

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

STAFF REPORT FOR REGULAR MEETING OF MAY 11-12, 2006

ITEM 14
SUBJECT REVISED WASTE DISCHARGE REQUIREMENTS ORDER NO. R3-2006-0018, FOR SANTA CRUZ CLASS III LANDFILL (LANDFILL), SANTA CRUZ COUNTY

KEY INFORMATION

Location: 605 Dimeo Lane off of Highway 1 approximately three miles west of the City of Santa Cruz as shown on **Figure 1** of Waste Discharge Requirements Order No. R3-2006-0018.

Type of Waste: Non-hazardous municipal solid wastes.

Waste In Place: 4.5 million cubic yards.

Current Capacity: 6.0 million cubic yards; estimated life to 2038.

Disposal: Area fill method.

Liner System: West Canyon disposal area is unlined; Cell 1 and Cell 2 are lined.

Groundwater Contamination: Volatile organic compounds have been detected in groundwater and inorganic compounds have been detected above background in groundwater.

Existing Orders: Waste Discharge Requirements Order No. 94-62, Waste Discharge Requirements Order No. 93-84 (Landfill Super Order), and State Water Resources Control Board Water Quality Order No. 97-03 DWQ (General Industrial Storm Water Permit).

This Action: Adopt Waste Discharge Requirements Order No. R3-2003-0018.

SUMMARY

The purpose of Waste Discharge Requirements Order No. R3-2006-0018 (Hereafter "Order" or "Order No. R3-2006-0018") is to regulate Landfill design and operation modifications to protect water quality. The proposed Order updates and replaces Waste Discharge Requirements Order No. 94-62, adopted by the Regional Board on November 18, 1994.

Proposed Order No. R3-2006-0018 and Monitoring and Reporting Program No. R3-2006-0018 are included as Attachment 1 and 2, respectively.

The proposed Order includes and allows:

- a. Modification to Prohibition B.5 to recognize the previously permitted discharge of waste in

the West Canyon within the 50 foot-buffer area.

- b. Acceptance of animal carcasses resulting from road kills, natural causes, etc. within city limits.
- c. Use of leachate for dust control.
- d. Disposal of sludge mixed with dry soil for use as cover material to promote vegetative growth for winterization erosion control on closed or partially closed slopes.
- e. Use of alternate daily cover including tarps, wood chips, green waste and cementitious slurry materials such as Posi-shell.
- f. Language that brings the Landfill into compliance with California Code of Regulations Title 27, Solid Waste, effective July 18, 1997 (CCR Title 27), and 40 CFR Parts 257 and 258 Solid Waste Facility Disposal Criteria, Final Rule, as promulgated October 9, 1991 (40CFR 257 and 258).

- g. Incorporation of the requirements of Order No. 93-84 "Waste Discharge Requirements Amendment for All MSW Landfills in the Central Coast Region" (Super Order).

The proposed Order covers the current Landfill operations and provides guidance and requirements for any potential future changes. Design and construction specifications within the proposed Order meet or exceed requirements in both CCR Title 27 and 40 CFR 257 and 258, both of which pertain to siting, design, construction and operation of solid waste management facilities.

DISCUSSION

Landfill Description and History

The 100-acre Landfill site consists of a historic unlined canyon fill area, which contains waste within approximately 40 acres along the south, north, and west slopes where final cover has already been placed. The site was operated as a burn dump between 1926 and 1969 by the City of Santa Cruz (hereinafter, "the Discharger"). Prior to landfill development, two seasonal creeks flowed from the upper reaches of the North and West Canyons and converged near the middle of the property forming Lombardi Creek. Refuse fill blocks the flow of these seasonal creeks. In order to divert the two creeks under and around the waste masses, the Discharger constructed a fresh water bypass system that routes the water around the landfill and back into the natural grade of Lombardi Creek down gradient of the southern "toe" of the landfill. Elevation of the 100-acre landfill property ranges from 110 feet to 530 feet above Mean Sea Level.

Order **Figure 2** shows the current landfill configuration. Lined areas consist of 26.3 acres and are subject to Subtitle D liner requirements. The Subtitle D area is shown in Order **Figure 3**. The lined areas, when complete, will consist of four lined cells. Cells 1 and 2 have already been completed as described below. Construction of the next lined cell, Cell 3, is scheduled to begin after 2007. Order **Figure 2** details the original waste disposal area and the Landfill property line (as well as buffer zones between the disposal areas and the property line).

Cell 1 was the first in a series of expansion cells in the Subtitle D area and is approximately 1.5 acres. Cell 1 was constructed in 1996-1997 in order to properly bury chromium wastes that had been excavated from evaporation ponds.

Construction of Cell 2 was completed in July 2002 and landfilling operations commenced in 2003. Cell 2 includes approximately 4.5 acres of lined landfill area that is compliant with Subtitle D and CCR 27. Landfilling also continues in unlined areas west of Cells 1 and 2. Currently, the City is using the West Canyon as the dry season fill area and will continue to fill this area until final grades are met. Historic waste placement extends to the property line in the West Canyon. Within the active landfill, near the center of the property and Cell 2 area, there is a reconsolidated burn ash pile. The burn ash pile is covered with geomembrane and is left undisturbed (Order **Figure 4**).

