, with a setback of 100 feet. A transmission line carries treated wastewater from the treatment site to the percolation disposal site. The disposal ponds and transmission line are on lowland area with slopes generally under 4 percent. Treatment/sprayfield soils consist of silty clay loam with underlying alluvial sand and gravel. Percolation soils consist of off-channel alluvium.

To insure the Salinas River is not impacted by operation of the percolation beds, they will be operated in an alternating 'wet/dry' mode, so that there is no water stored within the beds. This will insure there is no water in the beds in case of flooding.

The proposed Order prohibits using the seven percolation beds during flood periods. The proposed order also prohibits discharges to the beds when the depth to ground water is less than 8 feet. The wet weather storage pond, which will have a capacity of approximately 51 acre-ft, will be available for these periods.

Receiving Water Characteristics

Templeton discharges to percolation ponds that were carved out of the Salinas River's off-channel alluvial deposits. Groundwater depth fluctuates with the hydrologic cycle and operation of the Salinas Dam, but ranges from approximately 12 to 17 feet in the area of the percolation beds. It generally flows in a northerly direction, coinciding with the river direction.

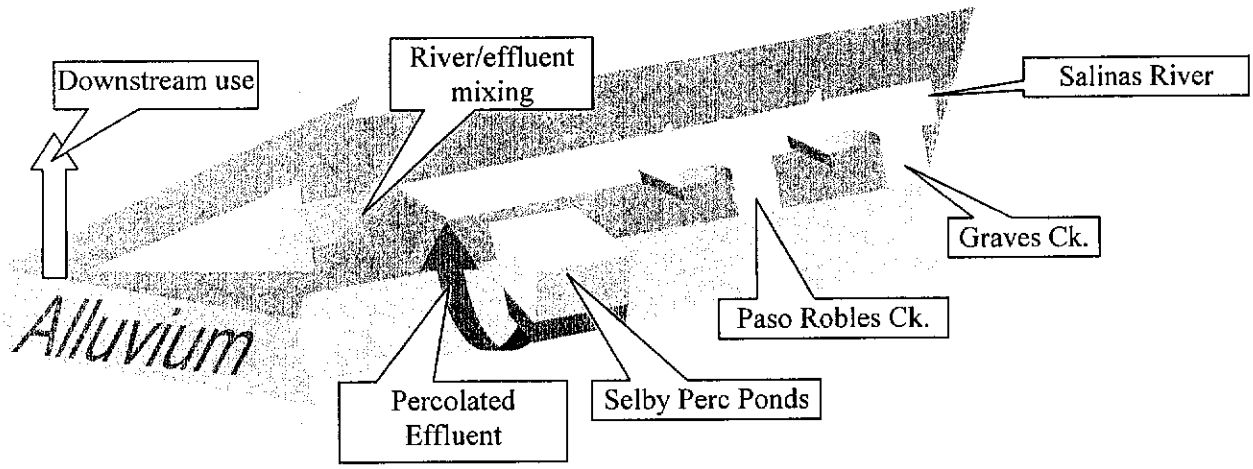
Traditionally, Staff treated percolated discharges as discharges to groundwater and based effluent salt limits on the Basin Plan's numeric water quality objectives for the Templeton sub-area of the Paso Robles Ground Water Basin, which are:

Analyte	Average	Units
Total Dissolved Solids	730	mg/l
Sodium	75	mg/l
Chloride	100	mg/l
Nitrate (as N)	2.7	mg/l
Sulfate	120	mg/l

Those limits are meant to preserve the sub-basin's prescribed beneficial uses of:

- Domestic and municipal water supply,
- Industrial process supply,
- Agricultural water supply, and
- Industrial service supply.

Upon closer scrutiny, applying those beneficial uses to Templeton's receiving water may is inappropriate because Templeton's receiving water body is not the Paso Robles Groundwater Basin. A thick clay layer separates the Salinas River from the underlying Paso Robles Formation. Thus, little or no recharge occurs from the Salinas River into the Paso Robles



Formation. Instead, the Salinas River flows through the Templeton area both reheic (visibly) and hyporheic (beneath the alluvium surface), but does not recharge the groundwater basin. Templeton's discharge percolates into the hyporheic zone. So, downstream, the percolated effluent mixes with river water and may emerge to become "surface" water, but it does not become groundwater. The situation is depicted in the above drawing.

