

STATE OF CALIFORNIA  
REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF FEBRUARY 9-10, 2006

ITEM NUMBER: 12

SUBJECT: Revised Waste Discharge Requirements Order No. R3-2006-0017, For Monterey Peninsula Class III Landfill, Monterey County

KEY INFORMATION

**Location:** The landfill is located approximately one mile east of State Highway 1 and two miles northeast of the City of Marina

**Type of Waste:** Non-hazardous municipal solid wastes.

**Waste In Place:** 6.9 million tons.

**Current Capacity:** 40.1 million tons remaining.

**Disposal:** Area fill method.

**Liner System:** Modules 1 and 2 are unlined, Modules 3 and 4 are lined.

**Groundwater Contamination:** Trace volatile organic compounds have been detected on an inconsistent basis. No inorganic compounds detected above prediction limits.

**Existing Orders:** Waste Discharge Requirements Order No. 00-103, 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.

SUMMARY

The purpose of Waste Discharge Requirements Order No. R3-2006-0017 (Hereafter "Order" or "Order No. R3-2006-0017") is to regulate the proposed design and operation modifications for the Landfill. This Order also updates and replaces Waste Discharge Requirements Order No. 00-103, adopted by the Regional Board on November 29, 2000.

Proposed Order No. R3-2006-0017 and Monitoring and Reporting Program No. R3-2006-0017 are attached as Attachment 1 and 2, respectively.

The proposed revised Order includes:

- Revisions to the Monitoring and Reporting Program, which includes groundwater, surface water, landfill gas and leachate monitoring.

- Increase the sub-grade cut slopes from 3:1 (horizontal:vertical) to 2:1.
- Steepen the final landfill waste side-slopes from 4:1 (horizontal:vertical) to 3:1.
- Utilize the sliver fill technique, which captures the airspace created by the settlement of previously closed areas of the landfill (the north slopes of Modules 1, 2 and 3).
- Construct a soil stability buttress for Module 3.
- Revise the bottom liner grades.
- Increase the currently permitted final top deck elevation from 260 feet above mean sea level (MSL) to 284 feet MSL.
- Reconfigure and increase the number of disposal modules.
- Modify the existing fill sequence and sand excavation plans to allow the landfill operation to continue uninterrupted, to efficiently handle internal storm water runoff and perched groundwater seepage, and to minimize soil landfilling and stockpiling requirements.

- Modify the waste stream to include treated wood waste.
- Increase peak daily waste tonnage to 3,500 tons per day for the Landfill.
- 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).
- Rescission of this Regional Board's 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 Landfill is a 475-acre area located on the coastal plain of Monterey Bay. The Landfill is bounded by the Salinas River to the north, the Monterey Regional waste water treatment plant (WWTP) to the south, and by agricultural and grazing land along its other boundaries, as shown on **Figure 1** of the proposed Order. Beyond the WWTP is additional grazing and agricultural land. The area surrounding the Landfill is largely undeveloped, and no residences are located within one mile of the landfill.

Northwest-southeast oriented bluffs divide the site into two distinct topographic areas: a northeastern low alluvial terrace adjacent to the Salinas River and a southwestern upland plateau. The original elevation of the landfill area ranged from 10 feet above MSL in the Salinas River floodplain to 145 feet MSL in the upland plateau area. Approximately 200 acres of the 475-acre site are located in the Salinas River floodplain and the remaining 275 acres are located in the upland plateau area. However, the construction of a levee along the Salinas River has redefined the 100-year

floodplain so that no area of the landfill lies within the redefined 100-year floodplain. To date, landfilling operations have occurred in the area adjacent to the Salinas River. Currently, the exterior slopes of the landfill vary from approximately 4:1 to 5:1 and break slope between elevation 70 feet and 110 feet MSL. The current maximum elevation is approximately 125 feet. The proposed final grades for the landfill are a maximum of 284 feet MSL.

