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

STAFF REPORT FOR REGULAR MEETING OF JULY 11, 2003

ITEM:

SUBJECT: **Waste Discharge Requirements for California Polytechnic State University, San Luis Obispo County, Order No. R3-2003-035**

KEY INFORMATION

Location:	California Polytechnic State University, San Luis Obispo
Discharge Type:	Wastewater and solids from confined animal facilities, stormwater runoff from campus operations, construction sites, and other facilities campus-wide
Design Capacities:	Dairy Unit – 28.7 acre-feet, Beef Center – 1.7 acre-feet, Swine Unit - 10.4 acre-feet
Treatment:	Retention ponds for animal waste
Disposal:	Liquid and solid animal waste to percolation ponds and agricultural fields
Existing Orders:	No. 94-1 (Dairy Unit), 91-44 (Beef Center), and 86-74 (Swine Unit).

SUMMARY

California Polytechnic State University, San Luis Obispo (Cal Poly or Discharger), is a polytechnic teaching institution located on the central coast of California midway between Los Angeles and San Francisco. The main campus is composed of an academic core and six ranches which total approximately 6,000 acres in the San Luis Opispo Creek Watershed. Approximately 6 miles north of the main campus, the Chorro Creek watershed ranches cover approximately 6,300 acres (See both on Attachment A). The main campus is composed of various habitats, which include urban (Campus Instructional Core), agriculture, range, riparian, wetland, and aquatic. These habitats contribute to the wide variety of activities and uses associated with Cal Poly's undergraduate teaching programs.

The Discharger has three specific point source discharges which have been previously regulated under separate waste discharge requirements. These discharges are from the Dairy Unit (DU), Beef Center (BC) Beef Evaluation Unit, and the Swine Unit (SU). The treatment facilities for these areas consist of several retention/settling ponds located on the campus within the San Luis Obispo Creek Watershed. To maintain appropriate freeboard and maintain capacity for winter storms, wastewater is pumped via spray irrigation on adjacent pastureland.

The Water Quality Management Plan (WQMP) represents a cooperative implementation approach between Cal Poly and the Regional Water Quality Control Board (Regional Board) to address water quality, management, and permitting requirements in a comprehensive and proactive manner. The WQMP provides detailed descriptions of pollution prevention, treatment, and monitoring activities campus-wide and is the basis for the proposed requirements. Therefore, the WQMP is subject to review approval and enforcement by the Regional Board. Cal Poly is the first campus within the California State University system to take a comprehensive approach to water quality management, and it is anticipated that the WQMP will serve as a model for other campuses in the future.

DISCUSSION

California Poly serves a population of approximately 16,000 students, faculty, and staff. Most domestic wastewater is handled by the City of San Luis Obispo's Water Reclamation Facility. Outlying buildings and agricultural units use small septic and

leach field systems regulated through by San Luis Obispo County, and therefore not covered by this Order.

Background

The primary objectives of this Order are to: 1) consolidate and streamline water quality regulations and requirements campus-wide, 2) update existing requirements for discharge of treated wastewater to land, 3) update the discharge monitoring and reporting program and, 4) assume compliance with the Basin Plan and applicable laws and regulations pertaining to nonpoint source discharges campus-wide.

Throughout the proposed Order and WQMP, discharges of waste to surface water is prohibited and management practices are required to be implemented to assure surface water discharges do not occur.

Ground water limitations are specified in this Order to prevent degradation caused by the discharge (primarily in the vicinity of the animal waste disposal areas). To measure compliance with Waste Discharge Requirements, the monitoring and reporting program requires analysis of effluent and ground water samples for regulated parameters. The program also requires regular inspection of the pond and land disposal areas.

Median ground water objectives listed in the Basin Plan for this Sub-basin are:

Constituent	Groundwater objective mg/l
TDS	900
Sodium	50
Chloride	200
Total N	5

Actual groundwater data from monitoring wells upgradient and down gradient of disposal operations reveals the following average values:

Constituent	Up-gradient (mg/l)	Mid-gradient (mg/l)	Down-gradient (mg/l)
TDS	468	940	700
Sodium	93.2	91.4	49.8
Chloride	40.6	148	190.4
Nitrate (as N)	1.1	18	39
Total N	1.2	20	39.4

Average effluent values for the same constituents for each unit are as follows:

Constituent	Concentration (mg/l)		
	DU	BC	SU
TDS	1035	2250	501
Sodium	67.1	295.4	48
Chloride	73.8	686	43.3
Total N	450	9.0	35

Nonpoint Source Discharges: Proposed Order R3-2003-035 includes standards that apply to confined animal facilities runoff, stormwater management, and pond solids distribution. The Prohibitions and Discharge Specifications require best management practices and emphasize Basin Plan requirements for campus-wide activities. More in-depth coverage of nonpoint source discharges on campus are covered by the campus WQMP which specifies best management practices for all on campus activities which could affect water quality. There are best management practices specific to agricultural land management, urban areas, wetland/riparian area management, and landfill/quarry operations.

Point Source Discharges

Animal Facilities: The three main confined animal facilities are the dairy unit (DU), beef center (BC) and swine unit (SU). Wastewater discharge from the units shall not exceed the amount of waste generated by 375 animal units of cattle (DU), 240 animal units of test cattle (BC) and 600 head of swine (SU). Wastewater from the facilities (process wash water and storm runoff contaminated with animal wastes) is collected into retention ponds. Provisions of this Order will require confirmation of design (waste disposal) capacity of all animal containment units. Activities or facilities not specifically noted in this Order will be operated using the best management practices (BMPs) listed in the WQMP.

The runoff collection systems and retention ponds are designed to prevent animal waste from flowing into nearby Stenner Creek. Uncontaminated storm runoff and roof drainage are diverted away from the retention pond. Domestic wastewater generated at the facilities is discharged to a conventional septic tank/leach field system; such wastes are not discharged to the retention pond.

Regulatory History

Three point source campus discharges under this order have previously been regulated under separate waste discharge requirements from this Board. The SU has operated since 1986 by Order No. 86-74. The DU has been regulated since 1994 by Order No. 94-01. The BC has been regulated since 1991 by Order No. 91-44. This proposed Order will combine the regulation of these three discharges under one set of requirements and one monitoring and reporting program. Nonpoint source discharges such as storm water and agricultural land management have heretofore been regulated through separate permits, certifications, or waivers. This proposed Order, in conjunction with the Water Quality Management Plan will serve to regulate all activities on campus which are likely to impact surface or groundwater quality.

Water Quality Management Plan: The Discharger developed the WQMP in an effort to streamline water quality management in areas which are influenced by campus activities. The aim is to use a more integrated internal approach toward water management and streamline the external regulatory procedures. Water quality protection under the Plan is primarily achieved through the staff training in, and implementation of BMPs. The Plan was adopted by Cal Poly and first implemented as campus policy in May, 2001.

Since its implementation, the WQMP has become essential for directing campus use of water resources, as various departments manage disposal, irrigation, maintenance, and construction activities throughout the campus. The WQMP serves as a guide and training tool to campus staff and students in implementation of BMPs for the Point and Nonpoint Source Pollution Prevention Programs, and Storm Water Pollution Prevention Programs.

Monitoring, Reporting, and Training

To assure that water quality objectives are being implemented, the WQMP calls for monitoring BMPs, identifying any problems associated with implementation, solving implementation problems, and the reporting of these results to the RWQCB. Quarterly and semi-annual reports will be prepared and submitted to the Regional Board to review and effectiveness of and compliance with both the WQMP and these waste discharge requirements.

The WQMP also provides for an annual training program for campus program managers. The training will not only orient new employees to appropriate water management, but also update staff on changes (reporting or otherwise) in the WQMP. The WQMP will be updated to incorporate improvements identified through problem resolution process and with input from the Regional Board staff. These Waste Discharge Requirements will be modified when point source discharges (DU, BC, SU) change in volume, process, or character, or as new potential impacts to water quality are identified.

401 certification: In future revisions of the WQMP and these requirements, the Discharger will seek to streamline the process for attaining 401 certification for projects which involve filling or dredging within national waterways within campus boundaries. A general 401 permit will be sought by the University to cover all ongoing and repetitive dredge and fill activities. The BMPs of the WQMP will be clarified and expanded to cover future waterway alterations on campus. Though originally planned as part of this campus-wide permit, the process will have to first be formally resolved with the Army Corps of Engineers (through a general 404 permit) before it can be incorporated into future revisions of these campus-wide waste discharge requirements.