The situation gives rise to a debate about whether the discharge is to surface water or groundwater. So far, in our region, such discharges are treated as non-NPDES discharges because they initially percolate. Whether the discharge is deemed to enter surface water or groundwater becomes academic if one recognizes it more generally as the "receiving" water. Any prescribed limits should be protective of the receiving water, regardless of its classification as surface water or groundwater.

Potential Problems

Odors

Generally, odors can be a problem at wastewater facilities. Headworks and wet wells are typical sources for odors. Oxidation ponds, if well oxygenated, minimize odors. The Templeton Community Services District's wastewater facility has not had a history of odor problems. As long as The Templeton Community Services District continues current practices, odor problems are not expected.

Inundation

The treatment facilities and wet weather storage area are protected from the 100-year frequency floods. The percolation beds are currently located within the fringe area of the 100-year flood plain. Their use is limited to low-water conditions. So, 100-year floods will not inundate the percolation ponds when those ponds contain treated wastewater. Instead, the treated wastewater will go to the wet-weather storage area.

Overflows

Typically, overflows occur from collection systems and lift stations. Collection line blockage causes sewage to back up in the system until it overflows. Lift stations pump sewage from low to high points, until gravity flow can again carry sewage to its desired location.

Power loss can prevent lift station pumps from operating. Failure to pump lift stations leads to overflows. Having back-up power readily available prevents lift station overflows.

Pump failures can also cause lift station overflows. Having back-up pumps readily available prevents lift station overflows. If a

pump fails, alarm systems should alert personnel to the problem. Then, personnel can rapidly respond to minimize the overflow.

Good collection system operation and maintenance programs minimize overflows resulting from blockages and lift station failures. The Templeton Community Services District seems to have a good collection system operation and maintenance program because staff is not aware of excessive overflows.

Vector Transmission

As long as wastewater is contained within the designed system, vector transmission does not occur.

Salts

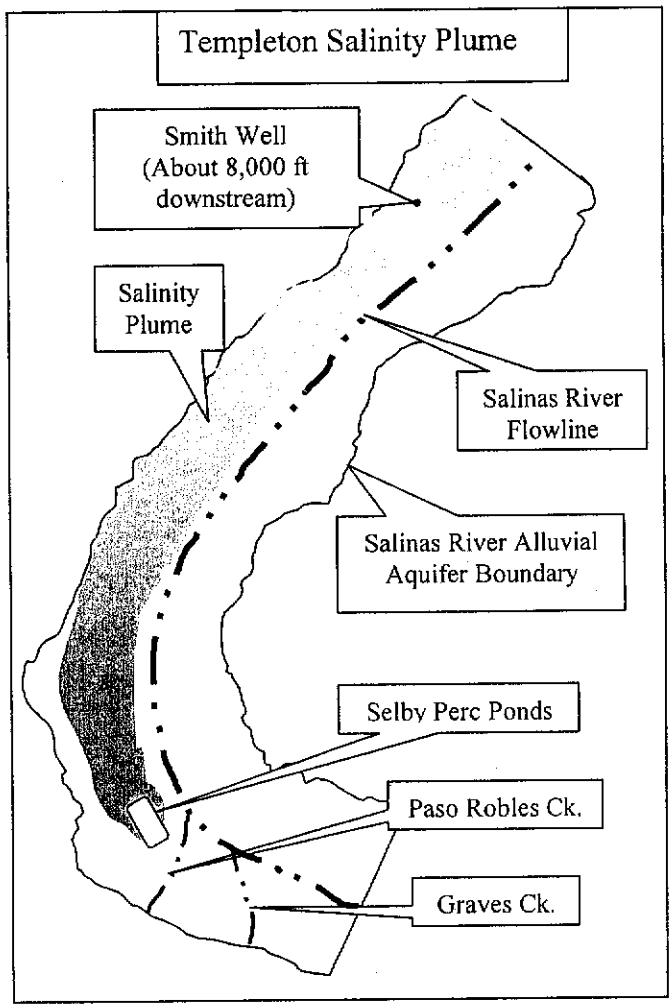
For the Templeton discharge, salts may present the biggest unmitigated threat to water quality and public health. Templeton discharges to percolation ponds that were carved out of the Salinas River's off-channel alluvial deposits. The discharge percolates through the alluvium and mixes with the Salinas River's subterranean flow. Because the discharge's salinity is greater than the receiving water salinity, a salinity plume develops. This condition occurs whenever a discharge is more saline than a receiving water, which is usually the case in our region. Therefore, this condition exists throughout our region.

