STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF MAY 11, 2007

ITEM 19

SUBJECT **REVISED WASTE DISCHARGE REQUIREMENTS ORDER NO. R3-2007-0023 AND MONITORING AND REPORTING PROGRAM ORDER NO. R3-2007-0023, FOR THE CLOSED LOS OSOS CLASS III LANDFILL (LANDFILL), SAN LUIS OBISPO COUNTY**

KEY INFORMATION

Location:	2285 Turri Road approximately 1.5 miles northeast of the community of Los Osos as shown on **Attachment 1** of Waste Discharge Requirements Order No. R3-2007-0023.
Type of Waste:	Non-hazardous municipal solid wastes.
Waste In Place:	838,000 cubic yards.
Disposal:	Area fill method.
Liner System:	Unlined Landfill.
Cover System:	Final cover consists of two feet of foundation layer, one foot of compacted clay and one foot vegetative layer.
Groundwater Contamination:	Volatile organic compounds and inorganic compounds are detected in groundwater above background in groundwater.
Existing Orders:	Waste Discharge Requirements Order No. 94-64, Waste Discharge Requirements Order No. 93-84 (Landfill Super Order), State Water Resources Control Board Water Quality Order No. 97-03 DWQ (General Industrial Storm Water Permit), Cleanup or Abatement Order No. 95-66.
This Action:	Adopt Waste Discharge Requirements Order No. R3-2007-0023.

SUMMARY

Waste Discharge Requirements Order No. R3-2007-0023 (Hereafter "Order" or "Order No. R3-2007-0023") replaces Waste Discharge Requirements Order No. 94-64, adopted by the Central Coast Water Board on July 8, 1994. The primary purpose for Order No. R3-2007-0023 is to reflect the change of ownership and to revise and update requirements for post-closure maintenance and long-term monitoring of groundwater, surface water, and landfill gas.

The proposed Order also brings the Landfill into compliance with California Code of Regulations Title 27, Solid Waste, effective July 18, 1997 (CCR Title 27), and Title 40 of the Code of Federal Regulations (CFR) Parts 257 and 258 Solid Waste Facility Disposal Criteria, Final Rule, as promulgated October 9, 1991 (40CFR 257 and 258). Additionally, the proposed Order removes the Landfill from the requirements of Order No. 93-84 "Waste Discharge Requirements Amendment for All MSW Landfills in the Central Coast Region" (Super Order).

This updated Order benefits water quality by updating the requirements for post-closure maintenance and long-term monitoring or groundwater, surface water, and landfill gas.

Proposed Order No. R3-2007-0023 and Monitoring and Reporting Program No. R3-2007-0023 are included as Attachment 1 and 2, respectively.

DISCUSSION

Landfill Description and History

Mrs. Jeena W. Piccuta (hereafter "Owner"), owns the property on which the Los Osos Closed Class III Landfill (hereafter "Landfill") is located. The County of San Luis Obispo (hereafter "County") is responsible for closure and post-closure maintenance of the Landfill. These Waste Discharge Requirements apply to both County and Owner (hereafter "Discharger").

Previous owners of the property on which the Landfill is located include Mr. George Sousa and Mr. and Mrs. George and Ann Martines.

Disposal operations began at the Landfill in December 1958. The Landfill last received waste on November 26, 1988 when the County closed the Landfill with approximately 838,000 tons of waste in place. The site covers approximately 40 acres with a landfill footprint of approximately 25 acres. The unlined Landfill is located at 2285 Turri Road approximately 1.5 miles northeast of the community of Los Osos as shown on Attachment A of the Order. The Landfill is located above Warden Creek, a seasonally flowing creek that joins the Los Osos Creek half a mile downgradient of the Landfill. The location of the Landfill is described as, Section 16, Township 30 south, Range 11 east, Mount Diablo Base and Meridian or Assessor Parcel Number 067-011-047.

Previous Landfill operators placed waste as area fill on native silty clay, sandy clay, and sandy soils with no liner or leachate collection and removal system. The Landfill site slopes to the south-west with ground surface elevations ranging from 35 to 160 feet mean sea level.

The County constructed the final cover for the Landfill in 1990. The Central Coast Water Board approved the final cover in January 1991. The County installed additional surface drainage improvements at the site in 1991.