Beneficial Uses Present and anticipated beneficial uses of ground water in the vicinity of the campus discharges include:

a. Municipal and Domestic Supply, and
b. Agricultural Supply; and,
c. Industrial Supply.

Though it must be noted that this order does not allow discharge of any kind to surface water, present and anticipated beneficial uses of Stenner and Brizziolari Creek (tributaries of San Luis Obispo Creek) and tributaries of Chorro Creek passing through the eastern portions of the campus include:

a. Domestic and municipal supply,
b. Agricultural supply,
c. Ground water recharge,
d. Non-contact water recreation,
e. Water-contact recreation,
f. Wildlife habitat,
g. Cold freshwater habitat,
h. Warm freshwater habitat,
i. Fish migration,
j. Fish spawning,
k. Freshwater replenishment,

l. Preservation of Biological Habitats of Special Significance,
m. Rare, threatened or endangered species; and
n. Commercial and sport fishing

COMPLIANCE HISTORY

The Discharger has had a mixed compliance record with the existing Waste Discharge Requirements No. 94-1 (DU), 91-44 (BC), and 86-74 (SU). Violations cover three main categories: 1) high pH in storage ponds, 2) improper pond sludge disposal/reuse practices, and 3) ongoing groundwater impacts from nitrates and salts.

Violations of pH limits have been repeatedly reported from the Swine Unit ponds. These problems have largely been attributed to improper sampling procedures such as taking grab samples at depths that are not representative of the effluent being discharged. The Monitoring and Reporting Program associated with this Order will improve the reliability and validity of those monitoring procedures to more accurately monitor the water being discharged.

Improper sludge and solids disposal has been sited in several Notices of Violation (NOVs). These requirements contain a provision (D.10) to prepare a plan for Executive Officer approval detailing the effective distribution and use of pond bottom solids and compost materials. The monitoring and reporting program will also require complete documentation of amounts and locations used in all solids use and reuse operations.

Elevated nitrate and salts levels in groundwater continue to be a water quality concern. Several NOVs have been issued to the campus regarding this matter. The monitoring network is not yet comprehensive enough to identify causes for the highly elevated constituent levels in groundwater underlying the campus. Effluent (Finding 20) and downgradient wells (Finding 21) consistently show nitrate and salt levels well above the Basin Plan objectives.

Monitoring of the underlying groundwater in the vicinity of the land disposal areas does indicate that (according to the existing monitoring system) all monitored constituents increase across the disposal areas to well above background levels and Basin Plan objectives. The Dairy Unit, with its high nitrogen content effluent and its solids disposal practices, appears to represent the largest threat to groundwater quality. Initial evaluation of what is considered to be downgradient groundwater, shows nitrate (as N) levels far exceeding both background and basin plan targets. Provisions have been included in the Order to evaluate existing data and make necessary modifications to the treatment ponds and sludge disposal operations to reduce these impacts (Provision 10). Continued and improved monitoring (Provision 7 and 8) will be used to gage the effectiveness of the WQMP at reducing the water quality impacts caused by campus activities. This Order seeks to sequentially improve first the monitoring network and then the treatment and disposal practices so that Basin Plan groundwater objectives can be met.

POTENTIAL PROBLEMS

The approach used in this proposed Order is unique in that it is an effort to regulate a multitude of water quality issues under a single, facility-wide Order. Accordingly, a considerable amount of time and coordination is necessary make certain that all potential threats to water quality are addressed adequately and reasonably. This will be an iterative process through the evaluation and update of the WQMP. Difficulties may arise during the annual updates of the Cal Poly Water Management Plan in relation to these waste discharge requirements. Significant changes in the management plan will require Regional Board approval. Identification of ground water threats and impacts by either University or Regional Board staff may indicate a need for a more comprehensive monitoring program as time goes on. Ongoing monitoring will be necessary to determine reductions of discharge limits or improvements in monitoring or changes in facilities and campus operations in order to minimize campus impacts to water quality.

On (Mailing Date)**, 2003**, the Board notified the Discharger and interested agencies and persons of its intent to issue waste discharge requirements for the discharge and have provided them with a copy of the proposed Order and an opportunity to submit written views and comments.

CEQA 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

Pending.

RECOMMENDATION

Pending comments.

ATTACHMENTS

1. Proposed Waste Discharge Requirements Order No. R3-2003-035

2. Proposed Monitoring and Reporting Program Order No. R3-2003-035

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