Staff and the Templeton Community Services District modeled Templeton's salinity plume to understand its extent. The model uses the proposed flow rate of 600,000 gpd and the Templeton's historic, average effluent quality, and other data concerning background concentrations and Salinas River flow.

As shown in the adjacent diagram, the plume originates at the disposal ponds and proceeds downstream. The plume occurs on a bend of the Salinas River, where the river direction changes from northerly to east-northeast. For thousands of feet after the plume's origin, the plume "hugs" the outside of the bend and does not significantly spread across the width of the channel. The following analysis of chloride concentrations dramatizes the plume.

Salinas River background chloride concentrations are around 40 mg/L. Then, Templeton discharges 360 mg/L effluent into the Salinas River. About 8,000 feet downstream, at Templeton's "Smith" supply well, chloride concentrations average around 112 mg/L across the channel, with the Smith well concentration at around 147 mg/L. The chloride concentration is above the background concentration of 40 mg/L, but has lessened with distance from its point of origin. At the Smith well, the plume is trending towards assimilation, but has not assimilated.

At the maximum discharge rate of the expanded plant, given an effluent chloride concentration of



360 mg/L, the chloride concentration in the Smith well is expected to eventually stabilize at approximately 147 mg/L, which is below the recommended Title 22 standard of 250 mg/L for drinking water. The District has an obligation to maintain high water quality for its customers, and believes that the discharge will allow continued use of the Salinas River water for municipal and domestic supply.

The average chloride concentration of the Salinas River underflow in the area of the Smith well is expected to be approximately 112 mg/L, once the Selby ponds are fully operational at the maximum disposal volume of 600,000 gpd. This value is slightly greater than the Basin Plan's 100 mg/L median groundwater objectives for the Templeton sub-area of the Paso Robles Sub-basin (Table 3-8, Page III-16 of the Basin Plan).

A review of current conditions in the Atascadero area, and the relationship of the City of Atascadero's wastewater treatment plant to chloride levels in Templeton, is likely indicative of conditions that could be expected in the Paso Robles area once the District's facility is fully operational. Current operational discharge volumes of the City of Atascadero's facility is approximately 1.3 million gallons per day (MGD), or slightly more than double the eventual operational discharge volume at Templeton. The chloride levels in the Atascadero effluent average approximately 280 mg/L. Chloride levels in the closest municipal well to the Atascadero facility, located approximately 4,000 feet downstream of the ponds, are approximately 190 to 210 mg/L, which is slightly higher than but consistent with the anticipated levels of 147 mg/L in the Smith well, given twice the distance from Selby to the Smith well of about 8,000 feet. And, lastly, it is important to note that background levels of chlorides at both the Atascadero facility and the Selby property are in the 40 to 45 mg/L range. Thus, a condition similar to that expected at the Selby-Smith sites exists in the City of Atascadero, whereby chloride levels are reduced from similar concentrations (approximately 280 to 350 mg/L) back to background levels (40 to 45 mg/L) by the time underflow reaches Templeton, a distance of about 4.2 miles.

By comparison, the distance from the Selby ponds to the Thunderbird well field, the closest municipal wells operated by the City of Paso Robles, is approximately 3.6 miles. The current background chloride concentrations in the Thunderbird wells range from 40 to 44 mg/L, which again is very similar to the background levels immediately upstream of the Selby ponds.