Compliance History

The County identified VOC impacts to groundwater at the Landfill after installation of monitoring wells in 1986. The County addressed groundwater and surface water contamination originating from the Landfill through Cleanup or Abatement (CAO) Order No. 89-90 issued on March 27, 1989. CAO Order No. 89-90 required that the County characterize the nature and extent of groundwater and surface water impacts, and develop and implement an appropriate remedial response. In response to CAO No. 89-90, the County installed a series of groundwater monitoring wells between 1989 and 1994 to define the nature and extent of the Landfill release.

The Central Coast Water Board replaced and updated CAO Order No. 89-90 in 1995 with CAO Order No. 95-66. CAO Order No. 95-66 requires the Discharger to implement a corrective action program to clean up contaminated groundwater downgradient of the Landfill. The County determined that a landfill gas extraction system was the most appropriate measure for reducing volatile organic compounds (VOC) impacts from fugitive landfill gas moving into groundwater. The County installed a landfill gas extraction system in 1998. As part of the corrective action program, the County also implemented enhancements to the Landfill final cover in 1998 to minimize the potential for leachate formation and minimize landfill gas production.

From 2003 to 2005, the County made additional upgrades to the landfill gas extraction system and the final cover and drainage systems. The improvements to the landfill gas extraction system enhanced gas extraction and fixed problems with equipment and header lines. The County also improved the final cover and drainage systems to promote better drainage and fill in areas where settlement occurred. The County's improvements to the landfill gas extraction system upgrades and final cover and drainage improvements increase the removal of VOC-affected landfill gas from the waste and reduce leachate production.

Since implementation of the landfill gas extraction system and final cover improvements, VOC concentrations in some of the wells along the toe of the Landfill have decreased. However, VOC concentrations continue to exceed the maximum contaminant level (MCL) in groundwater downgradient of the Landfill. Based on a review of the groundwater monitoring results from the past several years, total VOC concentrations from wells (MW-5 and MW-12) located approximately 200 feet from the toe of the Landfill and a well at the southeastern tip of the toe of the Landfill (MW-3) show an overall increasing trend.

In 2005, the County installed an additional groundwater monitoring well (MW-14) to delineate VOC-impacted groundwater downgradient of the Landfill. To date, groundwater samples collected from this well do not contain VOCs. Therefore, in a letter to the County on December 29, 2005, Central Coast Water Board staff concluded that the County has successfully delineated VOCs in groundwater downgradient of the Landfill. The December 29, 2005 letter also requires that the County take additional corrective action measures (besides landfill gas extraction and final cover improvements) to cleanup VOC contamination in groundwater downgradient of the Landfill and near the southeastern portion of the Landfill.

On June 29, 2006, the County submitted an updated groundwater monitoring program and an updated post-closure maintenance plan. The County submitted an engineering feasibility study for corrective action of groundwater on November 1, 2006. The updated groundwater monitoring program, updated post-closure maintenance plan and the engineering feasibility study for corrective action are currently under review. Water Board staff will formally respond to these reports under separate cover in the near future.

Geology

From bottom to top, the Landfill and adjacent properties overlies 1) meta-volcanic rocks of the Cretaceous Franciscan Formation, 2) loosely consolidated, generally fine-grained sediments of the Pleistocene Paso Robles Formation, and 3) fine-grained alluvial deposits of Recent age.

The Franciscan Formation crops out east and west of the Landfill and underlies the entire site. Geophysical surveys and exploratory borings indicate that the Franciscan Formation forms a shallow southwesterly dipping trough beneath the Landfill. The unconformable contact between the Franciscan Formation and the overlying Paso Robles Formation is approximately 100 feet below the ground surface at the northern end of the property and 50 feet or less at the southerly toe of the Landfill. Alluvial deposits overlie the Paso Robles Formation at depths of approximately 20 to 35 feet southwest of the Landfill

Hydrogeology

The Landfill lies within the Los Osos Hydrologic Unit. Groundwater occurs beneath the Landfill in clayey sandstone bedrock of the Paso Robles Formation and Recent alluvial deposits overlying the Paso Robles Formation. The Franciscan Complex, which underlies the Paso Robles Formation, is non-water bearing. On the south side of Warden Creek, groundwater occurs in both the Recent alluvial deposits and in the underlying Paso Robles Formation. The Recent alluvial deposits thicken

to the south toward the valley center and away from Warden Creek, while to the north they pinch out against the Paso Robles Formation beneath Warden Creek. The contact between the alluvial deposits and Paso Robles Formation is gradational and is not a barrier to groundwater flow. The average groundwater elevation beneath the Landfill and surrounding area is approximately 20 feet above mean sea level. Groundwater beneath the Landfill generally flows south (toward Warden Creek).