The Landfill has been used for waste disposal since 1966 and consists of both unlined and lined areas. The waste received at the Landfill consists of non-hazardous residential, commercial and industrial solid waste classified in CCR Title 27, Section 20220(a) as Class III Waste. To date, Modules 1 through 4 and the Wet Weather Area (WWA) have received waste. Modules 1 and 2 were completed in 1983 and 1990, respectively; and are unlined landfill areas. The WWA is also unlined and is no longer used for municipal waste disposal. Modules 3 and 4 are lined landfill areas. Module 4 is the current active disposal module. The Landfill currently receives approximately 230,000 tons per year of municipal solid waste (MSW) from the general public and commercial haulers. Wastes are disposed of utilizing the area fill method. The Landfill will be developed in a total of 17 waste disposal modules (Module 1 through Module 17). Full development includes sequential utilization of 17 modules and the WWA in two phases. Phase I (Module 1 - 6) will raise the low-lying terrace area to an intermediate elevation of approximately 120 feet above MSL. Phase II (Module 7 - 17) consists of landfilling in the upland plateau as well as over the top of Phase I modules. Phase I operation is expected to be completed by year 2032. In addition to the filling of Modules 5 through 17, the Discharger is proposing to place a sliver fill of waste on the exterior slope of Modules 1 through 3. Placement of additional waste material along the exterior slopes of existing Modules 1, 2 and 3 is proposed to take advantage of space located beneath the module caps created by settlement of the existing waste. Sliver fill would not be placed during winter months when rainfall is greatest.

The Discharger operates numerous facilities in addition to waste disposal that support its integrated waste management system. These facilities include a materials recovery facility

(MRF), public recycling drop-off facility, household hazardous waste drop-off facility, Last Chance Mercantile, landfill gas (LFG)-fueled electrical generation facility, and a composting facility.

The Discharger is proposing to increase the peak daily waste tonnage from 1,500 tons per day for the MRF and 1,200 tons per day for the Landfill to a combined total of 3,500 tons per day for the site. The present total waste in place is approximately 6.9 million tons and the Landfill has an estimated remaining capacity of 40.1 million tons. According to the Master Plan, the estimated closure date for the Landfill is 2107. In 2004, the site received approximately 372,178 tons of waste. Approximately 225,421 tons of the waste was landfilled and the remainder was diverted either through the MRF or other on-site waste diversion activities (e.g., biosolids, green waste, concrete and asphalt). **Figure 2** of the proposed Order depicts the existing Landfill boundaries.

The Discharger had proposed to accept lead based paint debris from a building demolition project at the former Fort Ord Army Base. However, the Discharger withdrew its application to DTSC requesting a variance for disposal of the lead based paint debris. The Discharger indicated that the company implementing the demolition stated that the time frame for obtaining a variance was incompatible with the project schedule. The construction company performing the building demolition project opted to ship the lead based paint debris to a Class I hazardous waste disposal facility operated by Chemical Waste Management Inc., and located in Kettleman Hills, California. The lead based paint debris will be generated by the demolition of existing buildings at Fort Ord.

The Discharger verbally requested that staff leave applicable language in the Order to allow for possible future disposal of waste granted a variance by DTSC. Staff determined this was not acceptable after review of the matter by Regional Board counsel. Such language could be included in a future revised Order only after completion of the California Environmental Quality Act (CEQA) process and having an approved CEQA document to allow for disposal. Therefore, staff removed language pertaining to the disposal variance that was in the original draft Order provided to the

discharger and other interested parties during the public comment period.

Proposed Order No. R3-2006-0017 updates regulatory language by referencing CCR Title 27, which combined and replaced Chapter 15 and California Waste Board regulations (Title 14). The proposed Order updates the Monitoring and Reporting Program to reflect current site conditions and groundwater monitoring and reporting requirements. The proposed Order no longer requires the Discharger to comply with the requirements of Waste Discharge Requirements Order No. 93-84 (Landfill Super Order), adopted by the Regional Board on October 8, 1993, as the requirements of the Landfill Super Order of covered in Order R3-2006-0017. Lastly, this Order reflects current Federal regulations; specifically, 40 CFR 257 and 258 (Subtitle D).