Compliance Status

This is an existing discharger who has a good working relationship with Staff. Inspections reveal professional pride in maintenance and operation. The Discharger is forthcoming with information. Despite the Discharger's best efforts, salt and pH effluent violations occur. Templeton CSD monitoring reports (1998 to present) show consistent violations of TDS, sodium, chloride, as follows (in the table, an "x" indicates a violation):

	TDS	Sodium	Chloride
Jan-99	x	x	x
Apr-99		x	x
Nov-99	x	x	x
Apr-00		x	x
Oct-00			x
Oct-01	x		x
Oct-02	x		x
Apr-03	x	x	x
Nov-03			x
Oct-04	x		x
Oct-05	x		x
Apr-06	x	x	x
Jun-06			
Oct-06	x		x

Additionally, the record shows numerous pH violations. Salt and pH violations are difficult

to address and will be discussed later in this report.

Proposed Order

Intent and Basis

The Order is intended to implement State Water Resources Control Board Resolution No. 68-16 (the "anti-degradation" resolution), which says:

> "Any activity which produces...a waste...discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained."

Because the "anti-degradation" resolution is necessarily vague, regulations, policies, and our Basin Plan were developed to further define how the "anti-degradation" resolution's objectives would be met. In addition, Staff applied professional judgment to the proposed Order. Among professional considerations are standard professional practices, commonly available technology, and site-specific hydrologic and water quality conditions.

Format

The proposed Order's *Prohibitions* prohibit practices that could cause a condition of pollution or nuisance. The proposed Order's *Discharge Specifications* and *Groundwater Limitations* set limits to achieve the highest water quality consistent with maximum benefit to the people of the State. The proposed Order's *Provisions* condition the discharge on accurate monitoring and reporting, and on professional operation and maintenance practices. Throughout the proposed Order and Monitoring and Reporting Program, footnotes are included to indicate the source of specified requirements.

Effluent Limits; General

Limits are set for typical municipal sanitary pollutants:

- Flow (quantity discharged),
- Conventional pollutants (BOD, dissolved oxygen, suspended solids, settleable solids, oil & grease),
- Non-conventional pollutants (minerals, total nitrogen, ammonia), and
- Title 22 chemicals and radionuclides

Effluent Limits; Conventional

Effluent flow limits are based on the technical design contained in the Discharger's *Report of Waste Discharge*. That design uses standard expectations for conventional pollutant effluent quality from oxidation pond systems. Accordingly, the proposed Order includes standard conventional pollutant limits.

Effluent Limits; Non-conventional

Non-conventional pollutants (dissolved solids and nitrogen are the most common) are more difficult to regulate than conventional pollutants because non-conventional pollutant treatment technology is less practicable; it is relatively expensive and more difficult to achieve. The proposed Order's non-conventional pollutant limits do not force the Discharger to implement non-conventional pollutant treatment technology. Rather, the limits allow a discharge of non-conventional pollutants at concentrations normally expected in municipal sanitary wastewater, while maintaining adherence to the "anti-degradation" resolution.

Minerals (or "Salts") -- The Regional Board must set salt limits that balance Templeton's need to discharge waste with the needs of existing and future downstream water users. To the Board's advantage, the nearest known downstream user is Templeton, which has a supply well downgradient from the disposal ponds. No other users are known to exist

between Templeton's discharge and Templeton's downstream supply wells. That arrangement provides Templeton with motivation to assure that its discharge does not cause a pollution or nuisance.

Templeton's effluent salts should be limited so that Templeton's water supply wells do not suffer pollution or nuisance. When setting limits, the Basin Plan lists median water quality objectives for various groundwater bodies. The Basin Plan states,

> "It must be recognized that the median values...are values representing gross areas of a water body. Specific water quality objectives for a particular area may not be directly related to the objectives indicated. Therefore, application of the [median] objectives must be based upon consideration of the surface and ground water quality naturally present; i.e., waste discharge requirements must adhere to the previously stated [General objectives for all inland surface waters] and issuance of requirements must be tempered by consideration of beneficial uses within the immediate influence of the discharge, the existing quality of receiving waters, and water quality objectives."

That statement indicates a preference for using site-specific data as a limit basis, with an emphasis on 1) beneficial uses within the immediate influence of the discharge, and 2) the existing quality of receiving waters.