Land use within 1,000 feet of the Landfill includes agriculture, residential and State Parks land. The property immediately south of the Landfill is privately owned residential property, horse stables, landscaping materials distribution and agriculture farming. The rest of the properties adjacent to the Landfill are owned by the California Department of Parks and Recreation (State Parks). The headwaters of the two incised canyon drainages that used to converge under the landfill are owned by State Parks.

Compliance History

Since the Order was last revised in 1994, the Discharger has performed numerous corrective actions at the landfill. These include:

- a. Reconsolidation of a former burn ash pit.
- b. Improvements to erosion and sediment controls in cover areas.
- c. Diligent maintenance of vegetation to stabilize slopes.
- d. Mitigation of leachate seeps.
- e. Improvements to daily cover operations.
- f. Expansion of the landfill gas collection system.
- g. Installation of a 1,150 feet long and 25 feet deep interceptor trench to collect landfill gas and impacted groundwater at the southwestern corner of the Landfill and property boundary.

Overall the Discharger is responsive to Regional Board staff's information requests and proactively addresses compliance issues. At this time staff is not recommending changes to the existing Order or Monitoring and Reporting Program based on prior formal or informal compliance issues.

Proposed Landfill Changes

The primary change associated with this updated Order is to modify the waste stream to allow acceptance of treated wood waste.

The Monitoring and Reporting Program was modified on October 27, 2003, and staff have not made major revisions since that time.

Geology

The geologic units within the vicinity of the Landfill include recent alluvial deposits, Pleistocene marine terrace deposits, Tertiary Santa Cruz Mudstone, Tertiary Santa Margarita Sandstone, Lompico Sandstone, and a Cretaceous quartz diorite basement complex. Bedding within the sedimentary units generally strikes approximately east-west and dips about two to eight degrees to the south.

A detailed description of the Landfill geology, including stratigraphy and faulting, is included in Order Findings 24, 25, and 26.

Hydrology

The groundwater flow system in the vicinity of the Landfill is complex. Groundwater recharge occurs in the exposed Lompico Sandstone to the north of the Landfill and in the Santa Margarita Sandstone exposed to the south and east of the Landfill. Local Landfill studies indicate that groundwater occurs within four hydrologically connected units. These are the alluvial unit, the marine terrace unit, the Santa Cruz Mudstone and the Santa Margarita Sandstone.

One supply well is located off of the site and within one mile of the Landfill; however, there are no historical groundwater elevation data available for this well. There is one other well within one mile of the Landfill, which is closest to the Landfill at 575 Dimeo Lane on the Humphrey property (Well No. 11S/02W-16). This well was

dry when drilled and has never been in service. Another well, located on the Landfill property, was a City water well No. 11/02W-17; it was destroyed on August 31, 2005, and filed under California Well Completion Report No. 0911525. Based on the site groundwater flow conditions and surface water flow directions, it is anticipated that groundwater generally flows from north to south at a gradient that is generally parallel to the surrounding topographic gradient. The water quality within the aforementioned wells is not affected by the Landfill.

Detailed hydrogeologic information is included in proposed Order Findings 26 and 27.

Groundwater Monitoring

Groundwater sampling has been conducted at the Landfill since 1990. Groundwater samples are analyzed for inorganic parameters and VOCs.

Groundwater monitoring wells are located in the four identified water-bearing units. Monitoring consists of three programs: Detection Monitoring, Evaluation Monitoring, and Corrective Action Monitoring. The locations of groundwater monitoring wells are shown on Order **Figure 3**.

There are 14 groundwater monitoring wells and four piezometers per the monitoring and reporting program. The compliance wells include W-3S, W-3DR, W-4T, W-4S, W-9D, W-13D, and W14-D. Of these, W-4T, W-4S, W-13D, and W14-D are located in the recycling area. The up-gradient wells are: W-1SR, W-1DR, W-2SR, W-2DR, W-7D, W-8D, and W-11-D.

Monitoring and Reporting Program No. R3-2006-0018 provides comprehensive details regarding the three programs along with their associated organic and inorganic water quality monitoring parameters, and the well designated to each program.

Leachate Management System

Landfill leachate collected from beneath the facility and the surface water bypass system flow down Dimeo Lane to the City of Santa Cruz' sanitary sewer system. Leachate and groundwater from the interceptor collection trench (noted above) commingle and flow by gravity to the leachate collection ponds at the Landfill toe where

liquids are pumped downtown to sanitary sewer system and the wastewater treatment facility. The mixing creates leachate that Regional Board staff determined was acceptable for application over Landfill areas for dust suppression. The Discharger performs leachate monitoring in relation to on-site use for dust suppression.

Landfill Gas Control

The gas control and collection system consists of a network of 25 serviceable vertical gas collection wells drilled into the Landfill, lateral collector pipes, and header pipes which terminate at a single 933 kW/h gas-to-energy plant located north of the Recycling Center. Horizontal wells will be placed in Cell 2 and in future cells after several lifts of refuse have been placed in the cell. Also, as noted previously, in 2005, the Discharger completed construction of an interceptor trench 1,150 feet long and 25 feet deep to collect landfill gas and impacted groundwater at the southwestern corner of the Landfill and property boundary. Gas collected from the trench is also directed to the gas-to-energy plant for generating electricity.