The water-bearing sediments of the Recent alluvium and Paso Robles Formation have been divided into a shallow zone and deep zone for water quality monitoring purposes. Consultants for the County have divided the shallow and deep zones based on the differences in hydraulic conductivity between the two zones. Groundwater in the alluvial deposits and the upper portion of the Paso Robles Formation represent the shallow zone and the gravelly sandstone at the base of the Paso Robles Formation is representative of the deep zone.

Groundwater Monitoring

The Landfill's groundwater monitoring network contains 16 wells. Two of these wells are background wells, which are located hydraulically upgradient from the Landfill (BW-1) or upgradient from the impacted groundwater (BW-2). The remaining 14 wells are in detection or corrective action monitoring. The County installed well MW-1 in the upper portion of the Franciscan Formation. Well MW-1 is typically dry and groundwater samples collected from this well have not had detectable concentrations of VOCs. The County installed wells MW-2 through MW-9 to monitor the shallow water-bearing zone and the County installed wells MW-10 through MW-14 to monitor the deep water-bearing zone.

In 1986, groundwater monitoring identified VOC impacts beneath the Landfill. Monitoring data collected from 1986 to 1994, demonstrates that a VOC plume in groundwater exists. The VOC groundwater plume extends offsite approximately 200 to 250 feet to the southwest as shown in Attachment B of the proposed WDR Order No. R3-2007-0023.

Chlorinated ethene compounds such as tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC) are the most commonly detected VOCs in groundwater. A small fraction of the total VOC mass detected in groundwater also includes freon's and aromatic hydrocarbons. Groundwater samples collected from several wells near the toe of the Landfill have evidence of inorganic impacts. Groundwater samples collected from some wells along the toe of the Landfill that have VOC impacts, contain elevated levels of nitrate and chloride. Elevated nitrate and chloride concentrations in wells at the toe of the Landfill indicate groundwater VOC impacts from landfill leachate. Similar chlorinated aliphatic VOCs are detected in landfill gas and groundwater, which suggests that landfill gas is the source of the VOC impacts in groundwater downgradient of the Landfill.

Surface Water

The Landfill is located adjacent to, and upslope from Warden Creek, a seasonally flowing creek that joins Los Osos Creek half a mile downgradient of the Landfill. Several decades ago, farmers constructed Warden Creek to enhance local irrigation by re-routing Los Osos Creek to the south side of the Landfill property. Warden Creek acts to drain alluvial groundwater along the northern portion of the floodplain (southern edge of the Landfill property) and can have a significant effect on local groundwater flow conditions. For example, during the rainy season, Warden Creek appears to recharge the alluvial deposits resulting in a groundwater flow direction to the south and west. However, in the summer months, Warden Creek acts as a drain and groundwater flow within the alluvial deposits flows to the north and east.

Surface water monitoring sites include upstream station S-1, midstream station S-2, and downstream station S-3. Surface water samples collected from Warden Creek sporadically have had trace to low levels of VOCs.

Storm Water

Graded swales, corrugated-pipe down-drains, and a perimeter detention basin system collectively control storm water run-on and run-off at the Landfill. The perimeter detention basin system includes three separate, interconnected unlined detention basins on the west side of the Landfill and one detention basin at the southeast corner of the Landfill. Detention basins contain over-spill flumes or pipes, and the water in the basin ultimately discharges to Warden Creek at the toe of the Landfill. Warden Creek discharges to Los Osos Creek that in turn discharges to Morro Bay, approximately two miles from the Landfill.

The Discharger monitors potential releases from the Landfill to surface water runoff by complying with all requirements contained in the "State Water Resources Control Board Water Quality Order No. 97-03-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000001 Waste Discharge Requirements for Discharge of Storm Water Associated with Industrial Activities Excluding Construction Activities" (General Permit).

Landfill Gas Control

In 1998, the County installed a landfill gas extraction system. The landfill gas extraction system consists of 20 extraction wells, approximately 5,000 linear feet of gas piping, and a gas flare station located near the southwest corner of the property. The County also implemented a landfill final cover enhancement program in 1998 to minimize the potential for leachate formation and to minimize landfill gas production.

Four soil gas monitoring probes (GP-1, GP-2A, GP-2B, and GP-3) and six gas extraction system monitoring ports (MP1 through MP6) are monitored at the Landfill. The County also monitors the landfill gas condensate at the Landfill.

PROPOSED ORDER CONTENTS

General Information

This section includes discussions of the site's description and history, waste type and classification, geology and hydrogeology, groundwater, storm water and surface water, water quality, the landfill gas control system, monitoring programs, beneficial uses of the water, and surrounding land use.