The existing waste discharge requirements attempted to implement that strategy. A 1993 Ground Water Study, written by Dr. David Chipping, concluded that Paso Robles Groundwater Basin's water quality was highly variable and historic total dissolved solids concentrations near Templeton exceeded Basin Plan objectives. The differences between the Basin Plan and the 1993 Groundwater Study were not discussed in previous staff reports. Most likely, the conclusions were based on different data sets. Staff gave credence to the 1993 Groundwater Study, evidenced by the total dissolved solids limits established in the existing waste discharge requirements.

The existing salt limits are "consumptive use" limits. That is, the limits are determined by the water supply concentration plus an expected contribution from water users. For example, the existing average total dissolved solids limit is "Water Supply + 250 mg/L." Such limits assume that the water supply has the same quality as the receiving water. Such limits concede that the numeric Basin Plan limits are not applicable, and are an attempt to limit salt discharges to a reasonably expected amount. That approach has been discredited with regards to receiving water quality protection because the water supply is not always the same quality as the receiving water. To dramatize the point, the "consumptive use" limit would technically allow an ocean brine source water to be discharged to a freshwater basin. So, Staff stopped using "consumptive use" limits. If the Basin Plan's numeric water quality objectives are too generalized to be relevant, and "consumptive use" limits are inappropriate, staff must determine appropriate limits.

This time around, Staff worked with the Templeton Community Services District to develop site-specific salt limits, per the following Basin Plan statement:

> "Specific water quality objectives for a particular area... must be based upon consideration of the surface and ground water quality naturally present"

Staff and the Templeton Community Services District modeled the discharge's impact upon the receiving water. Staff believes that the model approximates the actual conditions encountered in the field.

Using the Discharger's salinity model, the following salt limits result in a plume that balances the need to discharge with the need to maintain water quality and beneficial uses:

Parameter	30-day ave (mg/L)	Max (mg/L)
TDS	1200	1450
Na	265	360
Cl	360	440
Total Nitrogen, as N	11	20

Effluent Limits; pH

When bacteria consume BOD, they respirate and release carbon dioxide. The carbon dioxide subsequently dissolves to yield carbonic acid. Carbonic acid rapidly dissociates to bicarbonate ion, increasing pond alkalinity. The various chemical species of alkalinity affects pond pH. The main species present are carbon dioxide, and carbonate ion.

Algae are desirable in oxidation ponds as they generate oxygen needed by bacteria for waste stabilization. Algal growth in oxidation ponds raises pH because algae use inorganic carbon (like the carbon dioxide and carbonate ion resulting from bacterial activity) for growth. Algal growth reduces the pond alkalinity that may cause the pH to increase if the pond alkalinity (pH buffer capacity) is low.

Algae can grow to such an extent in ponds that they consume for photosynthesis all of the carbon dioxide and carbonate ion present, leaving only carbonate as the pH buffering species. This causes the pH of the pond to become alkaline. pH values of 9.5 or greater are common in ponds during algal blooms, which exceed stand effluent pH limits.

For land disposal, disposal soils typically have buffering capacity. So, non-neutral pH is typically not a problem. The exception occurs when non-neutral pH wastewater is discharged to calcareous shales. If acidic water flows over rocks containing calcite (CaCO3), such as calcareous shales, calcium and carbonate ions will dissolve into the water. Therefore, TDS will increase. However, the predominant soils in the Salinas River alluvium are comprised of non-marine (continental) sedimentary rocks; Pliocene and/or Pleistocene sandstone, shale, and gravel deposits; mostly loosely consolidated. So, percolated, high pH water shouldn't leach additional ions. The proposed Order does not require effluent neutralization because the cost outweighs the benefit; disposal soils provide neutralization.

In light of the natural pH fluctuation in Templeton's oxidation ponds, and the fact that the disposal soils do not contain significant quantities of calcareous shales, Staff proposes to eliminate effluent pH limits. Also, The proposed Order does not include receiving water pH limits because, once effluent is released into the environment, pH can change due to many factors beyond the discharger's control.