Groundwater Degradation and Remediation Effectiveness

Three volatile organic compounds (VOCs) exceeding drinking water standards were detected in monitoring well W-13D (benzene, 1,4-dichlorobenzene, vinyl chloride), and one VOC in monitoring well W-14D, during the fourth quarter 2004 groundwater monitoring event. The two wells are located downgradient of the landfill. The detections and concentrations were consistent with historic analytical results. A corrective action program was implemented in 2005 with the installation of a gas collection trench along the southeast property line. The collection trench is adjacent the two mentioned wells and to a historic waste disposal area now located under the Discharger's recycling facility. The commencement of trench gas collection is expected to improve water quality by removing landfill gases, which are the likely source of VOCs to groundwater in wells W-13D and W-14D.

Two compounds, sulfate and total dissolved solids, were detected exceeding secondary drinking water standards in monitoring well W-14D during the fourth quarter 2004 groundwater monitoring event.

This well is located downgradient of the landfill and the two constituents were detected at concentrations above those in background wells. There is no corrective action program for these constituents and monitoring data will be used to assess future trends in water quality. Inorganic compounds are typically used as indicators of a release by statistically comparing their concentrations to naturally occurring background water quality for the same parameters.

Continued implementation of the existing groundwater/leachate management system and the landfill gas control system is expected to further improve groundwater quality.

Surface/Storm Water

Prior to landfill development, two seasonal creeks flowed from the upper reaches of the North and West Canyons (Order Figure 4) and converged near the middle of the property forming Lombardi Creek. Refuse fill currently blocks the flow of these seasonal creeks. In order to divert the two creeks under and around the waste masses, the Discharger constructed a fresh water bypass system that routes the water around the landfill and back into the natural grade of Lombardi Creek down-gradient of the southern "toe" of the landfill.

The Landfill is covered under the State Water Resources Control Board General Permit for Storm Water Discharges Associated with Industrial Activities. Surface water monitoring is conducted twice a year pursuant the permit. Sampling is conducted at monitoring station DS-1, which is also used as the detection monitoring program down-gradient surface water monitoring station. DS-1 is located in Lombardi Creek just below the point where the freshwater bypass tunnel daylights at the southern toe of the Landfill. As required by the permit, a sample is collected during the first major storm of the rainy season and again later in the year during another storm event. Both of these samples are collected within the first hour of discharge. Samples are analyzed for pH, oil and grease, total iron, temperature, electrical conductivity, total dissolved solids, and total suspended solids. An annual report, including sample results, is submitted to the Water Board by July 1 each year for the previous twelve-month period. Daily and quarterly rainfall data for the Landfill are reported in the Semi-Annual Detection

Monitoring Reports, which are submitted to the Water Board.

PROPOSED ORDER CONTENTS

General Information

The 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, control systems and 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 Regional Board Order No. 93-84 (Landfill Super Order) as the requirement of the Landfill Super Order are incorporated into revised Order No. R3-2006-0018.
- 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 Class III waste disposal.

Specifications

These are 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 pertaining to solid waste disposal practices. These specifications are categorized into several groups; a) General Specifications, b) Wet Weather, c) Design Criteria and d) Closure.

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: Regional Board access to the Landfill and related reports, Order severability, discharge conditions, reporting and implementation provisions, a termination clause, and wet weather operations provisions.

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 control system(s), Landfill monitoring (groundwater, surface water, leachate and gas), analytical monitoring of groundwater and gas monitoring parameters, and constituents of concern, and quarterly determination of groundwater flow rate and direction.

Part II - Sample Collection and Analysis

This section establishes criteria for sample collection and analysis, methods to determine concentration limits, and specifies how these records shall be maintained. 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 Regional Board. It includes notification requirements, contingency responses and reporting requirements.

Part IV - Definition of Terms

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

ENVIRONMENTAL SUMMARY

This project involves an update of Waste Discharge Requirements initiated by the Discharger. These Waste Discharge Requirements are for an existing facility 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**City of Santa Cruz (Discharger) E-Mail, March 24, 2006**

1. The Discharger submitted suggested changes within an electronic version of the draft Order that staff provided during the public comment period. The changes highlighted within the electronic document were mainly editorials, clarifications of current Landfill operations and features, and clarification of Order standard language.

Staff Response: On April 11, 2006, in a telephone conversation with the Discharger, staff reviewed the suggested changes. Staff made minor revisions to the draft Order based on the Discharger's inputs and clarifications to the Order standard language. No substantive changes resulted and the Discharger concurred with the requirements of the draft Order.

RECOMMENDATION

Adopt proposed Waste Discharge Requirements Order No. R3-2006-0018.

ATTACHMENTS

1. Proposed Waste Discharge Requirements Order No. R3-2006-0018.
2. Proposed Monitoring and Reporting Program No. R3-2006-0018.
3. Interested Parties List