Compliance with other Regulations, Orders and Standard Provisions

This section directs the Discharger to:

a. No longer comply with Central Coast Water Board Order No. 93-84 (Landfill Super Order) as the requirement of the Landfill Super Order are incorporated into revised Order No. R3-2007-0023.
b. Comply with all applicable requirements contained in CCR Title 27 and 40 CFR 257 and 258.
c. Comply with State Water Resources Control Board Water Quality Order No. 97-03-DWQ, which addresses storm water associated with industrial activities, commonly referred to as "General Industrial Storm Water Permit."

Prohibitions

These discharge prohibitions are applicable to Closed Class III waste disposal sites.

Specifications

The specifications that the Discharger must meet and/or implement to comply with site specific aspects of CCR Title 27 and 40 CFR 257 and 258 pertain to post closure maintenance requirements for closed solid waste disposal facilities.

Water Quality Protection Standards

These standards outline constituents of concern, monitoring parameters, concentration limits, monitoring points, points of compliance, and compliance period.

Provisions

This section addresses the Discharger's responsibilities regarding Landfill-related impacts to water quality and provides Central Coast Water Board access to the Landfill and related reports, Order severability, discharge conditions, reporting and implementation provisions, a termination clause, storm water management provisions, and a requirement to record a notation on the deed to the Landfill.

MONITORING AND REPORTING PROGRAM (MRP) CONTENTS

Part I - Monitoring and Observation Schedule

This section contains the following requirements: periodic routine Landfill inspections, intake monitoring, drainage system inspections, rainfall data collection, pollution landfill monitoring and schedules (groundwater, storm water, surface water, and landfill gas), analytical monitoring of groundwater and landfill gas monitoring parameters, constituents of concern, and sample procurement limitations.

Part II - Sample Collection and Analysis

This section establishes criteria for sample collection and analysis, methods to determine concentration limits, and specifies how the Discharger shall maintain these records. This section also establishes acceptable statistical and non-statistical methods the Discharger must use to perform data analysis, and outlines acceptable re-test procedures.

Part III - Reporting

This section establishes formats and requirements that the Discharger must follow when submitting analytical data, semiannual reports, and summaries to the Central Coast Water Board. It includes notification requirements, contingency responses and reporting requirements.

Part IV - Definition of Terms

This section defines a number of terms used in the MRP.

ENVIRONMENTAL SUMMARY

This report includes an update of Waste Discharge Requirements initiated by Central Coast Water Board staff. These Waste Discharge Requirements are for a closed Landfill and as such are exempt from provisions of the California Environmental Quality Act (Public Resources Code, Section 21000, et seq.) in accordance with Title 14, California Code of Regulations, Chapter 3, Section 15301.

COMMENTS

San Luis Obispo County Department of Public Works provided comments on the draft WDR Order No. R3-2007-0023 in a letter dated March 16, 2007. The County's primary concern is the potential imposition of penalties on the County for noncompliance by the owner. In Section E.11.b of the Order, the owner is required to record a deed notation that restricts the land use pursuant to CCR Title 27, Section 21170. The County requested that the WDR be amended to clarify that any penalties imposed for violation of this provision by the owner will not be imposed upon the County. The County also attached a copy of a grant conveying a perpetual easement appurtenant, which indicates that Jeena W. Piccuta is the owner of the property.

Water Board Staff Response:

During a teleconference with County staff on February 17, 2007, Water Board staff clarified that penalty action would not be taken against the County if the Owner did not comply with Provision E.11.b. since the County is not the property owner and can therefore not record a deed notation. Provision E.11.b clearly states that the Owner (and not the Discharger or County) is required to record the deed notation, therefore, no revisions to the language in Provision E.11.b. were made. Based on the new owner information provided by the County, Water Board staff made the necessary changes to the WDR.

On April 4, 2007, Water Board staff received an email from Mr. Charles Piccuta (husband of Mrs. Jeena W. Piccuta) that the owner will record a deed notation that complies with the requirements as outlined in Provision E.11.b. Mr. Piccuta requested some additional information on the Landfill property and Water Board staff provided Mr. Piccuta with the requested information in an email dated April 5, 2007.

RECOMMENDATION

Adopt proposed Waste Discharge Requirements Order No. R3-2007-0023.

ATTACHMENTS

1. Proposed Waste Discharge Requirements Order No. R3-2007-0023.
2. Proposed Monitoring and Reporting Program No. R3-2007-0023.
3. Interested Parties List