#### Compliance History

Since the last Order update in 2000, the Discharger has received four Notices of Violation (NOVs). During an inspection on March 8, 2001, Regional Board staff detected a leachate seep at the Landfill. A NOV was issued on March 19, 2001, for leachate discharge to surface water. The Discharger corrected the leachate discharge immediately to the satisfaction of Regional Board staff. Two NOVs dated November 12, 2002, and April 23, 2004, were issued for failure to comply with MRP 00-103 Part IV.C. Low levels of volatile organic compounds (VOCs) had been detected in groundwater and verification sampling had not been conducted within the required time frame. The verification sampling was conducted and reported after the NOVs were issued. Another NOV was issued on July 6, 2003, for failure to submit a technical report. The technical report was submitted after the NOV was issued and the content of the report was satisfactory to Regional Board staff.

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 include treated wood waste to be accepted at the Landfill. Changes to the final configuration of the Landfill are also proposed. These changes include an increase in the sub-grade cut slopes from 3:1 (horizontal:vertical) to 2:1; steepen the final landfill waste side-slopes from 4:1 (horizontal:vertical) to 3:1; utilize the sliver fill technique, which captures the airspace created by the settlement of previously closed areas of the landfill (the north slopes of Modules 1, 2, and 3); construct a soil stability buttress for Module 3; revise the bottom liner grades; increase the currently permitted final top deck elevation from 260 feet MSL to 284 feet MSL; and to reconfigure and increase the number of disposal modules. The Monitoring and Reporting Program was last updated on February 4, 2005 and major revisions were not made with the exception of adding dissolved lead to their Monitoring Program.

### Geology

Beneath the Landfill, three regional units occur: the older dune sand (Qod), the younger floodplain deposits (Qfly) and the older floodplain deposits (Qflo), listed in descending stratigraphic order. The older dune sand is most prominent in the Fort Ord and Marina area and is up to 250 feet thick. The sand is poorly graded and consists primarily of wind-blown quartz sand. The floodplain deposits were formed primarily by overwash of the Salinas River during periodic floods. These floodplain deposits consist of interbedded sand, silt, and clay. Floodplain units near the site underlie the dune sand wherever the dune sand is present.

The floodplain units rest on undifferentiated older alluvium and transition stratigraphically downward into reddish brown sand of the Aromas Formation. The Aromas Formation is locally up to 1,000 feet thick. The site is divided into the lowland area, which consists of floodplain sand, silt, and clay (Qfly and Qflo) and the upland plateau, which consists of eolian sand.

A detailed description of the Landfill Geology is included in Findings 26 and 27 in proposed Order No. R3-2006-0017.

### Hydrogeology

The Landfill lies within the Lower Salinas Valley Hydrologic Area of the Salinas River Hydrologic Unit. There are four aquifer systems at the landfill site: a) an unconfined aquifer system consisting of three shallow aquifers: the 80-foot, the 35-foot and the -2-foot aquifers; b) the 180-foot aquifer; c) the 400-foot aquifer; and d) the 900-foot aquifer.

The -2-foot aquifer is the first-encountered groundwater below the in-place municipal refuse at the site. The 2-foot aquifer is underlain by the Salinas Aquiclude, which is a competent and widespread barrier separating the shallow perched zoned from the deep water supply aquifers of the Salinas Valley (180-foot, 400-foot and 900-foot aquifers). The direction of groundwater flow in the -2-foot aquifer is complicated by tidal effects, seasonal fluctuations in the level of the Salinas River, and by longer-term effects associated with rainfall and recharge. An evaluation of the last ten years of piezometric data for the -2-foot aquifer indicates that the hydraulic gradient is generally from the Salinas River toward the Landfill. The estimated groundwater flow velocities are approximately 0.5 to 1.5 feet per year.

