CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

INFORMATION SHEET
ON
TENTATIVE ORDER NO. R9-2009-0072

WASTE DISCHARGE REQUIREMENTS FOR COUNTY OF SAN DIEGO
SAN PASQUAL ACADEMY
SAN DIEGO COUNTY

I. Background

The San Pasqual Academy Wastewater Treatment Plant (Academy WTP) has been discharging under Waste Discharge Requirements since November 1973. Most recently, the Academy WTP has been operating under Order No. 94-04. Order No. 94-04 was issued to the Southeastern California Conference Seventh-Day Adventist for disposal of up to 50,000 gallons per day of treated wastewater. The wastewater treatment plant still treats domestic wastewater from up to 400 students and staff; however, the treatment plant no longer consists of a strainer, two air flotation units, a chlorine contact tank, six plastic mesh filters, and two oxidation ponds with ultimate disposal of approximately 26 acres of animal feed and foliage crop and eucalyptus trees (San Diego Regional Board, 1994). Currently, the wastewater plant consists of a bar screen and aeration basin with ultimate disposal to a grass strip percolation pond/spray irrigation bed bounded with eucalyptus trees. (San Diego Regional Board, 2009)

On May 31, 2000, the County of San Diego (County) took over operation of the Academy WTP. A letter dated January 19, 2001 fulfilled the requirements established under Provision C.2 of Order No. 94-04 to notify the Regional Board of transfers in ownership of the treatment facility. Amendment or revision of the Order was delayed until the County developed a long term plan to address the inadequate treatment facilities that caused exceedances of biochemical oxygen demand (BOD), total suspended solids (TSS), and pH effluent limitations. (McCann, 2001) The long term plan included construction of new headworks and a lined aeration pond which was completed in May 2002. (County of San Diego, 1992)

The Academy WTP's performance can be evaluated by reviewing effluent data. The following table compares the Academy WTP's effluent data from the January –June 2009 reporting period (County of San Diego, 2009) to both groundwater water quality objectives and Order No. 94-04 Discharge Specifications.

Table 1. Comparison of 2009 Effluent Data to Objectives

Constituent	Groundwater Water Quality Objective	30-Day Average Discharge Specification as established in Order No. 94-04	Range of Effluent Concentrations
	All units in mg/L unless otherwise noted		
BOD	n/a	30	12.7 – 23.4
TSS	n/a	30	23.2 – 60.3
VSS	n/a	n/a	21.5 – 47.4
pH	n/a	Between 6.0 and 9.0 units	7.6 – 8.6 units
TDS	1000	800	776 - 820
Cl	400	130	152 - 213
SO_4^-	500	130	88.7 - 134
B	0.75	0.5	0.12 - 0.33

Note: BOD - Biochemical Oxygen Demand; TSS - Total Suspended Solids; VSS - Volatile Suspended Solids, TDS – Total Dissolved Solids, Cl – chloride, SO_4^- - Sulfate, B - Boron

II. Discharge Specifications

Total Suspended Solids, Biochemical Oxygen Demand, pH

Discharge Specifications for Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), and pH are based on secondary treatment standards established in Title 40 of the Code of Federal Regulations Part 133. Proper operation of the new aeration pond typically results in compliance with established discharge specifications. During a conversation with Ms. Milicia Kaludjerski of the County during the Academy WTP inspection on March 20, 2009, she reported that the County installed new blowers to remove septic zones within the aerated portion of the pond in order to decrease concentrations of TSS in the effluent (San Diego Regional Board, 2009). Recent high levels of TSS shown in Table 1 were reportedly due to an algae bloom. The County has taken steps to prevent future algae blooms by increasing the concentration of light-blocking dye (Aquashade) and changing detergents used in the laundry facilities to a low phosphate detergent (County of San Diego, 2009).

Total Dissolved Solids, Chloride, Sulfate

In its August 15, 2009 letter, the County requested relaxation of discharge specifications for Total Dissolved Solids (TDS), Chloride (Cl), and Sulfate (SO_4^-). The County reported that there is no equipment capable of controlling TDS, Cl, and SO_4^- at the facility. High summer temperatures, long detention times, and constant winds are all factors contributing to high effluent TDS and chloride concentrations (County of San Diego, 2009). TDS and chloride sources within the San Pasqual Academy, including food preparation facilities, self regenerating water softener systems, and laundry facilities, were investigated by the County.

No conclusions regarding the impact of these sources on the Academy WTP effluent have been provided. Data on the influent water quality to the treatment plant is unavailable.

Consequently, Regional Board staff reevaluated discharge specifications. Tentative Order No. R9-2009-0072 establishes discharge specifications for TDS, Cl, and SO_4^- below water quality objectives and at an achievable level based on historical effluent data. The annual average compliance period is established in lieu of daily maximum and 30-day averages to allow more appropriate evaluation of long term impacts to groundwater and account for variability in the effluent.