Effluent Limits; Pathogens

The natural increase in pond pH caused by algal growth, as described above, can be beneficial. Phosphorus removal by natural chemical precipitation is greatly enhanced at pH values greater than pH = 8.5. In addition, ammonia stripping to the atmosphere is enhanced at higher pH values. But, the greatest benefit derived from elevated pH is natural disinfection of pathogens. That disinfection, coupled with disposal soils' capacity to destroy pathogens, has proven to be sufficient protection against pathogens. Consequently, and conventionally, the proposed Order does not include limits on pathogens or pathogen indicators.

Effluent Limits; "Emerging" Pollutants

"Emerging Pollutants," such as pharmaceuticals and disinfection byproducts, have become discussion topics in the wastewater industry. There is much debate about their impact on the environment. Because "emerging" pollutant impacts, detection, treatment, and monitoring are not well understood or commonly regulated;

the proposed Order does not set limits on "emerging" pollutants.

Receiving Water Limits

Receiving water (in this case, initially the hyporheic flow of the Salinas River, and possibly including downstream rheic water) can experience natural, complex chemical reactions that are dependent on the environmental conditions encountered. For example, if the receiving water flows through varying geochemical formations, the mineral content or pH of the water may increase. Downstream detection of such increases is not necessarily evidence of a discharge's impact on water quality. That fact makes it difficult to determine a proper receiving water limit.

Differing downstream water quality should not always be construed as "discharge-related" and, in response to the detection, imposing mineral or pH treatment requirements upon the discharger would not always be reasonable. Consequently, the proposed Order does not include receiving water pH limits because, once effluent is released into the environment, pH can change due to many factors beyond the discharger's control. Also, the proposed Order does not include the existing Order's requirement that, "*there shall be no significant increase in mineral concentrations as determined by comparison of samples collected from upgradient and downgradient wells.*" Instead, an alternate, more scientific and site-specific, approach (explained below) to protecting the receiving water is proposed.

Total dissolved solids (or "TDS"), sodium, and chloride are in a state of dynamic equilibrium with alluvial sediments. Total dissolved solids aggregates the combined content of all inorganic and organic substances contained in a liquid which are present in a molecular, ionized or micro-granular (colloidal sol) suspended form. It includes sodium and chloride. Chloride is less reactive (i.e., more stable) than sodium. Therefore, downstream chloride concentration increases represent the best indication of a discharge's impact on a receiving water. The Discharger's solute transport model simulated chloride transport and indicates a plume of relatively non-reactive chloride. The results of the simulated chloride transport were considered conservative for describing the transport behavior of TDS and sodium in the alluvium. These results can also be comparatively applied for sulfate, boron, and nitrogen.

Under a steady-state discharge, that plume should stabilize and the chloride concentration will be predictable at any point downstream. By comparing the predicted chloride concentration to the actual chloride concentration at a selected point downstream, the model can be calibrated and/or confirmed. Using the Discharger's salinity model and historic data, the proposed Order applies the following receiving water limits at Templeton's "Smith Well":

Parameter	Max (mg/L)
TDS	500
Na	110
Cl	150
Total N	4.5
B	0.2
SO_4	150

Monitoring

Monitoring and Reporting Program R3-2007-0029 is a part of the proposed Order. The MRP requires routine chemical monitoring of water supply, influent, ponds, effluent, and receiving water for conventional and non-conventional pollutants; flow measurement; and visual observations of facility condition and proper operation.

Reporting

Monitoring reports are required quarterly, to be submitted by the last day of February, May, August, and November

ENVIRONMENTAL SUMMARY

The Discharger received a Negative Declaration for their use permit on May 5, 1998 from the Templeton Community Services District Board of Directors.

Mitigation measures to prevent nuisance and assure protection of beneficial uses of surface and ground waters will continue to be implemented through this Order.