The 80-foot and 35-foot aquifers do not underlie municipal solid waste. These aquifers underlie the area of the upland plateau. Groundwater movement in the 35-foot aquifer roughly parallels the topography of the upland plateau area, generally flowing radially away from a topographic high on the plateau. Regionally, however, the groundwater movement in the 35-foot aquifer is generally to the north and northeast at a gradient of 0.01 foot per foot and a seepage velocity of  $2.9 \times 10^{-4}$  feet per minute (150 feet per year). The 80-foot aquifer is not monitored but seeps from the north- and northeast-facing slopes indicate that the 80-foot aquifer has a component of flow to the north and northeast.

A water supply well, located near the scale house, provides water for on-site facilities. The water supply system is operated consistent with Water Supply Permit No. 270-2453, issued by the Monterey County Health Department. There are also three irrigation water wells on the site. Each well is capable of producing approximately 500 gallons per minute. The water from the irrigation wells is used for dust control, construction, crop

irrigation, composting, and fire protection. These wells are screened in the deeper aquifers beneath the Landfill. Near the landfill, groundwater from the 180-foot and 400-foot aquifers is used primarily to irrigate crops. Minor amounts of groundwater are also used for drinking water. The property south of the landfill has been zoned residential; therefore, the domestic use of groundwater may increase in the future once this area becomes developed.

### Groundwater Monitoring

Groundwater has been monitored at the Landfill since 1979. The -2-foot aquifer has three Background Monitoring Points, eleven Detection Monitoring Points (DMP), and two Corrective Action Program (CAP) Monitoring Points. The Background Monitoring Wells are located along the northern site boundary to characterize the background water quality at the Landfill as influenced by the Salinas River. The DMPs serve as the Points of Compliance wells along the perimeter of Modules 1, 2, 3 and 4. In the unlined WWA, groundwater is monitored using Corrective Action Program (CAP) Monitoring Points G-1 and SDA-1. Five additional piezometers are used for groundwater elevation measurements in the -2-foot aquifer.

The 35-foot aquifer is monitored for groundwater elevations only. Thirteen on-site piezometers are used to measure the groundwater elevations in this aquifer.

Figure 3 of the attached WDR Order No. R3-2006-0017 depicts the locations of all existing groundwater monitoring points and piezometers.

### Leachate Management System

Modules 3 and 4 are equipped with a leachate collection and removal system (LCRS). The LCRS consists of eleven leachate collection sumps (LS3-1, LS3-2, LS3-3, LS3-5 through LS3-11 and LS4-1). There is also a leachate collection sump (LS) north of the WWA. However, since storm water runoff from the WWA is now diverted to the storm water percolation pond on the northwest corner of the site, leachate collected from LS has been greatly reduced. The locations of the leachate collection sumps are shown on Figure 3 of the attached Order.

### Landfill Gas Control

A LFG collection and control system has been in place in Modules 1 and 2 since 1983. The system actively collects the LFG for conversion to electrical power and serves to prevent gas migration. The collection system delivers the LFG to the engine generators that use the methane as fuel to generate electricity. This LFG-to-energy project significantly lessens the chance for lateral gas migration and emissions into ambient air. Currently, approximately 1.4 million standard cubic feet of LFG are collected daily. The collection system was extended to Module 3 in 1995. In 2004, the LFG collection system was expanded to Module 4. Currently, the collection system includes eighteen vertical collection wells in Module 1, five vertical collection wells in Module 2, six vertical collection wells and three horizontal gas collectors in the Wet Weather Area, seven horizontal gas collectors in Module 2, thirteen horizontal gas collectors in Module 3, and two horizontal gas collectors in Module 4.

### Groundwater Degradation and Remediation Effectiveness

Historically, volatile organic compounds (VOC) have been detected in two Corrective Action Monitoring Wells G-1 and SDA-1. The concentrations of VOCs in G-1 and SDA-1 have decreased or remained the same since landfill gas extraction was implemented at the Landfill.

Trace VOCs have been detected in monitoring wells G-21, G-34, G-37, G-38, G-41, and G-43. However, a majority of these detections were not verified by verification sampling or the trace VOCs were not detected in more than ten percent of the historical samples tested.