Iron, Manganese

The County has not monitored for iron and manganese in the Academy WTP's effluent. Based on Finding 10 of the Order, iron and manganese have been detected in the potable water supply at concentrations higher than groundwater water quality objectives. In order to prevent further degradation to groundwater from sources within the San Pasqual Academy, the tentative Order requires the County to account for iron and manganese in the Irrigation Management Plan.

III. Monitoring Frequency

Compared to Order No. 94-04, the tentative Order decreases the monitoring frequency for mineral constituents from semiannually to annually and requires monitoring for additional constituents (total nitrogen, iron, manganese, and methylene blue active substances [MBAS]).

Monitoring frequency has been decreased for the purposes of allowing the County to spend saved money on monitoring of additional constituents and the development of both the project specific Irrigation Management Plan and San Pasqual Hydrologic Area (HA) Salt and Nutrient Management Plan. Additionally, monthly sampling of the Academy WTP's effluent by the County has established a large dataset to support decreased monitoring frequency.

Monitoring of total nitrogen, iron, manganese, and MBAS is required to establish a dataset from which the Regional Board will be able to determine potential impact to groundwater and necessity to develop or modify discharge specifications for those constituents.

IV. Recycled Water Policy

Tentative Order No. R9-2009-0072 requires the County to participate in the development of a salt and nutrient plan for the San Pasqual Hydrologic HA groundwater basin. This requirement is consistent with State Water Resources Control Board (State Board) Resolution No. 2009-0011, *Adoption of a Policy for Water Quality Control for Recycled Water*, which references and adopts the *State*

Water Resources Control Board Recycled Water Policy (Recycled Water Policy). In the Recycled Water Policy, the State Water Board found that the appropriate way to address salt and nutrient issues is through the development of regional or subregional salt and nutrient management plans rather than through imposing requirements solely on individual recycled water projects. (State Board, 2009, Recycled Water Policy) Until a salt and nutrient management plan has been prepared for the San Pasqual HA, the County will be required to develop an Irrigation Management Plan for the Academy.

Wastewater from the Academy WTP is not considered recycled water. Wastewater could be classified as undisinfected secondary recycled water, as defined in section 60301.900 of the California Code of Regulations (CCR), Title 22, if it was managed and used in a manner consistent with section 60304(d) of CCR, Title 22. Section 60304(d) states:

Recycled wastewater used for the surface irrigation of the following shall be at least undisinfected secondary recycled water:

(1) Orchards where the recycled water does not come into contact with the edible portion of the crop,

(2) Vineyards where the recycled water does not come into contact with the edible portion of the crop,

(3) Non food-bearing trees (Christmas tree farms are included in this category provided no irrigation with recycled water occurs for a period of 14 days prior to harvesting or allowing access by the general public),

4) Fodder and fiber crops and pasture for animals not producing milk for human consumption,

(5) Seed crops not eaten by humans,

(6) Food crops that must undergo commercial pathogen-destroying processing before being consumed by humans, and

(7) Ornamental nursery stock and sod farms provided no irrigation with recycled water occurs for a period of 14 days prior to harvesting, retail sale, or allowing access by the general public.

V. General Irrigation Permit

The requirement for the County to develop an Irrigation Management Plan will ensure the use of effluent occurs at an agronomic rate while employing practices to ensure irrigation efficiency necessary to minimize application of salinity constituents (by mass) to the disposal area. This requirement is consistent with State Board Water Quality Order No. 2009-0006-DWQ, *General Waste Discharge Requirements for Landscape Irrigation Uses of Municipal Recycled Water (General Permit)* which was adopted on July 7, 2009. Although the General Permit applies only to recycled water, the findings on salinity and

nutrients in the General Permit are applicable to the disposal of wastewater from the Academy WTP to a spray field/percolation bed. Compliance with the Irrigation Management Plan will be determined by salinity and nutrient loading calculations.

References:

1. California Regional Water Quality Control Board, San Diego Region. 1994. *Order No. 94-04, Waste Discharge Requirements, Southeastern California Conference Seventh-Day Adventist, San Pasqual Academy, San Diego County.*

2. McCann, Michael. April 24, 2001. "San Pasqual Waste Discharge Requirements Order No. 94-04; File No. 01-0336." Letter.

3. County of San Diego. July 31, 2002. "Semi-Annual Self-Monitoring Report – San Pasqual Academy – Report Period Ending June 2002."

4. County of San Diego. July 30, 2009. "Self-Monitoring Report – San Pasqual Academy, SCR: 01-0336, Period of January through June 2009."

5. California Regional Water Quality Control Board, San Diego Region. March 20, 2009. "Facility Inspection Report for San Pasqual Academy."

6. County of San Diego. August 15, 2009. "Update of Waste Discharge Requirements for San Pasqual Academy."

7. State Board. 2009. *Recycled Water Policy.*

8. State Board. 2009. *General Waste Discharge Requirements for Landscape Irrigation Uses of Municipal Recycled Water (General Permit).*

9. "Use of Recycled Water for Irrigation." Title 22 California Code of Regulations (2 December 2000) section 60304.