COMMENTS

Staff solicited comments from the following known or suspected interested parties:

Templeton, CSD
John Wallace and Associates
City of Paso Robles Department of Public Works
Fugro West
San Luis Obispo County Planning Dept.
San Luis Obispo County Health Department
State Department of Fish and Game
State Department of Health Services, Office of Drinking Water
State Water Resources Control Board
U. S. Fish & Wildlife Services

No comments were received

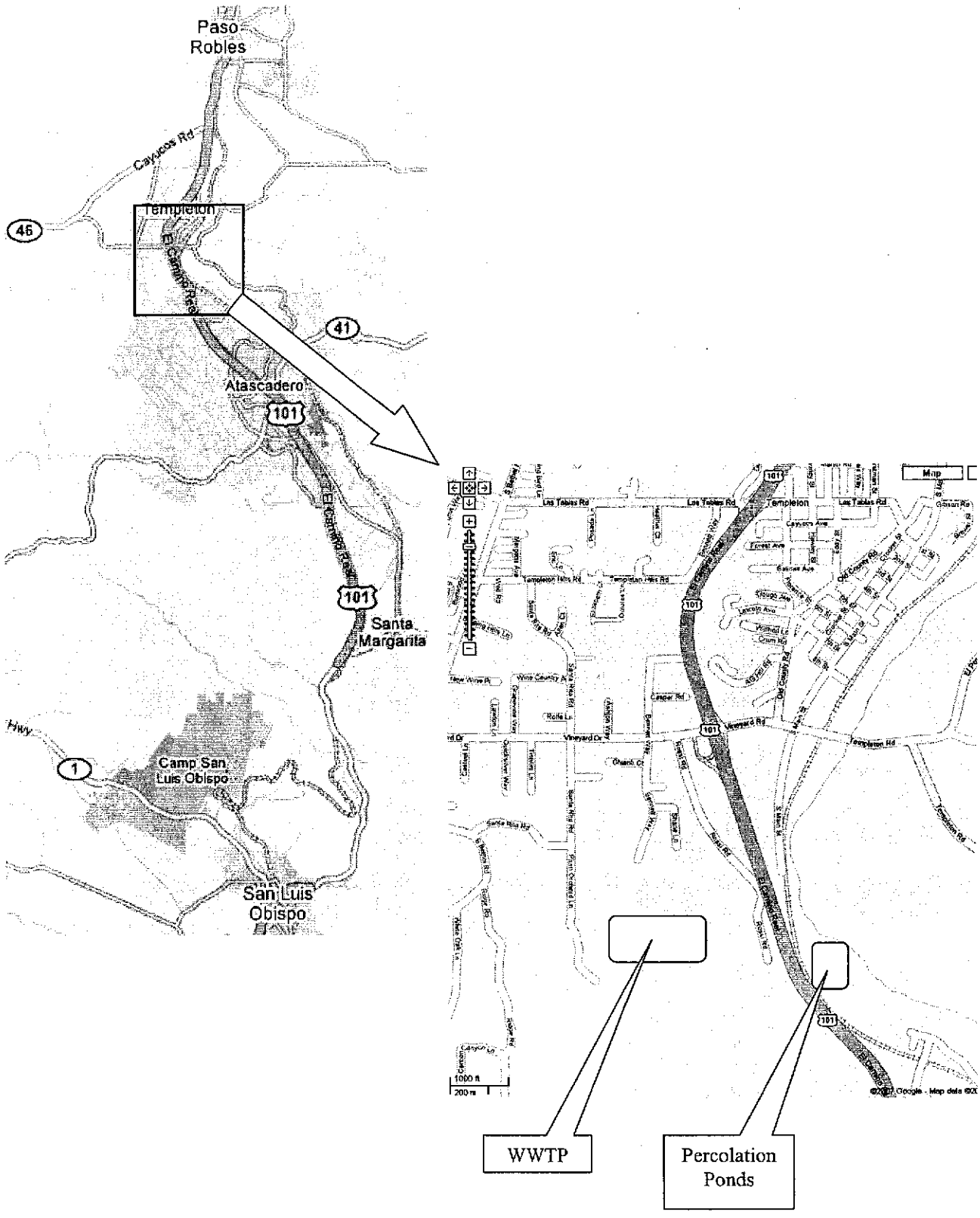
ATTACHMENTS

Proposed Waste Discharge Requirements Order No. R3-2007-0029

Proposed Monitoring and Reporting Program No. R3-2007-0029

RECOMMENDATION

Adopt Order No. R3-2007-0029 as proposed.



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD CENTRAL COAST REGION	**Templeton Community Services District** **San Luis Obispo County, California** **Location Map**	**Attachment** **A**