No prediction limit exceedances (i.e., measurably significant results) have been observed for the inorganic monitoring parameters. Nitrate concentrations have been detected at elevated concentrations but due to the proximity of agricultural fields, nitrate is not considered a landfill contaminant.

Continued implementation of the existing groundwater/leachate management system and the

landfill gas control system are expected to further improve groundwater quality.

### Surface/Storm Water

The discharger has maintained a rain gauge at the Landfill since December 1982. The average annual rainfall for the 14-year period ending in June 2004 was 15.36 inches. During this period, the annual rainfall amounts have ranged from a low of 9.83 inches (rain year 1988-89) to 43.42 inches (rain year 1997-98). Rainfall is seasonal, approximately 90 percent of the annual precipitation occurs between November and April. In accordance with rainfall frequency maps, the peak 100-year, 24-hour storm event was determined to be 3.8 inches.

Surface water is monitored at two locations of the Salinas River. Surface water monitoring is conducted in accordance with the State's NPDES storm water discharge general permit. There are two on-site storm water percolation ponds at the Landfill. The temporary storm water percolation pond is located to the south of Module 3, Phase II. It receives interim interior site runoff and groundwater seepage from the 35-foot aquifer underlying the upland plateau. Water from this pond is pumped to a drainage ditch, which flows to the Salinas River. The permanent storm water percolation pond is located to the north of the on-site structures. It receives all runoff from the non-landfill portion of the site, including site buildings, paved roads, and parking areas. Water and sediment in the storm water percolation basin, located in the northwest corner of the site, are sampled annually in accordance with MRP Order No. R3-2006-0017. If possible, sampling of the storm water percolation basin water occurs when water is being released to the Salinas River floodplain. Sampling of the sediment occurs during the late summer or fall when the basin is empty and the bottom dry.

The temporary storm water percolation pond located to the south of Module 3 is currently monitored by the "State Water Resources Control Board Water Quality Order No. 97-03-DWQ National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 Waste Discharge Requirements for Discharge of Storm Water Associated with Industrial Activities Excluding Construction Activities." Due to the

fact that groundwater seepage from the 35-foot aquifer also enters this pond, the Discharger is required to apply for a General Permit for Discharges of Groundwater with Low Threat to Water Quality (General Permit Order No. 01-119).

### PROPOSED ORDER CONTENTS

1. **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.
2. **Compliance with other Regulations, Orders and Standard Provisions:** This section directs the Discharger to:
  - No longer comply with Regional Board Order No. 93-84 (Landfill Super Order).
  - Comply with all applicable requirements contained in CCR Title 27 and 40 CFR 257 and 258.
  - 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."
3. **Prohibitions:** These discharge prohibitions are applicable to Class III waste disposal.
4. **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.
5. **Water Quality Protection Standards:** These standards outline constituents of concern, monitoring parameters, concentration limits, monitoring points, points of compliance, and compliance period.
6. **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:** 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 AND RESPONSES**

### State Water Resources Control Board (SWRCB) E-Mail, April 14, 2005

1. The SWRCB indicated that approved standard language for landfill WDRs regarding disposal of treated wood waste differed from that in draft Order No. R3-2006-0017 for MPL. The draft language was provided as an attachment to the e-mail.

Staff Response: New finding 21 was inserted and new language was added under Section C. as C.3, C.4, and C.5. The original language under Section C. pertaining to treated wood waste disposal was deleted and replaced with the SWRCB approved language as noted above.

### Association of Monterey Bay Area Governments (AMBAG) Letter, May 12, 2005

1. AMBAG indicated that its Regional Clearinghouse circulated a summary of notice of the draft WDRs to its member agencies and interested parties for review and comment. AMBAG also said its Board of Directors considered the project on May 11, 2005, and had no comments at that time.

Staff Response: Comment noted.

## **RECOMMENDATION**

Adopt proposed modified Waste Discharge Requirements Order No. R3-2006-0017.

## **ATTACHMENTS**

1. Proposed Waste Discharge Requirements Order No. R3-2006-0017.
2. Proposed Monitoring and Reporting Program No. R3-2006-0017.

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